## **Course Details:**

Course Name:	Data Structure & Algorithm
Course Code:	PCC-CS301
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	3 <sup>rd</sup> Semester

## **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	To learn and apply the basics of abstract data types.
CO2	To learn and apply the principles of linear and nonlinear data structures.
CO3	To build an application using sorting and searching.
CO4	Design applications with the knowledge of computation and principles of data structures.

Data Structure &		СО	Attainment
Algorithm	CO1	To learn and apply the	10%
		basics of abstract data types.	
	CO2	To learn and apply the	15%
		principles of linear and	
		nonlinear data structures.	
	CO3	To build an application	15%
		using sorting and searching.	
	CO4	Design applications with the	25%
		knowledge of computation	
		and principles of data	
		structures.	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												

Course Name:	Data Structure & Algorithm Lab
Course Code:	PCC-CS391
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	3 <sup>rd</sup> Semester

## **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Design and develop programs using data structure & algorithm concepts.
CO2	Develop simple applications using linear and non-linear data structures & algorithms concepts and understand the access mechanisms and other use and functionalities.
CO3	Implement searching and sorting concepts
CO4	Implement the concepts of graph and hashing

Data Structure &		СО	Attainment
Algorithm Lab	CO1	Design and develop	15%
		programs using data	
		structure & algorithm	
		concepts.	
	CO2	Develop simple applications	10%
		using linear and non-linear	
		data structures & algorithms	
		concepts and understand the	
		access mechanisms and	
		other use and	
		functionalities.	
	CO3	Implement searching and	10%
		sorting concepts.	
	CO4	Implement the concepts of	25%
		graph and hashing	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$											
CO2	$\checkmark$	$\checkmark$										
CO3												
CO4												

Course Name:	Computer Organization
Course Code:	PCC-CS302
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	3 <sup>rd</sup> Semester

## **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Understand basic structure of digital computer, stored program concept and different
	arithmetic and control unit operations.
CO2	Understand basic structure of different combinational circuits- multiplexer, decoder,
	encoder etc.
CO3	Perform different operations with sequential circuits.
CO4	Understand memory and I/O operations.

Computer		СО	Attainment
Organization	CO1	Understand basic structure	15%
		of digital computer, stored	
		program concept and	
		different arithmetic and	
		control unit operations.	
	CO2	Understand basic structure	15%
		of different combinational	
		circuits- multiplexer,	
		decoder, encoder etc.	
	CO3	Perform different operations	25%
		with sequential circuits.	
	CO4	Understand memory and	10%
		I/O operations.	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												

## **Course Details:**

Course Name:	Computer Organization Lab
Course Code:	PCC-CS392
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	3 <sup>rd</sup> Semester

## **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Understand basic structure of digital computer, stored program concept and different arithmetic and control unit operations.
CO2	Understand basic structure of different combinational circuits- multiplexer, decoder, encoder etc.
CO3	Perform different operations with sequential circuits.
CO4	Understand memory and I/O operations.

Computer		СО	Attainment						
<b>Organization Lab</b>	CO1	Understand basic structure	10%						
		of digital computer, stored							
		program concept and							
		different arithmetic and							
		control unit operations.							
	CO2	Understand basic structure	15%						
		of different combinational							
		circuits- multiplexer,							
		decoder, encoder etc.							
	CO3	Perform different operations	15%						
		with sequential circuits.							
	CO4	Understand memory and	10%						
		I/O operations.							

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2					$\checkmark$							
CO3												
CO4					$\checkmark$							

Course Code:	PCC-CS501
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	5 <sup>th</sup> Semester

## **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

	1
CO1	To apply the basic concept of compilers and discuss on the components as well as
	the strengths and weaknesses of various phases of designing a compiler.
CO2	To understand the role of finite automata in compiler design.
CO3	To design and analyze algorithms for syntactic or parsing techniques and semantic analysis of the process of designing compilers.
CO4	Apply the knowledge of Type Checking and Run-Time Environments in designing a compiler.
CO5	Apply the knowledge of Intermediate Code Generation, Code Optimization and
	Code Generations in designing a compiler.

# COAttainmentofSubjects

		СО	Attainment
	CO1	To apply the basic concept of compilers and discuss on the components as well as the strengths and weaknesses of various phases of designing a compiler.	5%
	CO2	To understand the role of finite automata in compiler design.	10%
Compiler Design PCC-CS501	CO3	To design and analyze algorithms for syntactic or parsing techniques and semantic analysis of the process of designing compilers.	10%
	CO4	Apply the knowledge of Type Checking and Run- Time Environments in designing a compiler.	15%
	CO5	Apply the knowledge of Intermediate Code Generation, Code Optimization and Code Generations in designing a compiler.	15%

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1											$\checkmark$	
CO2												
CO3												
CO4												
CO5	$\checkmark$										$\checkmark$	

## **Course Details:**

Course Name:	Operating Systems
Course Code:	PCC-CS502
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	5 <sup>th</sup> Semester

## **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Understand processes and threads.
CO2	Design algorithms for process scheduling for a given specification of CPU
	utilization, Throughput, Turnaround Time, Waiting Time and Response Time.
CO3	For a given specification of memory organization develop the techniques for
	optimally allocating memory to processes by increasing memory utilization and for
	improving the access time. Design and implement file management system.

		СО	Attainment
	CO1	Understand processes and	20%
		threads.	
<b>Operating Systems</b>	CO2	Design algorithms for	15%
		process scheduling for a	
		given specification of CPU	
		utilization, Throughput,	
		Turnaround Time, Waiting	
		Time and Response Time.	
	CO3	For a given specification of	15%
		memory organization	
		develop the techniques for	
		optimally allocating	
		memory to processes by	
		increasing memory	
		utilization and for	
		improving the access time.	
		Design and implement file	
		management system.	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1					$\checkmark$		$\checkmark$					
CO2			$\checkmark$							$\checkmark$		
CO3												

### **Course Details:**

Course Name:	Operating System Lab
Course Code:	PCC-CS592
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	5 <sup>th</sup> Semester

## **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	To Analyze different aspects of Linux.
CO2	To Create or design different scripts using shell programming.
CO3	To Create or design different scripts using shell programming.
CO4	Create shared memory with the implementation of reading from, write into shared
	memory.

## CO Attainment of Subjects

		СО	Attainment
	CO1	To Analyze different	10%
		aspects of Linux.	
Operating System	CO2	To Create or design	15%
Lab		different scripts using shell	
PCC-CS592		programming.	
	CO3	To Create or design	15%
		different scripts using shell	
		programming.	
	CO4	Create shared memory with	15%
		the implementation of	
		reading from, write into	
		shared memory.	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												

## **Course Details:**

Course Name:	Object Oriented Programming
Course Code:	PCC-CS503
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	5 <sup>th</sup> Semester

### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Specify simple abstract data types and design implementations, using abstraction functions to document them.
CO2	Recognize features of object-oriented design such as encapsulation, polymorphism, inheritance, and composition of systems based on object identity
CO3	Name and apply some common object-oriented design patterns and give examples of their use
CO4	Design applications with an event-driven graphical user interface.

# COAttainmentofSubjects

	Ĭ	СО	Attainment
	CO1	Specify simple abstract data	10%
		types and design	
<b>Object Oriented</b>		implementations, using	
Programming		abstraction functions to	
		document them.	
	CO2	Recognize features of	15%
		object-oriented design such	
		as encapsulation,	
		polymorphism, inheritance,	
		and composition of systems	
		based on object identity	
	CO3	Name and apply some	15%
		common object-oriented	
		design patterns and give	
		examples of their use	
	CO4	Design applications with an	5%
		event-driven graphical user	
		interface.	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3					$\checkmark$							
CO4					$\checkmark$							

### **Course Details:**

Course Name:	Object Oriented Programming Lab
Course Code:	PCC-CS593
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	5 <sup>th</sup> Semester

## **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Design and develop java programs using object oriented programming concepts
CO2	Develop simple applications using object oriented concepts such as package, exceptions
CO3	Implement multi-threading, and generics concepts
CO4	Create GUIs and event driven programming applications for real world problems

## CO Attainment of Subjects

<b>Object Oriented</b>		СО	Attainment
Programming Lab	CO1	Design and develop java	15%
		programs using object	
		oriented programming	
		concepts	
	CO2	Develop simple applications	15%
		using object oriented	
		concepts such as package,	
		exceptions	
	CO3	Implement multi-threading,	15%
		and generics concepts	
	CO4	Create GUIs and event	15%
		driven programming	
		applications for real world	
		problems	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$											
CO2	$\checkmark$											
CO3												
CO4												

### **Course Details:**

Course Name:	Software Engineering
Course Code:	ESC 501
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	5 <sup>th</sup> Semester
COUDER OUTCOME	

### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Apply basic SW engineering methods and practices different models, and their appropriate application, SRS Document.
CO2	Determine the role of project management including planning, scheduling, risk management, etc.
CO3	An understanding of software testing approaches such as unit testing and integration testing.
CO4	An understanding of software evolution and related issues such as version management.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2				$\checkmark$						$\checkmark$		
CO3												
CO4												

		СО	Attainment
Software Engineering	CO1	Apply basic SW engineering methods and practices different models, and their appropriate application, SRS Document.	15%
	CO2	Design the role of project management including planning, scheduling, risk management, etc.	15%
	CO3	An understanding of software testing approaches such as unit testing and integration testing.	15%
	CO4	An understanding of software evolution and related issues such as version management.	10%
PaperCode (Name)	CO	Course Outcomes(CO)	ATTAINED
	Num ber		

	CO1	Analyze the economic decisions making, engineering costs & estimation and classification of costs by applying the knowledge of estimating models. Student will develop an understanding of cash-flow, Rate of return analysis in different socio- environmental situations.	15 %
HSMC301 Economics for Engineers	CO2	Analyze the inflation and price change would be done to the students for the proper understanding of the price-indexes in economic analysis. Effect of inflation & deflation is analyzed to them to remember and if required to apply in real-life scenarios.	25 %
	CO3	Recognize the types of property, depreciation and expenses and its impact on business,for better understanding of the business environment and apply the knowledge of it.	16 %

Mapping of Course Outcomes and Program Outcomes for the subject Economics for Engineers(HSMC301)

CourseO		Program										
utcomes		Outcome										
		S										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$		$\checkmark$								
CO2		$\checkmark$		$\checkmark$								
CO3												

PaperCode(Name)	CO Number	Course_Outcoms (CO)	ATTAINED
PEC-IT501B ArtificialInte lligence	CO1	Apply the goodprogramming skillsto formulate thesolutions forcomputationalpr oblems.	25%
	CO2	Design and developsolutions forinformed anduninformed searchproblemsinA I.	20%
	CO3	Understandandenric h knowledge toselect and apply AItools to synthesizeinformati on anddevelopmodelsw ithin constraints ofapplicationarea.	25%

Mapping of CourseOutcomes and ProgramOutcomesfor theArtificialIntelligence

CourseO utcomes		Program Outcome										
		S										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$				$\checkmark$	$\checkmark$					$\checkmark$	
CO2			$\checkmark$	$\checkmark$						$\checkmark$		
CO3					$\checkmark$		$\checkmark$					

Paper Code(Name )	CO Number	CourseOutcomes(CO)	ATTAINED
	CO1	Analyze the concept of innovation andentrepreneurship,contributionsofentrep reneurstothe society,risk- opportunitiesperspectivebyapplyingthekn owledgeoffactorsaffectingthem.	25%
HSMC501, Industrial Management	CO2	Analyze the project management, issuesandproblemsinprojectmanagement, projectlife cycle- initiation/conceptualization phase, determination ofproject feasibility studies would be donetothestudents fortheirproper understandingofsocialcostbenefitan alysis.	20%
	CO3	Identification and illustration of thecritical path and its significance, types offloatsand slacksanditsimpactonbusiness, for better understanding of therecent trendsand applytheknowledge of it.	15%

MappingofCourseOutcomesandProgramOutcomesforthesubjectIndustrialManageme nt(HSMC501)

Course		Program										
Outcomes		Outcomes										
	PO	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	1											
CO1		$\checkmark$		$\checkmark$								
CO2		$\checkmark$		$\checkmark$								
CO3		$\checkmark$					$\checkmark$					

PaperCode (Name)	CO Number	Course Outcomes(CO)	ATTAINED
PEC-IT501B Introductionto Philosophicalthoughts	CO1	Identifytheevaluation ofthehistoryof philosophy.	10%
	CO2	Identifyreligious concepts,traditions, andhistoricalpractices overtimeand across cultures.	25%
	CO3	Analyzecourse-related materialtoevaluatethe historicaldevelopment ofcontemporaryissues.	15%

Mapping of Course Outcomes and Program Outcomes for the subject Philosophical though ts (OEC-CS701B/C)

CourseO	ProgramOutcome											
utcomes		S										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2		$\checkmark$										
CO3		$\checkmark$		$\checkmark$								

PaperCode (Name)	CO Number	Course	ATTAINED
		Outcomes(CO)	

PEC-CS701B		Understand	15%
CloudComputing	CO1	thefundamentalprincipl esofdistributedcomputi ng.	
	CO2	Understand theimportanc eof virtualizationin distributedcomputing andhowthishasenabled thedevelopmentofClou d Computing	20%
	CO3	Identifyanddefine technicalchallengesfor cloudapplicationsand assesstheirimportance.	15%

MappingofCourseOutcomesandProgramOutcomesforthesubjectCloudComputing(PEC-CS701B)

CourseO utcomes	ProgramOutcome s											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1							$\checkmark$					
CO2							$\checkmark$					
CO3		$\checkmark$										

**Course Details:** 

Course Name:	CyberSecurity
Course Code:	PEC-CS 702E
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	7th Semester

PaperCode (Name)	CO Number	Course Outcomes(CO)	ATTAINED
PEC-CS702E CyberSecurity	CO1	Recognize andanalyzesoftware vulnerabilitiesandsecu ritysolutions toreduce the risk ofexploitation.	25%
	CO2	Design operational andstrategic cyber securitystrategiesand policies.	25%
	CO3	Implement cyber securitysolutionsanduse ofcybersecurity,inform ationassurance,andcybe r/computer forensicssoftware/tools.	10%

Mapping of Course Outcomes and Program Outcomes for the subject Cyber Security (PEC-CS702E)

CourseO	ProgramOutcome											
utcomes		S										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$		$\checkmark$								$\checkmark$
CO2			$\checkmark$	$\checkmark$								
CO3				$\checkmark$								

Paper CO Code(Name Number )		CourseOutcomes(CO)	ATTAINED
	CO1	Analyzetheconceptofinnovationandent repreneurship,contributionsofentrepre neursto thesociety,risk- opportunities perspective by applyingtheknowledgeoffactorsaffecting them.	10%

HSMC701,Project ManagementandEn trepreneurship	CO2	Analyzetheproject management,issuesandproblems in projectmanagement,projectlife cycle- initiation/conceptualization phase, determinationof project feasibility studies will bedone tothe studentsfortheirproper understandingofsocialcostbenefitan alysis.	15%
CO3		Identify and recognize the critical pathand its significance, types of floats andslacks and its impact on business, forbetterunderstanding oftherecent trends and applythe knowledgeofit.	25%

 $Mapping of Course Outcomes and Program Outcomes for the subject Project Management\ and Entrepreneurship (HSMC701)$ 

CourseO	ProgramOutcome											
utcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	_			_							-	_
CO1		$\checkmark$		$\checkmark$								
CO2		$\checkmark$		$\checkmark$								
CO3		$\checkmark$										$\checkmark$

Course Name:	Design and Analysis of Algorithms
Course Code:	PCC-CS404
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	4 <sup>th</sup> Semester

#### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	To analyze and identify the Complexity of a problem and compute the recurrence relation.
CO2	To analyze the several algorithms design techniques on some certain problems using divide & conquer method, dynamic programming approach and backtracking, greedy method.
CO3	To understand lower bound theory, graph traversal algorithm, network flow, disjoint set manipulation different method.
CO4	To design the algorithm of string matching problem, matrix manipulation algorithm.
CO5	To understand amortize analysis, approximation algorithm, notion of NP-completeness.

## COAttainmentofSubjects

		СО	Attainment
	CO1	To analyze and identify the Complexity of a problem and compute the recurrence relation.	10%
Design and Analysis of Algorithms (PCC-CS404)	CO2	To analyze the several algorithms design techniques on some certain problems using divide & conquer method, dynamic programming approach and backtracking, greedy method.	15%
	CO3	To understand lower bound theory, graph traversal algorithm, network flow, disjoint set manipulation different method.	5%
	CO4	To design the algorithm of string matching problem, matrix manipulation algorithm.	15%
	CO5	To understand amortize analysis, approximation algorithm, notion of NP-completeness.	15%

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5												

#### **Course Details**

Course Name:	Design and Analysis of Algorithm Lab
Course Code:	PCC-CS494
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	4 <sup>th</sup> Semester

## **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Design algorithm and implement C program using divide and conquer approach in Computer Science and Engineering and related fields.
CO2	Design algorithm and implement C program using dynamic programming in Computer Science and Engineering and related fields.
CO3	Design algorithm and implement C program using branch and bound method in Computer Science and Engineering and related fields.
CO4	Design algorithm and implement C program using backtracking in Computer Science and Engineering and related fields.
CO5	Design algorithm and implement C program using greedy method in Computer Science and Engineering and related fields.
CO6	Design Graph Traversal Algorithm and implement C program in Computer Science and Engineering and related fields.

		СО	Attainment
	CO1	Design algorithm and implement C program using divide and conquer approach in Computer Science and Engineering and related fields.	15%
Design and Analysis of Algorithm Lab (PCC-CS494)	CO2	Design algorithm and implement C program using dynamic programming in Computer Science and Engineering and related fields.	5%
	CO3	Design algorithm and implement C program using branch and bound method in Computer Science and Engineering and related fields. App	5%
	CO4	Design algorithm and implement C program using backtracking in Computer Science and Engineering and related fields.	15%
	CO5	Design algorithm and implement C program using greedy method	10%

	in Computer Science and Engineering and related fields.	
CO6	Design Graph Traversal Algorithm and implement C program in Computer Science and Engineering and related fields.	15%

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			$\checkmark$									
CO2			$\checkmark$									
CO3			$\checkmark$									
CO4			$\checkmark$							$\checkmark$		
CO5			$\checkmark$							$\checkmark$		

Course Name:	Computer Architecture
Course Code:	PCC-CS402
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	4 <sup>th</sup> Semester

### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Design pipelining concepts with a prior knowledge of stored program methods
CO2	Design about memory hierarchy and mapping techniques
CO3	Understand parallel architecture and interconnection network

		СО	Attainment
	CO1	Design pipelining concepts with a prior knowledge of stored program methods	10%
Computer Architecture (PCC- CS402)	CO2	Design about memory hierarchy and mapping techniques	25%
(10402)	CO3	Understand parallel architecture and interconnection network	25%

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												

#### **Course Details**

Course Name:	Computer Architecture Lab
Course Code:	PCC-CS492
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	4 <sup>th</sup> Semester

### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Design pipelining concepts with a prior knowledge of stored program methods
CO2	Design about memory hierarchy and mapping techniques
CO3	Understand of parallel architecture and interconnection network

#### **CO** Attainment

		СО	Attainment
Computer Architecture Lab (PCC-CS492)	C01	Design pipelining concepts with a prior knowledge of stored program methods	10%
	CO2	Design about memory hierarchy and mapping techniques	25%
	CO3	Understand of parallel architecture and interconnection network	25%

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												

#### **Course Details**

Course Name:	Formal Language & Automata
Course Code:	PCC-CS403
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	4 <sup>th</sup> Semester

#### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Formulate a formal notation for strings, languages and machines.
CO2	Design finite automata to accept a set of strings of a language
CO3	For a given language understand whether the given language is regular or not.
CO4	Design context free grammars to generate strings of context free language.
CO5	Understand equivalence of languages accepted by Push Down Automata and languages generated by context free grammars
CO6	Analyze the hierarchy of formal languages, grammars and machines.
CO7	Recognize between computability and non-computability and Decidability and undecidability.

		СО	Attainment
Formal Language &	CO1	Formulate a formal notation for	
Automata PCC-		strings, languages and machines.	10%
CS403)	CO2	Design finite automata to accept a	
		set of strings of a language	15%
	CO3	For a given language understand	
		whether the given language is	5%
		regular or not.	
	CO4	Design context free grammars to	5%
		generate strings of context free	
		language.	
	CO5	Understand equivalence of	
		languages accepted by Push	10%
		Down Automata and languages	
		generated by context free	
		grammars	
	CO6	Analyze the hierarchy of formal	10%
		languages, grammars and	
		machines.	
	CO7	Recognize between computability	5%
		and non-computability and	
		Decidability and undecidability.	

CourseOut comes		ProgramOutcomes										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2			$\checkmark$	$\checkmark$						$\checkmark$		
CO3					$\checkmark$		$\checkmark$					
CO4			$\checkmark$	$\checkmark$						$\checkmark$		
CO5					$\checkmark$		$\checkmark$					
CO6		$\checkmark$										
CO7												$\checkmark$

#### **Course Details**

Course Name:	DBMS
Course Code:	PCC-CS601
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	6 <sup>th</sup> Semester

#### **Course Outcome**

On completion of the course students will be able to

1. Analyze a given query using relational algebra expressions and SQL for that query and optimize the developed expressions.

2. Design a given specification of the requirement design the databases using E R method and normalization.

3. Formulate a given transaction-processing system, determine the transaction atomicity, consistency, isolation, and durability.

4. Implement the isolation property, including locking, time stamping based on concurrency control and Serializability of scheduling.

		СО	Attainment
	CO1	Analyze a given query using	
		relational algebra expressions and	20%
DBMS		SQL for that query and optimize	
		the developed expressions.	
	CO2	Design a given specification of	
		the requirement design the	10%
		databases using E R method and	
		normalization.	
	CO3	Formulate a given transaction-	
		processing system, determine the	15%
		transaction atomicity,	
		consistency, isolation, and	
		durability.	
	CO4	Implement the isolation property,	

including locking, time stamping	14%
based on concurrency control and	
Serializability of scheduling.	

### CO – PO Mapping

CourseOut comes		ProgramOutcomes										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2			$\checkmark$	$\checkmark$						$\checkmark$		
CO3		$\checkmark$										
CO4				$\checkmark$								

### **Course Details**

Course Name:	DBMS LAB
Course Code:	PCC-CS691
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	6 <sup>th</sup> Semester

#### **COURSE OUTCOMES**

1 Infer database language commands to create simple database.

2 Analyse the database using queries to retrieve records.

3 Applying PL/SQL for processing database.

4 Develop solutions using database concepts for real time requirements.

		СО	Attainment
	CO1	Understand HTML and Infer database language commands to create simple database.	10%
DBMS LAB	CO2	Analyze the database using queries to retrieve records.	20%
	CO3	Applying PL/SQL for processing database.	15%
	CO4	Develop solutions using database concepts for real time requirements.	20%

### <u>CO – PO Mapping</u>

CourseOut comes		ProgramOutcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO1					$\checkmark$		$\checkmark$						
CO2		$\checkmark$								$\checkmark$			
CO3	$\checkmark$				$\checkmark$	$\checkmark$					$\checkmark$		
CO4							$\checkmark$						

#### **Course Details:**

Course Name:	Computer Networks
Course Code:	PCC-CS602
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	6 <sup>th</sup> Semester

### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	To develop an understanding of modern network s from a design and performance perspective.
CO2	To introduce the student to the major concepts involved in wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs)
CO3	To provide an opportunity to do network programming
CO4	To provide a WLAN measurement ideas.

		СО	Attainment			
	CO1	To develop an understanding of				
Computer Networks		modern network s from a design	10%			
(PCC-CS602)		and performance perspective.				
	CO2	To introduce the student to the				
		major concepts involved in wide-				
		area networks (WANs), local area	20%			
		networks (LANs) and Wireless				
		LANs (WLANs)				
	CO3	To provide an opportunity to do				
		network programming	15%			
	CO4	To provide a WLAN				
		measurement ideas.	10%			

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			$\checkmark$									
CO2		$\checkmark$										
CO3												
CO4												

#### **Course Details:**

Course Name:	
	ComputerNetworksLab
Course Code:	PCC-CS692
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	6 <sup>th</sup> Semester

#### COURSEOUTCOMES

 $\label{eq:completion} After completion of course, students would be able to:$ 

- 1. Identifyandusevariousnetworkingcomponents.
- 2. Analyzeperformance of various communication protocols.
- 3. Understandthetransportlayerconceptsandprotocoldesignincludingconnectionorientedandconnection-less models.
- 4. Implementdevicesharingonnetwork.

#### COAttainmentofSubjects

Paper Code(Na	CO Number	Course Outcomes(C	ATTAINED
me)	Tumber	Outcomes(C O)	
	CO1	Identify and understand of Various networking components.	10%
ComputerNet works Lab Code:PCC-	CO2	Analyze the performance of Various communication protocols.	15%
CS692	CO3	Understand the transport Layer concepts and Protocol design including Connection oriented and Connectionless models.	10%
	CO4	Implement device sharing On network.	20%

### Mapping of Course Outcomes and Program Outcomes for the subject Computer Network Lab (PCC-CS692)

Course Outcomes		Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO1		1					1						
CO2		1		1									
CO3							1						
CO4				1									

perCode (Name)	CO Number	Course Outcomes(CO)	ATTAINED
PROJ-CS601 Research Methodology	CO1	Identifyanddiscusstheissues andconcepts salienttotheresearch process.	15%
	CO2	Analysisofcomplex issuesinherentin selectingaresearch problem,selectingan appropriateresearch design,andimplementing aresearchproject.	20%
	CO3	Understand,compre hendand explainresearch articlesintheir academicdiscipline.	15%

Mapping of Course Outcomes and Program Outcomes for the subject Research Methodology (PROJ-CS601)

CourseOut comes		ProgramOutcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO1		$\checkmark$											
CO2		$\checkmark$		$\checkmark$									
CO3							$\checkmark$						

#### COAttainment

		<u>CO</u>	<u>Attainment</u>
	<u>CO1</u>	Design algorithm and implement C program using divide and conquer approach in Computer Science and Engineering and related fields.	15%
Design and Analysis of Algorithm Lab (PCC-CS494)	<u>CO2</u>	Design algorithm and implement C program using dynamic programming in Computer Science and Engineering and related fields.	15%
	<u>CO3</u>	Design algorithm and implement C program using branch and bound method in Computer Science and Engineering and related fields. App	5%
	<u>CO4</u>	Design algorithm and implement C program using backtracking in Computer Science and Engineering and related fields.	5%
	<u>CO5</u>	Design algorithm and implement C program using greedy method in Computer Science and Engineering and related fields.	10%
	<u>CO6</u>	Design Graph Traversal Algorithm and implement C program in Computer Science and Engineering and related fields.	15%

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1										$\checkmark$		
CO2												
CO3			$\checkmark$							$\checkmark$		
CO4			$\checkmark$							$\checkmark$		
CO5										$\checkmark$		

Course Name:	Image Processing
Course Code:	PEC-IT601D
Name of the Program:	B.Tech
Department	Computer Science Engineering

Semester	6 <sup>th</sup> Semester
Name of Faculty	Suman Halder

#### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Review the fundamental concepts of a digital image processing system.
CO2	Analyze images in the spatial and frequency domain using various transforms.
CO3	Evaluate the techniques for image enhancement and image restoration.
CO4	Interpret image segmentation and representation techniques.

### **CO-PO Mapping:**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2		$\checkmark$			$\checkmark$							
CO3					$\checkmark$							
CO4					$\checkmark$							

#### **Course Details**

Course Name:	Pattern Recognition
Course Code:	PEC-IT602D
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	6 <sup>th</sup> Semester
Name of Faculty	SD

#### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Understand and compare a variety of pattern classification, structural pattern recognition and pattern classifier combination techniques.
CO2	Summarize, analyze, and relate research in the pattern recognition area verbally and in writing.
CO3	Apply performance evaluation methods for pattern and critique comparisons of techniques made in the research literature.
CO4	Apply pattern recognition techniques to real-world problems such as document analysis and recognition.
CO5	Implement simple pattern classifiers, classifier combinations and structural pattern recognizers.
CO6	Able to manipulate Bayes' Classifier and implement Decision Trees.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	101	102	105	101		100		100	107	1010	1011	1012
CO2												
CO3	$\checkmark$					$\checkmark$					$\checkmark$	
CO4	$\checkmark$				$\checkmark$						$\checkmark$	
CO5												

## COAttainmentofSubjects

		<u>CO</u>	<u>Attainment</u>
	<u>CO1</u>	Understand and compare a variety of pattern classification, structural pattern recognition and pattern classifier combination techniques.	15%
	<u>CO2</u>	Summarize, analyze, and relate research in the pattern recognition area verbally and in writing.	15%
	<u>CO3</u>	Apply performance evaluation methods for pattern and critique comparisons of techniques made in the research literature.	5%
Pattern Recognition PEC-IT602D	<u>CO4</u>	Apply pattern recognition techniques to real-world problems such as document analysis and recognition.	15%
	<u>CO5</u>	Implementsimplepatternclassifiers,classifiercombinationsandstructuralpattern recognizers.	10%
	<u>CO6</u>	Able to manipulate Bayes' Classifier and implement Decision Trees.	5%

## CO Attainment of Human Resource Development and Organizational Behavior(OEC-IT601B)

Paper Code(Name)	CO Number	CourseOutcomes(CO)	ATTAINED
		Understand the organizational structures, the	15%
		Features and principles of organization.	
	CO1	Analysis of the theories of motivation ,and	
	COI	Applying the knowledge in the organizational	
		Level and in different socio-environmental	
OEC-IT601B		Legal situations.	

Human Resource Development and Organizational Behavior	CO2	Understand and recognize different leadership in different social situations. Analysis of concept of Group Dynamic be done to the Students for their proper understanding and to apply in real-life scenarios.	15%
	CO3	Recognize the factors of organizational Change and its impact on business, better Understanding of the business environment With respect to resistance to change and apply The knowledge of it in different problems.	25%

Mapping of CourseOutcomes and ProgramOutcomesfor thesubjectHumanResourceDevelopmentandOrganizationalBehavior(OEC-IT601B)

CourseOut comes		ProgramO utcomes										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$		$\checkmark$			$\checkmark$					
CO2		$\checkmark$		$\checkmark$			$\checkmark$					
CO3							$\checkmark$					$\checkmark$

#### Cryptography & Network Security (CS801D)

#### **Course Outcomes:**

CO1: To be able to identify common network security vulnerabilities/attacks; explain the foundations of Cryptography and network security.

CO2: To be able to analyze the risks and threats to networked computers.

CO3: To be able to demonstrate detailed knowledge of the role of encryption to protect data.

CO4: To be able to analyze security issues arising from the use of certain types of technologies.

CO5: To be able to identify the appropriate procedures required to secure networks, system security testing and procedures of Backup and Recovery.

Paper Code(Name)	CO Number	CourseOutcomes(CO)	ATTAINED
	CO1	To be able to identify common network security vulnerabilities/attacks; explain the foundations of Cryptography and network security.	25%
OEC-IT601B HumanResource Developmentand OrganizationalBe havior	CO2	To be able to analyze the risks and threats to networked computers.	25%
	CO3	To be able to demonstrate detailed knowledge of the role of encryption to protect data.	20%

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2		$\checkmark$										
CO3		$\checkmark$										

CO4 √					
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**Course Details:** 

Course Name:	E-Commerce & ERP
Course Code:	OEC-CS802A
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	8 <sup>th</sup> Semester
Name of Faculty	SD

#### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	To identify and differentiate various types of Ecommerce.					
CO2	To define and understand E-business and its Models.					
CO3	To apply appropriate techniques and resources of Hardware and Software Technologies for					
	Ecommerce.					
CO4	To understand the basic concepts of ERP and identify different technologies used in ERP.					
CO5	To apply different tools used in ER.					

### COAttainment

		<u>CO</u>	Attainment
	<u>CO1</u>	To identify and differentiate	10%
		various types of Ecommerce.	
	<u>CO2</u>	To define and understand E-	15%
E-Commerce & ERP		business and its Models.	
OEC-CS802A	<u>CO3</u>	To apply appropriate techniques	10%
		and resources of Hardware and	
		Software Technologies for	
		Ecommerce.	
	<u>CO4</u>	To understand the basic concepts	10%
		of ERP and identify different	
		technologies used in ERP.	
	<u>CO5</u>	To apply different tools used in	15%
		ER.	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2					$\checkmark$							
CO3												
CO4												
CO5	$\checkmark$											

PaperCode (Name)	CO Number	Course Outcomes(CO)	ATTAINED
OEC-CS801E,	CO1	Understand the importance of Behavioral aspects in the workplace	10%
Soft Skill &Interpersonal Communication	CO2	Recognize the conflict resolution skills at work	17%
	CO3	Understand the importance of Communication skills in daily life And at work	25%

Mapping of Course Outcomes and Program Outcomes for the subject Soft Skill &Interpersonal Communication(OEC-CS801E)

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1							$\checkmark$					
CO2												$\checkmark$
CO3							$\checkmark$					

PAPER NAME	CO No.	Course Outcomes	Attainment
BIOLOGY (BSC-401)	CO1	Describe how biological observations of 18th century lead to major discoveries and understand that the classification of organisms is based on morphological, biochemical or ecological	10%

	parameters.	
CO2	Highlight the concepts of excessiveness and dominance during the passage of genetic material from parent to offspring.	24%
CO3	Convey that all forms of life have the same building blocks and yet the manifestations are diverse.	5%
CO4	Classify enzymes and distinguish between different mechanisms of enzyme action and identify DNA as a genetic material in the molecular basis of information transfer.	10%
CO5	Analyze biological processes at the reductionist level and apply thermodynamic principals to the biological systems.	10%

Mapping of Course Outcomes and Program Outcomes for the subject BIOLOGY (BSC-401)

Course Outcomes		Program Outcomes										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1					$\checkmark$		$\checkmark$					
CO2				$\checkmark$			$\checkmark$					$\checkmark$
CO3		$\checkmark$										$\checkmark$
CO4												$\checkmark$
CO4		$\checkmark$										

### CO ATTAINMENT = 2020 ODD, 2021 EVEN

Paper Code (Name)	СО	COURSE OUTCOMES(COs)	ATTAINED (%)
		1 <sup>ST</sup> SEMESTER	I
	CO1	Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces to solve different engineering problems.	83
	CO2	Rationalise bulk properties and processes using thermodynamic consideration for various engineering applications.	76
BS-PH101	CO3	Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.	78
Chemistry-I	CO4	Rationalise periodic properties (ionization potential, electro negativity, oxidation states) for various engineering applications.	79
	CO5	Apply the knowledge of structure, stability and reactivity of organic molecular species in order to gain a clear insight into the mechanism of chemical and biochemical reacting systems used in various engineering problems.	78
	CO1	Apply the knowledge of simple harmonic motion (ideal and real cases) and basic concepts of Mechanics for the solution of complex problems.	79
	CO2	Utilize the knowledge of vector calculus and different coordinate system for the solution of complex problems.	75
BS PH-101	CO3	Apply the knowledge of physical optics (interference, diffraction, polarization) and LASER to solve different complex problems	78
(Physics-I)	CO4	Apply the knowledge of dielectric and magnetic properties of materials to interpret different complex systems.	77
	CO5	Utilize the knowledge of Quantum Physics to analyze a complex engineering problem.	78
	CO6	Apply the knowledge statistical mechanics to solve complex problems.	75
BS-M101/ BS-M102 Mathematics –IA*/ Mathematics –IB *	CO1	Understand the properties of complex functions and their behavior. Know the techniques for evaluating complex integrals and series. Learn the theory of analytic functions, conformal mapping, the Cauchy-Riemann equations, concept of Taylor and Laurent series, complex integration, Liouville's theorem, residues and the Residue Theorem	75
	CO2	Understand the concept of a differential equation and its solution. Know the techniques for solving first-order and second-order differential equations,	87

		Cauchy-Euler differential equation, Bessel's equation, indicial equations, power-series solution.	
	CO3	Understand the concept of integration over two or three-dimensional regions/volumes. Know the techniques for evaluating double and triple integrals, including change of variables and polar, cylindrical, and spherical coordinates	89
	CO4	Understand the statement of Stokes' theorem, Green's theorem and how to apply it to compute line integrals. Understand the concept of a curve and its parameterization. Know the techniques for evaluating line integrals, including parametric and vector forms. Understand the concept of a surface and its parameterization. Know the techniques for evaluating surface integrals, including parametric and vector forms. Understand volume integrals and Gauss divergence theorem.	83
	CO1	Organize/Design the experiment related to Chemical Science as applicable in various Engineering problems.	77
BS-PH191/	CO2	Generate experimental Data related to Chemical Science as applicable in complex problems.	88
BS-CH191	CO3	Conduct actual experiment related to Chemical Science as applicable in different engineering application.	79
Physics-I Laboratory (Gr-A)/ Chemistry-I Laboratory (Gr-B)	CO4	Analyze data and draw conclusion related to Chemical Science as applicable in various engineering problems.	86
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to Chemical Science as applicable in different engineering fields.	87
	CO1	Organize/design the experiment related to various systems and interpret the physical properties of material.	85
BS PH-191	CO2	Generate experimental Data related to electrical and magnetic properties.	85
(Physics-Lab 1)	CO3	Conduct actual experiment related to optical phenomena.	88
	CO4	Analyze data and draw conclusion related to quantum physics.	86
	CO5	Analyze with proper experimental data and graphs and communicate effectively.	87
ES-ME191/ ES- ME192	CO1	Introduction to engineering design and its place in society	84
Engineering Graphics & Design (Gr-B)/ Workshop /Manufacturing Practices(Gr-A)	CO2	Exposure to the visual aspects of engineering design	86
	CO3	Exposure to engineering graphics standards	89
	CO4	Exposure to solid modelling	84

		2 <sup>ND</sup> SEMESTER	
	CO1	Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces to solve different engineering problems.	88
	CO2	Rationalise bulk properties and processes using thermodynamic consideration for various engineering applications.	86
BS-CH201	CO3	Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.	88
Chemistry-I	CO4	Rationalise periodic properties (ionization potential, electro negativity, oxidation states) for various engineering applications.	84
	CO5	Apply the knowledge of structure, stability and reactivity of organic molecular species in order to gain a clear insight into the mechanism of chemical and biochemical reacting systems used in various engineering problems.	82
	CO1	Apply the knowledge of simple harmonic motion (ideal and real cases) and basic concepts of Mechanics for the solution of complex problems.	85
	CO2	Utilize the knowledge of vector calculus and different coordinate system for the solution of complex problems.	88
BS PH-201	CO3	Apply the knowledge of physical optics (interference, diffraction, polarization) and LASER to solve different complex problems	73
(Physics-I)	CO4	Apply the knowledge of dielectric and magnetic properties of materials to interpret different complex systems.	87
	CO5	Utilize the knowledge of Quantum Physics to analyze a complex engineering problem.	73
	CO6	Apply the knowledge statistical mechanics to solve complex problems.	79
	CO1	Understand the properties of complex functions and their behavior. Know the techniques for evaluating complex integrals and series. Learn the theory of analytic functions, conformal mapping, the Cauchy-Riemann equations, concept of Taylor and Laurent series, complex integration, Liouville's theorem, residues and the Residue Theorem.	83
BS-M201/ BS-M202 Mathematics –IIA# / Mathematics –IIB #	CO2	Understand the concept of a differential equation and its solution. Know the techniques for solving first-order and second-order differential equations, Cauchy-Euler differential equation, Bessel's equation, indicial equations, power-series solution.	90
	CO3	Understand the concept of integration over two or three-dimensional regions/volumes. Know the techniques for evaluating double and triple integrals, including change of variables and polar, cylindrical, and spherical coordinates	83

	CO4	Understand the statement of Stokes' theorem, Green's theorem and how to apply it to compute line integrals. Understand the concept of a curve and its parameterization. Know the techniques for evaluating line integrals, including parametric and vector forms. Understand the concept of a surface and its parameterization. Know the techniques for evaluating surface integrals, including parametric and vector forms. Understand volume integrals and Gauss divergence theorem.	80
	CO1	to be able to <b>use</b> the correct vocabulary in order to express oneself in English properly	82
HM-HU201	CO2	to be able to <b>identify</b> common errors in terms of grammar and choice of words in English	88
English	CO3	to be able to <b>describe</b> , <b>discuss</b> , and <b>interpret</b> reading input in English	85
	CO4	to be able to <b>demonstrate</b> that one can express oneself in English through writing	84
	CO1	Organize/Design the experiment related to Chemical Science as applicable in various Engineering problems.	82
BS-PH291/BS-	CO2	Generate experimental Data related to Chemical Science as applicable in complex problems.	88
CH291 Physics-I	CO3	Conduct actual experiment related to Chemical Science as applicable in different engineering application.	87
Laboratory(Gr B)/ Chemistry-I Lab(GrA)	CO4	Analyze data and draw conclusion related to Chemical Science as applicable in various engineering problems.	84
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to Chemical Science as applicable in different engineering fields.	84
	CO1	Organize/design the experiment related to various systems and interpret the physical properties of material.	86
BS PH-291	CO2	Generate experimental Data related to electrical and magnetic properties.	85
(Physics-Lab 1)	CO3	Conduct actual experiment related to optical phenomena.	85
	CO4	Analyze data and draw conclusion related to quantum physics.	78
	CO5	Analyze with proper experimental data and graphs and communicate effectively.	79
ES-ME291/ ES- ME292	CO1	Introduction to engineering design and its place in society•	95
Engineering Graphics &	CO2	Exposure to the visual aspects of engineering design	95
Design(Gr-A)/	CO3	Exposure to engineering graphics standards	95
Workshop/Manufact uring Practices(GrB)	CO4	Exposure to solid modelling	95
HU291 Language	CO1	to be able to <b>describe, discuss</b> , and <b>interpret</b> the listening input in English	75

Laboratory	CO2	to be able to <b>demonstrate</b> that one can express oneself in English	84
	CO3	through speaking to be able to <b>describe, discuss,</b> and <b>interpret</b> reading input in	04
		English	87
	CO4	to be able to <b>demonstrate</b> that one can express oneself in English through writing	87
		3 <sup>RD</sup> SEMESTER	
CE(ES)302	CO1	Understanding the various sources of energy and its interaction with the environment	77
Energy Science	CO2	Designing energy efficient structures	87
CE(HS)302 – INTRODUCTION TO CIVIL ENGINEERING	CO1	= To acquire knowledge about basic civil engineering techniques and apply the acquired knowledge in basic civil engineering problems	87
CE(ES)392 Computer aided Civil Engineering Drawing	CO1	To understand the concept of engineering drawings and apply the same using computer aided design technology	86
		<b>4<sup>TH</sup> SEMESTER</b> To understand about the properties and characteristics of fluid	
CE(ES)401 Introduction to	CO1		90.3
Fluid Mechanics	CO2	To understand, analyze and evaluate the different characteristics, pattern and types of fluid flow and hydraulic machines.	90.2
CE(ES)40 Introduction to Solid	CO1	Deterministic approaches for understanding interaction between material characteristic with load and time	83.9
Mechanics	CO2	Knowledge about materials and structures and understand their	86.6

CE(ES)492-	CO1	Apply the knowledge of material characteristics to determine various	84
CE(ES)491- FLUID LABORATORY	CO1	Apply the knowledge of fluid characteristics for determination of various parameters related to fluid flow through experimentation.	74.4
CE-SOCIETAL and global impact	CO2	Understanding the challenges of future civil engineering projects	72.8
CE(HS)401-	CO1	Understanding the historical perspectives in the overall development of civil engineering	82.5
CONCRETE TECHNOLO GY	CO2	Analysing the mix design of concrete	81
CE(PC)404-	CO1	Understanding the properties, raw materials required for designing fresh and hardened concrete	82
Surveying and Geomatics	CO2	To evaluate the different techniques of surveying and geomatics in solving basic problems and also analyze different and advanced technique of surveying	82.2
engineering -I CE(PC)403-	CO1	To understand the basic principles of surveying and geomatics	86.4
	CO2	Analyzing the characteristics of municipal solid waste and it's handling by engineering systems.	87.4
CE(PC)402- Environmental	CO1	Analyzing the sources, requirements, quality and treatment of water and design of the patterns of conveyance and distribution	85.2
Soil Mechanics – I	CO2	To understand and analyze the stress distribution and shear strength characteristics of soils.	82.3
CE(PC)401-	CO1	properties of soil and analyze the soil-water interaction system.	
		To understand, evaluate and gather knowledge about physical	84.3
		structure property	

SOLID MECHANICS LABORATORY		strength parameters through experimentation.	
CE(ES)493- ENGGINEERING GEOLOGY LABORATORY	CO1	Apply the knowledge of Engineering Geology in determining the physical properties of rocks and minerals and to understand and delineate different geological structures by the interpretation of geological maps	85.4
CE(PC)493- SURVEYING AND GEOMATICS LABORATORY	CO1	Application of the knowledge of surveying and geomatics for determination of different methods of surveying for measurement	86.3
CE(PC)494-CONC LAB	CO1	Applying the knowledge of Concrete technology in determining the various parameters of Concrete and its design.	83.5
		5 <sup>th</sup> SEMESTER	
CE(PC)501-	CO1	To understand about the concept of limit state and working stress method of design.	75.4
DESIGN OF RC STRUCTURES	CO2	To understand, analyze and evaluate about the design of different types of RC structures by Limit State Method and Working Stress Method.	75.2
CE(PC)502	CO1	Understanding the basic concepts of Hydrology.	87.1
ENGINEERING HYDROLOGY	CO2	Analysis of different hydrological parameters and mitigation methods of floods and flood management.	88.8
CE(PC)503-structURAL	C01	Knowledge of static, determinate and indeterminate structures	85.1

ANALYSIS -I	CO2	Analysis of all type of structure of its stability and instability	86.8
CE(PC)504-SOIL	C01	To understand, evaluate and analyze about consolidation, compaction and earth pressures of soil.	75.
MECHANICS - 2	CO2	To understand, analyze, evaluate the bearing capacity and settlement analysis of shallow foundation and slope stability analysis of any manmade or natural slope.	82.7
CE(PC)505- ENVIRONMENT	CO1	Define the basic concepts and terminologies of waste water engineering, hazardous waste management, Plumbing systems for water supply and waste water disposal	80.3
AL ENGINEERING 2	CO2	Apply the methods of quantifying sanitary sewage and storm sewage, solve mathematical problems and design different processes operations involved in waste water treatment.	80
CE(PC)506- TRANSPORTATION ENGINEERING	CO1	TO UNDERSTAND THE KNOWLEDGE OF PLANNING,DESIGN AND THE FUNDAMENTAL PROPERTIES OF HIGHWAY MATERIALS IN HIGHWAY ENGINEERING	84.2
	CO2	APPLY AND INTERPRET THE KNOWLEDGE OF GEOMETRIC DESIGN AND TRAFFIC STUDIES	83.4
CE(PC)591-RC DESIGN SESSIONAL	CO1	Apply the knowledge of RCC structure.	76.7
CE(PC)594-SOIL MECHANICS LABORATORY	C01	Understand every aspect of soil investigation and prepare a lab report	94.8
CE(PC)595- ENVIRONMENT AL ENGINEERING LABORATORY	C01	Organize/Design the experiment related to Digital Signal Processing Lab.	83.1

CE(PC)596- TRANSPORTATI ON LABORATORY	CO1	TO understand the application of different laboratory tests.	87.4
CE(PC)597-COMPUTER APPLICATION IN CIVIL ENGINEERING	C01	Understanding Computer applications to apply in civil engineering field	92.06

## 6<sup>TH</sup> SEMESTER

CE(PC)601- CONSTRUCTIO N	CO1	To Understand how structures are built.	89
ENGINEERING AND MANAGEMENT	CO2	To evaluate the necessary steps for the completion of a project from the beginning to the end.	87
CE(PC)602- ENGINEERING	CO1	To understand the principles of economics and it's application on value analysis of civil engineering projects	84.7
ECONOMICS,ES TIMATION AND COSTING	CO2	To understand the technical specifications of rate analysis, Tender and valuation performed for a project and analyse the cost of a structure through these parameters.	82.4
CE(PC)603-WATER RESOURCE ENGINEERING	C01	To apply the fundamentals of flow in open channel to design them accordingly	84.17
	CO2	To understand the different concepts of Irrigation in connection with the water requirement for different crops and obtain knowledge about various ground water resources	82.37

CE(PC)604- DESIGN OF	CO1	Understanding the properties and its utility in civil engineering design	87
STEEL STRUCTURES	CO2	Analysis of the use of steel in designing various structures	87
CE(PE)601B- FOUNDATION	CO1	Gain basic knowledge about the bearing capacity of shallow and deep foundation at site and gain some knowledge about soil investigation and exploration	74.2
ENGINEERING	CO2	Analyse the design of sheet pile structure on the basis of earth pressure theories and understand and apply various types of ground improvement methods for solving complex geotechnical problems	74
CE(PE)602A- BUILDING,CONSTRUCT ION AND PRACTICE	C01	Understand the knowledge of various structures that used in civil engineering construction	76
CE(PC)693-Water Resource Laboratory	CO1	To apply different techniques for proper use of water as an useful resource.	76
CE(PC)694-STEEL STRUCTURE DESIGN SESSIONAL	CO1	Apply the knowledge of steel structure in design	78
CE(PC)695-QUANTITY SURVEYESTIMA TION AND VALUATION SESSIONAL	CO1	To evaluate about the specification and valuation of works and materials used in any civil engineering construction project	75

CE(OE)701A-	CO1	7 <sup>TH</sup> SEMESTER           understand the overview of how the metro system works	76.9
METRO SYSTEM AND ENGINEERING	CO2	to apply the knowledge of different metro sysytem engineeirng works	78.5
	CO1	To understand and evaluate about the characteristics of various types and components of dams and their selection procedure.	78.8
CE(PE)701C- HYDRAULIC STRUCTURES	CO2	To analyze about the stability analysis of different hydraulic structures (dam) and estimate about different types of forces, seepage loss and discharge calculation acting on dams and their remedial measures         .	84.1
CE(PE)702A- PRESTRESS	CO1	Understanding the purpose, parameters and application of Prestressed Concrete structure	84.3
CONCRETE	CO2	Design of Prestressed Concrete Structures	88.4
CE(PE)703A- AIR AND NOISE	CO1	Understanding the concepts of air and noise pollution, methods of their measurement.	83
POLLUTION	CO2	Analyze the concepts of air and noise pollution solving mathematical problems and design techniques for air and noise pollution control	82.6
CE(PE)704C-COASTAL	CO1	Understanding the various mechanisms involved in generation of tides, currents and waves and its implications on sediment transport.	85.6
HYDRAULICS AND	CO2	Applying the knowledge of wave current mechanics and sediment transport in analyzing different shore line and coastal structures	88.26
SEDIMENT TRANSPORT			
CE(PE)705A-	CO1	to acquire the knowledge of basic railway engineering	83.2
RAILWAY AND	CO2	to acquire the knowledge of basic airport engineering.	76.13

		8 <sup>TH</sup> SEMESTER	
CE(PE)801D	CO1	To understand about the different materials for suitability of road and their availability characteristics.	76.6
PAVEMENT MATERIALS	CO2	To understand and evaluate the properties of soil and physical modification of pavement works	77.3
CE(0E)801C DEEP FOUNDATION	CO1	To understand, evaluate and analyze about the selection of suitable type of deep foundation for various site conditions.	67.56
	CO2	To understand, analyze and evaluate the concept about bearing capacity of different types of deep foundations.	87

Paper Code (Name)	CO	COURSE OUTCOMES(COs)	ATTAINED (%)
		3 <sup>RD</sup> SEMESTER	
	CO1	Differentiate the conduction techniques in semiconductor materials	64%
EC301 (Electronic Devices)	CO2	Analyze characteristics of semiconductor diodes, bipolar transistors, Mos- Transistors and solve problems.	64%
SS	CO3	Differentiate between different Opto-electronic devices	64%
	CO1	Convert various number system and apply logic gates, Boolean algebra and K-Map to design digital circuits.	57%
EC302 (Digital System Design) PB	CO2	Design the digital combinational circuits likes decoders, encoders, multiplexers amd de-multiplexers, half adder, full adder and compare their performance to optimize production cost and also develop sequential digital circuits like flip-flop, register, counter to design memory device.	57%
	CO3	Illustrate the knowledge of ROM,RAM,PROM,PLD,FPGA,TTL,CMOS and ECL apply them to design VLSI system.	57%
EC303	CO1	Analyze different types of signals.	58%
(Signals & Systems)	CO2	Represent continuous and discrete systems in time and frequency domain using different transforms.	58%
	CO3	Investigate whether the system is stable.	58%
SGH	CO4	Sampling and reconstruction of a signal.	58%
	CO1	<b>Apply</b> all the electrical network theories and the concept of resonance to typical electric circuits with AC & DC sources to solve problems related to electronics & Communication Engineering	60%
EC304 Network Theory SAS	CO2	<b>Apply</b> Laplace transform technique to <b>analyze</b> complex electrical circuits in s domain and solve for voltage & current values related to electronics & communication Engineering.	60%
	CO3	<b>Apply</b> the knowledge of any set of two-port parameters for circuit analysis, & measurement of different parameters and convert one set of two-port parameters to another.	60%
ES-CS301	CO1	Implementation of different data structures efficiently.	70%

Data Structure &	CO2	Usage of well-organized data structures to handle large amount of data.	70%
Algorithm (ES) ABh	CO3	Usage of appropriate data structures for problem solving.	70%
BS-M301 Probability & Statistics(BS)	CO1	The students will learn: The ideas of probability and random variables and various discrete and continuous probability distributions and their properties. The basic ideas of statistics including measures of central tendency,	52%
AS	CO2 CO3	correlation and The statistical methods of studying data samples.	52%
	CO1	Organize/Design the experiment related to Solid State Device Lab.	81%
EC391	CO2	Generate experimental Data related to Solid State Device Lab.	81%
Electronic Devices Lab.)	CO3	Conduct actual experiment related to Solid State Device Lab.	81%
SS+SK	CO4	Analyze data and draw conclusion related to Solid State Device Lab.	81%
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to <b>Solid State Device Lab.</b>	81%
	CO1	Organize/Design the experiment related to <b>Digital System Design Lab.</b>	88%
EC392	CO2	Generate experimental Data related to <b>Digital System Design Lab.</b>	88%
Digital System Design	CO3	Conduct actual experiment related to <b>Digital System Design Lab.</b>	88%
PB+SM	CO4	Analyze data and draw conclusion related to <b>Digital System Design Lab.</b>	88%
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to <b>Digital System Design Lab.</b>	88%
	CO1	Design and develop programs using data structure & algorithm concepts.	88%
ESCS391 Data Structure Lab	CO2	Develop simple applications using linear and non-linear data structures & algorithms concepts and understand the access mechanisms and other use and functionalities.	88%
A. Mullick	CO3	Implement searching and sorting concepts for problem solving.	88%
	CO4	Implement the concepts of graph and hashing concepts for problem solving.	88%

		4 <sup>TH</sup> SEMESTER	
	CO1	Design system components for amplitude modulation techniques that meet the specified needs with appropriate consideration relevant to complex analog communication systems	93%
EC401 Analog Communication	CO2	Analyze system components and calculate the corresponding values for nonlinear communication systems that meet the specified needs with appropriate consideration relevant to complex analog communication systems.	93%
JA	CO3	Analyze a stereo and a multiplexed system as applied to audio, analog or digital communication respectively.	93%
	CO4	Analyze noise parameters and compare signal to noise ratio for analog modulation techniques reaching substantiated conclusions on the performance of analog communication systems.	93%
EC402 Analog Electronic	CO1	Understand the characteristics of diodes and transistors and design and analyse various rectifier and amplifier circuit.	79%
Circuits PB	CO2	Understand the functioning of OP-AMP and design OP-AMP based circuits, Oscillators and multivibrators.	79%
EC403 Microprocessor & Microcontrollers	CO1	Students will be able to do assembly language programming using 8085/8086 and interfacing design of peripherals like I/O, A/D, D/A, Timer etc.	79%
	CO2	Students will be able to distinguish and analyze the properties of microcontroller	79%
	CO1	To analyze and identify the Complexity of a problem and compute the recurrence relation.	93%
ESCS401 Design and Analysis of Algorithm Tathagata Ch	CO2	To analyze the several algorithms design techniques on some certain problems using divide & conquer method, dynamic programming approach, backtracking, greedy method.	93%
	CO3	To understand lower bound theory, graph traversal algorithm, network flow, disjoint set manipulation different method.	93%
	CO4	To design the algorithm of string matching problem, matrix manipulation algorithm.	93%
	CO5	To understand amortize analysis, approximation algorithm, notion of NP-completeness.	93%

	CO1	To develop thorough understanding of the mathematical concepts and theories that underlie numerical methods. This includes topics such as interpolation, differentiation, integration, and linear algebra.	74%
BS M401 Numerical Methods	CO2	Students should be able to analyse a given engineering problem and choose the appropriate numerical method to solve it. This requires an understanding of the strengths and limitations of various numerical techniques.	74%
SPal	CO3	Students should be able to write computer programs to implement numerical algorithms. This includes an understanding of programming languages such as MATLAB, Python, or C++.	74%
	CO4	Students should understand the concept of numerical error and the sources of error in numerical calculations. They should be able to perform error analysis and make appropriate adjustments to improve the accuracy of their numerical solutions.	74%
	C01	After studying the course, the student will be able to: Describe how biological observations of 18th Century that lead to major discoveries and Convey that classification per se is not what biology is all about but highlight the underlying criteria, such as morphological, biochemical and ecological	88%
BS B401 Biology for Engineer Ananya	CO2	Highlight the concepts of recessiveness and dominance during the passage of genetic material from parent to offspring Convey that all forms of life have the same building blocks and yet the manifestations are as diverse as one can imagine	88%
	CO3	Classify enzymes and distinguish between different mechanisms of enzyme action. Identify DNA as a genetic material in the molecular basis of information transfer.	88%
	CO4	Analyse biological processes at the reductionistic level Apply thermodynamic principles to biological systems.	88%
	CO5	Identify and classify microorganisms.	88%
EC491	CO1	Organize/Design the experiment related to Analog Communication Lab.	81.25%
Analog Communication	CO2	Generate experimental Data related to Analog Communication Lab.	81.30%
Lab	CO3	Conduct actual experiment related to Analog Communication Lab.	82.22%
JA,SAS,RM,SM	CO4	Analyze data and draw conclusion related to Analog Communication Lab.	81.48%
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to <b>Analog Communication Lab.</b>	81.85%

	CO1	Organize/Design the experiment related to Analog Electronic Circuit Lab.	88%
EC492	CO2	Generate experimental Data related to Analog Electronic Circuit Lab.	88%
Analog Electronic Circuit	CO3	Conduct actual experiment related to Analog Electronic Circuit Lab.	88%
PB,SK,JR	CO4	Analyze data and draw conclusion related to <b>Analog Electronic Circuit</b> Lab.	88%
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to <b>Analog Electronic Circuit Lab.</b>	88%
	CO1	The knowledge of basic microcomputer system and the architecture as well as assembly language programming of 8085 microprocessor to solve engineering problems related to design system based on these processors in ECE.	93%
EC493 Microprocessor & Microcontroller Lab	CO2	The knowledge of architecture and assembly language programming of 8051 microcontroller and the architecture of PIC to solve engineering problems related to design system based on these processors in ECE	93%
SS,TS,JR	CO3	The knowledge of architecture and assembly language programming of 8086 microprocessor to solve engineering problems related to design system based on these processors in ECE.	93%
	CO4	The knowledge of memory and peripheral interfacing devices to solve engineering problems related to design of I/O and memory interfacing of microprocessor and microcontroller based system in ECE.	93%
BS-M(CS)491 Numerical Method Lab. SPAL	CO1	Students would develop deep understanding of numerical algorithms, including interpolation, differentiation, integration, and linear algebra, and how these algorithms can be implemented in C.	75%
	CO2	Students would be able to write computer programs in C to implement numerical algorithms. This requires an understanding of the syntax and features of C programming language.	75%
	CO3	Students would develop an understanding of programming concepts such as data structures, control structures, functions, and file handling in C, and how these concepts can be used to implement numerical algorithms.	75%
	CO4	Students would be able to identify and fix errors in C programs, including runtime errors, syntax errors, and logical errors. They should also understand the importance of error handling in numerical computations.	75%
	<u> </u>	5 <sup>TH</sup> SEMESTER	
EC501	CO1	Understand the basic mathematical concepts related to electromagnetic vector	73%
Electromagnetic		fields.	13%

Waves Anupa Chatterjee Swagata Bankura	CO2	Characterize uniform plane wave and calculate reflection and transmission of waves at media interface.	73%
	CO3	Understand characteristics and wave propagation on high frequency transmission lines, carryout impedance transformation on transmission line and use sections of transmission line sections for realizing circuit elements.	73%
	CO4	Analyze wave propagation on metallic waveguides in modal form.	73%
	CO5	Understand principle of radiation and radiation characteristics of an antenna.	73%
EC502	CO1	learn how computers work and know basic principles of computer's Working procedure.	70%
Computer	CO2	Analyze the performance of computers.	70%
Architecture	CO3	Know how computers are designed and built.	70%
Subhasree Maity	CO4	Understand issues affecting modern processors (caches, pipelines etc.)	70%
	CO1	Apply the fundamental knowledge of probability theory and random processes for the solution of complex engineering problems related to digital communication techniques.	64%
EC503 Digital Communication & Stochastic	CO2	Analyze signal and system parameters using the methods of vector algebra reaching substantiated conclusions on digital communication techniques.	64%
Process JA	CO3	Design solution for baseband transmission techniques as applicable to digital communication	64%
	CO4	Design solution for digital carrier modulation techniques as applicable to electronics and Communication Engineering	64%
EC504	CO1	Appling sampling theorem students can able to <b>construct/convert</b> continuous time signal/analog into digital sequence and gain the <b>knowledge</b> from time to frequency domain conversion like DTFT,DFT.	68%
Digital Signal Processing SAS	CO2	Student can able to <b>design</b> and <b>implement</b> different types of digital filters(both FIR and IIR) from analog prototype filter using the knowledge of filter transformation(Likely Impulse invariant and Bilinear transform) in different form such as direct form-I, form-II, cascade and parallel etc.	68%
	CO3	They can able to <b>process</b> digital signals and can also <b>design</b> Digital system/Digital signal Processor by setting proper Algorithm onto FPGA and writing Assembly level program.	68%
PEEC505A Program Elective1	CO1	Understand various aspects of nano-technology and the processes involved in making nano components and material and appropriate use in solving practical problems	68%
Nano Electronics RB	CO2	Appropriate use of different nano-technology for life-long learning.	68%

OEEC506 A Soft Skill & Interpersonal	CO1	to be able to <b>interpret</b> the importance of proximal and distal goals in the workplace	68%
Communication	CO2	to be able to <b>demonstrate</b> conflict resolution skills at work	68%
NMR	CO3	to be able to <b>understand</b> the importance of communication skills in daily life and at work	68%
	CO1	Understand the basic mathematical concepts related to electromagnetic vector fields.	83%
EC591	CO2	Characterize uniform plane wave and calculate reflection and transmission of waves at media interface.	83%
Electromagnetic Wave Lab AC,SB,RM	CO3	Understand characteristics and wave propagation on high frequency transmission lines, carryout impedance transformation on transmission line and use sections of transmission line sections for realizing circuit elements.	83%
	CO4	Analyze wave propagation on metallic waveguides in modal form.	83%
	CO5	Understand principle of radiation and radiation characteristics of an antenna.	83%
	CO1	Apply the fundamental knowledge of probability theory and random processes for the solution of complex engineering problems related to digital communication techniques.	94%
EC592	CO2	Analyze signal and system parameters using the methods of vector algebra reaching substantiated conclusions on digital communication techniques.	94%
Digital Communication Lab	CO3	Design solution for baseband transmission techniques as applicable to digital communication	94%
JA,RM,TS	CO4	Design solution for digital carrier modulation techniques as applicable to electronics and Communication Engineering	94%
	CO5		
	CO1	Organize/Design the experiment related to Digital Signal Processing Lab.	88%
EC593 Digital Signal	CO2	Generate experimental Data related to Digital Signal Processing Lab.	88%
Processing Lab.	CO3	Conduct actual experiment related to Digital Signal Processing Lab.	88%
MSG, TS	CO4	Analyze data and draw conclusion related to Digital Signal Processing Lab.	88%
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to Digital Signal Processing Lab.	88%
		6 <sup>TH</sup> SEMESTER	

EC601 Control System & Instrumentation	CO1	Characterize a system and find its steady state behavior.	85%
MSG	CO2	Investigate stability of a system using different test related to control system.	80%
EC602 Computer Network	CO1	Familarization with the fundamental knowledge of data communication and networks and <b>apply</b> this knowledge to <b>investigate</b> the error in the communication network and <b>analyze</b> the errors using different error correcting codes.	85%
AC	CO2	<b>Analyze</b> the internetworking devices and <b>investigate</b> different addressing and subnetting protocols to <b>investigate</b> proper process to process delivery.	60%
PEEC603D Information Theory	CO1	Recognize the notion of information in the quantitative sense to measure the quantity of information for transmission of data and apply this basic knowledge to calculate channel capacity and probability distribution for real time transmission systems.	65%
& Coding RB	CO2	Assess the fundamental coding theorem for encoding and decoding the information and develop the different techniques for construction of error correction codes .	63%
	CO3	Evaluate the rate and error probabilities in different coding techniques to implement the cost effective system.	62%
	CO1	Understand the basic concept related to NIC installation and configuration. Apply the knowledge of IPC message queue.	95%
EC692	CO2	Remembering and understanding the networking cables, switches, hubs and connectors.	95%
Computer Network Lab	CO3	Understand multicast and broadcast socket and analyze TCP/UDP socket programming.	95%
AC,SK,RM	CO4	Applying the knowledge of socket programming, analyze prototype multithreaded server.	95%
	CO5	Understand the knowledge of data link layer flow control mechanism and apply this knowledge for the error control.	95%
EC691 Control System &	CO1	<b>Characterize</b> a system and investigate stability of the system in time and frequency domain with different method related to Control and Instrumentation Lab	90%
Instrumentation Lab.	CO2	Design various controllers related to Control and Instrumentation Lab	90%
MSG,TS,SM	CO3	<b>Conduct</b> experimental set up with CRO ,Instrumentation Amplifier knowing their functional details related to Control and Instrumentation Lab	85%
EC681	CO1	Formulation of a problem statement either from rigorous literature survey or from the requirements raised need to be analysed.	90%
Electronic Design	CO2	Design, implement and test the photo type/algorithm in order to solve the problem statement.	90%
RB, SGH, SK, TS	CO3	Write comprehensive report on Mini Project work.	80%
		7 <sup>TH</sup> SEMESTER	
EC701	CO1	Visualize the architecture of satellite systems as a means of high speed, high range communication system.	68%

Satellite		State various aspects related to satellite systems such as orbital	68%
Communication	CO2	equations, sub-systems in a satellite, link budget, modulation and multiple access schemes.	0070
ТК	CO3	Solve numerical problems related to orbital motion and design of link budget for the given parameters and conditions.	68%
	CO1	Analyze and classify neural networks and its implementation algorithms.	71%
EC702C Nural Network and	CO2	Apply suitable algorithms on different cases.	71%
Fuzzy Logic Control	CO3	Apply fuzzy logic and neural networks.	71%
SGH	CO4	Analyze the applications of Neural Network and Fuzzy logic in image processing.	71%
EC703A Embeded System	CO1	Understand the internal structure, purpose and application of Embedded system.	69%
MSG	CO2	Apply the concept of Embedded firmware in design of Embedded System.	69%
OEEC704A	CO1	design good web pages using different tags, tables, forms, frames and style sheets supported by HTML and implement, compile, test and run Java programs, comprising more than one class, to address a particular software problem.	72%
Web Technology	CO2	demonstrate the ability to employ various types of selection statements and iteration statements in a Java program.	72%
SM	CO3	be able to leverage the object-oriented features of Java language using abstract class and interface.	72%
	CO4	be able to handle errors in the program using exception handling techniques of Java.	72%
	C01	Apply knowledge(fundamental & specialized) to understand the real life problem in the related field.	95%
EC781	CO2	Understand the design and implementation aspects of engineering system/components.	95%
Industrial Training & Project	CO3	Work individually and also in a group.	95%
SSil	CO4	Communicate the details of training through Training Report, Presentation and Viva-Voce.	95%
	CO5	Understand implication of engineering solutions in social and environmental perspective.	95%
EC782	CO1	Formulate the problem.	95%
Project Stage 1	CO2	Develop or design a solution of the problem.	95%
SSil	CO3	Build up project prototype or model in hardware or software.	95%

	CO4	Analyze the experimental/collected data.	95%
	CO5	Do investigation/research in the problem area.	95%
	CO6	Apply fundamental and specialize knowledge in the area of the problem.	95%
	CO7	Self learn new methods, tools and techniques.	95%
	CO8	Apply modern tools and techniques.	95%
	CO9	Work individually and also in team.	95%
	CO10	Communicate the details and findings of the project through project report, presentation, Viva-Voce and paper presentation, if any.	95%
	CO11	Apply project management and economic knowledge	95%
	CO12	Identify implications of the project in society and environment.	95%
	_	8 <sup>th</sup> SEMESTER	
PEEC 801B Fibre Optics Communication	C01	<b>Learn</b> the properties of light in different medium and <b>utilize</b> the knowledge in different types of fibres for optical fibre communication system, and also the corresponding losses of each kinds of fibres.	89%
SAS	CO2	<b>Learn</b> the working of all types of optical source and detectors for signal modulation and demodulation respectively.	89%
PEEC802A	C01	Understand the practical situations where mixed signal analysis is required.	87%
	CO2	Analyze and handle the inter-conversions between signals.	87%
	CO3	Design systems involving mixed signals.	87%
OEEC803C	CO1	To analyze and evaluate the cyber security needs of an organization.	86%
Cyber Security	CO2	To analyze software vulnerabilities and security solutions to reduce the risk of exploitation.	86%
Abhijit Mitra	CO3	To comprehend and execute risk management processes, risk treatment methods and performance indicators.	86%
EC091	CO1	Formulate the problem.	95%
EC881	CO2	Develop or design a solution of the problem.	95%
Project II SSIL	CO3	Build up project prototype or model in hardware or software.	95%
DOIL	CO4	Analyze the experimental/collected data.	95%

	CO5	Do investigation/research in the problem area.	95%
	CO6	Apply fundamental and specialize knowledge in the area of the problem.	95%
	C07	Self learn new methods, tools and techniques.	95%
	CO8	Apply modern tools and techniques.	95%
	CO9	Work individually and also in team.	95%
	CO10	Communicate the details and findings of the project through project report, presentation, Viva-Voce and paper presentation , if any.	95%
	CO11	Apply project management and economic knowledge	95%
	CO12	Identify implications of the project in society and environment.	95%
	CO1	. Demonstrate the capability to formulate the problem.	94%
	CO2	Demonstrate the capability to develop or design a solution of the problem.	94%
	CO3	Demonstrate the capability to build up project prototype or model in hardware or software.	94%
EC882	CO4	Demonstrate the capability to analyze the experimental/collected data.	94%
Grand Viva	CO5	Show the capability to demonstrate the research based knowledge	94%
SSIL	CO6	Demonstrate the capability to apply fundamental and specialize knowledge in the area of the problem.	94%
	CO7	Demonstrate the capability for self learning new methods, tools and techniques.	94%
	CO8	Demonstrate the capability to apply modern tools and techniques.	94%
	CO9	Demonstrate the capability to work individually and also in team.	94%
	CO10	Demonstrate the capability to communicate in details and present a topic related to Electronics & Communication Engineering.	94%

# DEPARTMENT OF ELECTRICL ENGINEERING CALCUTTA INSTITUTE OF ENGINEERING AND MANGEMENT

**Program Outcomes** 

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**Course Outcomes** 

#### PROGRAM OUTCOMES

PO	BROAD HEADING	ELABORATE MEANING
NO.	DRUAD HEADING	ELADORA I E MEANING
1	Engineering knowledge	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialisation for the solution of complex engineering problems.
2	Problem analysis:	Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3	Design/development of solutions:	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.
4	Conduct investigations of complex problems:	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5	Modern tool usage:	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling to complex engineering activities, with an understanding of the limitations.
6	The engineer and society:	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7	Environment and sustainability:	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8	Ethics:	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9	Individual and team work:	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10	Communication:	Communicate effectively on complex engineering activities with the engineering community and with t h e society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11	Project management and	Demonstrate knowledge and understanding of t h e engineering and
	finance:	management principles and apply these to one's own work, as a
		member and leader in a team, to manage projects and in
		multidisciplinary environments
12	Life-long learning:	Recognise the need for, and have the preparation and
		ability to engage in independent and life-long learning in the broadest
		context of technological change.

#### **PROGRAM SPECIFIC OUTCOMES**

**PSO1:** Ability to apply the knowledge of Basic Computing, Basic Sciences and Social Sciences in the field of electrical engineering to identify, analyze and solve real life problems faced in industries and/or during research work.

**PSO2:** Ability to model, test, analyze and design components or processes related to modern power system involving both conventional and renewable energy resources, high voltage systems and energy management.

**PSO3:** Ability to apply the concept of circuit theory, electromagnetic field theory and basic electronics to solve complex problems of electrical machines and drives, power electronic converters and electrical system design.

**PSO4:** Ability to identify and analyze the role of measurement, instrumentation and modern control engineering to enhance sustainability, reliability and efficiency of electrical systems.

**PSO5:** Ability to demonstrate proficiency in operating and handling modern engineering tools to cop up with dynamic industrial environment.

**PSO6:** Ability to work and communicate effectively in the corporate life keeping a responsible outlook towards socio-economic and environmental issues.

#### **COURSE OUTCOMES**

	<b>de:</b> : PC-EE 301	
Year: 2nd (	New Syllabus)	Semester: 3rd
Course Outcomes:	<ol> <li>describe different type of networks, sources</li> <li>explain different network theorems, coupled networks.</li> <li>apply network theorems and different tools</li> <li>select suitable techniques of network analys</li> <li>estimate parameters of two-port networks.</li> <li>design filter circuits.</li> </ol>	d circuit and tools for solution of to solve network problems. sis for efficient solution.
	e Subject: ANALOG ELECTRONICS	
	de: PC-EE 302	
Year: 2nd ( Course	New Syllabus) 1. describe analog electronic components and	
Outcomes:	<ol> <li>explain principle of operation of analog electrogulators and analog electronic circuits.</li> <li>compute parameters and operating points of analog electronic cir</li> <li>determine response of analog electronic cir</li> <li>distinguish different types amplifier and diffapplication.</li> <li>construct operational amplifier based circuit</li> </ol>	of analog electronic circuits. cuits. ferent types oscillators based on
		/
	e Subject: ELECTRO MAGNETIC FIELD THEORY	
Subject Co	e Subject: ELECTRO MAGNETIC FIELD THEORN de: PC-EE 303 New Syllabus)	Semester: 3rd

Subject Coo	le: ES-ME 301	
Year: 2nd (I	New Syllabus)	Semester:3 <sup>RD</sup>
Course	After completing this course, the students will be	able to:
Outcomes:	<ol> <li>explain the co-ordinate system, principl rotation, kinematics and kinetics of rigid bo</li> </ol>	e of three dimensional odies.
	<ol><li>elaborate the theory of general motion, and friction.</li></ol>	bending moment, torsional motion
	3. develop free body diagram of different a	arrangements.
	<ol> <li>solve problems with the application of t friction and rigid bodies.</li> </ol>	heories and principle of motion ,
	5. analyze torsional motion and bending m	noment.

Name of th	Subject MATHEMATICS III		
	e Subject: MATHEMATICS-III de: BS- M 301		
	New Syllabus) Semester: 3 <sup>RD</sup>		
Course	1. explain basics of probability theories, rules, distribution and properties of		
Outcomes:	transform		
	2. describe different methods of numerical analysis.		
	3. solve numerical problems based on probability theories , numerical		
	analysis and Z transform 4. apply numerical methods to solve engineering problems.		
	5. solve engineering problems using z transform and probability theory.		
	e Subject: BIOLOGY FOR ENGINEERS de: BS- 301		
	New Syllabus) Semester: 3 <sup>RD</sup>		
Course	Upon completion of this course, students will be able to:		
Outcomes:	1. describe with examples the biological observations lead to major		
	discoveries.		
	2. explain the classification of kingdom of life the building blocks of life		
	different techniques of bio physics used to study biological phenomena.		
	the role of imaging in the screening, diagnosis, staging, and treatments o cancer.		
	• 3. identify DNA as a genetic material in the molecular basis of information		
	transfer		
	4. analyze biological processes at the reductionistic level.		
	• 5. apply thermodynamic principles to biological systems.		
	6. identify microorganisms.		
Name of th	e Subject: INDIAN CONSTITUTION		
	de: : MC-EE 301		
	New Syllabus) Semester: 3 <sup>RD</sup>		
Course Outcomes:	After completing this course, the students will be able to: 1. <b>1</b> . describe		
outcomes.	*different features of Indian constitution.		
	*power and functioning of Union, state and local self-government.		
	<ul> <li>* structure, jurisdiction and function of Indian Judiciary</li> <li>*basics of PIL and guideline for admission of PIL.</li> </ul>		
	* Functioning of local administration starting from block to Munici		
	Corporation.		
	2. identify authority to redress a problem in the profession and in the society		

	Subject: ELECTRIC CIRCUIT THEC	DRY LAB
-	e: : PC-EE 391	Compository 2 <sup>BD</sup>
Year: 2nd (N Course	After completion of this course, the	Semester: 3 <sup>RD</sup>
Outcomes:	<ol> <li>describe analog electronic comp</li> <li>explain principle of operation regulators</li> <li>and analog electronic circuits.</li> <li>compute parameters and opera</li> <li>determine response of analog e</li> <li>distinguish different types ampliapplication.</li> </ol>	oonents and analog electronics circuits n of analog electronic components, filters, ting points of analog electronic circuits.
	e Subject: ANALOG ELECTRONICS L	AB
	e: : PC-EE 392	
Year: 2nd (N	lew Syllabus)	Semester: 3 <sup>RD</sup>
Course Outcomes:	<ul> <li>characteristics of BJT and FI</li> <li>characteristics of Zener diod</li> <li>characteristics of class A, C</li> </ul> 2. verify function of DAC and ADC <ul> <li>construct</li> <li>function generator using IC</li> <li>R-C coupled amplifier</li> <li>linear voltage regulator using</li> <li>timer circuit using 555 for m</li> <li>multivibrator.</li> <li>V to I and I to V converter w</li> </ul>	de as voltage regulator and push pull amplifiers g regulator IC chip. onostable, astable and multistable ith Op amps.
	Subject: NEUMERICAL METHODS	LAB
	e: PC-CS 391	Semester: 3 <sup>RD</sup>
Course Outcomes:	<ul> <li>problems of numerical integrat</li> <li>rule, Weddle's rule</li> <li>problems to find numerical sole</li> <li>Gauss elimination and Gauss-S</li> <li>problems to find numerical sole</li> <li>and Newton Raphson methods</li> <li>ordinary differential equation b</li> </ul>	e learners will be able to /backward, Lagrange's interpolation ion using Trapezoidal rule, Simpson's 1/3 ution of a system of linear equations using Seidel iterations. ution of Algebraic Equation by Regularfalsi s. by Euler's and Runga-Kutta methods. hods to solve engineering problems.

Subject Code:		
Year: 2nd (New		Semester: 4th
Course Outcomes:	Upon successful completion of the of 1. recognize oneself as a socially, cull the fundamentals of limits and liming measurement of screw thread and and the working of optical measuring 2. recognize the Engineering responsion welfare of our environment. Get based and applications of devices for measuring strain and stress and temperature. 3. recognize the importance of IEEE the knowledge in the workplace. 4. assess different social contexts appropriate Engineering decision. 5. recognize the need for Sustainable	turally responsible citizen. Know it gauges, various methods for surface roughness parameters g instruments. nsibilities concerning the overall sic idea about working principle asurement of force and torque; Codes of Ethics and implement properly in order to make the
Name of the Subjec	t: Thermal Power Engineering	
Subject Code: ES ME		
Year: 2nd (New Syllal		Semester: 4th
Course Outcomes:	1.apply the basic concept of steam	boilers to generate steam by th
	<ul> <li>the interrelation between human components of environment in order policy.</li> <li>2. recognize and analyze the probler thermodynamic devices for reaching 3. identify and breakdown the probler of Internal Combustion Engine.</li> <li>1. analyze the technique of thermo efficiency of Gas Turbine.</li> </ul>	to take appropriate environmentans related to performance of rotar substantiated conclusion. ems related to efficiency and losse
Name of the Subjec		
Subject Code: PC EE		
Year: 2nd (New Syllal Course Outcomes:		Semester: 4th
course outcomes:	<ul> <li>1.To review the concept of magnetic</li> <li>2.To learn the principle of productorque.</li> <li>3.To learn the basic principle of operationand generator</li> <li>5.To learn the principle of operation, Transformers</li> <li>6.To acquire problem solving skills to and Transformers</li> </ul>	tion of electromagnetic force an eration of DC machine n and characteristics of DC moto , connections and different tests o
Name of the Subjec	: Digital Electronics	
Subject Code: PC EE		

Course Outcomes:         1.To learn the fundamentals of Digital systems and principle ration of Logic families.           2. To learn the principle of operation of Combinational digital cir         3.To learn the principle of operation of sequential circuit and systems and principle of operation of sequential circuit and systems and principle of operation of semiconductor memori Programmable logic devices.           6. To acquire problem solving skills to solve problems of Digital c           Name of the Subject: Electrical & Electronic measurement           Subject Code: PC EE 403           Year: 2nd (New Syllabus)           Course Outcomes:           1.To learn the principle of operation of analog and digital meters           3.To learn the principle of operation of instrument transfor           4.To learn the principle of operation of cathode ray oscilloscop different sensors and transducers.           5.To learn the principle of measurement of power, energ different electrical parameters           6.To acquire problem solving skills to solve problems on the studied.           Name of the Subject: Electric Machine-I Lab(Practical)           Subject Code: PC EE 491           Year: 2nd (NEW Syllabus)           Semester: 4th           Course Outcomes:           1. apply the knowledge of different characteristics of a sep excited DC generator for determination of its performance efficiency.           2. apply the knowledge of different characteristics of a compoo determination of its performance of phase inductio	
2. To learn the principle of operation of Combinational digital circuit and sy         3. To learn the principle of operation of Sequential circuit and sy         4. To learn the principle of operation of Semiconductor memori         Programmable logic devices.         6. To acquire problem solving skills to solve problems of Digital c         Subject Code: PC EE 403         Year: 2nd (New Syllabus)         Course Outcomes:         1. To learn methods of measurement, errors in measurement is classification.         2. To learn the principle of operation of analog and digital meter 3. To learn the principle of operation of analog and digital meter 3. To learn the principle of operation of acthode ray oscilloscog different sensors and transducers.         5. To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (New Syllabus)         Subject Code: PC EE 491         Year: 2nd (New Syllabus)         Subject Code: PC EE 491         Year: 2nd (New Syllabus)         Subject Code: PC EE 491         Year: 2nd (New Syllabus)         Subject Code: PC EE 491         Year: 2nd (New Syllabus)         Subject Code: PC EE 491         Year: 2nd (New Syllabus)         Subject Code: PC EE 491         Year: 2nd (New Syllabus) <th>ole of</th>	ole of
3.To learn the principle of operation of sequential circuit and sy         4.To learn the principle of operation of A/D and D/A converter         5.To learn the principle of operation of semiconductor memori         Programmable logic devices.         6.To acquire problem solving skills to solve problems of Digital c         Subject Code: PC EE 403         Year: 2nd (New Syllabus)         Course Outcomes:         1.To learn methods of measurement, errors in measurement i         classification.         2.To learn the principle of operation of analog and digital meter         3.To learn the principle of operation of instrument transfo         4.To learn the principle of operation of power, energe         different sensors and         transducers.         5.To learn the principle of measurement of power, energe         different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a performance efficiency.         2. apply the knowledge of different characteristics of a Compou generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. app	
4.To learn the principle of operation of A/D and D/A converter 5.To learn the principle of operation of semiconductor memori Programmable logic devices. 6.To acquire problem solving skills to solve problems of Digital c         Name of the Subject: Electrical & Electronic measurement         Subject Code: PC EE 403         Year: 2nd (New Syllabus)         Semester: 4th         Course Outcomes:         1.To learn methods of measurement, errors in measurement in classification.         2.To learn the principle of operation of analog and digital meter         3.To learn the principle of operation of cathode ray oscilloscogi different sensors and transducers.         5.To learn the principle of measurement of power, energi different sensors and transducers.         5.To learn the principle of different characteristics of a septexited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a compou generator (short shunt) for determination of its performance efficiency.         3. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & El	
S.To learn the principle of operation of semiconductor memori Programmable logic devices.         6.To acquire problem solving skills to solve problems of Digital of Subject Code: PC EE 403         Year: 2nd (New Syllabus)       Semester: 4th         Course Outcomes:       1.To learn methods of measurement, errors in measurement is classification.         2.To learn the principle of operation of analog and digital meter 3.To learn the principle of operation of instrument transfor 4.To learn the principle of operation of cathode ray oscilloscol different sensors and transducers.         5.To learn the principle of measurement of power, energy different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a sep- excited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Mo determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance efficiency.         3. identify and analyze the problems related to performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the fi installation, testing and commissioning of transformers         Nam	tems.
Programmable logic devices.         6.To acquire problem solving skills to solve problems of Digital c         Name of the Subject: Electrical & Electronic measurement         Subject Code: PC EE 403         Year: 2nd (New Syllabus)         Semester: 4th         Course Outcomes:         1.To learn methods of measurement, errors in measurement is classification.         2.To learn the principle of operation of analog and digital meter 3.To learn the principle of operation of cathode ray oscilloscog different sensors and transducers.         5.To learn the principle of measurement of power, energe different sensors and transducers.         5.To learn the principle of measurement of power, energe different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a septexited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical) <t< th=""><th></th></t<>	
6.To acquire problem solving skills to solve problems of Digital c         Name of the Subject: Electrical & Electronic measurement         Subject Code: PC EE 403         Year: 2nd (New Syllabus)         Semester: 4th         Course Outcomes:         1.To learn methods of measurement, errors in measurement is classification.         2.To learn the principle of operation of analog and digital meter         3.To learn the principle of operation of cathode ray oscilloscol different sensors and transducers.         5.To learn the principle of measurement of power, energe different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of different characteristics of a sep excited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance op hase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the fi installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)	s and
Name of the Subject: Electrical & Electronic measurement         Subject Code: PC EE 403       Semester: 4th         Course Outcomes:       1.To learn methods of measurement, errors in measurement is classification.         2. To learn the principle of operation of analog and digital meter 3. To learn the basic principle of operation of instrument transfor 4. To learn the principle of operation of cathode ray oscilloscop different sensors and transducers.         5. To learn the principle of measurement of power, energy different electrical parameters         6. To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge of different characteristics of a septexited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of 3 phase transformers	
Subject Code: PC EE 403       Semester: 4th         Course Outcomes:       1. To learn methods of measurement, errors in measurement is classification.         2. To learn the principle of operation of analog and digital meter 3. To learn the basic principle of operation of instrument transfore 4. To learn the principle of operation of cathode ray oscilloscop different sensors and transducers.         5. To learn the principle of measurement of power, energy different electrical parameters         6. To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of different characteristics of a septexcited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Modetermination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finitiation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge of 3 phase transformer in the finitiation, testing and commissioning of transformers         Mame of the Subject: Electrical & Electronic measurement	rcuits
Subject Code: PC EE 403       Semester: 4th         Course Outcomes:       1. To learn methods of measurement, errors in measurement is classification.         2. To learn the principle of operation of analog and digital meter 3. To learn the basic principle of operation of instrument transformers.         5. To learn the principle of operation of cathode ray oscilloscop different sensors and transducers.         5. To learn the principle of measurement of power, energy different electrical parameters         6. To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of different characteristics of a septex: excited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a CO Modetermination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finitency.         3. identify and analyze the problems related to performance op phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finitent setallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (N	
Course Outcomes:       1.To learn methods of measurement, errors in measurement is classification.         2.To learn the principle of operation of analog and digital meter         3.To learn the basic principle of operation of instrument transfor         4.To learn the principle of operation of cathode ray oscilloscog         different sensors and         transducers.         5.To learn the principle of measurement of power, energy         different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a DC Mo determination of its performance efficiency.         2. apply the knowledge of different characteristics of a comput generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the fi installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of 3 phase transformer in the fi installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Pra	
classification.         2.To learn the principle of operation of analog and digital meter         3.To learn the basic principle of operation of instrument transfo         4.To learn the principle of operation of cathode ray oscilloscol         different sensors and         transducers.         5.To learn the principle of measurement of power, energi         different electrical parameters         6.To acquire problem solving skills to solve problems on the         studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         I apply the knowledge of different characteristics of a sepi         excited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a CM odetermination of its performance efficiency.         3. identify and analyze the problems related to performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the fi installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measinstallation, testing and commissioning o	
2.To learn the principle of operation of analog and digital meter         3.To learn the basic principle of operation of instrument transfo         4.To learn the principle of operation of cathode ray oscilloscol         different sensors and         transducers.         5.To learn the principle of measurement of power, energe         different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a sep. excited DC generator for determination of its performance and efficiency.         2. apply the knowledge of different characteristics of a CC Mo determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compou generator (short shunt) for determination of its performance or phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformers in the fi installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge to identify different types of measinstruments according to their application in practical field.	nd its
3.To learn the basic principle of operation of instrument transfo         4.To learn the principle of operation of cathode ray oscilloscop         different sensors and         transducers.         5.To learn the principle of measurement of power, energ         different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         2. apply the knowledge of different characteristics of a Sep         excited DC generator for determination of its performance efficiency.         3. apply the knowledge of different characteristics of a DC Mo determination of its performance and efficiency.         3. identify and analyze the problems related to performance op hase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of 3 phase transformers         Mame of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)	
4.To learn the principle of operation of cathode ray oscilloscol different sensors and transducers.         5.To learn the principle of measurement of power, energy different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of different characteristics of a DC Modetermination of its performance efficiency.         2. apply the knowledge of different characteristics of a Compougenerator (short shunt) for determination of its performance of the Subject: Electrical & Lectronic machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Aname of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th	
different sensors and transducers.       5.To learn the principle of measurement of power, energy different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a Septexcited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Mo determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compout generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the fit installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge to identify different types of meat instruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.       2. apply the knowledge to find out the value of low resistance by double bridge.	
transducers.         5.To learn the principle of measurement of power, energy different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of different characteristics of a septexcited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a CM od determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	e and
S.To learn the principle of measurement of power, energy different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a septextited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a CM od determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low res	
different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a sep. excited DC generator for determination of its performanc efficiency.         2. apply the knowledge of different characteristics of a DC Mo determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the firstallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of meat instruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	/ and
6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a septexcited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Modetermination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compougenerator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Subject	/ anu
studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a seplexited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Modetermination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compound generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	tonics
Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge of different characteristics of a seprexcited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a COM odetermination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compound generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	copies
Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge of different characteristics of a septexcited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Mo determination of its performance and efficiency.       3. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the firstallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge of different characteristics of a sep. excited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Mo determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compou generator (short shunt) for determination of its performance efficiency.         3. identify and analyze the problems related to performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the fi installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge to identify different types of meas instruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
Course Outcomes:       1. apply the knowledge of different characteristics of a seprexited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Modetermination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compound generator (short shunt) for determination of its performance of the subject:         3. identify and analyze the problems related to performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject:       Electronic measurement Lab(Practical)         Subject Code:       PCEE 493         Year:       2nd (NEW Syllabus)         Course Outcomes:       1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
excited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Modetermination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compound generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the fininstallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	ratoly
efficiency. 2. apply the knowledge of different characteristics of a DC Mo determination of its performance and efficiency. 3. apply the knowledge of different characteristics of a compou generator (short shunt) for determination of its performance efficiency. 3. identify and analyze the problems related to performance of phase induction machine reaching substantiated conclusions. 4. apply the knowledge of 3 phase transformer in the fi installation, testing and commissioning of transformers Name of the Subject: Electrical & Electronic measurement Lab(Practical) Subject Code: PCEE 493 Year: 2nd (NEW Syllabus) Semester: 4th Course Outcomes: 1. apply the knowledge to identify different types of mea instruments according to their application in practical field. 2. apply the knowledge to find out the value of low resistance by double bridge.	
2. apply the knowledge of different characteristics of a DC Modetermination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compound generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         3. identify and analyze the problems related to performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finite installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	, unu
determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compound generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         I. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	or for
generator (short shunt) for determination of its performance of efficiency.         3. identify and analyze the problems related to performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
efficiency.       3. identify and analyze the problems related to performance or phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	nd DC
3. identify and analyze the problems related to performance or phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finstallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	e and
phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finstallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
4. apply the knowledge of 3 phase transformer in the finstallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	three
Installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	d of
Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge to identify different types of mean instruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge to identify different types of mean instruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
<b>Course Outcomes:</b> <ol> <li>apply the knowledge to identify different types of mean instruments according to their application in practical field.</li> <li>apply the knowledge to find out the value of low resistance by double bridge.</li> </ol>	
instruments according to their application in practical field. 2. apply the knowledge to find out the value of low resistance by double bridge.	
<ol><li>apply the knowledge to find out the value of low resistance by double bridge.</li></ol>	suring
double bridge.	
	Kelvin
3. apply the knowledge to measure the bulk power using instr	
	ument
transformer.	i+ /2
<ol> <li>to apply the knowledge to measure power in a poly phase cir phase) by using wattmeter.</li> </ol>	.uit (3
5. apply their knowledge to find out the unknown value of capa	itance
by De-Sauty bridge, Schering bridge, find out the inductance of	
by Anderson bridge.	a con
Name of the Subject: DIGITAL ELECTRONICS LABORATORY (Practical)	
Subject Code: PCEE 492	
Year: 2nd (NFW Syllabus)     Semester: 4th	

Course Outcon	nes: 1. identify app	ropriate equipment and instruments for th
	experiment	
	•	ments for application to the experiment
		coder, multiplexer, adder and subtractor circuit
		struments and precaution
		and D flip flop, universal register with gate
		-flops and asynchronous and synchronous up dow
	counters	hops and asynchronous and synchronous up dow
		peration of code conversion circuit -BCD to Exce
		t parity generator & comparator circuits,
	6. work effective	
Name of the Su	ubject: ELECTRIC MACHINE	-II_PC-EE-501
Subject Code:		
Year: 3rd (New		Semester: 5th
Course		the course the student will be able to:
Outcomes:		gement of windings of AC machines.
	-	ple of production of pulsating and revolving
	magnetic fields.	
		ple of operation and characteristics of three phase
	Induction machines	
	-	ple of operation and characteristics of single
	phase Induction machines	
	5. To understand the princi	ple of operation and characteristics of
	synchronous machine	
	C To understand the prime	
	b. To understand the princi	ple of operation and characteristics of special
	electromechanical devices.	ple of operation and characteristics of special
	electromechanical devices.	ple of operation and characteristics of special uction machines, synchronous machines and
	electromechanical devices.	
	electromechanical devices. 7. To solve problems of Ind	
	electromechanical devices. 7. To solve problems of Ind special eletromechanical	
Name of the St	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices.	
Name of the Su	electromechanical devices. 7. To solve problems of Ind special eletromechanical	
	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I	
Name of the Su Subject Code: Year: 3rd (NEW	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I : PC-EE-502	
Subject Code:	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 V Syllabus)	uction machines, synchronous machines and
Subject Code: Year: 3rd (NEW	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 V Syllabus) After completion of this course	uction machines, synchronous machines and           Semester:         Sth           se the students will be able to:         State
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 V Syllabus) After completion of this course	uction machines, synchronous machines and           Semester:         Sth           se the students will be able to:         State
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources	uction machines, synchronous machines and           Semester: 5th           se the students will be able to:           principle of generation of Electricity from different
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of	uction machines, synchronous machines and           Semester: 5th           se the students will be able to:           principle of generation of Electricity from different
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 / Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables.	uction machines, synchronous machines and           Semester: 5th           se the students will be able to:           principle of generation of Electricity from differen           characteristics of overhead transmission lines and
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and c cables. 3. To find different parameters	uction machines, synchronous machines and           Semester: 5th           se the students will be able to:           principle of generation of Electricity from differen           characteristics of overhead transmission lines and
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line	uction machines, synchronous machines and Semester: 5th se the students will be able to: principle of generation of Electricity from differen characteristics of overhead transmission lines and ters for the construction of overhead transmissior
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I : PC-EE-502 / Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line 4. To determine the perform	uction machines, synchronous machines and           Semester: 5th           se the students will be able to:           principle of generation of Electricity from differen           characteristics of overhead transmission lines and           ters for the construction of overhead transmission           nance of transmission lines.
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I <b>:</b> PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line 4. To determine the perform 5. To understand the princi	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I : PC-EE-502 / Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line 4. To determine the perform	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I <b>:</b> PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line 4. To determine the perform 5. To understand the princi	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I <b>:</b> PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line 4. To determine the perform 5. To understand the princi	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I <b>:</b> PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line 4. To determine the perform 5. To understand the princi	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.
Subject Code: Year: 3rd (NEW Course Outcomes:	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I : PC-EE-502 / Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and c cables. 3. To find different paramet line 4. To determine the perform 5. To understand the princi 6. To solve numerical proble	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.
Subject Code: Year: 3rd (NEW Course Outcomes: Name of the S	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 / Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and c cables. 3. To find different paramet line 4. To determine the perforr 5. To understand the princi 6. To solve numerical proble <b>Subject:</b> CONTROL SYSTEM	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.
Subject Code: Year: 3rd (NEW Course Outcomes:	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I <b>:</b> PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters 4. To determine the perform 5. To understand the princi 6. To solve numerical proble <b>Subject:</b> CONTROL SYSTEM PC-EE-503	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.

Course	On completion of this course a student will be in a position to:
Outcomes:	1. To find mathematical representation of LTI systems.
	2. To find time response of LTI systems of different orders
	3. To find the frequency response of LTI systems of different orders
	<ol><li>To understand stability of differentLTI systems.</li></ol>
	5. To analyze LTIsystems with state variables.
	6. To solve problems of mathematical modelling and stability of LTI systems
	ubject: POWER ELECTRONICS
Subject Code:	
Year: 3rd (New	Syllabus) Semester: 5th
Course	On completion of this course a students will be able to
Outcomes:	1. To understand the functioning and characteristics of power switching
• • • • • • • • • • • • • • • • • • • •	devices.
	2. To understand the principle of operation of converters.
	3. To understand different triggering circuits and techniques of commutation
	of SCR
	4. To find external performance parameter of converters.
	5. To analyze methods of voltage control, improvement of power factor and
	reduction of harmonics
	of the converter
	6. To solve numerical problems of converters
Name of the S	Julian Subject: ELECTRIC MACHINE-IILABORATORY
Subject Code:	
Year: 3rd	Semester: 5th
Course	After completion of the course, the students will be able to:
Outcomes:	1 identify an avanuinte equipment and instruments for the expression ont
	1. identify appropriate equipment and instruments for the experiment.
	2. test the instrument for application to the experiment.
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction motor, Induction generator and synchronous motor , methods of speed control of Induction</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction motor, Induction generator and synchronous motor , methods of speed control of Induction motors and parallel operation of the 3 phase Synchronous generator.</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction motor, Induction generator and synchronous motor , methods of speed control of Induction</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction motor, Induction generator and synchronous motor , methods of speed control of Induction motors and parallel operation of the 3 phase Synchronous generator.</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction motor, Induction generator and synchronous motor , methods of speed control of Induction motors and parallel operation of the 3 phase Synchronous generator.</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction motor, Induction generator and synchronous motor , methods of speed control of Induction motors and parallel operation of the 3 phase Synchronous generator.</li> </ol>
Name of the S	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction motor, Induction generator and synchronous motor , methods of speed control of Induction motors and parallel operation of the 3 phase Synchronous generator.</li> <li>work effectively in a team</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction generator and synchronous motor , methods of speed control of Induction motors and parallel operation of the 3 phase Synchronous generator.</li> <li>work effectively in a team</li> </ol>
Subject Code:	<ul> <li>2. test the instrument for application to the experiment.</li> <li>3. construct circuits with appropriate instruments and safety precautions.</li> <li>4. validate different characteristics of single phase Induction motor, three phase Induction generator and synchronous motor , methods of speed control of Induction motors and parallel operation of the 3 phase Synchronous generator.</li> <li>5. work effectively in a team</li> </ul>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction generator and synchronous motor , methods of speed control of Induction motors and parallel operation of the 3 phase Synchronous generator.</li> <li>work effectively in a team</li> </ol>

	On completion of this course a students will 1. identify appropriate equipment and ins 2. test the instrument for application to th 3. construct circuits with appropriate instr 4. validate different characteristics oftrans	truments for the experiment. he experiment. ruments and safety precautions.
	<ol> <li>5. determine earth resistance, dielectric s strength of solid insulating material and dielectric constant 6. analyze an electrical transmission line of 7. work effectively in a team</li> </ol>	strength of insulating oil, breakdown t of transformer oil.
Name of the Sul	ject: CONTROL SYSTEMLABORATORY	
Subject Code: P	PC-EE 593	
Year: 3rd		Semester: 5 <sup>th</sup>
Course	After completion of this course the students	
	<ol> <li>identify appropriate equipment and ins</li> <li>test the instrument for application to th</li> <li>construct circuits with appropriate instruct.</li> <li>use MAT-Lab control system tool box, I</li> <li>PSPICE for simulation of systems.</li> <li>determinecontrol system specifications</li> <li>1.</li> </ol>	he experiment. ruments and safety precautions. MAT-Lab- simulink tool box & s of first and second order systems.
	<pre>ubject: POWER ELECTRONICSLABORATOR`</pre>	Y
Subject Code: F Year: 3rd	<u>′С-ЕЕ Э94</u>	Semester: 5 <sup>th</sup>
Course	On completion of this course a students will	
Outcomes:	<ol> <li>identify appropriate equipment and instruments for the experiment.</li> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions</li> </ol>	
Name of the Subject: DATA STRUCTURE & ALGORITHM		
Subject Code: Year: 3rd (New S		Semester: 5 <sup>th</sup>

Course Outcomes:	On completion of this course a student will b 1. differentiate how the choices of data st enhance the performance of the program. 2. solve problems based upon different data 3. write programs based on different data 4. identify appropriate data structure & all problem. 5. discuss the computational efficiency of searching, and hashing 6. comparethe benefits of dynamic and sta implementations.	ructure & algorithm methods ata structure & also write programs. structure gorithmic methods in solving the principal algorithms for sorting,
	ubject: OBJECT ORIENTED PROGRAMMING	l
Subject Code:		le eth
Year: 3rd (New		Semester: 5 <sup>th</sup>
Course	After completion of this course the students	will be able to
Outcomes:	1. specify simple abstract data types.	acian such as an consulation
	2. recognise features of object-oriented de	esign such as encapsulation,
	polymorphism, inheritance, and composition of systems b	acad an abject identity
	3. apply common object-oriented design p	
	4. specify uses of common object oriented	
	5. design applications with an event-drive	
	ubject: POWER SYSTEM-II	
Subject Code:	PC-EE-601	
Year: 3rd		Semester: 6th
Course	After completion of the course, the students	will be able to:
Outcomes:	1. Represent power system compone	ents in line diagrams.
	2. Determine the location of distribut	tion substation.
	3. Determine the performance of pow flowv studies.	wer system with the help of load
	4. Analyse faults in Electrical system	S.
	5. Determine the stabilty of Power sy	
	6. Explain principle of operation of di	
	equipments.	
	7. Solve numerical problems related to restability and protection of power system.	epresentation, load flow, faults,
	ubject: MICROPROCESSOR & MICROCONT	ROLLER
Subject Code:	PC-EE-602	Course of the second of the
Year: 3 <sup>rd</sup>		Semester: 6 <sup>th</sup>

Course Outcomes:	<ul> <li>After completion of the course, the students will be able to</li> <li>1. explain the architecture of 8086 and 8051.</li> <li>2. do assembly language programming of 8086, 8051</li> <li>3. interface different peripheral with 8086 and 8051</li> <li>4. develop micro processor/ microcontroller based systems.</li> <li>5. compare microprocessor, microcontroller, PIC and ARM processors</li> </ul>
Name of the S	Subject: DIGITAL CONTROL SYSTEM
Subject Code:	PE-EE-601A
Year: 3 <sup>rd</sup>	Semester: 6 <sup>th</sup>
Course Outcomes:	On completion of this course a students will be able to
outcomes.	<ol> <li>explain the principle of sampling and reconstrction of analog signal.</li> <li>perform Z-transformation and inverse Z-tranaformation of systems.</li> <li>analyse and design digital control systems.</li> </ol>
	<ol> <li>design compensators for digital control system to achieve desired specifications.</li> </ol>
	5. represent digital control systems using state space models.
	6. analyze the effect sampling on stability, controllability and observability
	Subject: HVDC TRANSMISSION
Subject Code:	
Year: 3 <sup>rd</sup> Course	Semester: 6 <sup>th</sup> After completion of this course the students will be able to
Outcomes:	<ol> <li>choose intelligently AC and DC transmission systems for the dedicated application(s).</li> <li>identify the suitable two-level/multilevel configuration for high power</li> </ol>
	converters.
	3. select the suitable protection method for various converter faults.
	<ol> <li>identify suitable reactive power compensation method.</li> <li>decide the configuration for harmonic mitigation on both AC and DC sides.</li> </ol>
	<ol> <li>solve numerical problems related to converters, power flow analysis, reactive power control.nts.</li> </ol>
	ubject: ELECTRICAL MACHINE DESIGN
Subject Code: Year: 3 <sup>rd</sup>	PE-EE-601C Semester: 6 <sup>th</sup>
Course	After completion of this course the students will be able to
Outcomes:	1. specify the rating of electrical machines with standard specifications.
	2. explain the principles of electrical machine design and carry out basic
	design of an ac machine
	3. determine the various factors which influence the design of electrical,
	magnetic and thermalloading of electrical machines
	4. explain the construction and performance characteristics of electrical
	machines.
	5. use software tools to do design calculations.
	<b>Subject:</b> ELECTRICAL AND HYBRID VEHICLE
Subject Code	V Syllabus) Semester: 6 <sup>th</sup>

Course	On completion of this course a students will be able to
Outcomes:	1. explain the principle of Electric traction.
	<ol><li>choose a suitable drive scheme for developing an electric hybrid vehicle depending on resources.</li></ol>
	3. design and develop basic schemes of electric vehicles and hybrid electric vehicles.
	4. choose proper energy storage systems for vehicle applications
	5. implement different energy management strategies for hybrid vehicle.
Name of the Su	ibject: POWER QUALITYANDFACTS
Subject Code:	PE-EE-602B
Year: 3rd (New	Syllabus) Semester: 6 <sup>th</sup>
Course Outcomes	<ol> <li>analyse uncompensated AC transmission line.</li> <li>explain the working principles of FACTS devices and their operating characteristics.</li> <li>apply FACTS devices for power flow control and stabilty.</li> <li>identify different issues of power quality in distribution system.</li> <li>apply different compensation and control techniques for DSTATCOM6. explain working principle of dynamic voltage restorer and UPQC</li> </ol>
	abject: INDUSTRIAL ELECTRICALSYSTEMS
Subject Code:	PF-FF-602C
Subject Code:	
Year: 3 <sup>rd</sup>	Semester: 6 <sup>th</sup>
-	
Year: 3 <sup>rd</sup> Course Outcomes	Semester: 6th1. Represent electrical wiring system for residential, commercial and industrial consumers.2. Determine the rating of components of residential and commercial electrical systems.3. Design lighting scheme for a residential and commercial premises.4. Select transformer, switchgear, protection equipments for industrial electrical systems.5. explain methods of automation of Industrial Electrical Systems 6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.
Year: 3 <sup>rd</sup> Course Outcomes	Semester: 6 <sup>th</sup> 1. Represent electrical wiring system for residential, commercial and industrial consumers. 2. Determine the rating of components of residential and commercial electrical systems. 3. Design lighting scheme for a residential and commercial premises. 4. Select transformer, switchgear, protection equipments for industrial electrical systems. 5. explain methods of automation of Industrial Electrical Systems 6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.  Jbject: DIGITAL SIGNALPROCESSING
Year: 3 <sup>rd</sup> Course Outcomes Name of the Su	Semester: 6 <sup>th</sup> 1. Represent electrical wiring system for residential, commercial and industrial consumers. 2. Determine the rating of components of residential and commercial electrical systems. 3. Design lighting scheme for a residential and commercial premises. 4. Select transformer, switchgear, protection equipments for industrial electrical systems. 5. explain methods of automation of Industrial Electrical Systems 6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.  Jbject: DIGITAL SIGNALPROCESSING
Year: 3 <sup>rd</sup> Course Outcomes Name of the Su Subject Code:	Semester: 6 <sup>th</sup> 1. Represent electrical wiring system for residential, commercial and industrial consumers.         2. Determine the rating of components of residential and commercial electrical systems.         3. Design lighting scheme for a residential and commercial premises.         4. Select transformer, switchgear, protection equipments for industrial electrical systems.         5. explain methods of automation of Industrial Electrical Systems         6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.         abject: DIGITAL SIGNALPROCESSING         PE-EE-601A
Year: 3 <sup>rd</sup> Course Outcomes Name of the Su Subject Code: 1 Year: 3 <sup>rd</sup> Course Outcomes	Semester: 6 <sup>th</sup> 1. Represent electrical wiring system for residential, commercial and industrial consumers.         2. Determine the rating of components of residential and commercial electrical systems.         3. Design lighting scheme for a residential and commercial premises.         4. Select transformer, switchgear, protection equipments for industrial electrical systems.         5. explain methods of automation of Industrial Electrical Systems         6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.         ubject: DIGITAL SIGNALPROCESSING         PE-EE-601A         Semester: 6 <sup>th</sup> 1. represent signals mathematically in continuous and discrete-time and in the frequencydomain.         2. analyse discrete-Fourier Transform (DFT) and the FFT algorithms.         4. design digital filters for various applications.         5. apply digital signal processing for the analysis of real-life signals.
Year: 3 <sup>rd</sup> Course Outcomes Name of the Su Subject Code: 1 Year: 3 <sup>rd</sup> Course Outcomes	Semester: 6 <sup>th</sup> 1. Represent electrical wiring system for residential, commercial and industrial consumers.         2. Determine the rating of components of residential and commercial electrical systems.         3. Design lighting scheme for a residential and commercial premises.         4. Select transformer, switchgear, protection equipments for industrial electrical systems.         5. explain methods of automation of Industrial Electrical Systems         6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.         ubject: DIGITAL SIGNALPROCESSING         PE-EE-601A         Semester: 6 <sup>th</sup> 1. represent signals mathematically in continuous and discrete-time and in the frequencydomain.         2. analyse discrete-time systems using z-transform.         3. explain the Discrete-Fourier Transform (DFT) and the FFT algorithms.         4. design digital filters for various applications.         5. apply digital signal processing for the analysis of real-life signals.
Year: 3 <sup>rd</sup> Course Outcomes Name of the Su Subject Code: 1 Year: 3 <sup>rd</sup> Course Outcomes	Semester: 6 <sup>th</sup> 1. Represent electrical wiring system for residential, commercial and industrial consumers.         2. Determine the rating of components of residential and commercial electrical systems.         3. Design lighting scheme for a residential and commercial premises.         4. Select transformer, switchgear, protection equipments for industrial electrical systems.         5. explain methods of automation of Industrial Electrical Systems         6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.         ubject: DIGITAL SIGNALPROCESSING         PE-EE-601A         Semester: 6 <sup>th</sup> 1. represent signals mathematically in continuous and discrete-time and in the frequencydomain.         2. analyse discrete-time systems using z-transform.         3. explain the Discrete-Fourier Transform (DFT) and the FFT algorithms.         4. design digital filters for various applications.         5. apply digital signal processing for the analysis of real-life signals.
Year: 3 <sup>rd</sup> Course Outcomes Name of the Su Subject Code: Year: 3 <sup>rd</sup> Course Outcomes Name of the Su Subject Code:	Semester: 6 <sup>th</sup> 1. Represent electrical wiring system for residential, commercial and industrial consumers.         2. Determine the rating of components of residential and commercial electrical systems.         3. Design lighting scheme for a residential and commercial premises.         4. Select transformer, switchgear, protection equipments for industrial electrical systems.         5. explain methods of automation of Industrial Electrical Systems         6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.         ubject: DIGITAL SIGNALPROCESSING         PE-EE-601A         Semester: 6 <sup>th</sup> 1. represent signals mathematically in continuous and discrete-time and in the frequencydomain.         2. explain the Discrete-Fourier Transform (DFT) and the FFT algorithms.         4. design digital filters for various applications.         5. apply digital signal processing for the analysis of real-life signals.         ubject: COMMUNICATION ENGINEERING         PE-EE-601B

Course	1. compare the performance of AM, FM and PM schemes with reference to
Outcomes	SNR
	2. explain noise as a random process and its effect on communication receivers
	3. evaluate the performance of ASK, FSK, PSK, BPSK, QPSK in a digital
	communication system
	4. identify source coding and channel coding schemes for a given
	communication link 5. analyze various digital modulation methods
	6. compute band width requirement and probability of error in various
	digital modulation systems
	ubject: VLSI AND MICROELECTRONICS
Subject Code:	
Year: 3 <sup>rd</sup>	Semester: 6 <sup>th</sup>
Course	<ol> <li>explain the principle of design of VLSI circuits</li> <li>explain different MOS structure with characteristics</li> </ol>
Outcomes	3. apply different processes for VLSI fabrication
	4. use programming language for the design of logic circuits
	5. draw the stick diagram and layout for simple MOS circuits
Subject Code:	ubject: ECONOMICS FOR ENGINEERS
Year: 3rd (New	
Course	1. evaluate the economic theories, cost concepts and pricing policies
Outcomes	2. explain the market structures and integration concepts
	3. apply the concepts of financial management for project appraisal
	4. explain accounting systems , the impact of inflation, taxation,
	depreciation 5. analyze financial statements using ratio analysis
	6. explain financial planning, economic basis for replacement, project
	scheduling, legal and regulatory issues applied to economic investment and
	project-management problems
Name of the S	ubject: POWER SYSTEM-II LABORATORY
Subject Code:	•
Year: 3 <sup>rd</sup>	Semester: 6 <sup>th</sup>
Course	1. Identify appropriate equipment and instruments for the experiment.
Outcomes	2. Test the instrument for application to the experiment.
	<ul><li>3. Construct circuits with appropriate instruments and safety precautions.</li><li>4. Validate the characteristics of under voltage relay, over current relay,</li></ul>
	earth fault relay, on loadtime delay relay, off load time delay relay, CT and
	PT.
	5. Validate protection schemes of transformer, generator, motor and feeder.
	6. Apply software tools to find bus voltage, currents and power flows throughout the electrical system.
	7. work effectively in a team
	ubject: MICRO PROCESSOR AND MICRO CONTROLLERLABORATORY
Subject Code:	
Year: 3 <sup>rd</sup>	Semester: 6 <sup>th</sup>
Course Outcomes	<ol> <li>identify appropriate equipment and instruments for the experiment</li> <li>test the instrument for application to the experiment</li> </ol>
JULLUIIES	3. construct circuits with appropriate instruments and safety precautions
	4. program 8086 for arithmatic operation, sorting of array, searching for a
	number in a string andstring manipulation
	5. interface ADC/DAC, 8255, 8251 to 8086 and LCD, keyboard to 8051

Year: 4 <sup>TH</sup> Old syllabus	S	Semester: 7 <sup>th</sup>
.,		
Course Outcomes	<ol> <li>explain the principle of operation of converters for AC drives.</li> <li>model Induction and Synchronous motor by reference frame theory.</li> <li>apply different control methods to control speed and torque of Induction and Synchronous motor.</li> <li>explain the configurations and method of speed control of BLDC, PMSM and SRM.</li> <li>realize basic blocks for DSP based motion control.</li> <li>develop appropriate scheme for speed control of Induction and Synchronous motor.</li> </ol>	
Name of the Subjec	t: UTILIZATION OF ELECT	RIC POWER
Subject Code: : EE 7	702	
Year: 4 <sup>TH</sup>	Semester: 7 <sup>th</sup>	
Course Outcomes	<ul><li>schemes. 2. explain the heating and Welding.</li><li>3. able to select appropr for specific applications.</li><li>4. apply different electronic description.</li></ul>	tals of illumination and different lighting fundamental of Electrolytic processes, Electric iate lighting, heating and welding techniques olysis process for different applications. of different aspect of Electric traction and
Name of the Subject Subject Code: 703A Year: 4 <sup>TH</sup> Old syllabus		
Course Outcomes	<ol> <li>select the appropriate</li> <li>analyze the performant</li> <li>evaluate the stability</li> <li>develop measures for</li> </ol>	ower system components e model for required analysis. nce of the system with small signal analysis. of the single and multi machine systems. enhancing the stability of the system. ems of linear dynamical system, modeling of d stability.
Name of the Cubics	AL CONTROL OVETEM III	
Subject Code: : EE 7	t: CONTROL SYSTEM III	
Year: $4^{TH}$	Semester: 8 <sup>th</sup>	
Course Outcomes	<ol> <li>Apply the knowledge control engineering prob</li> <li>Apply the knowledge performance of nonlinea</li> </ol>	of sliding mode control to improve the r complex engineering systems. of optimal control to optimize the performance
		EDINC
Name of the Subject	<b>t:</b> HIGH VOLTAGE ENGINE	
Name of the Subject Subject Code: EE 70	t: HIGH VOLTAGE ENGINE 4A	

Course Outcomes:	After completion of this course the students will be able to 1. choose intelligently AC and DC transmission systems for the
	dedicated application(s). 2. identify the suitable two-level/multilevel configuration for high
	power converters. 3. select the suitable protection method for various converter faults.
	4. identify suitable reactive power compensation method.
	5. decide the configuration for harmonic mitigation on both AC and DC
	sides.
	6. solve numerical problems related to converters, power flow analysis, reactive power control.nts.
Name of the Subject	t: RENEWABLE & NON CONVENTIONAL ENERGY
Year: 4 <sup>TH</sup> Old syllabu	JS Semester: 7 <sup>th</sup>
Subject Code: EE 70	
<u> </u>	
Course Outcomes:	After completion of this course the students will be able to
	1. apply the knowledge of non-conventional energy resources for solving complex electrical engineering problems related to energy
	production, utilization & consumption.
	2. identify and analyze the problems related National scenarios of
	energy production reaching substantiated conclusions.
	3. apply the knowledge of different components of solar systems to
	solve complex electrical engineering problems related to their operating
	principle, construction and working of different equipment based on
	solar system used in domestic and commercial purpose for water
	heating & illumination purpose.
	4. identify and analyze a given physical problem related to different
	ways of utilizing biomass, wind and ocean energy their properties using basic heat transfer principles reaching substantiated conclusions.
Name of the Subject	ct: COMPUTER NETWORK
Subject Code: EE 70	05A
Year: 4TH	Semester: 7 <sup>th</sup>
Course Outcomes:	After completion of this course the students will be able to
	1. develop the concept of OSI reference model, TCP/IP reference
	model and associate them with the terminology.
	2. design and performance issue in different networks and express their
	concept about network protocols, interfaces. 3. analyze different flow and error control mechanism that are must for
	reliable data transmission through an unreliable transmission medium.
	4. apply their concept to solve complex problem that may arise during
	data communication and improve quality of service.
Name of the Subject	ct: ELECTRIC DRIVE (PRACTICAL)
<b>Year:</b> 4 <sup>TH</sup> Old syllabu	us Semester: 7 <sup>th</sup>
Subject Code: EE 79	91

Course Outcomes:	<ul> <li>After completion of this course the students will be able to <ol> <li>Apply the knowledge of power thyristor and chopper for the speed control of DC motor drive.</li> <li>Identify the problems related to speed control of three phase induction motor drives.</li> <li>Analyse the data obtained experimentally by performing the speed control of a single-phase induction motor using triac.</li> <li>Use modern engineering and IT tools to analyse the complex engineering problems related to the performance of different types of AC motor.</li> <li>Identify and analyse the problems related to the performance of permanent magnet synchronous motor to reach substantiated conclusion using modern engineering and IT tools.</li> </ol> </li> </ul>
-	: COMPUTER NETWORK (PRACTICAL)
Subject Code: EE 792	
Year: 4TH	Semester: 7 <sup>th</sup>
Course Outcomes:	<ul> <li>After completion of this course the students will be able to</li> <li>1. apply the different troubleshooting techniques of computer networks to solve engineering problems.</li> <li>2 Students will be able to analyze different components of computer network to configure a Local Area Network.</li> <li>3. Students will be able to implement socket programming and different applications during data communication.</li> <li>4. Students will be able to implement different flow control, error control and file transfer techniques.</li> </ul>
	SEMINAR ON INDUSTRIAL TRAINING (SESSIONAL
Subject Code: EE 78	
Year: 4TH	Semester: 7 <sup>th</sup>
Course Outcomes:	After completion of this course the students will be able to 1. Students will be able to communicate the details of training through Training Report, Presentation and viva voice. 2. Students will be able to understand implication of engineering solutions in social and environment perspective.
Name of the Subject Subject Code: EE 78	: Electrical system design-I (Sessional) 2
Year: 4TH	Semester: 7 <sup>th</sup>
Course Outcomes:	<ul> <li>After completion of this course the students will be able to</li> <li>Students will be able to design a heating element with specified voltage, wattage and temperature rise applying the knowledge of science and engineering fundamentals.</li> <li>Students will be able to design an air core grounding reactor with specified operating voltage and current applying the knowledge of science and engineering fundamentals.</li> <li>Students will be able to design a power distribution system for a township that meet the specified needs with appropriate considerations for the safety and environmental considerations applying the knowledge of science and electrical engineering.</li> </ul>
Name of the Subject Subject Code: EE 80	1A
Year: 4 <sup>TH</sup>	Semester: 8 <sup>th</sup>
Subject Code: EE 80	1A

Course Outcomes	<ol> <li>Students will be able to solve a complex converter circuit with the help of knowledge of fundamentals of high voltage DC transmission. Students will have the ability to apply modern engineering tools like Matlab 2. to model complex engineering problems of HVDC with an understanding of the limitation of the modelling.</li> <li>Students will be able to develop a control scheme for various types of HVDC systems based on requirement.</li> <li>Students will have the ability to design harmonic filters that improves the power quality which is important from the point of view of consumers and that has a vast effect on society.</li> <li>Students will be able to solve complex engineering problems on faults in HVDC systems can select the type of HVDC systems based on requirement.</li> <li>Students will be able to select different types of MTDC HVDC systems based on system requirement.</li> </ol>
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Name of the Subject:	ILLUMINATION ENGINEERING
Subject Code, EE 201	R

<b>Year:</b> 4 <sup>TH</sup> Old syllabus	Semester: 8 <sup>th</sup>
Course Outcomes	<ol> <li>Students will be able to apply knowledge of basic physical sciences to assimilate concept of basic terms used in Lighting (i.e. Luminous flux, luminance, illuminance etc.), basic laws of illumination and understanding of visible spectra.</li> <li>Students will be able to apply the knowledge of core electrical engineering subjects for Understanding various light generation techniques and utilization of electricity for lighting</li> </ol>
	<ol> <li>Students will be able to appreciate relevance of energy efficient lighting and environmental issues related to lighting practice.</li> <li>Students will be able to apply basic knowledge of the course towards manual and computer aided lighting design as a modern engineering tool.</li> </ol>

# Name of the Subject: ENERGY MANAGEMENT & AUDIT

Subject Code: EE 801C Semester: 8<sup>th</sup> **Year:** 4<sup>TH</sup> Old syllabus **Semester:** 8<sup>th</sup> 1. Students will be able to use research-based knowledge and research **Course Outcomes** methods on en energy audit and analysis and interpretation of data regarding auditing, synthesis of the information to provide valid conclusions on energy audit. 2. Students will be able to demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a auditor and leader in a team, to manage projects and in multidisciplinary environments. 3. Students will be able to understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable Development. 4. Students will be able to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. 5. Students will be able to identify and analyze a complex problem of energy management and energy crisis in order to reach in substantiated conclusion. Students will be able to apply their knowledge of energy 6 management to solve a complex problem related to energy pricing, tariff structure and reformation of energy sector.

Name of the Subject	
Subject Code: EE 80	t: SENSORS AND TRANSDUCERS 1B
<b>Year:</b> 4 <sup>TH</sup>	Semester: 8 <sup>th</sup>
Course Outcomes	1 The students will be able to apply the knowledge of mechanical
	and electro mechanical sensors to solve complex engineering problem
	related to fundamental electro mechanical principles and their
	applications.
	2 Students will be able to identify and analyze the problems of mechanical and electro mechanical sensors reaching substantiated
	conclusions.
	3 The students will be able to apply the knowledge of thermal
	sensors to solve complex engineering problems related to
	understanding of various strategies for sensing and actuating as well as
	<ul> <li>knowledge of the classes of sensors.</li> <li>Students will be able to identify and analyze a given physical</li> </ul>
	problem related to thermal sensors their properties, manufacturing and
	the theory behind them reaching substantiated conclusions.
	5 The students will be able to apply the knowledge of capacitive
	sensors to solve complex engineering problems related to operations of
	different sensors for industrial and environmental use.
	6 The students will be able to design system components for measuring different physical parameters such as temperature; pressure
	etc. in terms of different forms of energies such as mechanical,
	thermal, electrical, magnetic, radiant and chemical.
	7 The students will know correct use of sensors in measurement
	process control and environmental monitoring applications.
	8 Students will be able to identify and analyze a given physical problem related to magnetic sensors their properties, manufacturing
	and the theory behind them reaching substantiated conclusions.
Name of the Subject	: PROJECT (SESSIONAL)
Subject Code: EE 88	
Year: 4 <sup>TH</sup> Old syllabus	Semester: 8 <sup>th</sup>
Course Outcomes	1 The students will be able to formulate the problem
	2 The students will be able to develop or design a solution for the
	problem 3 Build up project prototype or model in hardware or software
	4 Analyze the experimental collected data
	5 Do investigation/research in the problem area
	6 Apply fundamental and specialized knowledge in the area of the
	problem.
	7 Students will be able to self learn new methods, tools and
	techniques 8 Students will be able to apply modern tools and techniques
	9 Students will be able to work individually and also in team
	10 Students will be able to communicate the details and findings of
	the project through Project report, Presentation, Viva-voice and paper
	presentation if any
	ELECTRICAL SYSTEM LAB-II (PRACTICAL)
Year: 4 <sup>TH</sup> Old syllabus	Semester: 8 <sup>u</sup>
Subject Code: EE 88	

Course Outcomes	<ol> <li>Students will be able to design machines for a given set of parameters.</li> <li>Students will be able to develop power distribution system for a small network system considering safety, legal and environmental aspect.</li> <li>Course will develop team working capability of the students while working in groups.</li> </ol>
Name of the Subject	
Subject Code: EE 88	t: GRAND VIVA (SESSIONAL)
Year 4" ()In svijanjis	
	<b>Semester: 8<sup>th</sup></b> 1 student will be able to identify, analyze and propose solutions to

### PROGRAMME OUTCOMES (PO) BASED ON G.A.

### Name of the Subject: ELECTRIC CIRCUIT THEORY Subject Code: PCE301

Outcomes         COS         CO	Year: 2 <sup>ND</sup>								Sem	ester:	3 <sup>RD</sup>			
Outcomes         Cos         Pos         Po	Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
Image: cost of the subject: ANLOG ELECTRONICS           Subject Code: PCEE302           Year: 2 <sup>ND</sup> Semester: 3 <sup>RD</sup> Programme Outcomes         POS& PO1         PO2         PO3         PO4         PO5         PO5         PO7         PO8         PO9         PO10         PO11         P           Name of the Subject: ELECTRO MAGNETIC FIELD THEORY         Semester: 3 <sup>RD</sup> Semester: 3 <sup>RD</sup> Programme Outcomes         POS         PO1         PO2         PO3         PO4         PO5         PO5         PO7         PO8         PO9         PO10         PO11         P           Cost V         <		COS												
Image: cost of the subject in the subject i		CO1	$\checkmark$	$\checkmark$	1	$\checkmark$								
Image: code         V <th< td=""><td></td><td>CO2</td><td><math>\checkmark</math></td><td>1</td><td>1</td><td><math>\checkmark</math></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>		CO2	$\checkmark$	1	1	$\checkmark$								
Image: cost of the subject:ANLOG ELECTRONICS           Subject Code: PCEE302         Semester: 3 <sup>RD</sup> Programme Outcomes         POS8 COS         P01         P02         P03         P04         P05         P06         P07         P08         P09         P010         P011         P           Outcomes         POS8 COS         P01         P02         P03         P04         P05         P06         P07         P08         P09         P010         P011         P           Outcomes         POS8 COS         P01         P02         P03         P04         P05         P06         P07         P08         P09         P010         P011         P           Outcomes         POS8 COS         P01         P02         P03         P04         V <thv< th="">         V         V</thv<>		CO3	$\checkmark$	1	1									
Image: cost of the Subject:ANLOG ELECTRONICS           Subject Code:         PCEE302           Year:         2 <sup>ND</sup> Semester:         3 <sup>RD</sup> Programme Outcomes         Posk Cost of the Subject:         Po1         Po2         Po3         Po4         Po5         Po6         Po7         Po8         Po9         Po10         Po11         P           Cost of the Subject:         POS         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         P           Cost of the Vertice         V		CO4	1	1	1	1								1
Image: cost of the Subject:ANLOG ELECTRONICS           Subject Code:         PCEE302           Year:         2 <sup>ND</sup> Semester:         3 <sup>RD</sup> Programme Outcomes         Posk Cost of the Subject:         Po1         Po2         Po3         Po4         Po5         Po6         Po7         Po8         Po9         Po10         Po11         P           Cost of the Subject:         POS         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         P           Cost of the Vertice         V		CO5	1	√	1									1
Name of the Subject:ANLOG ELECTRONICS           Subject Code: PCEE302         Semester: 3 <sup>RD</sup> Programme Outcomes         POS& COS         POI         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO11         PO11           COS         PO1         V			-			1	√							1
Subject Code:         PCEE302           Year:         2 <sup>ND</sup> Semester:         3 <sup>RD</sup> Programme Outcomes         POS& cos         Po1         Po2         Po3         Po4         Po5         Po6         Po7         Po8         Po9         Po10         Po11         P           Cos         V         <					,	,								
Subject Code:         PCEE302           Year:         2 <sup>ND</sup> Semester:         3 <sup>RD</sup> Programme Outcomes         POS& cos         Po1         Po2         Po3         Po4         Po5         Po6         Po7         Po8         Po9         Po10         Po11         P           Cos         V         <														
Year: 2 <sup>ND</sup> Semester: 3 <sup>RD</sup> Programme Outcomes         POS         PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         P           CO3         V         <				G ELE	CTRC	NICS								
Outcomes         COS         Image: Cos of the state of											Sem	ester:	3 <sup>RD</sup>	
Outcomes         COS         Image: Cos of the state of	Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO2         I	Outcomes					_								
CO3         V		CO1			-									
Co4         V		CO2		V		1								
Image: Second state of the Subject: ELECTRO MAGNETIC FIELD THEORY           Subject Code: PC-EE 303           Year: 2 <sup>ND</sup> Semester: 3 <sup>RD</sup> Programme Outcomes         POS& COS         P01         P02         P03         P04         P05         P06         P07         P08         P09         P010         P011         P           COS         V		CO3	$\checkmark$	$\checkmark$	$\checkmark$									
Name of the Subject: ELECTRO MAGNETIC FIELD THEORY           Subject Code: PC-EE 303           Year: 2 <sup>ND</sup> Semester: 3 <sup>RD</sup> Programme Outcomes         POS COS         PO1 V         PO2 V         PO3 V         PO4 V         PO5 V         PO6 V         PO7 V         PO8 V         PO9 V         PO10 V         PO11 V         PO11 V         PO1 V         PO1 V         PO11 V         PO10 V         PO10 V         PO11 V         PO10 V         PO10 V         PO11 V         PO10 V         PO10 V         PO10 V         PO10 V         PO10 V         PO11 V         PO10 V		CO4	$\checkmark$	1	1	1								
Subject Code: PC-EE 303           Year: 2 <sup>ND</sup> Semester: 3 <sup>RD</sup> Programme Outcomes         POS& PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         P           COS         COI         V		CO5	$\checkmark$	1	1									
Subject Code: PC-EE 303           Year: 2 <sup>ND</sup> Semester: 3 <sup>RD</sup> Programme Outcomes         POS& PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         P           COS         COI         V														
Subject Code: PC-EE 303           Year: 2 <sup>ND</sup> Semester: 3 <sup>RD</sup> Programme Outcomes         POS& PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         P           COS         COI         V														-
Programme Outcomes         POS& COS         PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         P           CO1         V         <	Subject Code:			CTRO	MAGI	NETIC	FIEL	D THI			- 80			
Outcomes         cos	Year: 2 <sup>ND</sup>								Sem	ester:	3			
C01         V	-		P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
CO2         I		CO1	$\checkmark$	1	1	1								
C03       1		CO2	1	√	1									1
CO4         V														1
COS         V			-										1	1
CO6     V     V     V     V       Image: CO6     V     V     V     V       Image: CO6     V     V     V						,								1
Name of the Subject: ENGINEERING MECHANICS       Subject Code: ES-ME 301						-						1	1	+
Subject Code: ES-ME 301		000		<b>`</b>	N N	N N								
Subject Code: ES-ME 301														
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Subject Code: ES-ME 301       Year: 2 <sup>ND</sup> Semester: 3 <sup>RD</sup>	Name of the S	Subject	ENG	INEE	RING	MECH	IANIC	S						
Tear: 2 <sup>mg</sup> Semester: 3 <sup>mg</sup>	Subject Code:	ES-ME	301						<b>C</b>		<b>D</b> RD			
	Year: 2								Sem	ester:	<u>۲</u> ۳			
1									1					

Course	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Outcomes	COS												
	CO1	1	1	1	1								
	CO2	1	1	1	1								
	CO3	1	1	1	1								
	CO4	1	1	1	1								
	CO5	1	1	1	1								
Name of the S			HEMA	TICS									
Subject Code:	BS M	301											
Year: 2ND								Sem	ester:	7 <sup>th</sup>			
Course	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
Outcomes	COS	_			_								
	CO1	1	1		1								
	CO2	Ň	, √		۰. ۲								
	CO3	1 V	V	1	v v	1				1	1	1	1
	CO4	V	1		1								1
	CO5	1	1	1	1	1				1	1		+
	CO6	1	1		1								+
		•			,								-
Name of the S	Subject	BIO	LOGY	FOR	ENGI	NEERS	5						
Subject Code:	<b>BS EE</b>	301											
Year: 2ND								Sem	ester:	3RD			
Course	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
Outcomes	COS	101	F02	FUS	F04	FUS	FOO	F07	FUO	F03	1010	FOIL	FUIZ
outcomes	CO1	1											
	CO2	1			1								
	CO2	1			1		1						-
	CO4	1 V			1		,	1					-
	CO4	V V			1			1					1
		1			1			1					-
	CO6	N			-			•					-
Name of the S	Subject	IND	IAN C	ONST	TTUT	ION							
Subject Code:													
Year: 2ND								Sem	ester:	3RD			
Course	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
Outcomes	COS	.01	102	105	104	105		107		105	1010	1011	1012
outcomes	CO1	1					1	1					-
	CO2	•					1	1					
	02						,	, v					
Name of the S			CTRIC	CIRC		THEOF	RY LA	BORA	TORY				
Subject Code:	PC EE	391											
Year: 2 <sup>ND</sup>								Sem	ester:	3 <sup>RD</sup>			

	POS&	PO1	PO2	PO3	РО	4 PO5	5 PO6	P07	PO8	PO9	PO1	.0 PO	11 00	012
utcomes	COS	104	POZ	P03	PO	4 PO	PU6	107	108	5 PO9	104	0 00		210
	CO1	√	1	1	1									
	CO2	1	V	1	1									
	CO3	1	1	1										
	CO4	1		1	1									
	CO5	1		√		,								
	CO6	1	√	1	1									
me of the Su ubject Code:	ubject: PCEE3	ANL 392	OG EI	LECTF	RONI	CS LA	BORAT	ORY Sei	neste	r: 3 <sup>RD</sup>				
ear: 2 <sup>ND</sup>														
rogramme utcomes	POS& COS	P01	PO2			4 PO5	5 PO6	P07	PO8	PO9	PO1	0 PO	11 PC	012
	CO1	1	1	√	1									
	CO2	1	<b>√</b>	√	1									
	CO3	<b>√</b>	√	√										
	CO4	<u>√</u>		√	1									
	CO5	1	√	√				_						
		1									1			
ama af tha C	Subject		MEDT		TUO			TOD	<b>x</b>					
ame of the S ubject Code:			MEKI			<b>D</b> 5 L/	ABURA	TUR	Ĩ					
ear: 2 <sup>ND</sup>	DJM	201						- So	neste	r oRD				
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Name of th	o Subi	octiFl	FCTP		CHT									
Name of the				RIC MA		NEI								
Subject Coc				RIC MA		NEI			Some	stor: /	1 <sup>TH</sup>			
				RIC MA		NEI			Seme	ster: 4	1 <sup>TH</sup>			
Subject Coc Year: 2 <sup>ND</sup>	le: PC	EE 4		PO2	ACHIN PO3	PO4	PO5	P06	Seme P07	ster: 4	↓ <sup>⊤н</sup> РО9	P010	P011	PC
Subject Coc	le: PC	EE 4	01				PO5	P06				PO10	P011	PC
Subject Coc Year: 2 <sup>ND</sup> Programme		OS& COS	01				PO5	PO6				P010	P011	PC
Subject Coc Year: 2 <sup>ND</sup> Programme		<b>EE 4</b> OS& COS 01	<b>01</b> P01	PO2	PO3	P04	PO5	P06				PO10	P011	PC
Subject Coc Year: 2 <sup>ND</sup> Programme		<b>EE 4</b> OS& COS 01 02	01 P01 √	PO2	РО3 √	P04 √	PO5	PO6				P010	P011	PC
Subject Coc Year: 2 <sup>ND</sup> Programme		EE     4       OS&        COS        01        02        03	01 P01 √ √	PO2 √ √	РО3 √	P04 √	PO5	P06				P010	P011	PC
Subject Coc Year: 2 <sup>ND</sup> Programme		EE 4 OS& COS 01 02 03 04	01 P01 √ √ √	PO2 √ √	РО3 √	P04 √	PO5	P06				P010	P011	PC
Subject Coc Year: 2 <sup>ND</sup> Programme		EE 4 OS& COS D1 O2 O3 O4 O5	01 P01 √ √ √ √ √	PO2 √ √ √	РО3 √	P04 √	PO5	P06				P010	P011	PC
Subject Coc Year: 2 <sup>ND</sup> Programme		EE 4 OS& COS D1 O2 O3 O4 O5	01 P01 √ √ √ √ √ √ √ √	PO2 √ √ √ √	PO3 √ √	PO4 √ √	PO5	PO6				P010	P011	PC
Subject Coc Year: 2 <sup>ND</sup> Programme		EE 4 OS& COS D1 O2 O3 O4 O5	01 P01 √ √ √ √ √ √ √ √	PO2 √ √ √ √	PO3 √ √	PO4 √ √	PO5	P06				P010	P011	PC
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 COS 05 05 05 05 05 05 05 05 05 05 05 05 05	01 P01 √ √ √ √ √ √ √ √ √ √ 0 0 0 0 0 0 0 0 0 0 0 0 0	PO2 √ √ √ √ √ √ √	P03 √ √	PO4       √       √       √       √       √		PO6				P010	P011	
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 COS 05 05 05 05 05 05 05 05 05 05 05 05 05	01 P01 √ √ √ √ √ √ √ √ √ √ 0 0 0 0 0 0 0 0 0 0 0 0 0	PO2 √ √ √ √ √ √ √	P03 √ √	PO4       √       √       √       √       √		PO6	P07	PO8	P09	P010	P011	
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 COS 05 05 05 05 05 05 05 05 05 05 05 05 05	01 P01 √ √ √ √ √ √ √ √ √ √ 0 0 0 0 0 0 0 0 0 0 0 0 0	PO2 √ √ √ √ √ √ √	P03 √ √	PO4       √       √       √       √       √		PO6	P07		P09	P010	P011	
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup>	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 EEE 4	01 P01 √ √ √ √ √ √ √ √ √ √ ↓ 01 01 01 01 01 01 01 01 01 01	P02 √ √ √ √ √ √ √ √	P03 √ √ 	P04 √ √ 0 0 0 0 0 0 0 0			PO7	PO8	P09			
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup> Programme	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 EEE 4 OS&	01 P01 √ √ √ √ √ √ √ √ √ 0 0 0 0 0 0 0 0 0 0 0 0 0	PO2 √ √ √ √ √ √ √	P03 √ √	PO4       √       √       √       √       √		PO6	P07	PO8	P09	P010	P011	PC
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup>	e Subje	EE 4 OS& COS 01 02 03 04 05 06 06 EE 4 OS& COS	01 P01 √ √ √ √ √ √ √ √ √ √ ↓ P01 P01 P01 P01 P01 P01 P01 P01	PO2 √ √ √ √ √ √ √ FAL EL PO2	P03 √ √ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■	P04 √ √ • • • • • • • • • • • • •			PO7	PO8	P09			
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup> Programme	e Subje	EE 4 OS& COS 01 02 03 04 05 06 06 06 06 06 06 05 06 06 05 05 05 05 05 05 05 05 05 05 05 05 05	01 P01 √ √ √ √ √ √ √ 01 01 01 01 01 01 01 01 01 01	PO2 √ √ √ √ √ √ √ PO2 √	P03 √ √ √ ECTR P03 √	P04         √         √         √         ONICS		P06	PO7	PO8	P09			
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup> Programme	e Subje	EE 4 OS& COS 01 02 03 04 05 06 06 06 06 06 06 06 07 06 05 06 07 07 05 06 07 07 07 07 07 07 07 07 07 07 07 07 07	01 P01 √ √ √ √ √ √ √ √ P01 √ √ √ ↓ P01 √ √ √ √ √ √ √ √ √ √ √ √ √	PO2 √ √ √ √ √ √ √ PO2 √ √ √	P03 √ √ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■	P04 √ √ • • • • • • • • • • • • •			PO7	PO8	P09			
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup> Programme	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 COS 05 0 COS 01 0 COS 01 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	01 P01 √ √ √ √ √ √ √ √ ↓ P01 P01 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	PO2 √ √ √ √ √ √ √ √ √ √ √ √ √	P03 √ √ 	P04         √         √         √         ONICS		P06	PO7	PO8	P09			
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup> Programme	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 COS 06 0 COS 01 0 COS 01 0 COS 01 02 03 04 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	01 P01 √ √ √ √ √ √ √ √ P01 √ √ √ √ √ √ √ √ √ √ √ √ √	P02 √ √ √ √ √ √ √ √ √ P02 √ √ √ √ √ √ √ √ √ √ √ √ √	P03 √ √ √	P04         √         √         √         √         ONICS         P04         √		P06	PO7	PO8	P09			
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup> Programme	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 COS 06 0 COS 01 02 03 04 05 02 03 04 05 04 05 02 03 04 05 04 05 04 05 04 05 04 05 04 05 04 05 04 05 05 04 05 05 04 05 05 04 05 05 05 04 05 05 05 04 05 05 05 05 05 05 05 05 05 05 05 05 05	01 P01 √ √ √ √ √ √ √ √ V V V V V V V V V V V V V	PO2 √ √ √ √ √ √ √ √ × × × × × × × × × × × × ×	P03 √ √	P04         √         √         √         √         ONICS         P04         √         √         √         √         √         √         √         √         √         √         √         √         √         √		P06	PO7	PO8	P09			
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup> Programme	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 COS 06 0 COS 01 02 03 04 05 02 03 04 05 04 05 02 03 04 05 04 05 04 05 04 05 04 05 04 05 04 05 04 05 05 04 05 05 04 05 05 04 05 05 05 04 05 05 05 04 05 05 05 05 05 05 05 05 05 05 05 05 05	01 P01 √ √ √ √ √ √ √ √ P01 √ √ √ √ √ √ √ √ √ √ √ √ √	P02 √ √ √ √ √ √ √ √ √ P02 √ √ √ √ √ √ √ √ √ √ √ √ √	P03 √ √ √	P04         √         √         √         √         ONICS         P04         √		P06	PO7	PO8	P09			
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup> Programme	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 COS 06 0 COS 01 02 03 04 05 02 03 04 05 04 05 02 03 04 05 04 05 04 05 04 05 04 05 04 05 04 05 04 05 05 04 05 05 04 05 05 04 05 05 05 04 05 05 05 04 05 05 05 05 05 05 05 05 05 05 05 05 05	01 P01 √ √ √ √ √ √ √ √ V V V V V V V V V V V V V	PO2 √ √ √ √ √ √ √ √ × × × × × × × × × × × × ×	P03 √ √	P04         √         √         √         √         ONICS         P04         √         √         √         √         √         √         √         √         √         √         √         √         √         √		P06	PO7	PO8	P09			
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup> Programme	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 COS 06 0 COS 01 02 03 04 05 02 03 04 05 04 05 02 03 04 05 04 05 04 05 04 05 04 05 04 05 04 05 04 05 05 04 05 05 04 05 05 04 05 05 04 05 05 04 05 05 05 04 05 05 05 04 05 05 05 05 05 05 05 05 05 05 05 05 05	01 P01 √ √ √ √ √ √ √ √ V V V V V V V V V V V V V	PO2 √ √ √ √ √ √ √ √ × × × × × × × × × × × × ×	P03 √ √	P04         √         √         √         √         ONICS         P04         √         √         √         √         √         √         √         √         √         √         √         √         √         √		P06	PO7	PO8	P09			
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup> Programme	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 COS 01 0 COS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	01 P01 √ √ √ √ √ √ √ ↓ 01 01 01 01 01 01 01 01 01 01	PO2 √ √ √ √ √ √ √ √ √ √ √ √ √	P03 √ √	P04         √         √         √         √         ONICS	PO5	P06	P07	P08	P09			

Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
Outcomes	COS	101	102	105	104	105	100	107	100	105	1010	1011	1012
	CO1	V	1	1	1	1	1			1			
	CO2	1	1	1			1			1			
	CO3	$\checkmark$	$\checkmark$	V									
	CO4	1					1						
	CO5	1			1	$\checkmark$							
	CO6	1	√	1		$\checkmark$							
Name of the Su	ubject	THER		POWF	R FNG	TNEER	TNG						
Subject Code:	FS FF	401		UNL			1110						
Year: 2 <sup>ND</sup>								Seme	ester:	4 <sup>™</sup>			
Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
Outcomes	COS												
	CO1	$\checkmark$	1	1	1	1				1			
	CO2	V	1						1	1		1	
	CO3	V	V	1	L							1	
	CO4	1											
	CO5	$\checkmark$			$\checkmark$	$\checkmark$						$\checkmark$	
	CO6	1	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$							
							EECC						
Name of the Su	ubjectu				1162 1	IN FRU	/FE33.						
Name of the Su	-												
Subject Code:	-							Com		⊿TH			
	-							Seme	ester:	4 <sup>™</sup>			
Subject Code:   Year: 2 <sup>ND</sup>	HM EE	401							1		PO10	PO11	P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS&		P02	PO3	PO4	P05	P06	<b>Sem</b>	PO8	4 <sup>тн</sup> Р09	PO10	P011	P012
Subject Code:   Year: 2 <sup>ND</sup>	POS& COS	<b>401</b> PO1	PO2	PO3	PO4	P05	PO6		1	PO9	PO10	P011	P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS& COS CO1	<b>401</b> P01	PO2 √	РО3 √			P06 √		1	PO9 √	P010		P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS& COS CO1 CO2	<b>401</b> PO1 √ √	PO2	PO3	PO4	P05	PO6		1	PO9	P010	P011 √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS& COS CO1 CO2 CO3	<b>401</b> P01 √ √ √ √	PO2 √ √	PO3 √ √	PO4	P05	P06 √ √ √		1	PO9 √	P010	√ √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS& COS CO1 CO2 CO3 CO4	<b>401</b> PO1 √ √ √ √ √ √	PO2 √ √	PO3 √ √	PO4 √	PO5 √	P06 √ √		1	PO9 √	PO10	√ √ √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS& COS CO1 CO2 CO3 CO4 CO5	<b>401</b> PO1 √ √ √ √ √ √	PO2 √ √ √	PO3 √ √ √	PO4 √	P05 √	P06 √ √ √		1	PO9 √	P010	√ √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS& COS CO1 CO2 CO3 CO4	<b>401</b> PO1 √ √ √ √ √ √	PO2 √ √	PO3 √ √	PO4 √	PO5 √	P06 √ √ √		1	PO9 √	P010	√ √ √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS& COS CO1 CO2 CO3 CO4 CO5	<b>401</b> PO1 √ √ √ √ √ √	PO2 √ √ √	PO3 √ √ √	PO4 √	P05 √	P06 √ √ √		1	PO9 √	P010	√ √ √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme Outcomes	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	<b>401</b> PO1 √ √ √ √ √ √ √ √ √	PO2 √ √ √ √	PO3 √ √ √	P04 √ √	PO5       √	P06 √ √ √		1	PO9 √	P010	√ √ √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme Outcomes Name of the Su	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	401 P01 √ √ √ √ √ √ V ENVI	PO2 √ √ √ √	PO3 √ √ √	P04 √ √	PO5       √	P06 √ √ √		1	PO9 √	P010	√ √ √	PO12
Subject Code: Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	401 P01 √ √ √ √ √ √ V ENVI	PO2 √ √ √ √	PO3 √ √ √	P04 √ √	PO5       √	P06 √ √ √	P07	P08	PO9 √ √	P010	√ √ √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	401 P01 √ √ √ √ √ √ V ENVI	PO2 √ √ √ √	PO3 √ √ √	P04 √ √	PO5       √	P06 √ √ √	P07	1	PO9 √ √	P010	√ √ √	P012
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS& CO1 CO2 CO3 CO4 CO5 CO6 Ubject: MC EE	401 P01 √ √ √ √ √ √ V ENVI	PO2 √ √ √ √	PO3 √ √ √	P04 √ √	PO5       √	P06 √ √ √	P07	P08	PO9 √ √	P010	√ √ √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	HM EE POS& CO3 CO2 CO3 CO4 CO5 CO6 Ubject: MC EE	401 P01 √ √ √ √ √ √ V V V P01 P01 P01	PO2 √ √ √ FRONM	PO3 √ √ √ 1 1 1 1 1 1 1 1 1 1 1 1 1	P04 √ √ √ √ AL SCI	P05 √ √ √ √ ▼ FNCE	PO6 √ √ √ √ 1 - - - - - - - - - - - - -	PO7	PO8	P09 √ √ 			P012
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS& CO3 CO4 CO5 CO6 D D D D D CO5 CO6 D CO5 CO6 D D D D D D CO5 CO5 CO5 CO5 CO5 CO3 CO4 CO5 CO5 CO5 CO5 CO5 CO5 CO5 CO5	401 P01 √ √ √ √ √ √ V P01 P01 √	PO2 √ √ √ √ PO2 √	PO3 √ √ √ 1 1 1 1 1 1 1 1 1 1 1 1 1	P04 √ √ √	P05 √ √ √ ■ ■	P06 √ √ √ √ √ P06 √	PO7	PO8	P09 √ √ 		√ √ √ √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS&           COS           CO1           CO2           CO3           CO4           CO5           CO6           D           D           D           CO5           CO6           D	401 P01 √ √ √ √ √ √ V P01 P01 √ √ √ √ √ V V V V V V V V V V V V V	PO2 √ √ √ FONN PO2 √ √	PO3 √ √ √ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	P04 √ √ √ √ AL SCI	P05 √ √ √ √ ▼ FNCE	P06 √ √ √ √ √ P06 √ √	PO7	PO8	P09 √ √ 		√       √       √       √       √       0       0       0       0       0       0       0       0       √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS&           CO1           C02           C03           C04           C05           C06           D           ubject:           MC EE           POS&           C01           C02           C03           C04           C05           C06           D           POS&           C03           C03           C03           C03           C03           C03           C03	401 P01 √ √ √ √ √ √ 1 401 P01 √ √ √ √ √ √ √ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	PO2 √ √ √ √ PO2 √	PO3 √ √ √ 1 1 1 1 1 1 1 1 1 1 1 1 1	P04 √ √ √ √ AL SCI	P05 √ √ √ √ ▼ FNCE	P06 √ √ √ √ √ P06 √ √ √ √	PO7	PO8	P09 √ √ 		√         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS&           CO1           CO2           CO3           CO4           CO5           CO6           Dipect:           MC EE           POS&           CO1           CO2           CO3           CO4           CO5           CO6           Dipect:           MC EE           POS&           CO1           CO2           CO3           CO1           CO2           CO3           CO4	401 P01 √ √ √ √ √ √ √ 401 P01 √ √ √ √ √ √ √ √ √ √ √ √ √	PO2 √ √ √ FONN PO2 √ √	PO3 √ √ √ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	P04 √ √ √ √ √ V P04 √ P04	P05 √ √ √ √ V ENCE	P06 √ √ √ √ √ P06 √ √	PO7	PO8	P09 √ √ 		√         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS&           CO1           CO2           CO3           CO4           CO5           CO6           Ubject:           MC EE           POS&           CO1           CO2           CO3           CO4           CO5           CO6           Ubject:           MC EE           CO3           CO1           CO2           CO3           CO4	401 P01 √ √ √ √ √ √ √ V 401 P01 √ √ √ √ √ √ √ √ √ √ √ √ √	PO2 √ √ √ √ × × × × × × × × × × ×	PO3  √  √  √  √  PO3  PO3  √  √  V  V  V  V  V  V  V  V  V  V  V	P04 √ √ √ √ √ × × × × × × × × × × × × ×	P05 √ √ √ √ V ENCE	P06 √ √ √ √ √ P06 √ √ √ √	PO7	PO8	P09 √ √ 		√         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS&           CO1           CO2           CO3           CO4           CO5           CO6           Dipect:           MC EE           POS&           CO1           CO2           CO3           CO4           CO5           CO6           Dipect:           MC EE           POS&           CO1           CO2           CO3           CO1           CO2           CO3           CO4	401 P01 √ √ √ √ √ √ √ 401 P01 √ √ √ √ √ √ √ √ √ √ √ √ √	PO2 √ √ √ FONN PO2 √ √	PO3 √ √ √ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	P04 √ √ √ √ √ V P04 √ P04	P05 √ √ √ √ V ENCE	P06 √ √ √ √ √ P06 √ √ √ √	PO7	PO8	P09 √ √ 		√         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup>	POS&           CO1           CO2           CO3           CO4           CO5           CO6           Ubject:           MC EE           POS&           CO1           CO2           CO3           CO4           CO5           CO6           Ubject:           MC EE           CO3           CO1           CO2           CO3           CO4	401 P01 √ √ √ √ √ √ √ V 401 P01 √ √ √ √ √ √ √ √ √ √ √ √ √	PO2 √ √ √ √ × × × × × × × × × × ×	PO3  √  √  √  √  PO3  PO3  √  √  V  V  V  V  V  V  V  V  V  V  V	P04 √ √ √ √ √ × × × × × × × × × × × × ×	P05 √ √ √ √ V ENCE	P06 √ √ √ √ √ P06 √ √ √ √	PO7	PO8	P09 √ √ 		√         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS&           CO1           CO2           CO3           CO4           CO5           CO6           Ubject:           MC EE           POS&           CO1           CO2           CO3           CO4           CO5           CO6           Ubject:           MC EE           CO3           CO1           CO2           CO3           CO4	401 P01 √ √ √ √ √ √ √ V 401 P01 √ √ √ √ √ √ √ √ √ √ √ √ √	PO2 √ √ √ √ × × × × × × × × × × ×	PO3  √  √  √  √  PO3  PO3  √  √  V  V  V  V  V  V  V  V  V  V  V	P04 √ √ √ √ √ × × × × × × × × × × × × ×	P05 √ √ √ √ V ENCE	P06 √ √ √ √ √ P06 √ √ √ √	P07	PO8	P09 √ √ 		√         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes	POS&           CO1           C02           C03           C04           C05           C06           ubject:           MC EE           POS&           C01           C02           C03           C04           C05           C06           D           POS&           C01           C02           C03           C04           C05           C04           C05           C04           C05           C04           C05           C04           C05           C06	401 P01 √ √ √ √ √ √ √ 1 401 P01 √ √ √ √ √ √ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	PO2	PO3  √  √  √  ✓  PO3  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓	P04 √ √ √ √ √ P04 ✓ V ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	P05 √ √ √ √ √ V P05 √ √ √ √ √ ↓ ↓	P06	P07	PO8	P09 √ √ 		√         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Subject Code:	HM EE POS& CO3 CO4 CO5 CO6 CO6 CO6 POS& CO6 CO5 CO6 CO5 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO5 CO5	401 P01 √ √ √ √ √ √ √ 401 P01 √ √ √ √ √ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	PO2	PO3  √  √  √  ✓  PO3  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓	P04 √ √ √ √ √ P04 ✓ V ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	P05 √ √ √ √ √ V P05 √ √ √ √ √ ↓ ↓	P06	P07	PO8	P09 √ √ 		√         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	HM EE POS& CO3 CO4 CO5 CO6 CO6 CO6 POS& CO6 CO5 CO6 CO5 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO5 CO5	401 P01 √ √ √ √ √ √ √ 401 P01 √ √ √ √ √ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	PO2	PO3  √  √  √  ✓  PO3  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓	P04 √ √ √ √ √ P04 ✓ V ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	P05 √ √ √ √ √ V P05 √ √ √ √ √ ↓ ↓	P06	P07	PO8	P09 √ √ 		√         √	

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Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
Dutcomes	COS	,	<u> </u>										
	CO1	1	1	1	1	1							
	CO2	1	1				,						
	CO3	1	1	1			<u>√</u>						
	CO4	1			,	<u> </u>	1						
	CO5	N √		,		$\overline{\mathbf{v}}$							
	CO6	N	1	1	N	Ň							
Name of the S	ubject:	DIGI	TAL EI	LECTR	ONICS	5 LAB	ORAT	ORY					
Subject Code:													
fear: 2 <sup>ND</sup>								Seme	ester:	4 <sup>™</sup>			
Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO1
Dutcomes	COS												
	CO1	$\checkmark$	1	1	1	1	1						
	CO2	1	1	1			$\checkmark$						
	CO3	1	1	1			$\checkmark$						
	CO4	1					$\checkmark$						
	CO5	$\checkmark$			$\checkmark$	$\checkmark$							
	CO6	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$							
lame of the S	ubject:	ELEC	TRICA		D ELEC	TRON	ICS M	EASU	REMEN	IT LAE	BORAT	ORY	
Subject Code:													
fear: 2 <sup>ND</sup>								Seme	ester:	4 <sup>TH</sup>			
				1	-						-		1
Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO1
Programme Dutcomes	POS& COS		_		_			PO7	PO8	PO9	PO10	PO11	PO1
	COS <b>CO1</b>	1	1	1	PO4 √	PO5 √	PO6 √	P07	PO8	PO9	P010	P011	PO1
	COS CO1 CO2	√ √	√ √	√ √	_			PO7	PO8	PO9	PO10	PO11	PO1
	COS CO1 CO2 CO3	イ イ イ	1	1	_			P07	P08	PO9	P010	P011	PO1
	COS CO1 CO2 CO3 CO4	イ イ イ イ	√ √	√ √	√	√		P07	P08	PO9	PO10	P011	P01
	COS CO1 CO2 CO3 CO4 CO5	↓ ↓ ↓ ↓ ↓	√ √ √	√ √ √	√	√ √		PO7	P08	PO9	P010	P011	P01
	COS CO1 CO2 CO3 CO4	イ イ イ イ	√ √	√ √	√	√		PO7	P08	PO9	PO10	P011	P01
	COS CO1 CO2 CO3 CO4 CO5	↓ ↓ ↓ ↓ ↓	√ √ √	√ √ √	√	√ √		PO7	PO8	PO9	PO10	P011	PO1
	COS CO1 CO2 CO3 CO4 CO5	↓ ↓ ↓ ↓ ↓	√ √ √	√ √ √	√	√ √		PO7	PO8	PO9	PO10	P011	PO1
Outcomes Name of the S	COS CO1 CO2 CO3 CO4 CO5 CO6 UDject:	√ √ √ √ √ THER	√ √ √ √	√ √ √	√ √ √	√ √ √	√ 				PO10	P011	P01
Dutcomes Name of the S Subject Code:	COS CO1 CO2 CO3 CO4 CO5 CO6 UDject:	√ √ √ √ √ THER	√ √ √ √	√ √ √	√ √ √	√ √ √	√ 	ABOR	ATOR	Y	PO10	P011	P01
outcomes lame of the S Subject Code:	COS CO1 CO2 CO3 CO4 CO5 CO6 UDject:	√ √ √ √ √ THER	√ √ √ √	√ √ √	√ √ √	√ √ √	√ 	ABOR		Y	PO10	P011	PO:
Jame of the S Subject Code: Year: 2 <sup>ND</sup>	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject: ES ME	√ √ √ √ √ 1 √ 1 491	√ √ √ ✓	√ √ √ √ >OWEI	√ √ √			ABOR	ATOR	<b>ү</b>			
Jame of the S Subject Code: Tear: 2 <sup>ND</sup>	COS CO1 CO2 CO3 CO4 CO5 CO6 UDject: ES ME	√ √ √ √ √ THER	√ √ √ √	√ √ √	√ √ √	√ √ √	√ 	ABOR	ATOR	Y	PO10	P011	
lame of the S ubject Code: ear: 2 <sup>ND</sup> rogramme	COS CO1 CO2 CO3 CO4 CO5 CO6 UDJeCt: ES ME	√       √    <	√ √ √ √ MAL F	√       √       √       √       √       √       POWEI	√ √ √ R ENG	√ √ √ INEER	√ 	ABOR	ATOR	<b>ү</b>			
ame of the S ubject Code: ear: 2 <sup>ND</sup> rogramme	COS CO1 CO2 CO3 CO4 CO5 CO6 UDject: ES ME	√       √       √       √       √       √       √       √       √       √       0       √       0       0       0       √       0       0       0       0       0       0       0       0       0       0	√       √       √       √       √       PO2       √	√       √       √       √       √       POWEI	√ √ √		√ 2ING L	ABOR	ATOR	<b>ү</b>			
lame of the S ubject Code: ear: 2 <sup>ND</sup>	COS CO1 CO2 CO3 CO4 CO5 CO6 UDJECT: ES ME POS& COS CO1 CO2	√       √       √       √       √       √       √       P01       √       √       √	√       √       √       √       √       PO2       √       √	√       √       √       √       POWEI	√ √ √ R ENG	√ √ √ INEER	√       ING L       P06       √	ABOR	ATOR	<b>ү</b>			P01
lame of the S Subject Code: Tear: 2 <sup>ND</sup>	COS CO1 CO2 CO3 CO4 CO5 CO6 UDJECT: ES ME ES ME COS CO1 CO2 CO3	√       √       √       √       √       √       √       P01       √       √       √       √	√       √       √       √       √       PO2       √	√       √       √       √       √       POWEI	√ √ √ R ENG	√ √ √ INEER	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			
lame of the S Subject Code: Tear: 2 <sup>ND</sup>	COS CO1 CO2 CO3 CO4 CO5 CO6 UDJeCt: ES ME ES ME COS CO1 CO2 CO3 CO3 CO4	√       √       √       √       √       √       √       0       0       0       0       0       0       √       √       √       √       √       √       √       √       √       √       √       √	√       √       √       √       √       PO2       √       √	√       √       √       √       POWEI	√         √         √         √         √         √         √         √         √         √         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	√       √       √       √       √       √       √       √       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0	√       ING L       P06       √	ABOR	ATOR	<b>ү</b>			
Dutcomes Name of the S Subject Code: Tear: 2 <sup>ND</sup> Programme	COS CO1 CO2 CO3 CO4 CO5 CO6 ES ME POS& CO3 CO1 CO2 CO3 CO1 CO2 CO3 CO4 CO5	√       √       √       √       √       √       √       P01       √	√       √       √       √       √       √       √       PO2       √  <	√       √       √       √       √       √       PO3       √  <	√         √         √         √         √         √         √         P04         √         √         √         √         √         √         √         √         √         √         √	√       √	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			
Dutcomes lame of the S Subject Code: 'ear: 2 <sup>ND</sup> Programme	COS CO1 CO2 CO3 CO4 CO5 CO6 UDJeCt: ES ME ES ME COS CO1 CO2 CO3 CO3 CO4	√       √       √       √       √       √       √       0       0       0       0       0       0       √       √       √       √       √       √       √       √       √       √       √       √	√       √       √       √       √       PO2       √       √	√       √       √       √       POWEI	√         √         √         √         √         √         √         √         √         √         P04         √         ✓	√       √       √       √       √       √       √       √       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			
Dutcomes Name of the S Subject Code: Tear: 2 <sup>ND</sup> Programme	COS CO1 CO2 CO3 CO4 CO5 CO6 ES ME POS& CO3 CO1 CO2 CO3 CO1 CO2 CO3 CO4 CO5	√       √       √       √       √       √       √       P01       √	√       √       √       √       √       √       √       PO2       √  <	√       √       √       √       √       √       PO3       √  <	√         √         √         √         √         √         √         P04         √         √         √         √         √         √         √         √         √         √         √	√       √	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			
Outcomes Name of the S	COS CO1 CO2 CO3 CO4 CO5 CO6 ES ME POS& CO3 CO1 CO2 CO3 CO1 CO2 CO3 CO4 CO5	√       √       √       √       √       √       √       P01       √	√       √       √       √       √       √       √       PO2       √  <	√       √       √       √       √       √       PO3       √  <	√         √         √         √         √         √         √         P04         √         √         √         √         √         √         √         √         √         √         √	√       √	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			
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Name of the S Subject Code: (ear: 2 <sup>ND</sup> Programme Dutcomes	COS C01 C02 C03 C04 C05 C06 UDject: ES ME POS& COS C01 COS C01 COS C01 COS C03 C04 COS COS C01 COS COS COS COS COS COS COS COS	√       √	√         √         √         √         √         P02         √	√         √         √         √         √         POWEI         √	√         √	√       √	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			
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Dutcomes lame of the S Subject Code: 'ear: 2 <sup>ND</sup> Programme	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject: ES ME POS& CO3 CO1 CO2 CO3 CO1 CO2 CO3 CO4 CO5 CO1 CO2 CO3 CO4 CO5 CO5 CO1 CO2 CO5 CO5 CO6 D CO5 CO5 CO6 D CO5 CO5 CO6 D CO5 CO5 CO6 D CO5 CO5 CO6 D CO5 CO5 CO6 D CO5 CO5 CO5 CO6 D CO5 CO5 CO5 CO5 CO5 CO5 CO5 CO5	√           √	√         √         √         √         √         P02         √	√         √         √         √         √         POWEI         √	√         √	√       √	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			

	POS& COS	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO1
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	POS&	P01	PO2	PO3	PO4	PO5	PO6	Semo	ester:	5 <sup>TH</sup>	PO10	P011	PO
	POS& COS	P01			PO4	P05	PO6				PO10	P011	PO
	POS& COS <b>CO1</b>	P01 √	PO2 √	PO3 √		P05	PO6	P07			PO10	P011	PO
	POS& COS <b>CO1</b> <b>CO2</b>	P01 √ √			√	PO5					P010	P011	PO
	POS& COS CO1 CO2 CO3	P01 √			√ √	PO5	√	P07			P010	P011	PO
	POS& COS <b>CO1</b> <b>CO2</b>	P01 √ √			√	PO5		P07			P010	P011	PO
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lame of the Subject Code: P	POS& COS CO1 CO2 CO3 CO4 CO5 CO6 Dject: C EE ! POS& COS	P01 √ √ √ POW 592	√ √ √ ER SY	√ √ √ STEM	√ √ √ I I LA	BORA	√ √ √	P07 √ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	PO8	P09 √ √			
lame of the Subject Code: P	POS& CO3 CO4 CO5 CO6 Dject: C EE S POS& COS CO1	P01  √  √  √  POW  592  P01  √		√ √ √ STEM	√           ×           ×	BORA	√ √ √	P07 √	PO8	P09 √ √			
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	COS CO1	1	1	1	1								
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	COS	101	F02	FUS	F04	FUS	FOO	F07	F Uð	F03	1010	1011	P012
	C01	1	1	1	1								
	CO2	V	1	1		1			1	1			1
	CO3	V	1			1				1			1
	CO4	1								1			
	CO5	$\checkmark$		1	1				1	1	$\checkmark$		
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	COS		_		_	PO5	PO6		1	1	PO10	P011	P012
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	COS CO1 CO2 CO3	√ √ √	√   √		_	PO5	P06		PO8	1	PO10	P011	P012
	COS CO1 CO2	√ √	√   √		_	PO5	PO6		PO8	1	P010	P011	P012
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Subject Code: (	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject: OE EE 0 POS& COS CO1 CO2	√ √ √ √ √ <b>COMN</b> <b>601 B</b> P01 √	√ √ √ √ MUNI( 3 PO2	√ √ √ ✓ C ATI	√       √       √       √       0       0       0       0       0       0       √       √       √	NGINE	√       √       √       √       √	G P07	√ √ √ = = = = = = = √	6 <sup>тн</sup>			PO:
Subject Code: (	COS CO1 CO2 CO3 CO4 CO5 CO6 CO6 CO6 CO6 CO5 CO1 CO2 CO3 CO1 CO2 CO3 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO6 CO5 CO6 CO6 CO5 CO6 CO5 CO6 CO6 CO5 CO6 CO6 CO5 CO6 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO6 CO5 CO6 CO5 CO5 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO5 CO5	√       √       √       √       √       √       0       0       0       0       0       √	√       √       √       √       √       √       √       Ø       Ø       √       √       √       √       √       √       √       √       √       √       √       √	√       √       √       √       √       √       ✓       PO3       √       √       √       √       √       √       √       √       √       √	√       √	NGINE	√       √       √       √       √       0       0       0       0       0       √       √	G P07	√         √         √         √         √         PO8         √         √         √         √         √         √         √	6 <sup>тн</sup>			
Subject Code: (	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject: OE EE 0 POS& COS CO1 CO2 CO3 CO3 CO4	√ √ √ √ √ 501 B P01 √ √ √ √	√       √	√       √       √       √       √       √       0       √       0       √       0       √       0       0       0       0       0       √       0       0       0       √	√       √       √       √       √       0       PO4       √       √       √       √       √       √       √	NGINE	√       √       √       √       √       0       0       0       0       0       √       √	G P07	√         √         √         √         √         PO8         √         √         √         √         √         √	6 <sup>тн</sup>			
Subject Code: (	COS CO1 CO2 CO3 CO4 CO5 CO6 UDject: OE EE 0 POS& CO3 CO1 CO2 CO3 CO1 CO2 CO3 CO4 CO5 CO1 CO5 CO1 CO5 CO6 CO1 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO5 CO6 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO5 CO5	√         √         √         √         √         √         √         √         0         0         0         √ <t< td=""><td>√       √</td><td>√       √</td><td>√       √</td><td>P05</td><td>√         √</td><td>G P07</td><td>√         √         √         √         √         PO8         √         √         √         √         √         √</td><td>6<sup>тн</sup></td><td></td><td></td><td></td></t<>	√       √	√       √	√       √	P05	√         √	G P07	√         √         √         √         √         PO8         √         √         √         √         √         √	6 <sup>тн</sup>			

PO: CC		01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
C01		1	1	1	1		1					1
CO2	. √	1	$\checkmark$	1	1		1					$\checkmark$
CO3	√ √	1	$\checkmark$	1	1		1					1
CO4	. √	1	$\checkmark$		$\checkmark$							
CO5	√ √	1	$\checkmark$		$\checkmark$		$\checkmark$					
COG	, √		$\checkmark$		$\checkmark$		$\checkmark$					$\checkmark$

Subject Co		<b>701</b>											
<b>Year:</b> 4 <sup>TH</sup>			ster:	7 <sup>TH</sup>									
				-		-	1			-	1	1	T
Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
Outcomes	COS												
	CO1	1	1	1	1	1						1	
	CO2	1	1		-	1		-	-	-		- , · · ·	
	CO3	√ √			1	$\overline{\mathbf{v}}$	1					1	
	CO4	N √	√   √	$\overline{\mathbf{v}}$	Ň	- Y	1	-	-			1	
	CO5 CO6	N √	 √	N √	_	1	•	_				Ň	
	00	v	N N	v		V							
Name of th	e Sub	iect: F	LECT			LABO	RATO	DRY					
Subject Co	de: EE	791											
Year: 4 <sup>TH</sup>		Seme	ster:	7 <sup>TH</sup>									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	COS	<u> </u>	<u> </u>	<u> </u>			_			_		<u> </u>	
	CO1	1	1	1	1	1						1	
rogramme	CO2	√	1			1							
Dutcomes	CO3	1	1	1	,	1	1					1	
	CO4 CO5		√ √	√   √	1	1	1						
		N					N N					$\checkmark$	
					-	1							
	<u>CO6</u>	1	۲ ۲	<u>الا</u>		1							
Subject Co	coe ne Subj de: EE	√ ject: l 702	JTILI	SATIC				POW	ER				
Subject Co	coe ne Subj de: EE	√ ject: l 702	1	SATIC	DN OF		TRIC	POW	ER				
Subject Co	coe ne Subj de: EE	√ ject: l 702	JTILI	SATIC	<b>DN OF</b>		CTRIC PO6	<b>POW</b>	ER PO8	P09	PO10	P011	P012
Subject Co	co6 ne Subj de: EE	√ ject: l 702 Seme	JTILI ster: PO2 √	SATI( 7 <sup>TH</sup>		ELEC				P09	P010	P011	P012
Subject Co Year: 4 <sup>™</sup>	co6 e Subj de: EE POS& COS co1 co2	√ ject: U 702 Seme ↓ √	JTILI ster: PO2 V	SATI( 7 <sup>TH</sup>		ELEC	P06			P09	PO10	P011	P012
<b>Subject Co</b> <b>Year:</b> 4 <sup>TH</sup> Programme	co6 de: EE POS& CO3	√ ject: l 702 Seme	√           JTILI           ester:           PO2           √           √           √	SATI( 7 <sup>TH</sup>		P05				P09	P010	P011	P012
Programme	CO6 CO6 CO5 CO3 CO4	√ ject: l 702 Seme P01 √ √ √ √ √ √ √ √	√           JTILI           sster:           PO2           √           √           √           √           √           √           √	SATI( 7 <sup>TH</sup>		P05	P06	P07		P09	PO10	P011	P012
<b>Subject Co</b> <b>Year:</b> 4 <sup>TH</sup> Programme	CO6 E Subj de: EE POS& COS CO1 CO2 CO3 CO4 CO5	√       ject: l       702       Seme       √	√         JTILI         ster:         PO2         √	SATI( 7 <sup>TH</sup>		PO5	P06			P09	P010	P011	P012
<b>Subject Co</b> <b>Year:</b> 4 <sup>™</sup> Programme	CO6 CO6 CO5 CO3 CO4	√ ject: l 702 Seme P01 √ √ √ √ √ √ √	√           JTILI           sster:           PO2           √           √           √           √           √           √           √	SATI( 7 <sup>TH</sup>		P05	P06	P07		P09	PO10	P011	P012
	CO6 E Subj de: EE POS& COS CO1 CO2 CO3 CO4 CO5	√       ject: l       702       Seme       √	√         JTILI         ster:         PO2         √	SATI( 7 <sup>TH</sup>		PO5	P06	P07		P09	P010	P011	P012
<b>Subject Co</b> <b>Year:</b> 4 <sup>TH</sup> Programme	CO6 E Subj de: EE POS& COS CO1 CO2 CO3 CO4 CO5	√       ject: l       702       Seme       √	√         JTILI         ster:         PO2         √	SATI( 7 <sup>TH</sup>		PO5	P06	P07		P09	PO10	P011	P012
Subject Co Year: 4 <sup>TH</sup> Programme Dutcomes Name of th	CO6 De Subj de: EE POS& CO3 CO3 CO4 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO5 CO5	√         ject: I         702         Seme         √ <t< td=""><td>√         JTILI         sster:         P02         √      <t< td=""><td>√         SATIC         7<sup>TH</sup>         РОЗ        </td><td>PO4</td><td>P05</td><td>P06</td><td>P07</td><td></td><td>P09</td><td>P010</td><td>P011</td><td>P012</td></t<></td></t<>	√         JTILI         sster:         P02         √ <t< td=""><td>√         SATIC         7<sup>TH</sup>         РОЗ        </td><td>PO4</td><td>P05</td><td>P06</td><td>P07</td><td></td><td>P09</td><td>P010</td><td>P011</td><td>P012</td></t<>	√         SATIC         7 <sup>TH</sup> РОЗ	PO4	P05	P06	P07		P09	P010	P011	P012
Subject Co Year: 4 <sup>TH</sup> Programme	CO6 De Subj de: EE POS& CO3 CO4 CO5 CO6 De Subj de: EE	√         ject: I         702         Seme         01         √      <	√         JTILI         sster:         P02         √ <t< td=""><td>√         SATI(         7<sup>TH</sup>         РОЗ        </td><td>PO4</td><td>P05</td><td>P06</td><td>P07</td><td></td><td>PO9</td><td>PO10</td><td>P011</td><td>P012</td></t<>	√         SATI(         7 <sup>TH</sup> РОЗ	PO4	P05	P06	P07		PO9	PO10	P011	P012

Programm	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
e	COS	101	P02	103	P04	203	P U0	10/	100	109	2010	1011	1012
e Outcomes	<b>CO1</b>	1	1	1		1		1	1				
	CO1	1	1	1		1	1	1	1			1	
	CO2	V	1	1			1	1	1			1	1
	CO4	۰ ۷	Ń	Ń			Ń		,			Ń	
	CO5	v.	Ń	Ń		1	Ń					V	
	CO6	1 V	Ń	1 V		1 V	1 V	1	1				
		,		•			,	1					
	L											1	
Name of th	e Subj	ject: (	CONTI	ROLS	YSTE	M III							
Subject Co	de: EE	703E	3										
<b>Year:</b> 4 <sup>TH</sup>		Seme	ster:	7 <sup>TH</sup>									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
	COS												
Programme	CO1	1	$\checkmark$	1	1	1						$\checkmark$	
Outcomes	CO2	1	$\checkmark$			1						$\checkmark$	
	CO3	1	$\checkmark$			1						$\checkmark$	
	CO4	√	1	1	$\checkmark$	1							
	CO5	1	$\checkmark$	1								1	
	CO6	1	1	V		1							
			•										•
Name of th				VOLT	AGE E	NGIN	EERI	NG					
Subject Co	de: EE	7044	1										
Year: 4TH		Seme	ster:	7 <sup>TH</sup>									
				-									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	COS												
	CO1	√	1	1	1								
	CO2	۰ ۱	Ń		,				1				
Programme	CO2	1	1						-	1			
Outcomes	CO4	1								1			
		V		1	1				1	1	1		
	CO5	v √	1						N	 ↓	V		
	CO6	N .	N N	Ŷ	- Y			-		<u> ү</u>	N N		-
Name of th	e Subi	iect: F	RENEV	VABL	E AND		CON	VENT	IONAI		RGY		
Name of th Subject Co	e Subj de: EE	ject: F 7041	RENEV	VABL	EAND	NON	CON	VENT	IONA	LENE	RGY		
Subject Co	de: EE	704	)		EAND	NON	CON	VENT	IONA	LENE	RGY		
Name of th Subject Coo Year: 4 <sup>TH</sup>	de: EE	704	RENEV D ster: 1		E ANC	D NON	CON	VENT	IONAI	LENE	RGY		
Subject Co	de: EE	704I Seme	) ster: :	7 <sup>TH</sup>								P011	P012
Subject Coo Year: 4 <sup>TH</sup>	POS&	704	)		E AND P04	P05	<b>CON</b> P06	<b>VENT</b>	IONA PO8	P09	PO10	P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS	704[ Seme	D ster: 2 PO2	<b>7</b> <sup>TH</sup> PO3	PO4							P011	P012
Subject Co	POS& COS	704[ Seme <sup>P01</sup>	) ster: : PO2 √	7 <sup>TH</sup>					P08			P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS CO1 CO2	704[ Seme P01 √ √	) ster: : PO2 √ √	<b>7</b> <sup>TH</sup> PO3	PO4					P09		P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS	704[ Seme P01 √ √	) ster: : PO2 √	<b>7</b> <sup>TH</sup> PO3	PO4				P08	P09 √		P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS CO1 CO2	704[ Seme P01 √ √ √ √ √	) ster: : PO2 √ √	7 <sup>TH</sup> PO3 √	PO4 √				P08	PO9 イ イ	P010	P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS CO1 CO2 CO3	704I Seme	) ster: : PO2 √ √	<b>7</b> <sup>TH</sup> PO3	PO4 √				P08	P09 √	P010	P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS CO1 CO2 CO3 CO4	704[ Seme P01 √ √ √ √ √	) ster: : PO2 √ √	7 <sup>TH</sup> PO3 √	PO4 √				P08	PO9 イ イ	P010	P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS CO1 CO2 CO3 CO4 CO5	704I Seme	) ster: 7 PO2 √ √ √	7 <sup>TH</sup> PO3 √	PO4 √				P08	P09 	P010	P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS CO1 CO2 CO3 CO4 CO5	704I Seme	) ster: 7 PO2 √ √ √	7 <sup>TH</sup> PO3 √	PO4 √				P08	P09 	P010	P011	P012
<b>Subject Coo</b> <b>Year:</b> 4 <sup>TH</sup> Programme Dutcomes	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	704I Seme P01 √ √ √ √ √ √	) ster: :	7 <sup>TH</sup> PO3 √ √	P04 √ √ √ √	P05	P06		P08	P09 	P010	P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	704I Seme P01 √ √ √ √ √ √	) ster: :	7 <sup>TH</sup> PO3 √ √	P04 √ √ √ √	P05	P06		P08	P09 	P010	P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme Dutcomes Name of th	POS& COS CO1 CO2 CO3 CO4 CO5 CO6 CO6	704I Seme P01 √ √ √ √ √ √ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	D ster: 2 PO2 √ √ √ √ √ COMP	7 <sup>TH</sup> PO3 √ √	P04 √ √ √ √	P05	P06		P08	P09 	P010	P011	P012
<b>Subject Coo</b> <b>Year:</b> 4 <sup>TH</sup> Programme Outcomes	POS& COS CO1 CO2 CO3 CO4 CO5 CO6 e Subj	704I Seme P01 √ √ √ √ √ √ √ √ √ √ √ √ √	PO2       √       √       √       √       √       √       COMP	7 <sup>TH</sup> PO3 √ √ V UTER	P04 √ √ √ √	P05	P06		P08	P09 	P010	P011	P012

	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
	COS												
rogramme	CO1	1	1	1	√	$\checkmark$							
utcomes	CO2	1	1	1	$\checkmark$								
	CO3	$\checkmark$	$\checkmark$		$\checkmark$								
	CO4	1	1		1	1		1					
	CO5	V	$\checkmark$		√	1		1					
	CO6	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$					
Name of th Subject Co	e Subj	ject: (	COMP	UTER	NETV	VORK							
Year: 4 <sup>TH</sup>		Seme	ster:	7 <sup>TH</sup>									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	P011	PO12
	COS												
	CO1	$\checkmark$	1	1	$\checkmark$	√							$\vdash$
	CO2	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$								
	CO3	$\checkmark$	$\checkmark$		$\checkmark$								
	CO4	$\checkmark$	$\checkmark$		1	$\checkmark$		1					
	CO5	$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$		$\checkmark$					
	CO6	$\checkmark$	1	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$					
Name of th	e Subj	ject: S	SEMIN	NAR O	N INI	DUSTI	RIAL '	TRAIN	IING				
Subject Co				<b>∍</b> TH									
<b>Year:</b> 4 <sup>TH</sup>		Seme	ester:	/									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
	COS		1.02	105	104	105	100	107	100	105	1010	1011	101
	CO1	1	1	1			1						
	CO1	1	1	1	1		1						
	CO2	1	, v	1	1								
	CO3	1	1	• •	1			1					
		V	1	1	V			 √					
	CO5	N N	1	V	1			 √					
	CO6	N	N		Ň			N					
Name of th Subject Co	e Subj	ject:   782	ELECT	RICS	SYSTE	M DES	SIGN	I					
<b>Year:</b> 4 <sup>TH</sup>			ster:	7 <sup>TH</sup>									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	P011	P012
	COS												
	CO1	1	1	1		1			1			1	1
	CO1	V	1	1		1							1
	CO2		1	v √	1	√							1
		N N	N √	N √	 √	V							1
	CO4		N 	-									4
	CO5	1	N	/	1	-	-					1	-
		$\checkmark$	1	1									
	CO6			1	1							1	
	CO6												
		-											
Name of th	e Subj	ject: I	PROJE	CT I									
Name of th Subject Coo Year: 4 <sup>TH</sup>	e Subj de: EE	783	PROJE										

	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	COS	,	· .			- ,	-		_		,	-	
	CO1	1	√ √			√   √					√		
	CO2		N √	√ √		N		.1			1		
	CO3	N √	N √	 √		+	-	 ↓	-			+	
	CO4 CO5	N √	1	1	1			N N					
	COS CO6	v √	1	1	1								
		•	, v	1	•								
Name of th	e Subj	ect: C	DRGA	NISA	FIONA	L BE	HAVIO	DUR					
Subject Coo Year: 4 <sup>TH</sup>				атн									
rear: 4		Seme	ster: 8	3									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
	COS		<u> </u>	<b>_</b>				_					1
	CO1	1	1	1	1	+						+	
	CO2	<b>√</b>	1	<b>√</b>	<u>√</u>	1							
	CO3	<b>√</b>	1	<b>√</b>	1	√		_					1
	CO4	1	1	<b>√</b>	 			_					1
	CO5	√ √	√ √	 √	 								_ √
	CO6	N	<u>۲</u>	- V	√	+							
		l		<u> </u>				I		<u> </u>	1	1	1
Name of th	e Subj	ect: F	IVDC	TRAN	SMIS	SION							
Subject Cod	de: EE	801	Α										
<b>fear:</b> 4 <sup>TH</sup>		Seme	ster: 8	3 <sup>тн</sup>									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	P012
	COS												
	CO1	1	1	1	1								
	CO2	٦	1	1	$\checkmark$	_							
	CO3	1	1	1	1	1			_			-	
	CO4	1	1	1	1	-			_			-	
	CO5	1	1	1	1								1
	CO6	1	1	1	$\checkmark$	_							
I													
L.													
L													
Name of th	e Subj	ect: I	LLUM	INAT	IONE	NGIN	IEERI	NG					
Subject Cod	de: EE	801E	3		IONE	NGIN	IEERI	NG					
Subject Cod	de: EE	801E	LLUM 3 ster: 3		IONE	NGIN	IEERI	NG					
Subject Cod	de: EE	801E Seme	3 ster: 8	8 <sup>TH</sup>					POP	POO	PO10	PO11	DO1
Subject Cod	de: EE	801E	3		<b>ION E</b> PO4	PO5	PO6	<b>NG</b> P07	PO8	PO9	P010	P011	PO12
Subject Cod	POS& COS	801E Seme	B ster: 8	8 <sup>TH</sup>					PO8	PO9		P011	P012
Subject Cod	POS& COS CO1	801E Seme <sup>P01</sup>	3 ster: 8 ₽02	8 <sup>TH</sup>					PO8	PO9	P010 √		P012
Subject Cod	POS& COS CO1 CO2	801E Seme P01 √ √	3 ster: { PO2 √	8 <sup>TH</sup>					P08	P09		P011	
Subject Cod	POS& COS CO1 CO2 CO3	801E Seme P01 √ √ √	3 ster: {	8 <sup>TH</sup>					P08	PO9			P012
Subject Cod	POS& COS CO1 CO2 CO3 CO4	801E Seme P01 √ √ √ √ √	3 ster: {	8 <sup>TH</sup>					P08	PO9		1	
Subject Cod	POS& COS CO1 CO2 CO3 CO4 CO5	801E Seme P01 √ √ √ √ √ √	3 ster: 8	8 <sup>TH</sup>					PO8	PO9			√
Name of th Subject Coo Year: 4 <sup>™</sup>	POS& COS CO1 CO2 CO3 CO4	801E Seme P01 √ √ √ √ √	3 ster: {	8 <sup>TH</sup>					PO8	PO9		1	
Subject Cod	POS& COS CO1 CO2 CO3 CO4 CO5	801E Seme P01 √ √ √ √ √ √	3 ster: 8	8 <sup>TH</sup>					P08	PO9		1	√
Subject Cod	POS& COS CO1 CO2 CO3 CO4 CO5	801E Seme P01 √ √ √ √ √ √	3 ster: 8	8 <sup>TH</sup>					PO8	PO9		1	√
Subject Cod	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	801E Seme P01 √ √ √ √ √ √	3 ster: 8	<b>В</b> <sup>ТН</sup> РОЗ	P04	P05	PO6	P07		PO9		1	√
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COS         Image: Cos <th></th>														
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Image: constraint of the subject: SENSORS AND TRANSDUCERS           Subject Code: EE802B           Fear: 4 <sup>TH</sup> Semester: 8 <sup>TH</sup> POS& P01         P02         P03         P04         P05         P06         P07         P08         P09         P011         P011           Cos         4					-			1					V	
Image of the Subject: SENSORS AND TRANSDUCERS           Name of the Subject: SENSORS AND TRANSDUCERS           Subject Code: EE802B           Year: 4 <sup>TH</sup> Pose Poil         Pos         Pos </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							-							
Image: cost of the subject: SENSORS AND TRANSDUCERS           Subject Code: EE802B           Year: 4 <sup>1+1</sup> Semester: 8 <sup>1+1</sup> POS8         POI         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         PO11           Cost d          d         d									'					
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Name of the Subject: SENSORS AND TRANSDUCERS           Subject Code: EE802B           Year: 4 <sup>1H</sup> Semester: 8 <sup>1H</sup> PO38         P03         P04         P05         P06         P07         P08         P09         P010         P011         P012           Cos         V									1	1			v	
Subject Code: EE802B           Year: 4 <sup>H</sup> Semester: 8 <sup>H</sup>			, v	v	•		•		•	*				
Subject Code: EE802B           Year: 4 <sup>H</sup> Semester: 8 <sup>H</sup>			I											
POS         PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         PO12           CO3         V	Subject Co	ode: EE	802B			ND TI	RANS	DUCE	RS					
COS         PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO11         PO12           Subject         COG         COS         PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO11         PO12           COS         V         V         V         V         V         V         V         V         V         V         V         V         V         V         V         V	<b>Year:</b> 4 <sup>™</sup>		Seme	ster:	8 <sup>TH</sup>									
Name of the Subject: ELECTRICAL SYSTEM LAB II         V<			PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	P011	PO12
Name of the Subject: ELECTRICAL SYSTEM LAB II         V<		CO1	√	1										
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Name of the Subject: ELECTRICAL SYSTEM LAB II           Subject Code: EE 882           Vear: 4 <sup>TH</sup> Semester: 8 <sup>TH</sup>							1							
Name of the Subject: PROJECT STAGE II           Subject Code: EE 881           Year: 4 <sup>TH</sup> Semester: 8 <sup>TH</sup> POS&         PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         PO12           COS         V						1				+				+
Name of the Subject: PROJECT STAGE II           Soubject Code: EE 881           Year: 4 <sup>TH</sup> Semester: 8 <sup>TH</sup> $\begin{pmatrix} 005 & 001 & 002 & 003 & 004 & 005 & 006 & 007 & 008 & 009 & 0010 & 0011 & 0012 \\ 005 & 001 & 004 & 04 & 04 & 04 & 04 & 04 & $								_	-			-		<u> </u>
Name of the Subject: PROJECT STAGE II           Soubject Code: EE 881           Year: 4 <sup>TH</sup> Semester: 8 <sup>TH</sup>							<u> </u>	_		-				<u> </u>
Subject Code: EE 881           Year: 4 <sup>TH</sup> Semester: 8 <sup>TH</sup> POS&         P01         P02         P03         P04         P05         P06         P07         P08         P09         P010         P011         P012           C03         V <t< td=""><td></td><td>CO6</td><td>1</td><td>N</td><td></td><td>1</td><td>٧</td><td>_</td><td></td><td>-</td><td></td><td></td><td></td><td> </td></t<>		CO6	1	N		1	٧	_		-				
Subject Code: EE 881           Year: 4 <sup>TH</sup> Semester: 8 <sup>TH</sup> POS&         P01         P02         P03         P04         P05         P06         P07         P08         P09         P010         P011         P012           C03         V <t< td=""><td></td><td></td><td></td><td> </td><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td></t<>											1			
Subject Code: EE 882         Year: $4^{TH}$ Semester: $8^{TH}$ POS& PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12         COS       0         CO1 V       V         CO2 V       V         V       V         CO3 V       V         V       V         CO4 V       V         V       V       V	Year: $4^{TH}$			ster:	8 <sup>TH</sup>									
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Year: 4 <sup>™</sup>	POS& COS CO1 CO2 CO3 CO4 CO5	Seme P01 √ √ √ √ √ √ √ √	PO2	PO3 √ √ √ √ √	↓ ↓ ↓ ↓			PO7					
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$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Name of tl Subject Co	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	Seme P01 √ √ √ √ √ √ √	PO2 √ √ √ √ √ √ √ FLECT Ster: 3 PO2 √	РОЗ √ √ √ √ √ √ √	√ √ √ √ √ ↓	√         Image: state sta	_AB I		√ 		√		↓ ↓ ↓
CO5 1 1 1 1 1	Name of tl Subject Co	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	Seme P01 √ √ √ √ √ √ √ V V P01 √ √ √ √ √ V V V V V V V V V V V V V	PO2 √ √ √ √ √ √ √ FLECT Ster: 3 PO2 √ √ √	РОЗ	\ \ \ \ \ \ \ \ \ \ \ PO4 \ \ \ \	√         Image: state sta	_AB I		√ 	PO9	√	V           P011	↓ ↓ ↓
	Name of tl Subject Co	POS& COS CO1 CO2 CO3 CO4 CO5 CO6 DOCE EE POS& COS CO1 CO2	Seme P01 √ √ √ √ √ √ √ Seme P01 √ √ √ √ √ √ √ √ √ √ √ √ √	PO2 √ √ √ √ √ √ √ FLECT Ster: 3 PO2 √ √ √	РОЗ	\ \ \ \ \ \ \ \ \ \ \ PO4 \ \ \ \	√         Image: state sta	_AB I		√ 	PO9	√	V           P011	↓ ↓ ↓
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	Name of tl Subject Co	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	P01         √	PO2 √ √ √ √ √ √ √ × FECT Ster: 8 PO2 √ √ √ √ √ √ √ √ × ×	РОЗ	√         √	√         Image: state sta	_AB I]		×	PO9	√	V           P011	P012
	Name of tl Subject Co	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	P01         √	PO2 √ √ √ √ √ √ √ × FECT Ster: 8 PO2 √ √ √ √ √ √ √ √ × ×	РОЗ	√         √	√         Image: state sta	_AB I]		×	PO9	√	V           P011	P012

# CALCUTTA INSTITUTE OF ENGINEERING AND MANAGEMENT DEPARTMENT OF INFORMATION TECHNOLOGY ACADEMIC YEAR 2021-2022 CO PO MAPPING FOR ODD SEMESTER,2021

### **PROGRAM OUTCOMES**

#### **PO-1: Engineering Knowledge**:

Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

#### **PO-2: Problem Analysis:**

Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

#### PO-3: Design/development of solutions:

Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

#### **PO-4:** Conduct investigations of complex problems:

Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

#### **PO-5: Modern tool usage:**

Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

#### **PO-6:** The engineer and society:

Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

### PO-7: Environment and sustainability:

Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

#### **PO-8: Ethics:**

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

### PO-9: Individual and team work:

Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

#### **PO-10: Communication:**

Communicate effectively on complex engineering activities with the engineering community and with

society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

### **PO-11: Project management and finance:**

Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

#### **PO-12: Life-long learning:**

Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

COURSE NAME	Physics I
COURSE CODE	BS PH-101
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	1

### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5		$\checkmark$										
CO6												

### **COURSE DETAILS**

COURSE NAME	Mathematics I(A)
COURSE CODE	BS-M(101)
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	1

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2												
CO3												

COURSE NAME	Basic Electrical Engineering
COURSE CODE	ES-EE101
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	1

# **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2	$\checkmark$											
CO3							$\checkmark$					

#### **COURSE DETAILS**

COURSE NAME	Physics – I Laboratory
COURSE CODE	BS PH-191
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	1

# **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$	$\checkmark$	$\checkmark$								
CO2												
CO3				$\checkmark$								
CO4		$\checkmark$		$\checkmark$								
CO5		$\checkmark$		$\checkmark$								

### **COURSE DETAILS**

COURSE NAME	Basic Electrical Engineering Laboratory
COURSE CODE	ES-EE191
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	1

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1						$\checkmark$						
CO2	$\checkmark$		$\checkmark$		$\checkmark$							
CO3	$\checkmark$											

COURSE NAME	Workshop/Manufacturing Practices
COURSE CODE	ES - ME 192
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	1

### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$											
CO2												
CO3					$\checkmark$							
CO4												

### **COURSE DETAILS**

COURSE NAME	Analog & Digital Electronics
COURSE CODE	ESC301
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$											
CO2	$\checkmark$	$\checkmark$	$\checkmark$									
CO3			$\checkmark$									

COURSE NAME	Data Structure & Algorithm
COURSE CODE	PCC-CS301
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5												

# **COURSE DETAILS**

COURSE NAME	Computer Orgranization
COURSE CODE	PCC-CS302
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4					$\checkmark$							

COURSE NAME	Mathematics – III (Differential Calculus)
COURSE CODE	BSC-301
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5					$\checkmark$							

## **COURSE DETAILS**

COURSE NAME	Economics for Engineers (Humanities – II)
COURSE CODE	HSMC 301
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			$\checkmark$									
CO2		$\checkmark$										
CO3												

COURSE NAME	Analog & Digital Electronics Laboratory
COURSE CODE	ESC391
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

# **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			$\checkmark$									
CO2												
CO3												

#### **COURSE DETAILS**

COURSE NAME	Data Structures and Algorithms
COURSE CODE	PCC-CS391
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			$\checkmark$									
CO2			$\checkmark$									
CO3				$\checkmark$								

COURSE NAME	Computer Organisation
COURSE CODE	PCC CS-392
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												

# **COURSE DETAILS**

COURSE NAME	IT Workshop (SciLab/MATLAB/Python/R)
COURSE CODE	PCC-CS393
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2		$\checkmark$	$\checkmark$						$\checkmark$			
CO3												
CO4	$\checkmark$	$\checkmark$	$\checkmark$									

## **COURSE DETAILS**

COURSE NAME	Software Engineering
COURSE CODE	ESC-501
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$		$\checkmark$									
CO2												
CO3					$\checkmark$							
CO4												
CO5												

COURSE NAME	Compiler Design
COURSE CODE	PCC-CS501
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$											
CO2					$\checkmark$							
CO3												
CO4												

COURSE NAME	Operating Systems
COURSE CODE	PCC-CS502
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

# **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2				$\checkmark$								
CO3												$\checkmark$
CO4				$\checkmark$								
CO5		$\checkmark$										$\checkmark$

## **COURSE DETAILS**

COURSE NAME	Object Oriented Programming
COURSE CODE	PCC-CS503
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2			$\checkmark$									
CO3		$\checkmark$	$\checkmark$									
CO4			$\checkmark$									

COURSE NAME	Introduction to Industrial Management (Humanities – III)
COURSE CODE	HSMC 501
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2		$\checkmark$	$\checkmark$									
CO3		$\checkmark$										

### **COURSE DETAILS**

COURSE NAME	Artificial Intelligence
COURSE CODE	PEC-IT501B
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5												

COURSE NAME	Constitution of India
COURSE CODE	MC-CS501
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												

COURSE NAME	Software Engineering
COURSE CODE	ESC-591
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

# **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2												
CO3												
CO4		$\checkmark$										

# **COURSE DETAILS**

COURSE NAME	Operating Systems
COURSE CODE	PCC-CS592
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2			$\checkmark$									
CO3			$\checkmark$									
CO4			$\checkmark$									

COURSE NAME	Object Oriented Programming
COURSE CODE	PCC-CS593
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

# **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2	$\checkmark$		$\checkmark$		$\checkmark$							
CO3												

#### **COURSE DETAILS**

COURSE NAME	Cloud Computing
COURSE CODE	PEC-IT701C
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	7

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2		$\checkmark$										
CO3												
CO4												

COURSE NAME	Multimedia Technology
COURSE CODE	PEC-IT702A
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	7

# **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$	$\checkmark$										
CO2												
CO3												
CO4					$\checkmark$							

# **COURSE DETAILS**

COURSE NAME	Operation Research
COURSE CODE	OEC-IT701A
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	7

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2		$\checkmark$	$\checkmark$									
CO3		$\checkmark$	$\checkmark$									
CO4		$\checkmark$										$\checkmark$
CO5												

COURSE NAME	Project Management and Entrepreneurship
COURSE CODE	HSMC 701
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	7

# **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												

## **COURSE DETAILS**

COURSE NAME	Project - II
COURSE CODE	PROJ-IT 781
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	7

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3			$\checkmark$									
CO4												
CO5											$\checkmark$	
CO6										$\checkmark$	$\checkmark$	

# CALCUTTA INSTITUTE OF ENGINEERING AND MANAGEMENT DEPARTMENT OF INFORMATION TECHNOLOGY CO PO MAPPING FOR EVEN SEMESTER, 2022

#### **PROGRAM OUTCOMES**

#### **PO-1: Engineering Knowledge**:

Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

#### **PO-2: Problem Analysis:**

Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

## PO-3: Design/development of solutions:

Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

#### **PO-4: Conduct investigations of complex problems:**

Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

#### **PO-5: Modern tool usage:**

Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

## **PO-6: The engineer and society:**

Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

## PO-7: Environment and sustainability:

Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

## **PO-8: Ethics:**

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

## PO-9: Individual and team work:

Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

#### **PO-10: Communication:**

Communicate effectively on complex engineering activities with the engineering community and

with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

### **PO-11: Project management and finance:**

Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

### **PO-12: Life-long learning:**

Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

COURSE NAME	Chemistry - I
COURSE CODE	BS CH-201
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2	$\checkmark$											
CO3												
CO4	$\checkmark$											
CO5												

COURSE NAME	Mathematics – IIA
COURSE CODE	BS-M201
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												

#### **COURSE DETAILS**

COURSE NAME	Programming for Problem Solving
COURSE CODE	ES-CS201
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$	$\checkmark$									
CO2												
CO3												
CO4												

COURSE NAME	English
COURSE CODE	HM-HU201
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1										$\checkmark$		
CO2												
CO3		$\checkmark$										
CO4	$\checkmark$	$\checkmark$										

#### **COURSE DETAILS**

COURSE NAME	Chemistry – I Laboratory
COURSE CODE	BS CH-291
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3			$\checkmark$									
CO4												
CO5												

COURSE NAME	Programming for Problem Solving Laboratory
COURSE CODE	ES-CS291
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4		$\checkmark$										
CO5												
CO6												
CO7												
CO8												

#### **COURSE DETAILS**

COURSE NAME	Engineering Graphics & Design
COURSE CODE	ES-ME291
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4		$\checkmark$										

COURSE NAME	Language Laboratory
COURSE CODE	HM-HU291
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3		$\checkmark$										
CO4		$\checkmark$										

# **COURSE DETAILS**

COURSE NAME	Discrete Mathematics
COURSE CODE	PCC-CS401
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2	$\checkmark$	$\checkmark$										
CO3												
CO4												
CO5					$\checkmark$							

COURSE NAME	Computer Architecture
COURSE CODE	PCC-CS402
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$							
CO2	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$							
CO3												

COURSE NAME	Formal Language and Automata Theory
COURSE CODE	PCC-CS403
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4				$\checkmark$								$\checkmark$

## **COURSE DETAILS**

COURSE NAME	Design & Analysis of Algorithms
COURSE CODE	PCC-CS404
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$	$\checkmark$										
CO2												
CO3												
CO4		$\checkmark$										
CO5												
CO6												
CO7												
CO8												

COURSE NAME	Biology
COURSE CODE	BSC 401
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2		$\checkmark$										
CO3		$\checkmark$										
CO4												
CO5		$\checkmark$										
CO6		$\checkmark$										

# **COURSE DETAILS**

COURSE NAME	Environmental Sciences
COURSE CODE	MC 401
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			$\checkmark$			$\checkmark$	$\checkmark$					
CO2			$\checkmark$			$\checkmark$	$\checkmark$					
CO3						$\checkmark$						
CO4												
CO5		$\checkmark$										
CO6												

COURSE NAME	Computer Architecture Lab
COURSE CODE	PCC-CS 492
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												

#### **COURSE DETAILS**

COURSE NAME	Design and Analysis of Algorithms
COURSE CODE	PCC-CS494
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1				$\checkmark$								
CO2		$\checkmark$										
CO3												
CO4												
CO5		$\checkmark$										

#### **COURSE DETAILS**

COURSE NAME	Database Management Systems
COURSE CODE	PCC-CS601
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$				$\checkmark$							
CO2												
CO3												
CO4		$\checkmark$										
CO5	$\checkmark$		$\checkmark$									
CO6												

COURSE NAME	Computer Networks
COURSE CODE	PCC-CS602
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4	$\checkmark$			$\checkmark$								

#### **COURSE DETAILS**

COURSE NAME	Image Processing
COURSE CODE	PEC-IT601D
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5												

COURSE NAME	Pattern Recognition
COURSE CODE	PEC-IT602D
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5												

### **COURSE DETAILS**

COURSE NAME	Human Resource Development And Organizational Behavior
COURSE CODE	OEC-IT601B
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3											$\checkmark$	
CO4												
CO5												
CO6												

COURSE NAME	Research Methodology
COURSE CODE	PROJ-CS601
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2				$\checkmark$								
CO3												
CO4												
CO5						$\checkmark$						
CO6												

# **COURSE DETAILS**

COURSE NAME	Database Management System
COURSE CODE	PCC-CS691
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1					$\checkmark$							
CO2					$\checkmark$							
CO3					$\checkmark$							
CO4					$\checkmark$							
CO5												$\checkmark$

COURSE NAME	Computer Networks
COURSE CODE	PCC-CS692
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												

#### **COURSE DETAILS**

COURSE NAME	CRYPTOGRAPHY AND NETWORK SECURITY
COURSE CODE	PEC-IT801B
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	8

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												

COURSE NAME	BIG DATA ANALYSIS
COURSE CODE	OEC-IT801A
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	8

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1							$\checkmark$					
CO2							$\checkmark$					
CO3				$\checkmark$								
CO4				$\checkmark$								
CO5												

# **COURSE DETAILS**

COURSE NAME	ECOMMERCE & ERP
COURSE CODE	OEC-IT802A
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	8

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2					$\checkmark$							
CO3					$\checkmark$							
CO4				$\checkmark$								

COURSE NAME	PROJECT-III
COURSE CODE	PROJ CS 881
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	8

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1					$\checkmark$							
CO2									$\checkmark$			
CO3												
CO4												
CO5									$\checkmark$	$\checkmark$		
CO6											$\checkmark$	

## CALCUTTA INSTITUTE OF ENGINEERING AND MANAGEMENT DEPARTMENT OF INFORMATION TECHNOLOGY CO ATTAINMENT REPORT <u>ODD SEMESTER 2021</u>

		FIRST SEMESTER	
PAPER CODE (Name)	CO No.	Course Outcomes	Attained (%)
	C01	Apply the knowledge of simple harmonic motion (ideal and real cases) and basic concepts of Mechanics for the solution of complex problems.	82
	CO2	Utilize the knowledge of vector calculus and different coordinate system for the solution of complex problems.	86
BS PH-101	CO3	Apply the knowledge of physical optics (interference, diffraction, polarization) and LASER to solve different complex problems	83
(Physics-1)	CO4	Apply the knowledge of dielectric and magnetic properties of materials to interpret different complex systems.	85
	CO5	Utilize the knowledge of Quantum Physics to analyze a complex engineering problem.	83
	CO6	Apply the knowledge statistical mechanics to solve complex problems.	84
			<u> </u>
BS-M(101)	CO1	To understand the concept and techniques of differential and integral calculus.	83
(Mathematics I(A))	CO2	To understand the domain of application of MVT,to engineers problem.	84
	CO3	To learn the concept of eigen values, eigen vectors, diagonalisation	85
			I
	CO 1	To understand and analyze basic electric and magnetic circuits.	93

	CO 2	To study the working principles of electrical machines and power converters.	94
ES-EE101 (Basic Electrical Engineering)	CO 3	To introduce the components of low voltage electrical installations.	95
		·	
BS PH-191 (Physics-I Laboratory)	CO1	Organize/design the experiment related to various systems and interpret the physical properties of material.	89
	CO2	Generate experimental Data related to electrical and magnetic properties.	93
	CO3	Conduct actual experiment related to optical phenomena.	92
	CO4	Analyze data and draw conclusion related to quantum physics.	91
	CO5	Analyze with proper experimental data and graphs and communicate effectively.	90
	CO1	Gather knowledge about the safety precautions and the do's-don'ts while dealing with electrical equipments.	94
	CO 2	Study about the different electrical instruments and devices through their input-output relationship.	95
ES-EE 191 (Basic Electrical Engineering Laboratory)	CO 3	Organize different electrical instruments like ammeter, voltmeter, wattmeter and different electrical devices like transformer, rheostat, etc. to observe the output through incandescent lamps.	96
	CO1	Utilize the concept of fitting shop and make typical jobs.	93
ES ME 192	CO2	Learn the basics of carpentry shop and utilize the concept to make typical jobs.	97

(Workshop /Manufacturing Practices)	CO3	Develop the concept of various machining processes and make use of Lathe, Shaping and Milling machine to construct typical jobs.	96
	CO4	Develop the concept of metal joining process and utilize the concept of welding to join to metal plates.	94

		THIRD SEMESTER	
PAPER CODE (Name)	CO No.	Course Outcomes	Attained ( %)
	CO1	Convert various number systems and apply logic gates, Boolean algebra and K-Map to design digital circuits.	94
ESC301 (Analog & Digital Electronics)	CO2	Design the digital combinational circuits likes decoders,encoders,multiplexers and de- multiplexers, half adder, full adder and compare their performance to optimize production cost and also develop sequential digital circuits like flip- flop, register, counter to design memory device.	95
	CO3	Design and analyse various amplifier circuit, multivibrators, ROM, RAM, FPGA,TTL,CMOS and ECL	96
	CO1	Differentiate how the choices of data structure & algorithm methods impact the performance of program	91
PCC-CS301	CO2	Solve problems based upon different data structure & also write programs	93
(Data Structure & Algorithm)	CO3	Identify appropriate data structure & algorithmic methods in solving problem	95
	CO4	Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing.	94
	CO5	Compare and contrast the benefits of dynamic	92

		and static data structures implementations	
	CO1	Analyze the relevance of classical and modern problems of computer design and construct machine code instructions.	92
PCC CS-302 (Computer Organization)	CO2	Design logical expressions and corresponding integrated logic circuits for a variety of problems including the basic components of a CPU such as adders, multiplexers, ALU using fixed-point and floating-point addition, subtraction, multiplication & division algorithm.	95
	CO3	Analyze hierarchical memory system including cache memories and virtual memory and Calculate their Cost, Speed and Capacity.	96
	CO4	Apply the knowledge of various micro- programmed instructions using the concept of pipelining for designing Control Unit and accessing I/O operation.	94
BSC-301 (Mathematics –	CO1	Express a logic sentence in terms of predicates, quantifiers, and logical connectives	75
III(Differential Calculus))	CO2	Apply the rules of interference and proof by contradiction, mathematical induction.	77
	CO3	Use tree and graph algorithm to solve the problems.	74
	CO4	Apply Boolean function ,and simplify expression	78
	CO5	To apply Boolean algebra to solve engineering problems	76
		1	
HSMC 301 (Economics for Engineers(Humani ties -II))	CO1	Student will able to analyze the economic decisions making, engineering costs & estimation and classification of costs by applying the knowledge of estimating models. Student will develop an understanding of cash flow, rate of return analysis in different socio-environmental	78

		situations.	
	CO2	Analysis of inflation and price change will be done to the students for their proper understanding of the price indexes in economic analysis. Effect of inflation & deflation is analyzed to them to remember and if required to apply in real-life scenarios.	79
	CO3	Illustration of types of property, depreciation and expenses and its impact on business, for better understanding of the business environment and apply the knowledge of it.	80
	CO1	Organize/design the experiment related to analog electronic circuit lab.	86
ESC391 (Analog & Digital Electronics )	CO2	Design the digital combinational circuits likes decoders, encoders, multiplexers and de- multiplexers, half adder, full adder and compare their performance to optimize production cost.	87
	CO3	Develop sequential digital circuits like Flip-Flop, Registers, and Counters to design memory devices.	88
	CO1	Apply the knowledge of linear data structure to implement Linked list, Stack, Queue, Array.	91
PCC-CS391 (Data Structure & Algorithms)	CO2	Apply the knowledge of nonlinear data structure to implement different types of tree.	92
	CO3	Implement different types of searching and sorting techniques in data structure.	93
PCC CS-392	CO1	Analyze the behaviour of logic gates	82
(Computer	CO2	Design combinational circuits for basic	83

Organisation)		components of computer system and applications.	
	CO3	Design arithmetic circuit for computer system.	84
	CO4	Design Arithmetic logic units and different types of memory blocks.	85
	CO1	To master an understanding of scripting & the contributions of scripting languages	83
PCC-CS393 (IT Workshop (Sci Lab/ MATLAB/	CO2	Design real life problems and think creatively about solutions	86
Python/ R))	CO3	Apply a solution in a program using Python.	84
	CO4	To be exposed to advanced applications of mathematics, engineering and natural sciences to program real life problems.	87
		FIFTH SEMESTER	
	CO1	Understand basic SW engineering methods and practices, and their appropriate application.	88
	CO2	Understand u of software process models such as the waterfall and evolutionary models.	87
ESC-501 (Software Engineering)	CO3	Students will be able perform various life cycle activities like Analysis, Design, Implementation, Testing and Maintenance.	90
6 . 6,	CO4	Students will be able to know various processes used in all the phases of the product.	91
	CO5	Students can apply the knowledge, techniques, and skills in the development of a software product.	89
	CO1	Understand given grammar specification develop the lexical analyser	88
PCC-CS501	CO2	Design a given parser specification design top- down and bottom-up parsers	92
(Compiler Design)	CO3	Develop syntax directed translation schemes	91
	CO4	Develop algorithms to generate code for a target machine	89
	CO1	Analyse processes and threads.	95
PCC-CS502 (Operating Systems)	CO2	Develop algorithms for process scheduling for a given specification of CPU utilization, Throughput, Turnaround Time, Waiting Time, Response time.	93

	CO3	Formulate a given specification of memory organization develop the techniques for optimally allocating memory to processes by increasing memory utilization and for improving the access time. Design and implement file management system.	96
	CO4	Categorize a given I/O devices and OS (specify) develop the I/O management functions in OS as part of a uniform device abstraction by performing operations for synchronization between CPU and I/O controllers.	g 92
PCC-CS503 (Object Oriented Programming)	CO1	Understand Abstract Data Types and their implementations using abstraction functions to document them.	93
	CO2	Apply the features of object-oriented design to implement encapsulation, polymorphism, inheritance, and composition of systems based on object identity.	95
	CO3	Name and apply some common object-oriented design patterns and give examples of their use.	92
	CO4	Design applications with an event-driven graphical user interface.	96
HSMC 501 (Introduction to Industrial Management (Humanities – III))	CO1	Student will able to analyze the organisation structure, organizational culture and climate by applying the knowledge of factors affecting them	. 94
	CO2	Analysis of determination of critical path on network will be done to the students for their proper understanding of determination of floats, material management, storekeeping- functions.	95
	CO3	Illustration of production planning and control, value analysis and its impact on business, for better understanding of the recent trends in IM and apply the knowledge of it.	96
PEC-IT501B (Artificial Intelligence)	CO1	Apply the good programming skills to formulate the solutions for computational problems.	92
	CO2	Design and develop solutions for informed and uninformed search problems in AI.	94

	CO3	Demonstrate and enrich knowledge to select and apply AI tools to synthesize information and develop models within constraints of application area.	95
	CO4	Develop a minor project in multidisciplinary areas to demonstrate team work through reports and presentation.	91
	CO5	To design and develop an Expert System that operates in a realistic problem domain and communicate effectively in a team or individual and prepare reports.	93
MC-CS501 (Constitution of India)	CO1	To be able to identify the fundamental rights and duties, Directive Principles of State Policy in the Constitution of India by assessing the functions of various governmental administrations (Centre & State) and the Election Commission	95
	CO1	To understand the software engineering methodologies involved in the phases for project development.	86
ESC-591 (Software Engineering)	CO2	To gain knowledge about open-source tools used for implementing software engineering methods.	88
Lingineering)	CO3	To exercise developing product-startups implementing software engineering methods.	89
	CO4	Learn simple optimization techniques.	85
PCC-CS592	CO1	Design and solve complex UNIX programs.	85
(Operating	CO2	Apply the knowledge of process and threads.	86
Systems)	CO3	Design and formulate inter process communication through programming.	87
PCC-CS593 (Object Oriented Programming)	CO1	Implement features of object-oriented design such as encapsulation, polymorphism, inheritance, abstraction.	89
	CO2	Implementing multithreading concept in object oriented programming.	90
	CO3	Design applications with an event-driven graphical user interface.	91

		SEVENTH SEMESTER	
PEC-IT701C (Cloud Computing)	CO1	Explain the core concepts of the cloud computing paradigm, Cloud classification, Characteristics of Cloud Computing, different cloud models	92
	CO2	Discuss concepts of Abstraction and Virtualization technologies, Load Balancing, Hypervisors, compare different service models	95
	CO3	Lifecycle management of cloud services, Concepts of Cloud Security	96
	CO4	Discuss basic concept of Service Oriented Architecture, Applications in the Cloud, Cloud- based Storage	93
PEC-IT702A (Multimedia Technology)	CO1	Apply the knowledge of the diverse functions of Multimedia systems and its related hardware and software for the solution of problem related to Information Technology.	78
	CO2	Apply the knowledge of text, audio, image and video file formats for enhancement of the text, audio, image and video with using text, audio, image and video processing tools for the solution of a complex problem related to text, audio, image and video in the field of Information Technology.	82
	CO3	Able to use various types of multimedia data         storage devices for storage & retrieval of         multimedia data.	81
	CO4	Design different types of multimedia applications like video-on-demand, video conferencing, digital libraries and other industrial applications.	79
OEC-IT701A (Operation Research)	CO1	Solve linear programming problems using appropriate techniques and optimization solvers, interpret the results obtained.	91

	CO2	Determine optimal strategy for Minimization of Cost of shipping of products from source to Destination/ Maximization of profits of shipping products using various methods, Finding initial basic feasible and optimal solution of the Transportation problems	95
	CO3	. Optimize the allocation of resources to Demand points in the best possible way using various techniques and minimize the cost or time of completion of number of jobs by number of persons	94
	CO4	Model competitive real-world phenomena using concepts from game theory. Analyse pure and mixed strategy games	93
	CO5	. Formulate Network models for service and manufacturing systems, and apply operations research techniques and algorithms to solve these Network problems	92
HSMC 701 (Project Management and Entrepreneurship)	CO1	Student will able to analyze the concept of innovation and entrepreneurship, contributions of entrepreneurs to the society, risk- opportunities perspective by applying the knowledge of factors affecting them.	90
	CO2	Analysis of project management, issues and problems in project management, project life cycle - initiation / conceptualization phase, determination of project feasibility studies will be done to the students for their proper understanding of social cost benefit analysis.	91
	CO3	Identification and illustration of the critical path and its significance, types of floats and slacks and its impact on business, for better understanding of the recent trends and apply the knowledge of it.	92
PROJ-IT 781	CO1	To survey the literature; Identify and classify the requirements for the solution of complex	81

(Project - II)		engineering problems.	
	CO2	To define the requirements of the project by proper analysis and interpretation of data and processes supported by standard documentation.	85
	CO3	To analyze the processes by mapping requirements in to Use case diagram(s)/ Data Flow Diagram(s)/ Algorithm(s)/ User-Interface design/ Entity Relationship Diagram(s) etc.	82
	CO4	To design behaviour of the application with modular programming and program flowchart/ class diagrams and sequence diagrams, etc.,following standard guidelines.	84
	CO5	To estimate project metrics like size, effort and cost, reliability and quality, etc and plan project development schedule using PART and GNATT charts.	87
	CO6	To justify the project work with technical documentation, presentation, and discussions as a group to share knowledge.	80

#### CALCUTTA INSTITUTE OF ENGINEERING AND MANAGEMENT DEPARTMENT OF INFORMATION TECHNOLOGY CO ATTAINMENT REPORT <u>EVEN SEMESTER 2022</u>

		SECOND SEMESTER	
PAPER CODE (Name)	CO No.	Course Outcomes	Attained (%)
	CO1	Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces to solve different engineering problems.	69
	CO2	Rationalise bulk properties and processes using thermodynamic consideration for various engineering applications.	72
	CO3	Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.	78
BS CH-201 (CHEMISTRY- I)	CO4	Rationalise periodic properties (ionization potential, electro negativity, oxidation states) for various engineering applications.	81
	CO5	Apply the knowledge of structure, stability and reactivity of organic molecular species in order to gain a clear insight into the mechanism of chemical and biochemical reacting systems used in various engineering problems.	82
	CO1	To understand the concept of basic probability, including sample spaces, events, probability distribution, and conditional probability.	90
BS-M201 (Mathematics-	CO2	Apply probability theory and statistical interference to solve engineering problems.	75
IIA)	CO3	Use statistical software and tools to analyze the data.	70
	CO4	Able to communicate their findings and results through written reports,and visual display	85
	CO1	Design Algorithm, flow chart and program in C.	

ES-CS201			70
(PROGRAMMI NG FOR PROBLEM SOLVING)	CO2	Apply logical operators and loops in programming.	
			60
-	CO3	Construct arrays using the concept of C programming.	70
_			
	<b>CO4</b>	Analyze how to use arguments and return values and variables from a function.	65
-	CO5	Use pointers for direct memory access and manipulation in C; and how to change the memory address contained within a pointer;	70
	CO6	Apply the programming concepts for manipulating strings in C and file handling.	60
	CO1	To be able to <b>use</b> the correct vocabulary in order to express oneself in English properly	62
_	CO2	To be able to <b>identify</b> common errors in terms of grammar and choice of words in English	58
HM-HU201	CO3	To be able to <b>describe</b> , <b>discuss</b> , and <b>interpret</b> reading	75
(ENGLISH)	CO4	input in English         To be able to demonstrate that one can express         enceded in English through writing	75 64
		oneself in English through writing	04
		Organiza/Design the superiment related to Chamical	
	CO1	Organize/Design the experiment related to Chemical Science as applicable in various Engineering problems.	72
	CO2	Generate experimental Data related to Chemical Science as applicable in complex problems.	78
BS CH-291	CO3	Conduct actual experiment related to Chemical Science as applicable in different engineering application.	83
(CHEMISTRY-	CO4	Analyze data and draw conclusion related to Chemical	76

<b>T</b> )		11	
I)		problems.	
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to Chemical Science as applicable in different engineering fields.	84
	CO1	To formulate the algorithms for simple problems	90
ES-CS291			
(PROGRAMMI NG FOR PROBLEM	CO2	To translate given algorithms to a working and correct program	00
SOLVING)			90
	CO3	To be able to correct syntax errors as reported by the compilers	80
	CO4	To be able to identify and correct logical errors encountered at run time	85
	CO5	To be able to write iterative as well as recursive programs	90
	CO6	To be able to represent data in arrays, strings and structures and manipulate them through a program	80
	CO7	To be able to declare pointers of different types and use them in defining self-referential structures.	75
	CO8	To be able to create, read and write to and from simple text files	80
	C01	Develop basic knowledge of engineering drawing including lettering, dimensioning and scaling system.	75
ES-ME291	CO2	Develop basic knowledge on geometrical constructions and curves and apply the knowledge to solve real life problems.	70
(Engineering			

Graphics &	CO3	Learn the basic concept of orthographic and isometric	65
Design)	000	projections related to design of engineering.	00
	CO4	Comprehend the basic knowledge of development of different types of surfaces and analyse their real-life applications.	65
	CO1	To be able to <b>describe, discuss</b> , and <b>interpret</b> the listening input in English	55
HM-HU291	CO2	To be able to <b>demonstrate</b> that one can express oneself in English through speaking	54
(LANGUAGE LABORATORY	CO3	To be able to <b>describe, discuss,</b> and <b>interpret</b> reading input in English	77
)	CO4	To be able to <b>demonstrate</b> that one can express oneself in English through writing	67
		FOURTH SEMESTER	
		Γ	A.(. • 1
PAPER CODE (Name)	CO No.	Course Outcomes	Attained (%)
	CO1	To understand the basic concept of set, relation, mapping	75
PCC-CS401	CC-CS401 CO2 To understand the POSET,Lattice		80
(DISCRETE MATHEMATIC S)	CO3	To understand the basic concept of number theory.	75
	CO4	To understand graphs,cycle,trail,path	80
	CO5	To apply the graph colouring, chromatic number to solve engineering problems.	75
	CO1	To learn the basics of stored program concepts.	75
PCC-CS 402	CO2	To learn the principles of pipelining	85
(COMPUTER ARCHITECTU	CO3	To learn mechanism of data storage	80
RE)	CO4	To distinguish between the concepts of serial, parallel, pipeline architecture	70
		1	
	CO1	Familiarize with formal notation for strings, languages and machines and Design finite automata to accept a set of strings	70

		of a language.	
PCC-CS403	CO2	Design hierarchy of formal languages, grammars and machines and Determine whether the given language is regular or not	65
FORMAL LANGUAGE AND AUTOMATA THEORY	C03	Design context free grammars to generate strings of context free language and Determine equivalence of languages accepted by Push Down Automata and languages generated by context free grammars	75
-	CO4	Distinguish between computability and non-computability and Decidability and undecidability	65
			-
	C01	For a given algorithms analyse worst-case running times of algorithms based on asymptotic analysis and justify the correctness of algorithms.	85
	CO2	Describe the greedy paradigm and explain when an algorithmic design situation calls for it. For a given problem develop the greedy algorithms.	75
PCC-CS404 DESIGN & ANALYSIS	CO3	Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Synthesize divide- and-conquer algorithms. Derive and solve recurrence relation.	70
ALGORITHM,	CO4	Describe the dynamic-programming paradigm and explain when an algorithmic design situation calls for it. For a given problems of dynamic-programming.	80
-	CO5	Develop the dynamic programming algorithms, and analyse it to determine its computational complexity.	85
-	CO6	For a given model engineering problem model it using graph and write the corresponding algorithm to solve the problems.	70
_	CO7	Explain the ways to analyse randomized algorithms (expected running time, probability of error).	70
	CO8	Explain what an approximation algorithm is. Compute the approximation factor of an approximation algorithm (PTAS and FPTAS).	65
	C01	Describe how biological observations of 18th century lead to major discoveries and understand that the classification of organisms is based on morphological,	82%

		biochemi	cal or ecological parameters.	
	CO2	Highlight during th offering.	81%	
	CO3	-	hat all forms of life have the same building ad yet the manifestations are diverse.	78%
BSC 401	CO4	mechanis	enzymes and distinguish between different sms of enzyme action and identify DNA as a material in the molecular basis of information	83%
(BIOLOGY)	CO5	-	biological processes at the reductionistic level thermodynamic principals to the biological	75%
	CO6	Identify a	and classify microorganisms.	79%
I				
MC 401 (ENVIRONME	CO1		To apply the knowledge of air pollution in order to develop improved technologies to reduce the adverse effect of pollution on human health and environment.	80
NTAL SCIENCES)	CC	)2	To apply the knowledge of water pollution in order to develop improved technologies for controlling water pollution and provide safe and clean drinking water to the society.	82
	CC	)3	To apply the knowledge of solid waste management in order to develop technologies for reducing, reusing and recycling the waste for the benefit of the society.	84
	CO4		To apply the knowledge of ecology for understanding the complex interrelationships between the biotic and abiotic components in different types of eco systems in order to ensure sustainable development and growth.	80
	CC	)5	To identify and solve problems related to noise pollution and create awareness among people about its harmful effects and control measures.	88

	CO6	To foster greater community involvement and create social awareness about the important national and international legislations and protocols concerning the protection and conservation of environment.	89
	CO1	Practical experience on Xlinx	95
PCC-CS 492 (COMPUTER ARCHITECTU RE )	CO2	Analyze the operational behaviour and applications of various gates, sequential an combinational circuits.	85 Id
	CO1	Implement Divide and Conquer programmi method with different examples	ng 85
PCC-CS494 (DESIGN &	CO2	Demonstrate Brunch and Bound programmi method with different example	ing 70
ANALYSIS ALGORITHM)	CO3	Execute Backtracking programming metho with different examples	od 70
	CO4	Demonstrate Greedy programming method with different examples	d 75
	CO5	Implement Graph Traversal Algorithm wit different examples	h 60
		SIXTH SEMESTER	
PAPER CODE (Name)	CO No.	Course Outcomes	Attained (%)
	CO1	Apply the knowledge of pure query language to write a query in relational algebra, relational	80

		calculus and construct the SQL queries for Open source and Commercial DBMS like MYSQL, ORACLE, and DB2.	
PCC-CS601 (DATABASE MANAGEMEN	CO2	Apply the knowledge of entity relationship models to design the database for a given requirement specification.	75
T SYSTEMS)	CO3	Apply the knowledge of query optimization algorithms to optimize the execution time of a query.	70
	CO4	Apply the knowledge of reducing anomalies during database design.	75
	CO5	Understand the transaction atomicity, consistency, isolation, durability for a given transaction-processing system and implement the isolation property based on concurrency control and serializability of scheduling.	70
	CO6	Understand different processes to secure the database.	65
	CO1	Illustrate of modern network architectures from a design and performance perspective.	70
PCC-CS602 (COMPUTER	CO2	Justify the major concepts involved in wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs).	1 70
NETWORKS) -	CO3	Derive Topologies for the enhancement of OSI/ TCI IP protocol suite.	P 75
PEC-IT601 D	C01	Explain the fundamentals of digital image and its processing.	70
(IMAGE PROCESSING)	CO2	Perform image enhancement techniques in spatial ar frequency domain.	nd 72
	CO3	Elucidate the mathematical modelling of image restoration and compression.	80
	<b>CO4</b>	Apply the concept of image segmentation.	60

	(	C <b>O5</b>	Γ	Describe object detection and recognition technique	es. 75
	L				
	(	CO1	Ez	xplain and compare a variety of pattern classificati structural pattern recognition and pattern classifie combination techniques.	
PEC-IT602D (PATTERN	(	CO2	S	ummarize, analyze, and relate research in the patter recognition area verbally and in writing.	ern 70
RECOGNITIO N)	(	CO3	A	pply performance evaluation methods for pattern a critique comparisons of techniques made in the research literature.	and 75
	(	CO4		Apply pattern recognition techniques to real-world problems such as document analysis and recognition	/0
	(	CO5		Implement simple pattern classifiers, classifier combinations and structural pattern recognizers.	60
	I				
		CO1		Critically assess existing theory and practice in the field of HRM.	75
		CO2		Develop an ability to undertake qualitative and quantitative research.	60
OEC-IT601B (HUMAN RESOURCE		CO3		Apply knowledge about qualitative and quantitative research to an independently constructed piece of work.	70
DEVELOPMEN AND	T	CO4		Respond positively to problems in unfamiliar contexts.	75
ORGANIZATION		CO5		Identify and apply new ideas, methods and way of thinking.	60
BEHAVIOR)		CO6		Demonstrate competence in communicating and exchanging ideas in a group context.	60
				ı	
		CO1		Understand research problem formulation.	78
		CO2		Analyze research related information	82
		CO3		Follow research ethics	67
		CO4		Understand that today's world is controlled by Computer, Information Technology, but	79

		tomorrow's world will be ruled by ideas,	
		concepts, and creativity.	
PROJ - CS601 (RESEARCH METHODOLOGY)	CO5	Understanding that when IPR would take such an important place in the growth of individuals & nations, it is needless to emphasize the need for information about Intellectual Property rights to be promoted among students in general & engineering in particular.	75
	CO6	Understanding that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about economic growth and social benefits.	85
	1		
PCC-CS691 (DATABASE	CO1	Apply the knowledge of pure query language to write a query in relational algebra, relational calculus and construct the SQL queries for Open source and Commercial DBMS like MYSQL, ORACLE, and DB2	80
MANAGEMENT SYSTEMS)	CO2	Apply the knowledge of entity relationship models to design the database for a given requirement specification.	75
	CO3	Apply the knowledge of query optimization algorithms to optimize the execution time of a query.	70
	CO4	Apply the knowledge of reducing anomalies during database design.	75
	CO5	Understand the transaction atomicity, consistency, isolation, durability for a given transaction-processing system and implement the isolation property based on concurrency control and serializability of scheduling.	70
	CO6	Understand different processes to secure the database.	65
	CO1	Understand the structure and organization of	90

PCC-CS692 (COMPUTER		computer networks; including the division into network layers, role of each layer, and relationships between the layers, various network command, and network device.	
NETWORKS)	CO2	Understand IPAddressing, Subnetting.	90
	CO3	Understand of transport layer concepts and protocol design; including connection oriented and connection-less models, techniques to provide reliable data delivery and algorithms for congestion control and flow control.	90
	CO4	Understand of Application layer concepts and protocol design.	80

EIGHTH SEMESTER				
PAPER CODE (Name	) CO No	Course Outcomes	Attained (%)	
	CO1	Analyze the security of different computer systems & networks	80	
PEC-IT801B (CRYPTOGRAPHY AND NETWORK	CO2	Identify the appropriate cryptography scheme & security mechanism for different computing environment and information systems	80	
SECURITY)	CO3	Identity security weaknesses in different networking environment	81	
	CO4	Design & Evaluate the quality of algorithms to identify and investigate network security threats	85	
OEC-IT801A	CO1	Describe big data and use cases from selected business domains	55	
(BIG	CO2	Explain NoSQL big data management	50	
DATA ANALYSIS)	CO3	CO3Install, configure, and run Hadoop and HDFSCO4Perform map-reduce analytics using Hadoop		
	CO4			

	CO5	Use Hadoop related tools such as HBase, Cassandra, Pig, and Hive for big data analytics	50
	CO1	Analyze the impact of E-Commerce on business models like B2B, B2C, C2C & B2G and business strategies.	84
OEC-IT802A (ECOMMERCE &	CO2	Able to use Electronic Data Interchange for E- Business transactions (order, delivery, invoice).	65
ERP)	CO3	Apply the electronic payment systems like debit card, credit card, online fund transfer for E- Payments.	75
	CO4	Design E-Business applications like Internet Bookshop, Software Supplies & Support, Electronic Newspapers, Internet Banking, Virtual Auction, Gambling etc.	72
	CO1	To determine the software and hardware requirements from implementation perspective of Project-II	78
PROJ CS 881	CO2	To interpret the system design of project-I in to executable code(s) using modern programming languages to Build the system.	82
(PROJECT-			
III)	CO3	To test and validate the developed system following standards testing techniques.	81
	CO4	To adapt the management techniques to handle a project as a whole.	80
	CO5	To justify the project work with technical documentation, presentation, and discussions as a group to share knowledge.	82
	CO6	To determine all the system developments phases towards the completion of the Project and analyze/compare the result(s); evaluate and maximize system performances which contribute to lifelong	85

	learning.	
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# 2020 odd semester

	СО	Attainment
Subject Code & Subject Name		
MB 101 Managerial Economics (Micro)	CO1:To explain and demonstrate the diff types of markets and their features – determination under different markets along other concepts like Law of Variable Propor and Returns to Scale, Producers equilibrium the help of Isoquants, Expansion path Elasticity of Substitution.	83%
	CO2: To acquire knowledge and develop ideas these concepts in detail and analyse the applicability in real life situations.	85%
MB 102 ORGANIZATIONAL BEHAVIOUR	CO1: The student will be able to evaluate and analyse the various facets of organisationbehaviour including personality, perception, and attitude and job satisfaction.	95%
	CO2: The student will be able to understand the various organisation theories and analyse group behaviour, conflict, change and leadership concepts.	85%
MB 103 Business Communication	CO 1 To demonstratecompetenceinverbalbusinesscom munication & "ProcessofCommunicationinanorganizatio n"	83%
	CO2 To demonstratecompetenceinthefundamentalsof business writing & willenablethestudentstoaugmenttheirreportw ritingskills	84%
	CO3 Itwillhelpthemtoidentifythe BarriersofCom munication and measures to overcome.	83%

	<b>CO4</b> It will enable them to apply the expertise to frame professional cover letter and professional resume.	82%
MB 104	CO1: Student will develop an understanding of different conditions & warranties, the passing of ownership rights by applying the knowledge of the Sale of goods Act and different types of negotiable instruments in different socio environmental situations.	79%
	CO2: Analysis of companies formation, memorandum, articles, and prospectus will be done to the students for their proper understanding of the Companies Act. Consumer protection act is analyzed to them for them to remember and if required to apply in real-life scenarios.Illustration of inflation and its impact on business, unfair trade practice for better understanding of the business	82%
MB 105	CO1 Students will be able to contemplate the ethical standards to be maintained in professional set ups.	85%
	CO2 Students will be able to analyze Indian values related to business enterprises and merge them with relevant global concepts	85%
	CO3 Students will be able to analyze Indian values related to business enterprises and merge them with relevant global concepts	85%
	CO4 Students will be able to emerge as successful Managers/ leaders and lead a bright life.	86%
MB 106	CO1 Understanding the concept of business or industry related operational problems and then applying the knowledge of Operations	65%

Research to solve those problems.	
CO2 Understanding the concept of	65%
Probability and Statistics to analyze	
the problems of Business processes.	

# 3<sup>rd</sup> Semester

Subject Code & Subject Name	СО	Attainment
MB 301 ENTREPRENEURSHIP & PROJECT MANAGEMENT	CO1 : Understand the concept of management, Organization, planning, Staffing and learn the Project evaluation, termination, and controlling process	72%
	CO2: To evaluate the role of entrepreneurs in economic development, and barriers, Identification of business opportunities, and feasibility studies.	69%

MB 302 Corporate Strategy	CO1To understand and apply the methods of environmental scanning, strategic planning techniques & formulation strategies for holistic strategic management in organization.	81%
	CO2 To analyze and evaluate the strategic actions, strategic implementation and evaluation strategies.	83%
HRM 301 TEAM DYNAMICS AT WORK	CO1: The student will be able to understand the meaning of group dynamics and evaluate the concepts and theories behind the group formations including the Schachter Study and its implications.	72%
	CO2: The student will be able to evaluate effective team building strategies and apply knowledge in solving contemporary issues related with teams in modern organisations	69%
HRM 304 Organizational Design	CO1: To apply organization theory for better understanding of organizational structure and design	83%
	CO2: To analyze different organizational models	82%

	for reshaping organizations.	
MM 302: Digital & Social Media Marketing	CO1: To explain the understanding of digital & social media marketing plan that will address common marketing challenges	81%
	CO2: Applying concepts, approaches & the practical aspects of various digital & social media marketing tools like SEO, Paid Search, Social, Mobile, Email & Display media & marketing analytics	81%
	CO3: Analyze key performance indicators tied to any digital & social Media program & Develop return on investment model for any digital & social marketing program	78%
	CO4: Apply creative ideas or evolve with	82%

	existing ideas for	
	development of	
	effective digital &	
	social marketing	
	communication	
MM 303 :Integrated Marketing	CO1: To explain	82%
Communication	the understanding	
	of essential	
	concepts &	
	techniques for the	
	development &	
	designing of an	
	effective IMC	
	program	
	CO2: Applying	82%
	concepts,	
	approaches & the	
	practical aspects of	
	various	
	communication	
	tools	
	CO3: Analyze	77%
	effectiveness of	///0
	different IMC tools	
	for business firms	
		0.20/
	CO4: Apply	82%
	creative ideas for	
	development of	
	effective	
	marketing	
	communication	
FM 302 Project Appraisal and Finance	CO1: To define the Pr	-
	life cycle, the role stakeholders and pr	
	management processes	
	to explain the concep	
	project specifica	
	financial projections, s	
	and team in Pr	
	management.	

	CO2: To describe and evaluate the risks involv in projects and associate costs as demonstrate the control and closure proc related to project management.	
FM 304 Corporate Finance	discuss the concepts & theories related to financial management.	77%
	CO2:To describe and apply the various theories, tools and techniques of Corporate Finance to resolve real life financial problems	75%

# 2021 Even Semester

# 2<sup>ND</sup> Semester

Subject Code & Subject Name	СО	Attainment
MB 201 Indian Economy and Policy	CO1: To Explain and design concepts of circular flow, theo income determination, infla unemployment, LPG model, as as banking, trade policy monetary reforms.	
	CO2: To Develop ideas of the In Economy and grasp the importa of planning undertaken by the government of India.	00/0

MB 202 Financial Reporting, Statement and Analysis	CO1: To explain the understat of the concepts and apply the practical life like basic fina accounting concept, preparing to of accounts, introduction Accounting Standard, preparatie financial statements and its anal	
	CO2: To Summarize the fina transactions in terms of Fina Statements and interpret Fina Statements by using diff financial tools and techniques.	
MB 203: Marketing Management	CO1: To identify & analyze the scope & significance of marketing in Domain Industry	80%
	CO2: To Analyze & examine marketing concepts & phenomenon to current business events in the industry	79%
	CO3: Map the various marketing environment variables & demonstrate them for designing marketing strategies for business firms	80%
	CO4: Demonstrate market analysis skill for developing innovative marketing strategies for firms	79%
MB 204 OPERATIONS MANAGEMENT	CO1 : To understand the suitable control technique in stores, Inventory, and vendor management is adopted for the production is identified.	78%

	CO2: To analyze the scheduling techniques applied in the operations were learned by the students	80%
MB 205 : MANAGEMENT INFORMATION SYSTEM	CO1 : To identify the technologies and methods used for effective decision-making in an organization	85%
	CO2:Make students understand the concepts and terminologies used in Database Management, Systems, SQL, Concurrency Management, and the extended part of data storage technology,Data Warehousing.	85%
MB 206 HUMAN RESOURCE MANAGEMENT	CO1: The student will be able to understand and apply the various concepts behind Human Resource Management and development including planning, Performance Appraisal Systems and strategic HR management	93%
	CO2: The student will be able to understand and apply the theories and strategic concepts behind compensation Management, Industrial Relations and discipline including workers participation in management.	93%

# 4<sup>th</sup> Semester

Subject Code & Subject Name	СО	Attainment
HR 401 MANPOWER PLANNING, RECRUITMENT& SELECTION	CO1: Student will be able to understand and analyze the various manpower planning mechanisms in an organization including forecasting techniques, management information systems and human resources audits.	82%

	CO2: Student will be able to apply and exercise various HRM implementation strategies including recruitment and solve case studies pertaining to real life organisational issues and situations.	74%
HR402Employee Relations &Labour Laws	CO1:To understand EPM,WPM ,concept of collective bargaining,trade unionism in India	84%
	CO2:To apply the various labour legislations in real life industrial scenario	79%
HR 404Performance Management System	CO1: To identify and apply performance planning ,monitoring, appraisal techniques & strategies for better performance management.	83%
	CO2: To understand balance scorecard, competency mapping for application in reward management, employee engagement and potential appraisal	82%
HR 406 INTERNATIONAL HRM	CO1: Student will be able to understand International human resources management and development including the recruitment processes of such	86%

	candidates.	
	CO2: The student will	77%
	be able to remember and	,,,,,
	apply legislative	
	measures meant for	
	industrial relations, HRM	
	,CSR and employee	
	representation in the	
	international sector and	
	create compensation	
	plans commensurate	
	with the same.	
MM 401	CO1:Analysis consumer	82%
	behaviour and its	
	Impact on marketing	
	strategies. Illustration of	
	consumer decision	
	process.Studednts will	
	be understanding	
	demographic and	
	psychographic	
	characteristics and	
	market	
	segmentation.Analysis	
	of the relation	
	between consumer	
	perception with	
	marketing	
	stimuli.Students will	
	learn to apply the	
	knowledge of	
	consumer motivation	
	for marketing strategy	
	and its relation with	
	corporate social	
	responsibility.	
	CO2: Students will	84%
	develop the	
	understanding of	
	characteristics and	
	functions of attitude,	
	cross-cultural	
	understanding of	
	consumer behaviour	
	and data analysis for	

	consumer feedback	
	researches.Students	
	will comprehend and write effective	
	technical reports. They will be able to analyse	
	case studies,explain relevant	
	materials,communicate	
	effectively, identify the	
	appropriate key	
	words,use	
	grammatically correct	
	English for	
	documentation.	
MM 403: Sales & Distribution	CO1: To explain the	77%
Management	understanding of	7770
Wallagement	sales & distribution	
	processes in	
	Organization	
	To get familiarized	75%
	with concepts,	
	approaches & the	
	practical aspects of	
	the key decision-	
	making variables in	
	sales management	
	& distribution	
	channel	
	management	
	CO3: To explain	78%
	-	7070
	market analysis	
	methods & selling	
	concepts	
	CO4: To develop	76%
	Performance	
	evaluation methods,	
	ethics, trends in	
	sales & distribution	
	management	
MM 404: Service Marketing		77%
MM 404: Service Marketing	CO1: To explain the	77%

		]
	understanding of	
	types, nature,	
	classification &	
	marketing mix of	
	service marketing	
	CO2: Analyze	75%
	service product	
	concept, branding &	
	service positioning	
	that transforming	
	service marketing to	
	a great extent	
	CO3: To explain	78%
	market analysis	
	methods of service	
	marketing	
	CO4: Demonstrate	76%
	the role of	
	identifying the	
	people in service &	
	the role of customer	
	in service delivery	
MM 406: International Marketing	CO1: To explain the	77%
, S	understanding of	
	global business	
	activities, marketing	
	processes in	
	international	
	business	
	To get familiarized	75%
	with concepts,	
	approaches & the	
	practical aspects of	
	the key decision-	
	making variables &	
	global forces that	
	transforming	
	international	
	marketing	

	CO3: To develop general perspective about managing international marketing CO4: To develop evaluation methods for International Marketing both in operational as well	76% 78%
FM 401 Investment Analysis & Portfolio Management	as strategic context CO1To explain the understanding of the conce	77%
	and apply them like portfolio diversification, Construction, portfolio management, portfolio revi portfolio evaluation, portfolio protec and portfolio performance measures.	
	CO2To implement strategies to make an impact on the students in taking investment decisions, and properly manage the portfolio.	75%
FM402 Managing Banks & Financial Institutions	CO1To explain the understanding of the concep and apply them like banking industry models, b support mechanism, Basel committee I & II, interest ra risk management, liquidity management and credit risk management.	
	CO2 Evaluate and analyse the fundamentals & technical aspects of managing banks and financial institutions.	79%
FM405International Finance	CO1To explain the understanding of the concepts and apply them like international financial management,	75%

		1
	international monetary	
	System, balance of	
	payments, exchange rate	
	determination and foreign	
	exchange market.	
	CO2Evaluate and analyse	72%
	the fundamentals &	
	technical aspects of	
	International financial	
	market.	
FM406 Financial Markets and Services	CO1To Discuss the Indian	76%
	Financial	
	System and multiplicity of	
	Financial Instruments and	
	understand the Indian finan	
	system, money market,	
	secondary market, SEBI, m	
	Funds and	
	credit rating agencies.	
	CO2 Examine Mutual Fund	80%
	Merchant Banking under th	
	nodal agency SEBI.	

#### **Course Details:**

Course Name:	Data Structure & Algorithm
Course Code:	PCC-CS301
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	3 <sup>rd</sup> Semester

#### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	To learn and apply the basics of abstract data types.
CO2	To learn and apply the principles of linear and nonlinear data structures.
CO3	To build an application using sorting and searching.
CO4	Design applications with the knowledge of computation and principles of data structures.

Data Structure &		СО	Attainment
Algorithm	CO1	To learn and apply the	10%
		basics of abstract data types.	
	CO2	To learn and apply the	15%
		principles of linear and	
		nonlinear data structures.	
	CO3	To build an application	15%
		using sorting and searching.	
	CO4	Design applications with the	25%
		knowledge of computation	
		and principles of data	
		structures.	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												

Course Name:	Data Structure & Algorithm Lab
Course Code:	PCC-CS391
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	3 <sup>rd</sup> Semester

#### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Design and develop programs using data structure & algorithm concepts.
CO2	Develop simple applications using linear and non-linear data structures & algorithms concepts and understand the access mechanisms and other use and functionalities.
CO3	Implement searching and sorting concepts
CO4	Implement the concepts of graph and hashing

Data Structure &		СО	Attainment
Algorithm Lab	CO1	Design and develop	15%
		programs using data	
		structure & algorithm	
		concepts.	
	CO2	Develop simple applications	10%
		using linear and non-linear	
		data structures & algorithms	
		concepts and understand the	
		access mechanisms and	
		other use and	
		functionalities.	
	CO3	Implement searching and	10%
		sorting concepts.	
	CO4	Implement the concepts of	25%
		graph and hashing	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$											
CO2	$\checkmark$	$\checkmark$										
CO3												
CO4												

Course Name:	Computer Organization
Course Code:	PCC-CS302
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	3 <sup>rd</sup> Semester

#### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Understand basic structure of digital computer, stored program concept and different
	arithmetic and control unit operations.
CO2	Understand basic structure of different combinational circuits- multiplexer, decoder,
	encoder etc.
CO3	Perform different operations with sequential circuits.
CO4	Understand memory and I/O operations.

Computer		СО	Attainment
Organization	CO1	Understand basic structure	15%
		of digital computer, stored	
		program concept and	
		different arithmetic and	
		control unit operations.	
	CO2	Understand basic structure	15%
		of different combinational	
		circuits- multiplexer,	
		decoder, encoder etc.	
	CO3	Perform different operations	25%
		with sequential circuits.	
	CO4	Understand memory and	10%
		I/O operations.	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												

#### **Course Details:**

Course Name:	Computer Organization Lab
Course Code:	PCC-CS392
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	3 <sup>rd</sup> Semester

#### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Understand basic structure of digital computer, stored program concept and different arithmetic and control unit operations.
CO2	Understand basic structure of different combinational circuits- multiplexer, decoder, encoder etc.
CO3	Perform different operations with sequential circuits.
CO4	Understand memory and I/O operations.

Computer		СО	Attainment
<b>Organization Lab</b>	CO1	Understand basic structure	10%
		of digital computer, stored	
		program concept and	
		different arithmetic and	
		control unit operations.	
	CO2	Understand basic structure	15%
		of different combinational	
		circuits- multiplexer,	
		decoder, encoder etc.	
	CO3	Perform different operations	15%
		with sequential circuits.	
	CO4	Understand memory and	10%
		I/O operations.	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2					$\checkmark$							
CO3												
CO4					$\checkmark$							

Course Code:	PCC-CS501
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	5 <sup>th</sup> Semester

#### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

	1
CO1	To apply the basic concept of compilers and discuss on the components as well as
	the strengths and weaknesses of various phases of designing a compiler.
CO2	To understand the role of finite automata in compiler design.
CO3	To design and analyze algorithms for syntactic or parsing techniques and semantic analysis of the process of designing compilers.
CO4	Apply the knowledge of Type Checking and Run-Time Environments in designing a compiler.
CO5	Apply the knowledge of Intermediate Code Generation, Code Optimization and
	Code Generations in designing a compiler.

# COAttainmentofSubjects

		СО	Attainment
	CO1	To apply the basic concept of compilers and discuss on the components as well as the strengths and weaknesses of various phases of designing a compiler.	5%
	CO2	To understand the role of finite automata in compiler design.	10%
Compiler Design PCC-CS501	CO3	To design and analyze algorithms for syntactic or parsing techniques and semantic analysis of the process of designing compilers.	10%
	CO4	Apply the knowledge of Type Checking and Run- Time Environments in designing a compiler.	15%
	CO5	Apply the knowledge of Intermediate Code Generation, Code Optimization and Code Generations in designing a compiler.	15%

# **CO-PO Mapping:**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5	$\checkmark$										$\checkmark$	

### **Course Details:**

Course Name:	Operating Systems
Course Code:	PCC-CS502
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	5 <sup>th</sup> Semester

### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Understand processes and threads.
CO2	Design algorithms for process scheduling for a given specification of CPU
	utilization, Throughput, Turnaround Time, Waiting Time and Response Time.
CO3	For a given specification of memory organization develop the techniques for
	optimally allocating memory to processes by increasing memory utilization and for
	improving the access time. Design and implement file management system.

		СО	Attainment
	CO1	Understand processes and	20%
		threads.	
<b>Operating Systems</b>	CO2	Design algorithms for	15%
		process scheduling for a	
		given specification of CPU	
		utilization, Throughput,	
		Turnaround Time, Waiting	
		Time and Response Time.	
	CO3	For a given specification of	15%
		memory organization	
		develop the techniques for	
		optimally allocating	
		memory to processes by	
		increasing memory	
		utilization and for	
		improving the access time.	
		Design and implement file	
		management system.	

# **CO-PO Mapping:**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1					$\checkmark$		$\checkmark$					
CO2			$\checkmark$							$\checkmark$		
CO3												

#### **Course Details:**

Course Name:	Operating System Lab
Course Code:	PCC-CS592
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	5 <sup>th</sup> Semester

#### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	To Analyze different aspects of Linux.
CO2	To Create or design different scripts using shell programming.
CO3	To Create or design different scripts using shell programming.
CO4	Create shared memory with the implementation of reading from, write into shared
	memory.

# CO Attainment of Subjects

		СО	Attainment
	CO1	To Analyze different	10%
		aspects of Linux.	
Operating System	CO2	To Create or design	15%
Lab		different scripts using shell	
PCC-CS592		programming.	
	CO3	To Create or design	15%
		different scripts using shell	
		programming.	
	CO4	Create shared memory with	15%
		the implementation of	
		reading from, write into	
		shared memory.	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												

# **Course Details:**

Course Name:	Object Oriented Programming
Course Code:	PCC-CS503
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	5 <sup>th</sup> Semester

# **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Specify simple abstract data types and design implementations, using abstraction functions to document them.
CO2	Recognize features of object-oriented design such as encapsulation, polymorphism, inheritance, and composition of systems based on object identity
CO3	Name and apply some common object-oriented design patterns and give examples of their use
CO4	Design applications with an event-driven graphical user interface.

# COAttainmentofSubjects

	Ĭ	СО	Attainment
	CO1	Specify simple abstract data	10%
		types and design	
<b>Object Oriented</b>		implementations, using	
Programming		abstraction functions to	
		document them.	
	CO2	Recognize features of	15%
		object-oriented design such	
		as encapsulation,	
		polymorphism, inheritance,	
		and composition of systems	
		based on object identity	
	CO3	Name and apply some	15%
		common object-oriented	
		design patterns and give	
		examples of their use	
	CO4	Design applications with an	5%
		event-driven graphical user	
		interface.	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3					$\checkmark$							
CO4					$\checkmark$							

## **Course Details:**

Course Name:	Object Oriented Programming Lab
Course Code:	PCC-CS593
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	5 <sup>th</sup> Semester

# **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Design and develop java programs using object oriented programming concepts
CO2	Develop simple applications using object oriented concepts such as package, exceptions
CO3	Implement multi-threading, and generics concepts
CO4	Create GUIs and event driven programming applications for real world problems

# CO Attainment of Subjects

<b>Object Oriented</b>		СО	Attainment
Programming Lab	CO1	Design and develop java	15%
		programs using object	
		oriented programming	
		concepts	
	CO2	Develop simple applications	15%
		using object oriented	
		concepts such as package,	
		exceptions	
	CO3	Implement multi-threading,	15%
		and generics concepts	
	CO4	Create GUIs and event	15%
		driven programming	
		applications for real world	
		problems	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$											
CO2	$\checkmark$											
CO3												
CO4												

# **Course Details:**

Course Name:	Software Engineering
Course Code:	ESC 501
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	5 <sup>th</sup> Semester
COUDER OUTCOME	

# **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Apply basic SW engineering methods and practices different models, and their appropriate application, SRS Document.
CO2	Determine the role of project management including planning, scheduling, risk management, etc.
CO3	An understanding of software testing approaches such as unit testing and integration testing.
CO4	An understanding of software evolution and related issues such as version management.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2				$\checkmark$						$\checkmark$		
CO3												
CO4												

		СО	Attainment
Software Engineering	CO1	Apply basic SW engineering methods and practices different models, and their appropriate application, SRS Document.	15%
	CO2	Design the role of project management including planning, scheduling, risk management, etc.	15%
	CO3	An understanding of software testing approaches such as unit testing and integration testing.	15%
	CO4	An understanding of software evolution and related issues such as version management.	10%
PaperCode (Name)	CO	Course Outcomes(CO)	ATTAINED
	Num ber		

	CO1	Analyze the economic decisions making, engineering costs & estimation and classification of costs by applying the knowledge of estimating models. Student will develop an understanding of cash-flow, Rate of return analysis in different socio- environmental situations.	15 %
HSMC301 Economics for Engineers	CO2	Analyze the inflation and price change would be done to the students for the proper understanding of the price-indexes in economic analysis. Effect of inflation & deflation is analyzed to them to remember and if required to apply in real-life scenarios.	25 %
	CO3	Recognize the types of property, depreciation and expenses and its impact on business,for better understanding of the business environment and apply the knowledge of it.	16 %

Mapping of Course Outcomes and Program Outcomes for the subject Economics for Engineers(HSMC301)

CourseO		Program										
utcomes		Outcome										
		S										
	PO1	PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12										
CO1		$\checkmark$		$\checkmark$								
CO2												
CO3												

PaperCode(Name)	CO Number	Course_Outcoms (CO)	ATTAINED
PEC-IT501B ArtificialInte lligence	CO1	Apply the goodprogramming skillsto formulate thesolutions forcomputationalpr oblems.	25%
	CO2	Design and developsolutions forinformed anduninformed searchproblemsinA I.	20%
	CO3	Understandandenric h knowledge toselect and apply AItools to synthesizeinformati on anddevelopmodelsw ithin constraints ofapplicationarea.	25%

Mapping of CourseOutcomes and ProgramOutcomesfor theArtificialIntelligence

CourseO utcomes		Program Outcome										
		S										
	PO1	PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12										
CO1	$\checkmark$				$\checkmark$	$\checkmark$					$\checkmark$	
CO2			$\checkmark$	$\checkmark$						$\checkmark$		
CO3					$\checkmark$		$\checkmark$					

Paper Code(Name )	CO Number	CourseOutcomes(CO)	ATTAINED
	CO1	Analyze the concept of innovation andentrepreneurship,contributionsofentrep reneurstothe society,risk- opportunitiesperspectivebyapplyingthekn owledgeoffactorsaffectingthem.	25%
HSMC501, Industrial Management	CO2	Analyze the project management, issuesandproblemsinprojectmanagement, projectlife cycle- initiation/conceptualization phase, determination ofproject feasibility studies would be donetothestudents fortheirproper understandingofsocialcostbenefitan alysis.	20%
	CO3	Identification and illustration of thecritical path and its significance, types offloatsand slacksanditsimpactonbusiness, for better understanding of therecent trendsand applytheknowledge of it.	15%

MappingofCourseOutcomesandProgramOutcomesforthesubjectIndustrialManageme nt(HSMC501)

Course		Program										
Outcomes		Outcomes										
	PO	PO PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12										
	1											
CO1		$\checkmark$		$\checkmark$								
CO2		$\checkmark$		$\checkmark$								
CO3		$\checkmark$					$\checkmark$					

PaperCode (Name)	CO Number	Course Outcomes(CO)	ATTAINED
PEC-IT501B Introductionto Philosophicalthoughts	CO1	Identifytheevaluation ofthehistoryof philosophy.	10%
	CO2	Identifyreligious concepts,traditions, andhistoricalpractices overtimeand across cultures.	25%
	CO3	Analyzecourse-related materialtoevaluatethe historicaldevelopment ofcontemporaryissues.	15%

Mapping of Course Outcomes and Program Outcomes for the subject Philosophical though ts (OEC-CS701B/C)

CourseO	ProgramOutcome											
utcomes		S										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2		$\checkmark$										
CO3		$\checkmark$		$\checkmark$								

PaperCode (Name)	CO Number	Course	ATTAINED
		Outcomes(CO)	

PEC-CS701B		Understand	15%
CloudComputing	CO1	thefundamentalprincipl esofdistributedcomputi ng.	
	CO2	Understand theimportanc eof virtualizationin distributedcomputing andhowthishasenabled thedevelopmentofClou d Computing	20%
	CO3	Identifyanddefine technicalchallengesfor cloudapplicationsand assesstheirimportance.	15%

MappingofCourseOutcomesandProgramOutcomesforthesubjectCloudComputing(PEC-CS701B)

CourseO utcomes		ProgramOutcome s										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1							$\checkmark$					
CO2							$\checkmark$					
CO3		$\checkmark$										

**Course Details:** 

Course Name:	CyberSecurity
Course Code:	PEC-CS 702E
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	7th Semester

PaperCode (Name)	CO Number	Course Outcomes(CO)	ATTAINED		
PEC-CS702E CyberSecurity	CO1	Recognize andanalyzesoftware vulnerabilitiesandsecu ritysolutions toreduce the risk ofexploitation.	25%		
	CO2	Design operational andstrategic cyber securitystrategiesand policies.	25%		
	CO3	Implement cyber securitysolutionsanduse ofcybersecurity,inform ationassurance,andcybe r/computer forensicssoftware/tools.	10%		

Mapping of Course Outcomes and Program Outcomes for the subject Cyber Security (PEC-CS702E)

CourseO	ProgramOutcome											
utcomes							S					
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$		$\checkmark$								$\checkmark$
CO2			$\checkmark$	$\checkmark$								
CO3				$\checkmark$								

Paper Code(Name )	CO Number	CourseOutcomes(CO)	ATTAINED
	CO1	Analyzetheconceptofinnovationandent repreneurship,contributionsofentrepre neursto thesociety,risk- opportunities perspective by applyingtheknowledgeoffactorsaffecting them.	10%

HSMC701,Project ManagementandEn trepreneurship	CO2	Analyzetheproject management,issuesandproblems in projectmanagement,projectlife cycle- initiation/conceptualization phase, determinationof project feasibility studies will bedone tothe studentsfortheirproper understandingofsocialcostbenefitan alysis.	15%
CO3		Identify and recognize the critical pathand its significance, types of floats andslacks and its impact on business, forbetterunderstanding oftherecent trends and applythe knowledgeofit.	25%

 $Mapping of Course Outcomes and Program Outcomes for the subject Project Management\ and Entrepreneurship (HSMC701)$ 

CourseO	ProgramOutcome										
utcomes	PO1	PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12									
	_			_						-	_
CO1		$\checkmark$		$\checkmark$							
CO2		$\checkmark$		$\checkmark$							
CO3		$\checkmark$									$\checkmark$

Course Name:	Design and Analysis of Algorithms
Course Code:	PCC-CS404
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	4 <sup>th</sup> Semester

## **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	To analyze and identify the Complexity of a problem and compute the recurrence relation.
CO2	To analyze the several algorithms design techniques on some certain problems using divide & conquer method, dynamic programming approach and backtracking, greedy method.
CO3	To understand lower bound theory, graph traversal algorithm, network flow, disjoint set manipulation different method.
CO4	To design the algorithm of string matching problem, matrix manipulation algorithm.
CO5	To understand amortize analysis, approximation algorithm, notion of NP-completeness.

# COAttainmentofSubjects

		СО	Attainment
	CO1	To analyze and identify the Complexity of a problem and compute the recurrence relation.	10%
Design and Analysis of Algorithms (PCC-CS404)	CO2	To analyze the several algorithms design techniques on some certain problems using divide & conquer method, dynamic programming approach and backtracking, greedy method.	15%
	CO3	To understand lower bound theory, graph traversal algorithm, network flow, disjoint set manipulation different method.	5%
	CO4	To design the algorithm of string matching problem, matrix manipulation algorithm.	15%
	CO5	To understand amortize analysis, approximation algorithm, notion of NP-completeness.	15%

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5												

#### **Course Details**

Course Name:	Design and Analysis of Algorithm Lab
Course Code:	PCC-CS494
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	4 <sup>th</sup> Semester

# **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Design algorithm and implement C program using divide and conquer approach in Computer Science and Engineering and related fields.
CO2	Design algorithm and implement C program using dynamic programming in Computer Science and Engineering and related fields.
CO3	Design algorithm and implement C program using branch and bound method in Computer Science and Engineering and related fields.
CO4	Design algorithm and implement C program using backtracking in Computer Science and Engineering and related fields.
CO5	Design algorithm and implement C program using greedy method in Computer Science and Engineering and related fields.
CO6	Design Graph Traversal Algorithm and implement C program in Computer Science and Engineering and related fields.

		СО	Attainment
	CO1	Design algorithm and implement C program using divide and conquer approach in Computer Science and Engineering and related fields.	15%
Design and Analysis of Algorithm Lab (PCC-CS494)	CO2	Design algorithm and implement C program using dynamic programming in Computer Science and Engineering and related fields.	5%
	CO3	Design algorithm and implement C program using branch and bound method in Computer Science and Engineering and related fields. App	5%
CO4		Design algorithm and implement C program using backtracking in Computer Science and Engineering and related fields.	15%
	CO5	Design algorithm and implement C program using greedy method	10%

	in Computer Science and Engineering and related fields.	
CO6	Design Graph Traversal Algorithm and implement C program in Computer Science and Engineering and related fields.	15%

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			$\checkmark$									
CO2			$\checkmark$									
CO3			$\checkmark$									
CO4			$\checkmark$							$\checkmark$		
CO5			$\checkmark$							$\checkmark$		

Course Name:	Computer Architecture
Course Code:	PCC-CS402
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	4 <sup>th</sup> Semester

# **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Design pipelining concepts with a prior knowledge of stored program methods
CO2	Design about memory hierarchy and mapping techniques
CO3	Understand parallel architecture and interconnection network

		СО	Attainment
	CO1	Design pipelining concepts with a prior knowledge of stored program methods	10%
Computer Architecture (PCC- CS402)	CO2	Design about memory hierarchy and mapping techniques	25%
(10402)	CO3	Understand parallel architecture and interconnection network	25%

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												

#### **Course Details**

Course Name:	Computer Architecture Lab
Course Code:	PCC-CS492
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	4 <sup>th</sup> Semester

# **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Design pipelining concepts with a prior knowledge of stored program methods
CO2	Design about memory hierarchy and mapping techniques
CO3	Understand of parallel architecture and interconnection network

### **CO** Attainment

		СО	Attainment
Computer Architecture Lab (PCC-CS492)	C01	Design pipelining concepts with a prior knowledge of stored program methods	10%
	CO2	Design about memory hierarchy and mapping techniques	25%
	CO3	Understand of parallel architecture and interconnection network	25%

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												

### **Course Details**

Course Name:	Formal Language & Automata
Course Code:	PCC-CS403
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	4 <sup>th</sup> Semester

## **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Formulate a formal notation for strings, languages and machines.
CO2	Design finite automata to accept a set of strings of a language
CO3	For a given language understand whether the given language is regular or not.
CO4	Design context free grammars to generate strings of context free language.
CO5	Understand equivalence of languages accepted by Push Down Automata and languages generated by context free grammars
CO6	Analyze the hierarchy of formal languages, grammars and machines.
CO7	Recognize between computability and non-computability and Decidability and undecidability.

		СО	Attainment
Formal Language &	CO1	Formulate a formal notation for	
Automata PCC-		strings, languages and machines.	10%
CS403)	CO2	Design finite automata to accept a	
		set of strings of a language	15%
	CO3	For a given language understand	
		whether the given language is	5%
		regular or not.	
	CO4	Design context free grammars to	5%
		generate strings of context free	
		language.	
	CO5	Understand equivalence of	
		languages accepted by Push	10%
		Down Automata and languages	
		generated by context free	
		grammars	
	CO6	Analyze the hierarchy of formal	10%
		languages, grammars and	
		machines.	
	CO7	Recognize between computability	5%
		and non-computability and	
		Decidability and undecidability.	

CourseOut comes		ProgramOutcomes										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2			$\checkmark$	$\checkmark$						$\checkmark$		
CO3					$\checkmark$		$\checkmark$					
CO4			$\checkmark$	$\checkmark$						$\checkmark$		
CO5					$\checkmark$		$\checkmark$					
CO6		$\checkmark$										
CO7												$\checkmark$

#### **Course Details**

Course Name:	DBMS
Course Code:	PCC-CS601
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	6 <sup>th</sup> Semester

#### **Course Outcome**

On completion of the course students will be able to

1. Analyze a given query using relational algebra expressions and SQL for that query and optimize the developed expressions.

2. Design a given specification of the requirement design the databases using E R method and normalization.

3. Formulate a given transaction-processing system, determine the transaction atomicity, consistency, isolation, and durability.

4. Implement the isolation property, including locking, time stamping based on concurrency control and Serializability of scheduling.

		СО	Attainment
	CO1	Analyze a given query using	
		relational algebra expressions and	20%
DBMS		SQL for that query and optimize	
		the developed expressions.	
	CO2	Design a given specification of	
		the requirement design the	10%
		databases using E R method and	
		normalization.	
	CO3	Formulate a given transaction-	
		processing system, determine the	15%
		transaction atomicity,	
		consistency, isolation, and	
		durability.	
	CO4	Implement the isolation property,	

including locking, time stamping	14%
based on concurrency control and	
Serializability of scheduling.	

# CO – PO Mapping

CourseOut comes		ProgramOutcomes										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2			$\checkmark$	$\checkmark$						$\checkmark$		
CO3		$\checkmark$										
CO4				$\checkmark$								

## **Course Details**

Course Name:	DBMS LAB
Course Code:	PCC-CS691
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	6 <sup>th</sup> Semester

### **COURSE OUTCOMES**

1 Infer database language commands to create simple database.

2 Analyse the database using queries to retrieve records.

3 Applying PL/SQL for processing database.

4 Develop solutions using database concepts for real time requirements.

		СО	Attainment
	CO1	Understand HTML and Infer database language commands to create simple database.	10%
DBMS LAB	CO2	Analyze the database using queries to retrieve records.	20%
	CO3	Applying PL/SQL for processing database.	15%
	CO4	Develop solutions using database concepts for real time requirements.	20%

# <u>CO – PO Mapping</u>

CourseOut comes		ProgramOutcomes										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1					$\checkmark$		$\checkmark$					
CO2		$\checkmark$								$\checkmark$		
CO3	$\checkmark$				$\checkmark$	$\checkmark$					$\checkmark$	
CO4							$\checkmark$					

#### **Course Details:**

Course Name:	Computer Networks
Course Code:	PCC-CS602
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	6 <sup>th</sup> Semester

## **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	To develop an understanding of modern network s from a design and performance perspective.
CO2	To introduce the student to the major concepts involved in wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs)
CO3	To provide an opportunity to do network programming
CO4	To provide a WLAN measurement ideas.

		СО	Attainment
	CO1	To develop an understanding of	
Computer Networks		modern network s from a design	10%
(PCC-CS602)		and performance perspective.	
	CO2	To introduce the student to the	
		major concepts involved in wide-	
		area networks (WANs), local area	20%
		networks (LANs) and Wireless	
		LANs (WLANs)	
	CO3	To provide an opportunity to do	
		network programming	15%
	CO4	To provide a WLAN	
		measurement ideas.	10%

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			$\checkmark$									
CO2		$\checkmark$										
CO3												
CO4												

#### **Course Details:**

Course Name:	
	ComputerNetworksLab
Course Code:	PCC-CS692
Name of the Program:	B.Tech
Department	Computer Science Engineering
Semester	6 <sup>th</sup> Semester

#### COURSEOUTCOMES

 $\label{eq:completion} After completion of course, students would be able to:$ 

- 1. Identifyandusevariousnetworkingcomponents.
- 2. Analyzeperformance of various communication protocols.
- 3. Understandthetransportlayerconceptsandprotocoldesignincludingconnectionorientedandconnection-less models.
- 4. Implementdevicesharingonnetwork.

### COAttainmentofSubjects

Paper Code(Na	CO Number	Course Outcomes(C	ATTAINED
me)	Tumber	Outcomes(C O)	
	CO1	Identify and understand of Various networking components.	10%
ComputerNet works Lab Code:PCC-	CO2	Analyze the performance of Various communication protocols.	15%
CS692	CO3	Understand the transport Layer concepts and Protocol design including Connection oriented and Connectionless models.	10%
	CO4	Implement device sharing On network.	20%

# Mapping of Course Outcomes and Program Outcomes for the subject Computer Network Lab (PCC-CS692)

Course Outcomes		Program Outcomes										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		1					1					
CO2		1		1								
CO3							1					
CO4				1								

perCode (Name)	CO Number	Course Outcomes(CO)	ATTAINED
PROJ-CS601 Research Methodology	CO1	Identifyanddiscusstheissues andconcepts salienttotheresearch process.	15%
	CO2	Analysisofcomplex issuesinherentin selectingaresearch problem,selectingan appropriateresearch design,andimplementing aresearchproject.	20%
	CO3	Understand,compre hendand explainresearch articlesintheir academicdiscipline.	15%

Mapping of Course Outcomes and Program Outcomes for the subject Research Methodology (PROJ-CS601)

CourseOut comes						Prog	ramOut	comes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2		$\checkmark$		$\checkmark$								
CO3							$\checkmark$					

## COAttainment

		<u>CO</u>	<u>Attainment</u>
	<u>CO1</u>	Design algorithm and implement C program using divide and conquer approach in Computer Science and Engineering and related fields.	15%
Design and Analysis of Algorithm Lab (PCC-CS494)	<u>CO2</u>	Design algorithm and implement C program using dynamic programming in Computer Science and Engineering and related fields.	15%
	<u>CO3</u>	Design algorithm and implement C program using branch and bound method in Computer Science and Engineering and related fields. App	5%
	<u>CO4</u>	Design algorithm and implement C program using backtracking in Computer Science and Engineering and related fields.	5%
	<u>CO5</u>	Design algorithm and implement C program using greedy method in Computer Science and Engineering and related fields.	10%
	<u>CO6</u>	Design Graph Traversal Algorithm and implement C program in Computer Science and Engineering and related fields.	15%

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1										$\checkmark$		
CO2												
CO3			$\checkmark$							$\checkmark$		
CO4			$\checkmark$							$\checkmark$		
CO5										$\checkmark$		

Course Name:	Image Processing
Course Code:	PEC-IT601D
Name of the Program:	B.Tech
Department	Computer Science Engineering

Semester	6 <sup>th</sup> Semester
Name of Faculty	Suman Halder

### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Review the fundamental concepts of a digital image processing system.
CO2	Analyze images in the spatial and frequency domain using various transforms.
CO3	Evaluate the techniques for image enhancement and image restoration.
CO4	Interpret image segmentation and representation techniques.

# **CO-PO Mapping:**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2		$\checkmark$			$\checkmark$							
CO3					$\checkmark$							
CO4					$\checkmark$							

### **Course Details**

Course Name:	Pattern Recognition
Course Code:	PEC-IT602D
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	6 <sup>th</sup> Semester
Name of Faculty	SD

## **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	Understand and compare a variety of pattern classification, structural pattern recognition and pattern classifier combination techniques.
CO2	Summarize, analyze, and relate research in the pattern recognition area verbally and in writing.
CO3	Apply performance evaluation methods for pattern and critique comparisons of techniques made in the research literature.
CO4	Apply pattern recognition techniques to real-world problems such as document analysis and recognition.
CO5	Implement simple pattern classifiers, classifier combinations and structural pattern recognizers.
CO6	Able to manipulate Bayes' Classifier and implement Decision Trees.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	101	102	105	101		100		100	107	1010	1011	1012
CO2												
CO3	$\checkmark$					$\checkmark$					$\checkmark$	
CO4	$\checkmark$				$\checkmark$						$\checkmark$	
CO5												

# COAttainmentofSubjects

		<u>CO</u>	<u>Attainment</u>
	<u>CO1</u>	Understand and compare a variety of pattern classification, structural pattern recognition and pattern classifier combination techniques.	15%
	<u>CO2</u>	Summarize, analyze, and relate research in the pattern recognition area verbally and in writing.	15%
	<u>CO3</u>	Apply performance evaluation methods for pattern and critique comparisons of techniques made in the research literature.	5%
Pattern Recognition PEC-IT602D	<u>CO4</u>	Apply pattern recognition techniques to real-world problems such as document analysis and recognition.	15%
	<u>CO5</u>	Implementsimplepatternclassifiers,classifiercombinationsandstructuralpattern recognizers.	10%
	<u>CO6</u>	Able to manipulate Bayes' Classifier and implement Decision Trees.	5%

# CO Attainment of Human Resource Development and Organizational Behavior(OEC-IT601B)

Paper Code(Name)	CO Number	CourseOutcomes(CO)	ATTAINED
		Understand the organizational structures, the	15%
		Features and principles of organization.	
	CO1	Analysis of the theories of motivation ,and	
	COI	Applying the knowledge in the organizational	
		Level and in different socio-environmental	
OEC-IT601B		Legal situations.	

Human Resource Development and Organizational Behavior	CO2	Understand and recognize different leadership in different social situations. Analysis of concept of Group Dynamic be done to the Students for their proper understanding and to apply in real-life scenarios.	15%
	CO3	Recognize the factors of organizational Change and its impact on business, better Understanding of the business environment With respect to resistance to change and apply The knowledge of it in different problems.	25%

Mapping of CourseOutcomes and ProgramOutcomesfor thesubjectHumanResourceDevelopmentandOrganizationalBehavior(OEC-IT601B)

CourseOut comes		ProgramO utcomes										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$		$\checkmark$			$\checkmark$					
CO2		$\checkmark$		$\checkmark$			$\checkmark$					
CO3							$\checkmark$					$\checkmark$

#### Cryptography & Network Security (CS801D)

#### **Course Outcomes:**

CO1: To be able to identify common network security vulnerabilities/attacks; explain the foundations of Cryptography and network security.

CO2: To be able to analyze the risks and threats to networked computers.

CO3: To be able to demonstrate detailed knowledge of the role of encryption to protect data.

CO4: To be able to analyze security issues arising from the use of certain types of technologies.

CO5: To be able to identify the appropriate procedures required to secure networks, system security testing and procedures of Backup and Recovery.

Paper Code(Name)	CO Number	CourseOutcomes(CO)	ATTAINED
	CO1	To be able to identify common network security vulnerabilities/attacks; explain the foundations of Cryptography and network security.	25%
OEC-IT601B HumanResource Developmentand OrganizationalBe havior	CO2	To be able to analyze the risks and threats to networked computers.	25%
	CO3	To be able to demonstrate detailed knowledge of the role of encryption to protect data.	20%

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2		$\checkmark$										
CO3		$\checkmark$										

CO4 √				
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**Course Details:** 

Course Name:	E-Commerce & ERP
Course Code:	OEC-CS802A
Name of the Program:	<b>B.Tech</b>
Department	Computer Science Engineering
Semester	8 <sup>th</sup> Semester
Name of Faculty	SD

### **COURSE OUTCOME:**

On successful completion of this course, students should be able to:

CO1	To identify and differentiate various types of Ecommerce.						
CO2	To define and understand E-business and its Models.						
CO3	To apply appropriate techniques and resources of Hardware and Software Technologies for						
	Ecommerce.						
CO4	To understand the basic concepts of ERP and identify different technologies used in ERP.						
CO5	To apply different tools used in ER.						

## COAttainment

		<u>CO</u>	Attainment
	<u>CO1</u>	To identify and differentiate	10%
		various types of Ecommerce.	
	<u>CO2</u>	To define and understand E-	15%
E-Commerce & ERP		business and its Models.	
OEC-CS802A	<u>CO3</u>	To apply appropriate techniques	10%
		and resources of Hardware and	
		Software Technologies for	
		Ecommerce.	
	<u>CO4</u>	To understand the basic concepts	10%
		of ERP and identify different	
		technologies used in ERP.	
	<u>CO5</u>	To apply different tools used in	15%
		ER.	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2					$\checkmark$							
CO3												
CO4												
CO5	$\checkmark$										$\checkmark$	

PaperCode (Name)	CO Number	Course Outcomes(CO)	ATTAINED
OEC-CS801E,	CO1	Understand the importance of Behavioral aspects in the workplace	10%
Soft Skill &Interpersonal Communication	CO2	Recognize the conflict resolution skills at work	17%
	CO3	Understand the importance of Communication skills in daily life And at work	25%

Mapping of Course Outcomes and Program Outcomes for the subject Soft Skill &Interpersonal Communication(OEC-CS801E)

Course Outcomes		Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO1							$\checkmark$						
CO2												$\checkmark$	
CO3							$\checkmark$						

PAPER NAME	CO No.	Course Outcomes	Attainment
BIOLOGY (BSC-401)	CO1	Describe how biological observations of 18th century lead to major discoveries and understand that the classification of organisms is based on morphological, biochemical or ecological	10%

	parameters.	
CO2	Highlight the concepts of excessiveness and dominance during the passage of genetic material from parent to offspring.	24%
CO3	Convey that all forms of life have the same building blocks and yet the manifestations are diverse.	5%
CO4	Classify enzymes and distinguish between different mechanisms of enzyme action and identify DNA as a genetic material in the molecular basis of information transfer.	10%
CO5	Analyze biological processes at the reductionist level and apply thermodynamic principals to the biological systems.	10%

Mapping of Course Outcomes and Program Outcomes for the subject BIOLOGY (BSC-401)

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1					$\checkmark$		$\checkmark$					
CO2				$\checkmark$			$\checkmark$					$\checkmark$
CO3		$\checkmark$										$\checkmark$
CO4												$\checkmark$
CO4		$\checkmark$										

# CO ATTAINMENT = 2020 ODD, 2021 EVEN

Paper Code (Name)	COURSE OUTCOMES(COs)					
		1 <sup>ST</sup> SEMESTER	I			
	CO1	Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces to solve different engineering problems.	83			
	CO2	Rationalise bulk properties and processes using thermodynamic consideration for various engineering applications.	76			
BS-PH101	CO3	Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.	78			
Chemistry-I	CO4	Rationalise periodic properties (ionization potential, electro negativity, oxidation states) for various engineering applications.	79			
	CO5	Apply the knowledge of structure, stability and reactivity of organic molecular species in order to gain a clear insight into the mechanism of chemical and biochemical reacting systems used in various engineering problems.	78			
	CO1	Apply the knowledge of simple harmonic motion (ideal and real cases) and basic concepts of Mechanics for the solution of complex problems.	79			
	CO2	Utilize the knowledge of vector calculus and different coordinate system for the solution of complex problems.	75			
BS PH-101	CO3	Apply the knowledge of physical optics (interference, diffraction, polarization) and LASER to solve different complex problems	78			
(Physics-I)	CO4	Apply the knowledge of dielectric and magnetic properties of materials to interpret different complex systems.	77			
	CO5	Utilize the knowledge of Quantum Physics to analyze a complex engineering problem.	78			
	CO6	Apply the knowledge statistical mechanics to solve complex problems.	75			
BS-M101/ BS-M102 Mathematics –IA*/ Mathematics –IB *	CO1	Understand the properties of complex functions and their behavior. Know the techniques for evaluating complex integrals and series. Learn the theory of analytic functions, conformal mapping, the Cauchy-Riemann equations, concept of Taylor and Laurent series, complex integration, Liouville's theorem, residues and the Residue Theorem	75			
	CO2	Understand the concept of a differential equation and its solution. Know the techniques for solving first-order and second-order differential equations,	87			

		Cauchy-Euler differential equation, Bessel's equation, indicial equations, power-series solution.	
	CO3	Understand the concept of integration over two or three-dimensional regions/volumes. Know the techniques for evaluating double and triple integrals, including change of variables and polar, cylindrical, and spherical coordinates	89
	CO4	Understand the statement of Stokes' theorem, Green's theorem and how to apply it to compute line integrals. Understand the concept of a curve and its parameterization. Know the techniques for evaluating line integrals, including parametric and vector forms. Understand the concept of a surface and its parameterization. Know the techniques for evaluating surface integrals, including parametric and vector forms. Understand volume integrals and Gauss divergence theorem.	83
	CO1	Organize/Design the experiment related to Chemical Science as applicable in various Engineering problems.	77
BS-PH191/	CO2	Generate experimental Data related to Chemical Science as applicable in complex problems.	88
BS-CH191	CO3	Conduct actual experiment related to Chemical Science as applicable in different engineering application.	79
Physics-I Laboratory (Gr-A)/ Chemistry-I Laboratory (Gr-B)	CO4	Analyze data and draw conclusion related to Chemical Science as applicable in various engineering problems.	86
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to Chemical Science as applicable in different engineering fields.	87
	CO1	Organize/design the experiment related to various systems and interpret the physical properties of material.	85
BS PH-191	CO2	Generate experimental Data related to electrical and magnetic properties.	85
(Physics-Lab 1)	CO3	Conduct actual experiment related to optical phenomena.	88
	CO4	Analyze data and draw conclusion related to quantum physics.	86
	CO5	Analyze with proper experimental data and graphs and communicate effectively.	87
ES-ME191/ ES- ME192	CO1	Introduction to engineering design and its place in society	84
Engineering Graphics & Design	CO2	Exposure to the visual aspects of engineering design	86
(Gr-B)/ Workshop /Manufacturing Practices(Gr-A)	CO3	Exposure to engineering graphics standards	89
	CO4	Exposure to solid modelling	84

		2 <sup>ND</sup> SEMESTER						
	CO1	and intermolecular forces to solve different engineering problems.						
	CO2	Rationalise bulk properties and processes using thermodynamic consideration for various engineering applications.						
BS-CH201	CO3	CO3       Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.						
Chemistry-I	CO4	Rationalise periodic properties (ionization potential, electro negativity, oxidation states) for various engineering applications.	84					
	CO5	Apply the knowledge of structure, stability and reactivity of organic molecular species in order to gain a clear insight into the mechanism of chemical and biochemical reacting systems used in various engineering problems.	82					
	CO1	Apply the knowledge of simple harmonic motion (ideal and real cases) and basic concepts of Mechanics for the solution of complex problems.	85					
	CO2	Utilize the knowledge of vector calculus and different coordinate system for the solution of complex problems.	88					
BS PH-201	CO3	O3Apply the knowledge of physical optics (interference, diffraction, polarization) and LASER to solve different complex problems						
(Physics-I)	CO4	Apply the knowledge of dielectric and magnetic properties of materials to interpret different complex systems.	87					
	CO5	Utilize the knowledge of Quantum Physics to analyze a complex engineering problem.	73					
	CO6	Apply the knowledge statistical mechanics to solve complex problems.	79					
	CO1	Understand the properties of complex functions and their behavior. Know the techniques for evaluating complex integrals and series. Learn the theory of analytic functions, conformal mapping, the Cauchy-Riemann equations, concept of Taylor and Laurent series, complex integration, Liouville's theorem, residues and the Residue Theorem.	83					
BS-M201/ BS-M202 Mathematics –IIA# / Mathematics –IIB #	CO2	Understand the concept of a differential equation and its solution. Know the techniques for solving first-order and second-order differential equations, Cauchy-Euler differential equation, Bessel's equation, indicial equations, power-series solution.	90					
	CO3	Understand the concept of integration over two or three-dimensional regions/volumes. Know the techniques for evaluating double and triple integrals, including change of variables and polar, cylindrical, and spherical coordinates	83					

	CO4	Understand the statement of Stokes' theorem, Green's theorem and how to apply it to compute line integrals. Understand the concept of a curve and its parameterization. Know the techniques for evaluating line integrals, including parametric and vector forms. Understand the concept of a surface and its parameterization. Know the techniques for evaluating surface integrals, including parametric and vector forms. Understand volume integrals and Gauss divergence theorem.	80
	CO1	to be able to <b>use</b> the correct vocabulary in order to express oneself in English properly	82
HM-HU201	CO2	to be able to <b>identify</b> common errors in terms of grammar and choice of words in English	88
English	CO3	to be able to <b>describe</b> , <b>discuss</b> , and <b>interpret</b> reading input in English	85
	CO4	to be able to <b>demonstrate</b> that one can express oneself in English through writing	84
	CO1	Organize/Design the experiment related to Chemical Science as applicable in various Engineering problems.	82
BS-PH291/BS-	CO2	Generate experimental Data related to Chemical Science as applicable in complex problems.	88
CH291 Physics-I	CO3	Conduct actual experiment related to Chemical Science as applicable in different engineering application.	87
Laboratory(Gr B)/ Chemistry-I Lab(GrA)	CO4	Analyze data and draw conclusion related to Chemical Science as applicable in various engineering problems.	84
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to Chemical Science as applicable in different engineering fields.	84
	CO1	Organize/design the experiment related to various systems and interpret the physical properties of material.	86
BS PH-291	CO2	Generate experimental Data related to electrical and magnetic properties.	85
(Physics-Lab 1)	CO3	Conduct actual experiment related to optical phenomena.	85
	CO4	Analyze data and draw conclusion related to quantum physics.	78
	CO5	Analyze with proper experimental data and graphs and communicate effectively.	79
ES-ME291/ ES- ME292	CO1	Introduction to engineering design and its place in society•	95
Engineering Graphics &	CO2	Exposure to the visual aspects of engineering design	95
Design(Gr-A)/	CO3	Exposure to engineering graphics standards	95
Workshop/Manufact uring Practices(GrB)	CO4	Exposure to solid modelling	95
HU291 Language	CO1	to be able to <b>describe, discuss</b> , and <b>interpret</b> the listening input in English	75

Laboratory	CO2	to be able to <b>demonstrate</b> that one can express oneself in English	84
	CO3	through speaking to be able to <b>describe, discuss,</b> and <b>interpret</b> reading input in	
		English	87
	CO4	to be able to <b>demonstrate</b> that one can express oneself in English through writing	87
		3 <sup>RD</sup> SEMESTER	
CE(ES)302	CO1	Understanding the various sources of energy and its interaction with the environment	77
Energy Science	CO2	Designing energy efficient structures	87
CE(HS)302 – INTRODUCTION TO CIVIL ENGINEERING	CO1	= To acquire knowledge about basic civil engineering techniques and apply the acquired knowledge in basic civil engineering problems	87
CE(ES)392 Computer aided Civil Engineering Drawing	CO1	To understand the concept of engineering drawings and apply the same using computer aided design technology	86
		<b>4<sup>TH</sup> SEMESTER</b> To understand about the properties and characteristics of fluid	
CE(ES)401 Introduction to Fluid Mechanics	CO1		90.3
	CO2	To understand, analyze and evaluate the different characteristics, pattern and types of fluid flow and hydraulic machines.	90.2
CE(ES)40 Introduction to Solid Mechanics	CO1	Deterministic approaches for understanding interaction between material characteristic with load and time	83.9
	CO2	Knowledge about materials and structures and understand their	86.6

CE(ES)492-	CO1	Apply the knowledge of material characteristics to determine various	84
CE(ES)491- FLUID LABORATORY	CO1	Apply the knowledge of fluid characteristics for determination of various parameters related to fluid flow through experimentation.	74.4
CE-SOCIETAL and global impact	CO2	Understanding the challenges of future civil engineering projects	72.8
CONCRETE TECHNOLO GY CE(HS)401-	CO1	Understanding the historical perspectives in the overall development of civil engineering	82.5
	CO2	Analysing the mix design of concrete	81
Geomatics CE(PC)404-	CO1	Understanding the properties, raw materials required for designing fresh and hardened concrete	82
	CO2	To evaluate the different techniques of surveying and geomatics in solving basic problems and also analyze different and advanced technique of surveying	82.2
engineering -I CE(PC)403- Surveying and	CO1	To understand the basic principles of surveying and geomatics	86.4
	CO2	Analyzing the characteristics of municipal solid waste and it's handling by engineering systems.	87.4
Soil Mechanics – I CE(PC)402- Environmental	CO1	Analyzing the sources, requirements, quality and treatment of water and design of the patterns of conveyance and distribution	85.2
	CO2	To understand and analyze the stress distribution and shear strength characteristics of soils.	82.3
CE(PC)401-	CO1	properties of soil and analyze the soil-water interaction system.	
		To understand, evaluate and gather knowledge about physical	84.3
		structure property	

SOLID MECHANICS LABORATORY		strength parameters through experimentation.	
CE(ES)493- ENGGINEERING GEOLOGY LABORATORY	CO1	Apply the knowledge of Engineering Geology in determining the physical properties of rocks and minerals and to understand and delineate different geological structures by the interpretation of geological maps	85.4
CE(PC)493- SURVEYING AND GEOMATICS LABORATORY	CO1	Application of the knowledge of surveying and geomatics for determination of different methods of surveying for measurement	86.3
CE(PC)494-CONC LAB	CO1	Applying the knowledge of Concrete technology in determining the various parameters of Concrete and its design.	83.5
		5 <sup>th</sup> SEMESTER	
CE(PC)501-	CO1	To understand about the concept of limit state and working stress method of design.	75.4
DESIGN OF RC STRUCTURES	CO2	To understand, analyze and evaluate about the design of different types of RC structures by Limit State Method and Working Stress Method.	75.2
CE(PC)502	CO1	Understanding the basic concepts of Hydrology.	87.1
ENGINEERING HYDROLOGY	CO2	Analysis of different hydrological parameters and mitigation methods of floods and flood management.	88.8
CE(PC)503-structURAL	C01	Knowledge of static, determinate and indeterminate structures	85.1

ANALYSIS -I	CO2	Analysis of all type of structure of its stability and instability	86.8
CE(PC)504-SOIL	C01	To understand, evaluate and analyze about consolidation, compaction and earth pressures of soil.	75.
MECHANICS - 2	CO2	To understand, analyze, evaluate the bearing capacity and settlement analysis of shallow foundation and slope stability analysis of any manmade or natural slope.	82.7
CE(PC)505- ENVIRONMENT	CO1	Define the basic concepts and terminologies of waste water engineering, hazardous waste management, Plumbing systems for water supply and waste water disposal	80.3
AL ENGINEERING 2	CO2	Apply the methods of quantifying sanitary sewage and storm sewage, solve mathematical problems and design different processes operations involved in waste water treatment.	80
CE(PC)506- TRANSPORTATION ENGINEERING	CO1	TO UNDERSTAND THE KNOWLEDGE OF PLANNING,DESIGN AND THE FUNDAMENTAL PROPERTIES OF HIGHWAY MATERIALS IN HIGHWAY ENGINEERING	84.2
	CO2	APPLY AND INTERPRET THE KNOWLEDGE OF GEOMETRIC DESIGN AND TRAFFIC STUDIES	83.4
CE(PC)591-RC DESIGN SESSIONAL	CO1	Apply the knowledge of RCC structure.	76.7
CE(PC)594-SOIL MECHANICS LABORATORY	C01	Understand every aspect of soil investigation and prepare a lab report	94.8
CE(PC)595- ENVIRONMENT AL ENGINEERING LABORATORY	C01	Organize/Design the experiment related to Digital Signal Processing Lab.	83.1

CE(PC)596- TRANSPORTATI ON LABORATORY	CO1	TO understand the application of different laboratory tests.	87.4
CE(PC)597-COMPUTER APPLICATION IN CIVIL ENGINEERING	C01	Understanding Computer applications to apply in civil engineering field	92.06

## 6<sup>TH</sup> SEMESTER

CE(PC)601- CONSTRUCTIO N ENGINEERING AND MANAGEMENT	CO1	To Understand how structures are built.	89
	CO2	To evaluate the necessary steps for the completion of a project from the beginning to the end.	87
CE(PC)602- ENGINEERING	CO1	To understand the principles of economics and it's application on value analysis of civil engineering projects	84.7
ECONOMICS,ES TIMATION AND COSTING	CO2	To understand the technical specifications of rate analysis, Tender and valuation performed for a project and analyse the cost of a structure through these parameters.	82.4
CE(PC)603-WATER RESOURCE ENGINEERING	C01	To apply the fundamentals of flow in open channel to design them accordingly	84.17
	CO2	To understand the different concepts of Irrigation in connection with the water requirement for different crops and obtain knowledge about various ground water resources	82.37

CE(PC)604- DESIGN OF	CO1	Understanding the properties and its utility in civil engineering design	87
STEEL STRUCTURES	CO2	Analysis of the use of steel in designing various structures	87
CE(PE)601B- FOUNDATION	CO1	Gain basic knowledge about the bearing capacity of shallow and deep foundation at site and gain some knowledge about soil investigation and exploration	74.2
ENGINEERING	CO2	Analyse the design of sheet pile structure on the basis of earth pressure theories and understand and apply various types of ground improvement methods for solving complex geotechnical problems	74
CE(PE)602A- BUILDING,CONSTRUCT ION AND PRACTICE	C01	Understand the knowledge of various structures that used in civil engineering construction	76
CE(PC)693-Water Resource Laboratory	CO1	To apply different techniques for proper use of water as an useful resource.	76
CE(PC)694-STEEL STRUCTURE DESIGN SESSIONAL	CO1	Apply the knowledge of steel structure in design	78
CE(PC)695-QUANTITY SURVEYESTIMA TION AND VALUATION SESSIONAL	CO1	To evaluate about the specification and valuation of works and materials used in any civil engineering construction project	75

CE(OE)701A-	CO1	7 <sup>TH</sup> SEMESTER           understand the overview of how the metro system works	76.9
METRO SYSTEM AND ENGINEERING	CO2	to apply the knowledge of different metro sysytem engineeirng works	78.5
	CO1	To understand and evaluate about the characteristics of various types and components of dams and their selection procedure.	78.8
CE(PE)701C- HYDRAULIC STRUCTURES	CO2	To analyze about the stability analysis of different hydraulic structures (dam) and estimate about different types of forces, seepage loss and discharge calculation acting on dams and their remedial measures         .	84.1
CE(PE)702A- PRESTRESS	CO1	Understanding the purpose, parameters and application of Prestressed Concrete structure	84.3
CONCRETE	CO2	Design of Prestressed Concrete Structures	88.4
CE(PE)703A- AIR AND NOISE POLLUTION	CO1	Understanding the concepts of air and noise pollution, methods of their measurement.	83
	CO2	Analyze the concepts of air and noise pollution solving mathematical problems and design techniques for air and noise pollution control	82.6
CE(PE)704C-COASTAL	CO1	Understanding the various mechanisms involved in generation of tides, currents and waves and its implications on sediment transport.	85.6
HYDRAULICS AND	CO2	Applying the knowledge of wave current mechanics and sediment transport in analyzing different shore line and coastal structures	88.26
SEDIMENT TRANSPORT			
CE(PE)705A-	CO1	to acquire the knowledge of basic railway engineering	83.2
RAILWAY AND	CO2	to acquire the knowledge of basic airport engineering.	76.13

		8 <sup>TH</sup> SEMESTER	
CE(PE)801D	CO1	To understand about the different materials for suitability of road and their availability characteristics.	76.6
PAVEMENT MATERIALS	CO2	To understand and evaluate the properties of soil and physical modification of pavement works	77.3
CE(0E)801C DEEP FOUNDATION	CO1	To understand, evaluate and analyze about the selection of suitable type of deep foundation for various site conditions.	67.56
	CO2	To understand, analyze and evaluate the concept about bearing capacity of different types of deep foundations.	87

Paper Code (Name)	CO	COURSE OUTCOMES(COs)	ATTAINED (%)
		3 <sup>RD</sup> SEMESTER	
	CO1	Differentiate the conduction techniques in semiconductor materials	64%
EC301 (Electronic Devices)	CO2	Analyze characteristics of semiconductor diodes, bipolar transistors, Mos- Transistors and solve problems.	64%
SS	CO3	Differentiate between different Opto-electronic devices	64%
	CO1	Convert various number system and apply logic gates, Boolean algebra and K-Map to design digital circuits.	57%
EC302 (Digital System Design) PB	CO2	Design the digital combinational circuits likes decoders, encoders, multiplexers amd de-multiplexers, half adder, full adder and compare their performance to optimize production cost and also develop sequential digital circuits like flip-flop, register, counter to design memory device.	57%
	CO3	Illustrate the knowledge of ROM,RAM,PROM,PLD,FPGA,TTL,CMOS and ECL apply them to design VLSI system.	57%
EC303	CO1	Analyze different types of signals.	58%
(Signals & Systems)	CO2	Represent continuous and discrete systems in time and frequency domain using different transforms.	58%
	CO3	Investigate whether the system is stable.	58%
SGH	CO4	Sampling and reconstruction of a signal.	58%
	CO1	<b>Apply</b> all the electrical network theories and the concept of resonance to typical electric circuits with AC & DC sources to solve problems related to electronics & Communication Engineering	60%
EC304 Network Theory SAS	CO2	<b>Apply</b> Laplace transform technique to <b>analyze</b> complex electrical circuits in s domain and solve for voltage & current values related to electronics & communication Engineering.	60%
	CO3	<b>Apply</b> the knowledge of any set of two-port parameters for circuit analysis, & measurement of different parameters and convert one set of two-port parameters to another.	60%
ES-CS301	CO1	Implementation of different data structures efficiently.	70%

Data Structure &	CO2	Usage of well-organized data structures to handle large amount of data.	70%
Algorithm (ES) ABh	CO3	Usage of appropriate data structures for problem solving.	70%
BS-M301 Probability & Statistics(BS)	CO1	The students will learn: The ideas of probability and random variables and various discrete and continuous probability distributions and their properties. The basic ideas of statistics including measures of central tendency,	52%
AS	CO2 CO3	correlation and The statistical methods of studying data samples.	52%
	CO1	Organize/Design the experiment related to Solid State Device Lab.	81%
EC391	CO2	Generate experimental Data related to Solid State Device Lab.	81%
Electronic Devices Lab.)	CO3	Conduct actual experiment related to Solid State Device Lab.	81%
SS+SK	CO4	Analyze data and draw conclusion related to Solid State Device Lab.	81%
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to <b>Solid State Device Lab.</b>	81%
	CO1	Organize/Design the experiment related to <b>Digital System Design Lab.</b>	88%
EC392	CO2	Generate experimental Data related to <b>Digital System Design Lab.</b>	88%
Digital System Design	CO3	Conduct actual experiment related to <b>Digital System Design Lab.</b>	88%
PB+SM	CO4	Analyze data and draw conclusion related to <b>Digital System Design Lab.</b>	88%
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to <b>Digital System Design Lab.</b>	88%
	CO1	Design and develop programs using data structure & algorithm concepts.	88%
ESCS391 Data Structure Lab	CO2	Develop simple applications using linear and non-linear data structures & algorithms concepts and understand the access mechanisms and other use and functionalities.	88%
A. Mullick	CO3	Implement searching and sorting concepts for problem solving.	88%
	CO4	Implement the concepts of graph and hashing concepts for problem solving.	88%

		4 <sup>TH</sup> SEMESTER	
EC401 Analog Communication	CO1	Design system components for amplitude modulation techniques that meet the specified needs with appropriate consideration relevant to complex analog communication systems	93%
	CO2	Analyze system components and calculate the corresponding values for nonlinear communication systems that meet the specified needs with appropriate consideration relevant to complex analog communication systems.	93%
JA	CO3	Analyze a stereo and a multiplexed system as applied to audio, analog or digital communication respectively.	93%
	CO4	Analyze noise parameters and compare signal to noise ratio for analog modulation techniques reaching substantiated conclusions on the performance of analog communication systems.	93%
EC402 Analog Electronic	CO1	Understand the characteristics of diodes and transistors and design and analyse various rectifier and amplifier circuit.	79%
Circuits PB	CO2	Understand the functioning of OP-AMP and design OP-AMP based circuits, Oscillators and multivibrators.	79%
EC403 Microprocessor & Microcontrollers	CO1	Students will be able to do assembly language programming using 8085/8086 and interfacing design of peripherals like I/O, A/D, D/A, Timer etc.	79%
	CO2	Students will be able to distinguish and analyze the properties of microcontroller	79%
ESCS401 Design and Analysis of Algorithm Tathagata Ch	CO1	To analyze and identify the Complexity of a problem and compute the recurrence relation.	93%
	CO2	To analyze the several algorithms design techniques on some certain problems using divide & conquer method, dynamic programming approach, backtracking, greedy method.	93%
	CO3	To understand lower bound theory, graph traversal algorithm, network flow, disjoint set manipulation different method.	93%
	CO4	To design the algorithm of string matching problem, matrix manipulation algorithm.	93%
	CO5	To understand amortize analysis, approximation algorithm, notion of NP-completeness.	93%

	CO1	To develop thorough understanding of the mathematical concepts and theories that underlie numerical methods. This includes topics such as interpolation, differentiation, integration, and linear algebra.	74%
BS M401 Numerical Methods	CO2	Students should be able to analyse a given engineering problem and choose the appropriate numerical method to solve it. This requires an understanding of the strengths and limitations of various numerical techniques.	74%
SPal	CO3	Students should be able to write computer programs to implement numerical algorithms. This includes an understanding of programming languages such as MATLAB, Python, or C++.	74%
	CO4	Students should understand the concept of numerical error and the sources of error in numerical calculations. They should be able to perform error analysis and make appropriate adjustments to improve the accuracy of their numerical solutions.	74%
	C01	After studying the course, the student will be able to: Describe how biological observations of 18th Century that lead to major discoveries and Convey that classification per se is not what biology is all about but highlight the underlying criteria, such as morphological, biochemical and ecological	88%
BS B401 Biology for Engineer Ananya	CO2	Highlight the concepts of recessiveness and dominance during the passage of genetic material from parent to offspring Convey that all forms of life have the same building blocks and yet the manifestations are as diverse as one can imagine	88%
	CO3	Classify enzymes and distinguish between different mechanisms of enzyme action. Identify DNA as a genetic material in the molecular basis of information transfer.	88%
	CO4	Analyse biological processes at the reductionistic level Apply thermodynamic principles to biological systems.	88%
	CO5	Identify and classify microorganisms.	88%
EC491	CO1	Organize/Design the experiment related to Analog Communication Lab.	81.25%
Analog Communication	CO2	Generate experimental Data related to Analog Communication Lab.	81.30%
Lab	CO3	Conduct actual experiment related to Analog Communication Lab.	82.22%
JA,SAS,RM,SM	CO4	Analyze data and draw conclusion related to Analog Communication Lab.	81.48%
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to <b>Analog Communication Lab.</b>	81.85%

	CO1	Organize/Design the experiment related to Analog Electronic Circuit Lab.	88%
EC492	CO2	Generate experimental Data related to Analog Electronic Circuit Lab.	88%
Analog Electronic Circuit	CO3	Conduct actual experiment related to Analog Electronic Circuit Lab.	88%
PB,SK,JR	CO4	Analyze data and draw conclusion related to <b>Analog Electronic Circuit</b> Lab.	88%
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to <b>Analog Electronic Circuit Lab.</b>	88%
	CO1	The knowledge of basic microcomputer system and the architecture as well as assembly language programming of 8085 microprocessor to solve engineering problems related to design system based on these processors in ECE.	93%
EC493 Microprocessor & Microcontroller Lab	CO2	The knowledge of architecture and assembly language programming of 8051 microcontroller and the architecture of PIC to solve engineering problems related to design system based on these processors in ECE	93%
SS,TS,JR BS-M(CS)491 Numerical Method Lab. SPAL	CO3	The knowledge of architecture and assembly language programming of 8086 microprocessor to solve engineering problems related to design system based on these processors in ECE.	93%
	CO4	The knowledge of memory and peripheral interfacing devices to solve engineering problems related to design of I/O and memory interfacing of microprocessor and microcontroller based system in ECE.	93%
	CO1	Students would develop deep understanding of numerical algorithms, including interpolation, differentiation, integration, and linear algebra, and how these algorithms can be implemented in C.	75%
	CO2	Students would be able to write computer programs in C to implement numerical algorithms. This requires an understanding of the syntax and features of C programming language.	75%
	CO3	Students would develop an understanding of programming concepts such as data structures, control structures, functions, and file handling in C, and how these concepts can be used to implement numerical algorithms.	75%
	CO4	Students would be able to identify and fix errors in C programs, including runtime errors, syntax errors, and logical errors. They should also understand the importance of error handling in numerical computations.	75%
	<u> </u>	5 <sup>TH</sup> SEMESTER	
EC501	CO1	Understand the basic mathematical concepts related to electromagnetic vector	73%
Electromagnetic		fields.	13%

Waves Anupa Chatterjee	CO2	Characterize uniform plane wave and calculate reflection and transmission of waves at media interface.	73%
Swagata Bankura	CO3	Understand characteristics and wave propagation on high frequency transmission lines, carryout impedance transformation on transmission line and use sections of transmission line sections for realizing circuit elements.	73%
	CO4	Analyze wave propagation on metallic waveguides in modal form.	73%
	CO5	Understand principle of radiation and radiation characteristics of an antenna.	73%
EC502	CO1	learn how computers work and know basic principles of computer's Working procedure.	70%
Computer	CO2	Analyze the performance of computers.	70%
Architecture	CO3	Know how computers are designed and built.	70%
Subhasree Maity	CO4	Understand issues affecting modern processors (caches, pipelines etc.)	70%
	CO1	Apply the fundamental knowledge of probability theory and random processes for the solution of complex engineering problems related to digital communication techniques.	64%
EC503 Digital Communication & Stochastic	CO2	Analyze signal and system parameters using the methods of vector algebra reaching substantiated conclusions on digital communication techniques.	64%
Process JA	CO3	Design solution for baseband transmission techniques as applicable to digital communication	64%
	CO4	Design solution for digital carrier modulation techniques as applicable to electronics and Communication Engineering	64%
EC504	CO1	Appling sampling theorem students can able to <b>construct/convert</b> continuous time signal/analog into digital sequence and gain the <b>knowledge</b> from time to frequency domain conversion like DTFT,DFT.	68%
Digital Signal Processing SAS	CO2	Student can able to <b>design</b> and <b>implement</b> different types of digital filters(both FIR and IIR) from analog prototype filter using the knowledge of filter transformation(Likely Impulse invariant and Bilinear transform) in different form such as direct form-I, form-II, cascade and parallel etc.	68%
545	CO3	They can able to <b>process</b> digital signals and can also <b>design</b> Digital system/Digital signal Processor by setting proper Algorithm onto FPGA and writing Assembly level program.	68%
PEEC505A Program Elective1	CO1	Understand various aspects of nano-technology and the processes involved in making nano components and material and appropriate use in solving practical problems	68%
Nano Electronics RB	CO2	Appropriate use of different nano-technology for life-long learning.	68%

OEEC506 A Soft Skill & Interpersonal	CO1	to be able to <b>interpret</b> the importance of proximal and distal goals in the workplace	68%
Communication	CO2	to be able to <b>demonstrate</b> conflict resolution skills at work	68%
NMR	CO3	to be able to <b>understand</b> the importance of communication skills in daily life and at work	68%
	CO1	Understand the basic mathematical concepts related to electromagnetic vector fields.	83%
EC591	CO2	Characterize uniform plane wave and calculate reflection and transmission of waves at media interface.	83%
Electromagnetic Wave Lab AC,SB,RM	CO3	Understand characteristics and wave propagation on high frequency transmission lines, carryout impedance transformation on transmission line and use sections of transmission line sections for realizing circuit elements.	83%
	CO4	Analyze wave propagation on metallic waveguides in modal form.	83%
	CO5	Understand principle of radiation and radiation characteristics of an antenna.	83%
	CO1	Apply the fundamental knowledge of probability theory and random processes for the solution of complex engineering problems related to digital communication techniques.	94%
EC592	CO2	Analyze signal and system parameters using the methods of vector algebra reaching substantiated conclusions on digital communication techniques.	94%
Digital Communication Lab	CO3	Design solution for baseband transmission techniques as applicable to digital communication	94%
JA,RM,TS	CO4	Design solution for digital carrier modulation techniques as applicable to electronics and Communication Engineering	94%
	CO5		
	CO1	Organize/Design the experiment related to Digital Signal Processing Lab.	88%
EC593 Digital Signal	CO2	Generate experimental Data related to Digital Signal Processing Lab.	88%
Processing Lab.	CO3	Conduct actual experiment related to Digital Signal Processing Lab.	88%
MSG, TS	CO4	Analyze data and draw conclusion related to Digital Signal Processing Lab.	88%
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to Digital Signal Processing Lab.	88%
		6 <sup>TH</sup> SEMESTER	

EC601 Control System & Instrumentation	CO1	Characterize a system and find its steady state behavior.	85%
MSG	CO2	Investigate stability of a system using different test related to control system.	80%
EC602 Computer Network	CO1	Familarization with the fundamental knowledge of data communication and networks and <b>apply</b> this knowledge to <b>investigate</b> the error in the communication network and <b>analyze</b> the errors using different error correcting codes.	85%
AC	CO2	<b>Analyze</b> the internetworking devices and <b>investigate</b> different addressing and subnetting protocols to <b>investigate</b> proper process to process delivery.	60%
PEEC603D Information Theory	CO1	Recognize the notion of information in the quantitative sense to measure the quantity of information for transmission of data and apply this basic knowledge to calculate channel capacity and probability distribution for real time transmission systems.	65%
& Coding RB	CO2	Assess the fundamental coding theorem for encoding and decoding the information and develop the different techniques for construction of error correction codes .	63%
	CO3	Evaluate the rate and error probabilities in different coding techniques to implement the cost effective system.	62%
	CO1	Understand the basic concept related to NIC installation and configuration. Apply the knowledge of IPC message queue.	95%
EC692	CO2	Remembering and understanding the networking cables, switches, hubs and connectors.	95%
Computer Network Lab	CO3	Understand multicast and broadcast socket and analyze TCP/UDP socket programming.	95%
AC,SK,RM	CO4	Applying the knowledge of socket programming, analyze prototype multithreaded server.	95%
	CO5	Understand the knowledge of data link layer flow control mechanism and apply this knowledge for the error control.	95%
EC691 Control System &	CO1	<b>Characterize</b> a system and investigate stability of the system in time and frequency domain with different method related to Control and Instrumentation Lab	90%
Instrumentation Lab.	CO2	Design various controllers related to Control and Instrumentation Lab	90%
MSG,TS,SM	CO3	<b>Conduct</b> experimental set up with CRO ,Instrumentation Amplifier knowing their functional details related to Control and Instrumentation Lab	85%
EC681	CO1	Formulation of a problem statement either from rigorous literature survey or from the requirements raised need to be analysed.	
Electronic Design CO2 Design, implement and test the photo type/algorithm in order to solve the problem statement.		90%	
RB, SGH, SK, TS	CO3	Write comprehensive report on Mini Project work.	80%
		7 <sup>TH</sup> SEMESTER	
EC701	CO1	Visualize the architecture of satellite systems as a means of high speed, high range communication system.	68%

Satellite		State various aspects related to satellite systems such as orbital	68%
Communication			0070
ТК	CO3	Solve numerical problems related to orbital motion and design of link budget for the given parameters and conditions.	68%
	CO1	Analyze and classify neural networks and its implementation algorithms.	71%
EC702C Nural Network and	CO2	Apply suitable algorithms on different cases.	71%
Fuzzy Logic Control	CO3	Apply fuzzy logic and neural networks.	71%
SGH	CO4	Analyze the applications of Neural Network and Fuzzy logic in image processing.	71%
EC703A Embeded System	CO1	Understand the internal structure, purpose and application of Embedded system.	69%
MSG	CO2	Apply the concept of Embedded firmware in design of Embedded System.	69%
OEEC704A	CO1	design good web pages using different tags, tables, forms, frames and style sheets supported by HTML and implement, compile, test and run Java programs, comprising more than one class, to address a particular software problem.	72%
Web Technology	CO2	demonstrate the ability to employ various types of selection statements and iteration statements in a Java program.	72%
SM	CO3	be able to leverage the object-oriented features of Java language using abstract class and interface.	72%
	CO4	be able to handle errors in the program using exception handling techniques of Java.	72%
	C01	Apply knowledge(fundamental & specialized) to understand the real life problem in the related field.	95%
EC781	CO2	Understand the design and implementation aspects of engineering system/components.	95%
Industrial Training & Project	CO3	Work individually and also in a group.	95%
SSil	CO4	Communicate the details of training through Training Report, Presentation and Viva-Voce.	95%
	CO5	Understand implication of engineering solutions in social and environmental perspective.	95%
EC782	CO1	Formulate the problem.	95%
Project Stage 1	CO2	Develop or design a solution of the problem.	95%
SSil	CO3	Build up project prototype or model in hardware or software.	95%

	CO4	Analyze the experimental/collected data.	95%
	CO5	Do investigation/research in the problem area.	95%
	CO6	Apply fundamental and specialize knowledge in the area of the problem.	95%
	CO7	Self learn new methods, tools and techniques.	95%
	CO8	Apply modern tools and techniques.	95%
	CO9	Work individually and also in team.	95%
	CO10	Communicate the details and findings of the project through project report, presentation, Viva-Voce and paper presentation, if any.	95%
	CO11	Apply project management and economic knowledge	95%
	CO12	Identify implications of the project in society and environment.	95%
	_	8 <sup>th</sup> SEMESTER	
PEEC 801B Fibre Optics Communication	C01	<b>Learn</b> the properties of light in different medium and <b>utilize</b> the knowledge in different types of fibres for optical fibre communication system, and also the corresponding losses of each kinds of fibres.	89%
SAS	CO2	<b>Learn</b> the working of all types of optical source and detectors for signal modulation and demodulation respectively.	89%
PEEC802A	C01	Understand the practical situations where mixed signal analysis is required.	87%
	CO2	Analyze and handle the inter-conversions between signals.	87%
	CO3	Design systems involving mixed signals.	87%
OEEC803C	CO1	To analyze and evaluate the cyber security needs of an organization.	86%
Cyber Security	CO2	To analyze software vulnerabilities and security solutions to reduce the risk of exploitation.	86%
Abhijit Mitra	CO3	To comprehend and execute risk management processes, risk treatment methods and performance indicators.	86%
EC091	CO1	Formulate the problem.	95%
EC881	CO2	Develop or design a solution of the problem.	95%
Project II SSIL	CO3	Build up project prototype or model in hardware or software.	95%
DOIL	CO4	Analyze the experimental/collected data.	95%

	CO5	Do investigation/research in the problem area.	95%
	CO6	Apply fundamental and specialize knowledge in the area of the problem.	95%
	C07	Self learn new methods, tools and techniques.	95%
CO8		Apply modern tools and techniques.	95%
	CO9	Work individually and also in team.	95%
	CO10	Communicate the details and findings of the project through project report, presentation, Viva-Voce and paper presentation , if any.	95%
	C011	Apply project management and economic knowledge	95%
	CO12	Identify implications of the project in society and environment.	95%
	CO1	. Demonstrate the capability to formulate the problem.	94%
	CO2	Demonstrate the capability to develop or design a solution of the problem.	94%
	CO3	Demonstrate the capability to build up project prototype or model in hardware or software.	94%
EC882	CO4	Demonstrate the capability to analyze the experimental/collected data.	94%
Grand Viva	CO5	Show the capability to demonstrate the research based knowledge	94%
SSIL	CO6	Demonstrate the capability to apply fundamental and specialize knowledge in the area of the problem.	94%
	CO7	Demonstrate the capability for self learning new methods, tools and techniques.	94%
	CO8	Demonstrate the capability to apply modern tools and techniques.	94%
	CO9	Demonstrate the capability to work individually and also in team.	94%
	CO10	Demonstrate the capability to communicate in details and present a topic related to Electronics & Communication Engineering.	94%

# DEPARTMENT OF ELECTRICL ENGINEERING CALCUTTA INSTITUTE OF ENGINEERING AND MANGEMENT

**Program Outcomes** 

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**Course Outcomes** 

### PROGRAM OUTCOMES

PO	BROAD HEADING	ELABORATE MEANING
NO.	DRUAD HEADING	ELADORA I E MEANING
1	Engineering knowledge	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialisation for the solution of complex engineering problems.
2	Problem analysis:	Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3	Design/development of solutions:	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.
4	Conduct investigations of complex problems:	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5	Modern tool usage:	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling to complex engineering activities, with an understanding of the limitations.
6	The engineer and society:	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7	Environment and sustainability:	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8	Ethics:	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9	Individual and team work:	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10	Communication:	Communicate effectively on complex engineering activities with the engineering community and with t h e society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11	Project management and	Demonstrate knowledge and understanding of t h e engineering and
	finance:	management principles and apply these to one's own work, as a
		member and leader in a team, to manage projects and in
		multidisciplinary environments
12	Life-long learning:	Recognise the need for, and have the preparation and
		ability to engage in independent and life-long learning in the broadest
		context of technological change.

#### **PROGRAM SPECIFIC OUTCOMES**

**PSO1:** Ability to apply the knowledge of Basic Computing, Basic Sciences and Social Sciences in the field of electrical engineering to identify, analyze and solve real life problems faced in industries and/or during research work.

**PSO2:** Ability to model, test, analyze and design components or processes related to modern power system involving both conventional and renewable energy resources, high voltage systems and energy management.

**PSO3:** Ability to apply the concept of circuit theory, electromagnetic field theory and basic electronics to solve complex problems of electrical machines and drives, power electronic converters and electrical system design.

**PSO4:** Ability to identify and analyze the role of measurement, instrumentation and modern control engineering to enhance sustainability, reliability and efficiency of electrical systems.

**PSO5:** Ability to demonstrate proficiency in operating and handling modern engineering tools to cop up with dynamic industrial environment.

**PSO6:** Ability to work and communicate effectively in the corporate life keeping a responsible outlook towards socio-economic and environmental issues.

#### **COURSE OUTCOMES**

	de: : PC-EE 301	
Year: 2nd (	New Syllabus)	Semester: 3rd
Course Outcomes:	<ol> <li>describe different type of networks, sources</li> <li>explain different network theorems, coupled networks.</li> <li>apply network theorems and different tools</li> <li>select suitable techniques of network analys</li> <li>estimate parameters of two-port networks.</li> <li>design filter circuits.</li> </ol>	d circuit and tools for solution of to solve network problems. sis for efficient solution.
	e Subject: ANALOG ELECTRONICS	
	de: PC-EE 302	
Year: 2nd ( Course	New Syllabus) 1. describe analog electronic components and	
Outcomes:	<ol> <li>explain principle of operation of analog electrogulators and analog electronic circuits.</li> <li>compute parameters and operating points of analog electronic cir</li> <li>determine response of analog electronic cir</li> <li>distinguish different types amplifier and diffapplication.</li> <li>construct operational amplifier based circuit</li> </ol>	of analog electronic circuits. cuits. ferent types oscillators based on
		/
	e Subject: ELECTRO MAGNETIC FIELD THEORY	
Subject Co	e Subject: ELECTRO MAGNETIC FIELD THEORN de: PC-EE 303 New Syllabus)	Semester: 3rd

Subject Coo	Subject Code: ES-ME 301			
Year: 2nd (I	Year: 2nd (New Syllabus)Semester:3 <sup>RD</sup>			
Course	After completing this course, the students will be able to:			
Outcomes:	<ol> <li>explain the co-ordinate system, principle of three dimensional rotation, kinematics and kinetics of rigid bodies.</li> </ol>			
	<ol><li>elaborate the theory of general motion, bending moment, torsional motion and friction.</li></ol>			
	3. develop free body diagram of different arrangements.			
	<ol><li>solve problems with the application of theories and principle of motion, friction and rigid bodies.</li></ol>			
	5. analyze torsional motion and bending moment.			

Name of th	Subject MATHEMATICS III				
	e Subject: MATHEMATICS-III de: BS- M 301				
	New Syllabus) Semester: 3 <sup>RD</sup>				
Course	1. explain basics of probability theories, rules, distribution and properties of				
Outcomes:	transform				
	2. describe different methods of numerical analysis.				
	3. solve numerical problems based on probability theories , numerical				
	analysis and Z transform 4. apply numerical methods to solve engineering problems.				
	5. solve engineering problems using z transform and probability theory.				
	e Subject: BIOLOGY FOR ENGINEERS de: BS- 301				
	New Syllabus) Semester: 3 <sup>RD</sup>				
Course	Upon completion of this course, students will be able to:				
Outcomes:	1. describe with examples the biological observations lead to major				
	discoveries.				
	2. explain the classification of kingdom of life the building blocks of life				
	different techniques of bio physics used to study biological phenomena.				
	the role of imaging in the screening, diagnosis, staging, and treatments of cancer.				
	<ul> <li>3. identify DNA as a genetic material in the molecular basis of information</li> </ul>				
	transfer				
	4. analyze biological processes at the reductionistic level.				
	• 5. apply thermodynamic principles to biological systems.				
	6. identify microorganisms.				
Name of th	e Subject: INDIAN CONSTITUTION				
	de: : MC-EE 301				
•	New Syllabus) Semester: 3 <sup>RD</sup>				
Course Outcomes:	After completing this course, the students will be able to: 1. <b>1</b> . describe				
outcomes.	*different features of Indian constitution.				
	*power and functioning of Union, state and local self-government.				
	* structure, jurisdiction and function of Indian Judiciary *basics of PIL and guideline for admission of PIL				
	*basics of PIL and guideline for admission of PIL. * Functioning of local administration starting from block to Municipa				
	Corporation.				
	2. identify authority to redress a problem in the profession and in the society				

	Subject: ELECTRIC CIRCUIT THEC	DRY LAB		
-	e: : PC-EE 391	Compository 2 <sup>BD</sup>		
Year: 2nd (N Course		Semester: 3 <sup>RD</sup>		
Outcomes:	<ul> <li>After completion of this course, the learners will be able to</li> <li>1. describe analog electronic components and analog electronics circuits</li> <li>2. explain principle of operation of analog electronic components, filters, regulators</li> <li>and analog electronic circuits.</li> <li>3. compute parameters and operating points of analog electronic circuits.</li> <li>4. determine response of analog electronic circuits.</li> <li>5. distinguish different types amplifier and different types oscillators based on application.</li> <li>6. construct operational amplifier-based circuits for different applications</li> </ul>			
	e Subject: ANALOG ELECTRONICS L	AB		
	e: : PC-EE 392			
Year: 2nd (N	lew Syllabus)	Semester: 3 <sup>RD</sup>		
Outcomes:	Course Dutcomes:After completion of this course, the learners will be able to 1. determine • characteristics of full wave rectifier with filter and without filter 			
	Subject: NEUMERICAL METHODS	LAB		
	e: PC-CS 391	Semester: 3 <sup>RD</sup>		
Course Outcomes:	<ul> <li>problems of numerical integrat</li> <li>rule, Weddle's rule</li> <li>problems to find numerical sole</li> <li>Gauss elimination and Gauss-S</li> <li>problems to find numerical sole</li> <li>and Newton Raphson methods</li> <li>ordinary differential equation b</li> </ul>	e learners will be able to /backward, Lagrange's interpolation ion using Trapezoidal rule, Simpson's 1/3 ution of a system of linear equations using Seidel iterations. ution of Algebraic Equation by Regularfalsi s. by Euler's and Runga-Kutta methods. hods to solve engineering problems.		

Subject Code:		
Year: 2nd (New		Semester: 4th
Course Outcomes:	Upon successful completion of the of 1. recognize oneself as a socially, cull the fundamentals of limits and liming measurement of screw thread and and the working of optical measuring 2. recognize the Engineering responsion welfare of our environment. Get based and applications of devices for measuring strain and stress and temperature. 3. recognize the importance of IEEE the knowledge in the workplace. 4. assess different social contexts appropriate Engineering decision. 5. recognize the need for Sustainable	turally responsible citizen. Know it gauges, various methods for surface roughness parameters g instruments. nsibilities concerning the overall sic idea about working principle asurement of force and torque; Codes of Ethics and implement properly in order to make the
Name of the Subjec	t: Thermal Power Engineering	
Subject Code: ES ME		
Year: 2nd (New Syllal		Semester: 4th
Course Outcomes:	1.apply the basic concept of steam	boilers to generate steam by th
	<ul> <li>the interrelation between human components of environment in order policy.</li> <li>2. recognize and analyze the probler thermodynamic devices for reaching 3. identify and breakdown the probler of Internal Combustion Engine.</li> <li>1. analyze the technique of thermo efficiency of Gas Turbine.</li> </ul>	to take appropriate environmentans related to performance of rotar substantiated conclusion. ems related to efficiency and losse
Name of the Subjec		
Subject Code: PC EE		
Year: 2nd (New Syllal Course Outcomes:		Semester: 4th
course outcomes:	<ul> <li>1.To review the concept of magnetic</li> <li>2.To learn the principle of productorque.</li> <li>3.To learn the basic principle of operationand generator</li> <li>5.To learn the principle of operation, Transformers</li> <li>6.To acquire problem solving skills to and Transformers</li> </ul>	tion of electromagnetic force an eration of DC machine n and characteristics of DC moto , connections and different tests o
Name of the Subjec	: Digital Electronics	
Subject Code: PC EE		

Course Outcomes:         1.To learn the fundamentals of Digital systems and principle ration of Logic families.           2. To learn the principle of operation of Combinational digital cir         3.To learn the principle of operation of sequential circuit and systems and principle of operation of sequential circuit and systems and principle of operation of semiconductor memori Programmable logic devices.           6. To acquire problem solving skills to solve problems of Digital c           Name of the Subject: Electrical & Electronic measurement           Subject Code: PC EE 403           Year: 2nd (New Syllabus)           Course Outcomes:           1.To learn the principle of operation of analog and digital meters           3.To learn the principle of operation of instrument transfor           4.To learn the principle of operation of cathode ray oscilloscop different sensors and transducers.           5.To learn the principle of measurement of power, energ different electrical parameters           6.To acquire problem solving skills to solve problems on the studied.           Name of the Subject: Electric Machine-I Lab(Practical)           Subject Code: PC EE 491           Year: 2nd (NEW Syllabus)           Course Outcomes:           1. apply the knowledge of different characteristics of a septeristic of a septerist of sequential circle.           Subject Code: PC EE 491           Year: 2nd (NEW Syllabus)           Semester: 4th           Course Outcomes: </th <th></th>	
2. To learn the principle of operation of Combinational digital circuit and sy         3. To learn the principle of operation of Sequential circuit and sy         4. To learn the principle of operation of Semiconductor memori         Programmable logic devices.         6. To acquire problem solving skills to solve problems of Digital c         Subject Code: PC EE 403         Year: 2nd (New Syllabus)         Course Outcomes:         1. To learn methods of measurement, errors in measurement is classification.         2. To learn the principle of operation of analog and digital meter 3. To learn the principle of operation of analog and digital meter 3. To learn the principle of operation of acthode ray oscilloscog different sensors and transducers.         5. To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (New Syllabus)         Subject Code: PC EE 491         Year: 2nd (New Syllabus)         Subject Code: PC EE 491         Year: 2nd (New Syllabus)         Subject Code: PC EE 491         Year: 2nd (New Syllabus)         Subject Code: PC EE 491         Year: 2nd (New Syllabus)         Subject Code: PC EE 491         Year: 2nd (New Syllabus)         Subject Code: PC EE 491         Year: 2nd (New Syllabus) <th>ole of</th>	ole of
3.To learn the principle of operation of sequential circuit and sy         4.To learn the principle of operation of A/D and D/A converter         5.To learn the principle of operation of semiconductor memori         Programmable logic devices.         6.To acquire problem solving skills to solve problems of Digital c         Subject Code: PC EE 403         Year: 2nd (New Syllabus)         Course Outcomes:         1.To learn methods of measurement, errors in measurement i         classification.         2.To learn the principle of operation of analog and digital meter         3.To learn the principle of operation of instrument transfo         4.To learn the principle of operation of power, energe         different sensors and         transducers.         5.To learn the principle of measurement of power, energe         different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a performance efficiency.         2. apply the knowledge of different characteristics of a Compou generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. app	
4.To learn the principle of operation of A/D and D/A converter 5.To learn the principle of operation of semiconductor memori Programmable logic devices. 6.To acquire problem solving skills to solve problems of Digital c         Name of the Subject: Electrical & Electronic measurement         Subject Code: PC EE 403         Year: 2nd (New Syllabus)         Semester: 4th         Course Outcomes:         1.To learn methods of measurement, errors in measurement in classification.         2.To learn the principle of operation of analog and digital meter         3.To learn the principle of operation of cathode ray oscilloscogi different sensors and transducers.         5.To learn the principle of measurement of power, energi different sensors and transducers.         5.To learn the principle of different characteristics of a septexited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a compou generator (short shunt) for determination of its performance efficiency.         3. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & El	
S.To learn the principle of operation of semiconductor memori Programmable logic devices.         6.To acquire problem solving skills to solve problems of Digital of Subject Code: PC EE 403         Year: 2nd (New Syllabus)       Semester: 4th         Course Outcomes:       1.To learn methods of measurement, errors in measurement is classification.         2.To learn the principle of operation of analog and digital meter 3.To learn the principle of operation of instrument transfor 4.To learn the principle of operation of cathode ray oscilloscol different sensors and transducers.         5.To learn the principle of measurement of power, energy different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a sep- excited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Mo determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance efficiency.         3. identify and analyze the problems related to performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the fi installation, testing and commissioning of transformers         Nam	tems.
Programmable logic devices.         6.To acquire problem solving skills to solve problems of Digital c         Name of the Subject: Electrical & Electronic measurement         Subject Code: PC EE 403         Year: 2nd (New Syllabus)         Semester: 4th         Course Outcomes:         1.To learn methods of measurement, errors in measurement is classification.         2.To learn the principle of operation of analog and digital meter 3.To learn the principle of operation of cathode ray oscilloscog different sensors and transducers.         5.To learn the principle of measurement of power, energe different sensors and transducers.         5.To learn the principle of measurement of power, energe different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a septexited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical) <t< th=""><th></th></t<>	
6.To acquire problem solving skills to solve problems of Digital c         Name of the Subject: Electrical & Electronic measurement         Subject Code: PC EE 403         Year: 2nd (New Syllabus)         Semester: 4th         Course Outcomes:         1.To learn methods of measurement, errors in measurement is classification.         2.To learn the principle of operation of analog and digital meter         3.To learn the principle of operation of cathode ray oscilloscol different sensors and transducers.         5.To learn the principle of measurement of power, energe different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of different characteristics of a sep excited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance op hase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the fi installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)	s and
Name of the Subject: Electrical & Electronic measurement         Subject Code: PC EE 403       Semester: 4th         Course Outcomes:       1.To learn methods of measurement, errors in measurement is classification.         2. To learn the principle of operation of analog and digital meter 3. To learn the basic principle of operation of instrument transfor 4. To learn the principle of operation of cathode ray oscilloscop different sensors and transducers.         5. To learn the principle of measurement of power, energy different electrical parameters         6. To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge of different characteristics of a septexited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of 3 phase transformers	
Subject Code: PC EE 403       Semester: 4th         Course Outcomes:       1. To learn methods of measurement, errors in measurement is classification.         2. To learn the principle of operation of analog and digital meter 3. To learn the basic principle of operation of instrument transfore 4. To learn the principle of operation of cathode ray oscilloscop different sensors and transducers.         5. To learn the principle of measurement of power, energy different electrical parameters         6. To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of different characteristics of a septexcited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Modetermination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finitiation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge of 3 phase transformer in the finitiation, testing and commissioning of transformers         Mame of the Subject: Electrical & Electronic measurement	rcuits
Subject Code: PC EE 403       Semester: 4th         Course Outcomes:       1. To learn methods of measurement, errors in measurement is classification.         2. To learn the principle of operation of analog and digital meter 3. To learn the basic principle of operation of instrument transformers.         5. To learn the principle of operation of cathode ray oscilloscop different sensors and transducers.         5. To learn the principle of measurement of power, energy different electrical parameters         6. To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of different characteristics of a septex: excited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a CO Modetermination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finitency.         3. identify and analyze the problems related to performance op phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finitent setallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (N	
Course Outcomes:       1.To learn methods of measurement, errors in measurement is classification.         2.To learn the principle of operation of analog and digital meter         3.To learn the basic principle of operation of instrument transfor         4.To learn the principle of operation of cathode ray oscilloscog         different sensors and         transducers.         5.To learn the principle of measurement of power, energy         different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a DC Mo determination of its performance efficiency.         2. apply the knowledge of different characteristics of a comput generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the fi installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of 3 phase transformer in the fi installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Pra	
classification.         2.To learn the principle of operation of analog and digital meter         3.To learn the basic principle of operation of instrument transfo         4.To learn the principle of operation of cathode ray oscilloscol         different sensors and         transducers.         5.To learn the principle of measurement of power, energi         different electrical parameters         6.To acquire problem solving skills to solve problems on the         studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         I apply the knowledge of different characteristics of a sepi         excited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a CM odetermination of its performance efficiency.         3. identify and analyze the problems related to performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the fi installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measinstallation, testing and commissioning o	
2.To learn the principle of operation of analog and digital meter         3.To learn the basic principle of operation of instrument transfo         4.To learn the principle of operation of cathode ray oscilloscol         different sensors and         transducers.         5.To learn the principle of measurement of power, energe         different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a sep. excited DC generator for determination of its performance and efficiency.         2. apply the knowledge of different characteristics of a CC Mo determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compou generator (short shunt) for determination of its performance or phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformers in the fi installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge to identify different types of measinstruments according to their application in practical field.	nd its
3.To learn the basic principle of operation of instrument transfo         4.To learn the principle of operation of cathode ray oscilloscop         different sensors and         transducers.         5.To learn the principle of measurement of power, energ         different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         2. apply the knowledge of different characteristics of a DC Mo determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Mo determination of its performance and efficiency.         3. identify and analyze the problems related to performance op hase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:         1. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester	
4.To learn the principle of operation of cathode ray oscilloscol different sensors and transducers.         5.To learn the principle of measurement of power, energy different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of different characteristics of a DC Modetermination of its performance efficiency.         2. apply the knowledge of different characteristics of a Compougenerator (short shunt) for determination of its performance of the Subject: Electrical & Lectronic machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Aname of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th	
different sensors and transducers.       5.To learn the principle of measurement of power, energy different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a Septexcited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Mo determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compout generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the fit installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge to identify different types of meat instruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.       2. apply the knowledge to find out the value of low resistance by double bridge.	
transducers.         5.To learn the principle of measurement of power, energy different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge of different characteristics of a septexcited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a CM od determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	e and
S.To learn the principle of measurement of power, energy different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a septextited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a CM od determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low res	
different electrical parameters         6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a sep. excited DC generator for determination of its performanc efficiency.         2. apply the knowledge of different characteristics of a DC Mo determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the firstallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of meat instruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	/ and
6.To acquire problem solving skills to solve problems on the studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a septexcited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Modetermination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compougenerator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Subject	/ anu
studied.         Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge of different characteristics of a seplexited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Modetermination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compound generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	tonics
Name of the Subject: Electric Machine-I Lab(Practical)         Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge of different characteristics of a seprexcited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a COM odetermination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compound generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	copies
Subject Code: PC EE 491         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge of different characteristics of a septexcited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Mo determination of its performance and efficiency.       3. apply the knowledge of different characteristics of a compour generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the firstallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge of different characteristics of a sep. excited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Mo determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compou generator (short shunt) for determination of its performance efficiency.         3. identify and analyze the problems related to performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the fi installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge to identify different types of meas instruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
Course Outcomes:       1. apply the knowledge of different characteristics of a seprexited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Modetermination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compound generator (short shunt) for determination of its performance of the subject:         3. identify and analyze the problems related to performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject:       Electronic measurement Lab(Practical)         Subject Code:       PCEE 493         Year:       2nd (NEW Syllabus)         Course Outcomes:       1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
excited DC generator for determination of its performance efficiency.         2. apply the knowledge of different characteristics of a DC Modetermination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compound generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the fininstallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	ratoly
efficiency. 2. apply the knowledge of different characteristics of a DC Mo determination of its performance and efficiency. 3. apply the knowledge of different characteristics of a compou generator (short shunt) for determination of its performance efficiency. 3. identify and analyze the problems related to performance of phase induction machine reaching substantiated conclusions. 4. apply the knowledge of 3 phase transformer in the fi installation, testing and commissioning of transformers Name of the Subject: Electrical & Electronic measurement Lab(Practical) Subject Code: PCEE 493 Year: 2nd (NEW Syllabus) Semester: 4th Course Outcomes: 1. apply the knowledge to identify different types of mea instruments according to their application in practical field. 2. apply the knowledge to find out the value of low resistance by double bridge.	
2. apply the knowledge of different characteristics of a DC Modetermination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compound generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         3. identify and analyze the problems related to performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finite installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	, unu
determination of its performance and efficiency.         3. apply the knowledge of different characteristics of a compound generator (short shunt) for determination of its performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         I. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	or for
generator (short shunt) for determination of its performance of efficiency.         3. identify and analyze the problems related to performance of phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measinstruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
efficiency.       3. identify and analyze the problems related to performance or phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finistallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	nd DC
3. identify and analyze the problems related to performance or phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finstallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	e and
phase induction machine reaching substantiated conclusions.         4. apply the knowledge of 3 phase transformer in the finstallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
4. apply the knowledge of 3 phase transformer in the finstallation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Course Outcomes:         1. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	three
Installation, testing and commissioning of transformers         Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)         Semester: 4th         Course Outcomes:         1. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	d of
Name of the Subject: Electrical & Electronic measurement Lab(Practical)         Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge to identify different types of measurements according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge to identify different types of mean instruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
Subject Code: PCEE 493         Year: 2nd (NEW Syllabus)       Semester: 4th         Course Outcomes:       1. apply the knowledge to identify different types of mean instruments according to their application in practical field.         2. apply the knowledge to find out the value of low resistance by double bridge.	
<b>Course Outcomes:</b> <ol> <li>apply the knowledge to identify different types of mean instruments according to their application in practical field.</li> <li>apply the knowledge to find out the value of low resistance by double bridge.</li> </ol>	
instruments according to their application in practical field. 2. apply the knowledge to find out the value of low resistance by double bridge.	
<ol><li>apply the knowledge to find out the value of low resistance by double bridge.</li></ol>	suring
double bridge.	
	Kelvin
3. apply the knowledge to measure the bulk power using instr	
	ument
transformer.	i+ /2
<ol> <li>to apply the knowledge to measure power in a poly phase cir phase) by using wattmeter.</li> </ol>	.uit (3
5. apply their knowledge to find out the unknown value of capa	itance
by De-Sauty bridge, Schering bridge, find out the inductance of	
by Anderson bridge.	a con
Name of the Subject: DIGITAL ELECTRONICS LABORATORY (Practical)	
Subject Code: PCEE 492	
Year: 2nd (NFW Syllabus)     Semester: 4th	

Course Outcon	nes: 1. identify app	ropriate equipment and instruments for th
	experiment	
	•	ments for application to the experiment
		coder, multiplexer, adder and subtractor circuit
		struments and precaution
		and D flip flop, universal register with gate
		-flops and asynchronous and synchronous up dow
	counters	hops and asynchronous and synchronous up dow
		peration of code conversion circuit -BCD to Exce
		t parity generator & comparator circuits,
	6. work effective	
Name of the Su	ubject: ELECTRIC MACHINE	-II_PC-EE-501
Subject Code:		
Year: 3rd (New		Semester: 5th
Course		the course the student will be able to:
Outcomes:		gement of windings of AC machines.
	-	ple of production of pulsating and revolving
	magnetic fields.	
		ple of operation and characteristics of three phase
	Induction machines	
	-	ple of operation and characteristics of single
	phase Induction machines	
	5. To understand the princi	ple of operation and characteristics of
	synchronous machine	
	C To understand the prime	
	b. To understand the princi	ple of operation and characteristics of special
	electromechanical devices.	ple of operation and characteristics of special
	electromechanical devices.	ple of operation and characteristics of special uction machines, synchronous machines and
	electromechanical devices.	
	electromechanical devices. 7. To solve problems of Ind	
	electromechanical devices. 7. To solve problems of Ind special eletromechanical	
Name of the St	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices.	
Name of the Su	electromechanical devices. 7. To solve problems of Ind special eletromechanical	
	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I	
Name of the Su Subject Code: Year: 3rd (NEW	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I : PC-EE-502	
Subject Code:	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 V Syllabus)	uction machines, synchronous machines and
Subject Code: Year: 3rd (NEW	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 V Syllabus) After completion of this course	uction machines, synchronous machines and           Semester:         Sth           se the students will be able to:         State
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 V Syllabus) After completion of this course	uction machines, synchronous machines and           Semester:         Sth           se the students will be able to:         State
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources	uction machines, synchronous machines and           Semester: 5th           se the students will be able to:           principle of generation of Electricity from different
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of	uction machines, synchronous machines and           Semester: 5th           se the students will be able to:           principle of generation of Electricity from different
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 / Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables.	uction machines, synchronous machines and           Semester: 5th           se the students will be able to:           principle of generation of Electricity from differen           characteristics of overhead transmission lines and
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and c cables. 3. To find different parameters	uction machines, synchronous machines and           Semester: 5th           se the students will be able to:           principle of generation of Electricity from differen           characteristics of overhead transmission lines and
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line	uction machines, synchronous machines and Semester: 5th se the students will be able to: principle of generation of Electricity from differen characteristics of overhead transmission lines and ters for the construction of overhead transmissior
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I : PC-EE-502 / Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line 4. To determine the perform	uction machines, synchronous machines and           Semester: 5th           se the students will be able to:           principle of generation of Electricity from differen           characteristics of overhead transmission lines and           ters for the construction of overhead transmission           nance of transmission lines.
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I <b>:</b> PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line 4. To determine the perform 5. To understand the princi	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I : PC-EE-502 / Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line 4. To determine the perform	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I <b>:</b> PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line 4. To determine the perform 5. To understand the princi	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I <b>:</b> PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line 4. To determine the perform 5. To understand the princi	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.
Subject Code: Year: 3rd (NEW Course	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I <b>:</b> PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line 4. To determine the perform 5. To understand the princi	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.
Subject Code: Year: 3rd (NEW Course Outcomes:	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>abject:</b> POWER SYSTEM-I : PC-EE-502 / Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and c cables. 3. To find different paramet line 4. To determine the perform 5. To understand the princi 6. To solve numerical proble	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.
Subject Code: Year: 3rd (NEW Course Outcomes: Name of the S	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I : PC-EE-502 / Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters line 4. To determine the perform 5. To understand the princi 6. To solve numerical proble <b>Subject:</b> CONTROL SYSTEM	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.
Subject Code: Year: 3rd (NEW Course Outcomes:	electromechanical devices. 7. To solve problems of Ind special eletromechanical devices. <b>Ibject:</b> POWER SYSTEM-I <b>:</b> PC-EE-502 V Syllabus) After completion of this cours 1. To understand the basic sources 2. To find parameters and of cables. 3. To find different parameters 4. To determine the perform 5. To understand the princi 6. To solve numerical proble <b>Subject:</b> CONTROL SYSTEM PC-EE-503	uction machines, synchronous machines and           Semester:         5th           se the students will be able to:         principle of generation of Electricity from different           characteristics of overhead transmission lines and         ters for the construction of overhead transmission           nance of transmission lines.         ple tariff calculation.

Course	On completion of this course a student will be in a position to:
Outcomes:	1. To find mathematical representation of LTI systems.
	2. To find time response of LTI systems of different orders
	3. To find the frequency response of LTI systems of different orders
	<ol><li>To understand stability of differentLTI systems.</li></ol>
	5. To analyze LTIsystems with state variables.
	6. To solve problems of mathematical modelling and stability of LTI systems
	ubject: POWER ELECTRONICS
Subject Code:	
Year: 3rd (New	Syllabus) Semester: 5th
Course	On completion of this course a students will be able to
Outcomes:	1. To understand the functioning and characteristics of power switching
• • • • • • • • • • • • • • • • • • • •	devices.
	2. To understand the principle of operation of converters.
	3. To understand different triggering circuits and techniques of commutation
	of SCR
	4. To find external performance parameter of converters.
	5. To analyze methods of voltage control, improvement of power factor and
	reduction of harmonics
	of the converter
	6. To solve numerical problems of converters
Name of the S	Julian Subject: ELECTRIC MACHINE-IILABORATORY
Subject Code:	
Year: 3rd	Semester: 5th
Course	After completion of the course, the students will be able to:
Outcomes:	1 identify an avanuinte equipment and instruments for the expression ont
outcomest	1. identify appropriate equipment and instruments for the experiment.
	2. test the instrument for application to the experiment.
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction motor, Induction generator and synchronous motor , methods of speed control of Induction</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction motor, Induction generator and synchronous motor , methods of speed control of Induction motors and parallel operation of the 3 phase Synchronous generator.</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction motor, Induction generator and synchronous motor , methods of speed control of Induction</li> </ol>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction motor, Induction generator and synchronous motor , methods of speed control of Induction motors and parallel operation of the 3 phase Synchronous generator.</li> </ol>
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Name of the S	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction motor, Induction generator and synchronous motor , methods of speed control of Induction motors and parallel operation of the 3 phase Synchronous generator.</li> <li>work effectively in a team</li> </ol>
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Subject Code:	<ul> <li>2. test the instrument for application to the experiment.</li> <li>3. construct circuits with appropriate instruments and safety precautions.</li> <li>4. validate different characteristics of single phase Induction motor, three phase Induction generator and synchronous motor , methods of speed control of Induction motors and parallel operation of the 3 phase Synchronous generator.</li> <li>5. work effectively in a team</li> </ul>
	<ol> <li>test the instrument for application to the experiment.</li> <li>construct circuits with appropriate instruments and safety precautions.</li> <li>validate different characteristics of single phase Induction motor, three phase Induction generator and synchronous motor , methods of speed control of Induction motors and parallel operation of the 3 phase Synchronous generator.</li> <li>work effectively in a team</li> </ol>

Outcomes:         1. id           2. td         3. c           4. v         5. d           stree         insu           6. a         7. w           Mame of the Subject         7. w           Subject Code:         PC-E           Year:         3rd           Course         After           Outcomes:         1. id           2. td         3. c           4. u         PSP           system         System	er completion of this course the students lentify appropriate equipment and ins est the instrument for application to th	struments for the experiment. he experiment. ruments and safety precautions. smission line. strength of insulating oil, breakdown t of transformer oil. circuit with the help of software <b>Semester:</b> 5 <sup>th</sup> will be able to struments for the experiment. he experiment.
Subject Code: PC-E Year: 3rd Course Afte Outcomes: 1. ic 2. to 3. c 4. u PSP syst	E 593 er completion of this course the students lentify appropriate equipment and ins est the instrument for application to th	will be able to struments for the experiment. he experiment.
Subject Code: PC-E Year: 3rd Course Afte Outcomes: 1. ic 2. to 3. c 4. u PSP syst	E 593 er completion of this course the students lentify appropriate equipment and ins est the instrument for application to th	will be able to struments for the experiment. he experiment.
Year: 3rd Course Afte Outcomes: 1. id 2. to 3. c 4. u PSP syst	er completion of this course the students lentify appropriate equipment and ins est the instrument for application to th	will be able to struments for the experiment. he experiment.
Course After Outcomes: 1. ic 2. tr 3. c 4. u PSP syst	lentify appropriate equipment and ins est the instrument for application to th	will be able to struments for the experiment. he experiment.
Outcomes: 1. id 2. to 3. c 4. u PSP syst	lentify appropriate equipment and ins est the instrument for application to th	struments for the experiment. he experiment.
2. ta 3. c 4. u PSP syst	est the instrument for application to the	he experiment.
Name of the Subie	se MAT-Lab control system tool box, I ICE for simulation of ems. eterminecontrol system specifications 1.	s of first and second order systems.
	ct: POWER ELECTRONICSLABORATOR	Y
Subject Code: PC-E Year: 3rd	E 594	Semester: 5 <sup>th</sup>
	completion of this source a students will	
<b>Outcomes:</b> 1. id 2. to	completion of this course a students will lentify appropriate equipment and ins est the instrument for application to the onstruct circuits with appropriate instr	struments for the experiment. he experiment.
-	t: DATA STRUCTURE & ALGORITHM	
Subject Code: OE-		
Year: 3rd (New Sylla	EE-501A	Semester: 5 <sup>th</sup>

Course Outcomes:	On completion of this course a student will b 1. differentiate how the choices of data st enhance the performance of the program. 2. solve problems based upon different data 3. write programs based on different data 4. identify appropriate data structure & all problem. 5. discuss the computational efficiency of searching, and hashing 6. comparethe benefits of dynamic and sta implementations.	ructure & algorithm methods ata structure & also write programs. structure gorithmic methods in solving the principal algorithms for sorting,
	ubject: OBJECT ORIENTED PROGRAMMING	l
Subject Code:		le eth
Year: 3rd (New		Semester: 5 <sup>th</sup>
Course	After completion of this course the students	will be able to
Outcomes:	1. specify simple abstract data types.	acian such as an consulation
	2. recognise features of object-oriented de	esign such as encapsulation,
	polymorphism, inheritance, and composition of systems b	acad an abject identity
	3. apply common object-oriented design p	
	4. specify uses of common object oriented	
	5. design applications with an event-drive	
	ubject: POWER SYSTEM-II	
Subject Code:	PC-EE-601	
Year: 3rd		Semester: 6th
Course	After completion of the course, the students	will be able to:
Outcomes:	1. Represent power system compone	ents in line diagrams.
	2. Determine the location of distribut	tion substation.
	3. Determine the performance of pow flowv studies.	wer system with the help of load
	4. Analyse faults in Electrical system	S.
	5. Determine the stabilty of Power sy	
	6. Explain principle of operation of di	
	equipments.	
	7. Solve numerical problems related to restability and protection of power system.	epresentation, load flow, faults,
	ubject: MICROPROCESSOR & MICROCONT	ROLLER
Subject Code:	PC-EE-602	Course of the second of the
Year: 3 <sup>rd</sup>		Semester: 6 <sup>th</sup>

Course Outcomes:	After completion of the course, the students will be able to 1. explain the architecture of 8086 and 8051. 2. do assembly language programming of 8086, 8051 3. interface different peripheral with 8086 and 8051 4. develop micro processor/ microcontroller based systems. 5. compare microprocessor, microcontroller, PIC and ARM processors	
Name of the S	Subject: DIGITAL CONTROL SYSTEM	
Subject Code:	PE-EE-601A	
Year: 3 <sup>rd</sup>	Semester: 6 <sup>th</sup>	
Course Outcomes:	On completion of this course a students will be able to	
outcomes.	<ol> <li>explain the principle of sampling and reconstrction of analog signal.</li> <li>perform Z-transformation and inverse Z-tranaformation of systems.</li> <li>analyse and design digital control systems.</li> </ol>	
	<ol> <li>design compensators for digital control system to achieve desired specifications.</li> </ol>	
	5. represent digital control systems using state space models.	
	6. analyze the effect sampling on stability, controllability and observability	
	Subject: HVDC TRANSMISSION	
Subject Code:		
Year: 3 <sup>rd</sup> Course	Semester: 6 <sup>th</sup> After completion of this course the students will be able to	
Outcomes:	<ol> <li>choose intelligently AC and DC transmission systems for the dedicated application(s).</li> <li>identify the suitable two-level/multilevel configuration for high power</li> </ol>	
	converters.	
	3. select the suitable protection method for various converter faults.	
	<ol> <li>identify suitable reactive power compensation method.</li> <li>decide the configuration for harmonic mitigation on both AC and DC sides.</li> </ol>	
	<ol> <li>solve numerical problems related to converters, power flow analysis, reactive power control.nts.</li> </ol>	
	ubject: ELECTRICAL MACHINE DESIGN	
Subject Code: Year: 3 <sup>rd</sup>	PE-EE-601C Semester: 6 <sup>th</sup>	
Course	After completion of this course the students will be able to	
Outcomes:	1. specify the rating of electrical machines with standard specifications.	
	2. explain the principles of electrical machine design and carry out basic	
	design of an ac machine	
	3. determine the various factors which influence the design of electrical,	
	magnetic and thermalloading of electrical machines	
	4. explain the construction and performance characteristics of electrical	
	machines.	
	5. use software tools to do design calculations.	
	<b>Subject:</b> ELECTRICAL AND HYBRID VEHICLE	
Subject Code	V Syllabus) Semester: 6 <sup>th</sup>	

Course	On completion of this course a students will be able to
Outcomes:	1. explain the principle of Electric traction.
	<ol><li>choose a suitable drive scheme for developing an electric hybrid vehicle depending on resources.</li></ol>
	3. design and develop basic schemes of electric vehicles and hybrid electric vehicles.
	4. choose proper energy storage systems for vehicle applications
	5. implement different energy management strategies for hybrid vehicle.
Name of the Su	ibject: POWER QUALITYANDFACTS
Subject Code:	PE-EE-602B
Year: 3rd (New	Syllabus) Semester: 6 <sup>th</sup>
Course Outcomes	<ol> <li>analyse uncompensated AC transmission line.</li> <li>explain the working principles of FACTS devices and their operating characteristics.</li> <li>apply FACTS devices for power flow control and stabilty.</li> <li>identify different issues of power quality in distribution system.</li> <li>apply different compensation and control techniques for DSTATCOM6. explain working principle of dynamic voltage restorer and UPQC</li> </ol>
	abject: INDUSTRIAL ELECTRICALSYSTEMS
Subject Code:	PF-FF-602C
Subject Code:	
Year: 3 <sup>rd</sup>	Semester: 6 <sup>th</sup>
-	
Year: 3 <sup>rd</sup> Course Outcomes	Semester: 6th1. Represent electrical wiring system for residential, commercial and industrial consumers.2. Determine the rating of components of residential and commercial electrical systems.3. Design lighting scheme for a residential and commercial premises.4. Select transformer, switchgear, protection equipments for industrial electrical systems.5. explain methods of automation of Industrial Electrical Systems 6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.
Year: 3 <sup>rd</sup> Course Outcomes	Semester: 6 <sup>th</sup> 1. Represent electrical wiring system for residential, commercial and industrial consumers. 2. Determine the rating of components of residential and commercial electrical systems. 3. Design lighting scheme for a residential and commercial premises. 4. Select transformer, switchgear, protection equipments for industrial electrical systems. 5. explain methods of automation of Industrial Electrical Systems 6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.  Jbject: DIGITAL SIGNALPROCESSING
Year: 3 <sup>rd</sup> Course Outcomes Name of the Su	Semester: 6 <sup>th</sup> 1. Represent electrical wiring system for residential, commercial and industrial consumers. 2. Determine the rating of components of residential and commercial electrical systems. 3. Design lighting scheme for a residential and commercial premises. 4. Select transformer, switchgear, protection equipments for industrial electrical systems. 5. explain methods of automation of Industrial Electrical Systems 6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.  Jbject: DIGITAL SIGNALPROCESSING
Year: 3 <sup>rd</sup> Course Outcomes Name of the Su Subject Code:	Semester: 6 <sup>th</sup> 1. Represent electrical wiring system for residential, commercial and industrial consumers.         2. Determine the rating of components of residential and commercial electrical systems.         3. Design lighting scheme for a residential and commercial premises.         4. Select transformer, switchgear, protection equipments for industrial electrical systems.         5. explain methods of automation of Industrial Electrical Systems         6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.         abject: DIGITAL SIGNALPROCESSING         PE-EE-601A
Year: 3 <sup>rd</sup> Course Outcomes Name of the Su Subject Code: 1 Year: 3 <sup>rd</sup> Course Outcomes	Semester: 6 <sup>th</sup> 1. Represent electrical wiring system for residential, commercial and industrial consumers.         2. Determine the rating of components of residential and commercial electrical systems.         3. Design lighting scheme for a residential and commercial premises.         4. Select transformer, switchgear, protection equipments for industrial electrical systems.         5. explain methods of automation of Industrial Electrical Systems         6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.         ubject: DIGITAL SIGNALPROCESSING         PE-EE-601A         Semester: 6 <sup>th</sup> 1. represent signals mathematically in continuous and discrete-time and in the frequencydomain.         2. analyse discrete-Fourier Transform (DFT) and the FFT algorithms.         4. design digital filters for various applications.         5. apply digital signal processing for the analysis of real-life signals.
Year: 3 <sup>rd</sup> Course Outcomes Name of the Su Subject Code: 1 Year: 3 <sup>rd</sup> Course Outcomes	Semester: 6 <sup>th</sup> 1. Represent electrical wiring system for residential, commercial and industrial consumers.         2. Determine the rating of components of residential and commercial electrical systems.         3. Design lighting scheme for a residential and commercial premises.         4. Select transformer, switchgear, protection equipments for industrial electrical systems.         5. explain methods of automation of Industrial Electrical Systems         6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.         ubject: DIGITAL SIGNALPROCESSING         PE-EE-601A         Semester: 6 <sup>th</sup> 1. represent signals mathematically in continuous and discrete-time and in the frequencydomain.         2. analyse discrete-time systems using z-transform.         3. explain the Discrete-Fourier Transform (DFT) and the FFT algorithms.         4. design digital filters for various applications.         5. apply digital signal processing for the analysis of real-life signals.
Year: 3 <sup>rd</sup> Course Outcomes Name of the Su Subject Code: 1 Year: 3 <sup>rd</sup> Course Outcomes	Semester: 6 <sup>th</sup> 1. Represent electrical wiring system for residential, commercial and industrial consumers.         2. Determine the rating of components of residential and commercial electrical systems.         3. Design lighting scheme for a residential and commercial premises.         4. Select transformer, switchgear, protection equipments for industrial electrical systems.         5. explain methods of automation of Industrial Electrical Systems         6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.         ubject: DIGITAL SIGNALPROCESSING         PE-EE-601A         Semester: 6 <sup>th</sup> 1. represent signals mathematically in continuous and discrete-time and in the frequencydomain.         2. analyse discrete-time systems using z-transform.         3. explain the Discrete-Fourier Transform (DFT) and the FFT algorithms.         4. design digital filters for various applications.         5. apply digital signal processing for the analysis of real-life signals.
Year: 3 <sup>rd</sup> Course Outcomes Name of the Su Subject Code: Year: 3 <sup>rd</sup> Course Outcomes Name of the Su Subject Code:	Semester: 6 <sup>th</sup> 1. Represent electrical wiring system for residential, commercial and industrial consumers.         2. Determine the rating of components of residential and commercial electrical systems.         3. Design lighting scheme for a residential and commercial premises.         4. Select transformer, switchgear, protection equipments for industrial electrical systems.         5. explain methods of automation of Industrial Electrical Systems         6. Solve numerical problems related to earthing system, lighting scheme, power factor correction.         ubject: DIGITAL SIGNALPROCESSING         PE-EE-601A         Semester: 6 <sup>th</sup> 1. represent signals mathematically in continuous and discrete-time and in the frequencydomain.         2. explain the Discrete-Fourier Transform (DFT) and the FFT algorithms.         4. design digital filters for various applications.         5. apply digital signal processing for the analysis of real-life signals.         ubject: COMMUNICATION ENGINEERING         PE-EE-601B

Course	1. compare the performance of AM, FM and PM schemes with reference to
Outcomes	SNR
	2. explain noise as a random process and its effect on communication receivers
	3. evaluate the performance of ASK, FSK, PSK, BPSK, QPSK in a digital
	communication system
	4. identify source coding and channel coding schemes for a given
	communication link 5. analyze various digital modulation methods
	6. compute band width requirement and probability of error in various
	digital modulation systems
	ubject: VLSI AND MICROELECTRONICS
Subject Code:	
Year: 3 <sup>rd</sup>	Semester: 6 <sup>th</sup>
Course	<ol> <li>explain the principle of design of VLSI circuits</li> <li>explain different MOS structure with characteristics</li> </ol>
Outcomes	3. apply different processes for VLSI fabrication
	4. use programming language for the design of logic circuits
	5. draw the stick diagram and layout for simple MOS circuits
Name of the S Subject Code:	ubject: ECONOMICS FOR ENGINEERS
Year: 3rd (New	
Course	1. evaluate the economic theories, cost concepts and pricing policies
Outcomes	2. explain the market structures and integration concepts
	3. apply the concepts of financial management for project appraisal
	4. explain accounting systems , the impact of inflation, taxation,
	depreciation 5. analyze financial statements using ratio analysis
	6. explain financial planning, economic basis for replacement, project
	scheduling, legal and regulatory issues applied to economic investment and
	project-management problems
Name of the S	ubject: POWER SYSTEM-II LABORATORY
Subject Code:	•
Year: 3 <sup>rd</sup>	Semester: 6 <sup>th</sup>
Course	1. Identify appropriate equipment and instruments for the experiment.
Outcomes	2. Test the instrument for application to the experiment.
	<ul><li>3. Construct circuits with appropriate instruments and safety precautions.</li><li>4. Validate the characteristics of under voltage relay, over current relay,</li></ul>
	earth fault relay, on loadtime delay relay, off load time delay relay, CT and
	PT.
	5. Validate protection schemes of transformer, generator, motor and feeder.
	6. Apply software tools to find bus voltage, currents and power flows throughout the electrical system.
	7. work effectively in a team
	ubject: MICRO PROCESSOR AND MICRO CONTROLLERLABORATORY
Subject Code:	
Year: 3 <sup>rd</sup>	Semester: 6 <sup>th</sup>
Course Outcomes	<ol> <li>identify appropriate equipment and instruments for the experiment</li> <li>test the instrument for application to the experiment</li> </ol>
JULLUIIES	3. construct circuits with appropriate instruments and safety precautions
	4. program 8086 for arithmatic operation, sorting of array, searching for a
	number in a string andstring manipulation
	5. interface ADC/DAC, 8255, 8251 to 8086 and LCD, keyboard to 8051

Year: 4 <sup>TH</sup> Old syllabus	S	Semester: 7 <sup>th</sup>
.,		
Course Outcomes	<ol> <li>2. model Induction and S</li> <li>3. apply different control Induction and Synchrono</li> <li>4. explain the configurat PMSM and SRM.</li> <li>5. realize basic blocks for</li> </ol>	of operation of converters for AC drives. Synchronous motor by reference frame theory I methods to control speed and torque of ous motor. ions and method of speed control of BLDC, r DSP based motion control. cheme for speed control of Induction and
Name of the Subjec	t: UTILIZATION OF ELECT	RIC POWER
Subject Code: : EE 7	702	
Year: 4 <sup>TH</sup>	Semester: 7 <sup>th</sup>	
Course Outcomes	<ul><li>schemes. 2. explain the heating and Welding.</li><li>3. able to select appropr for specific applications.</li><li>4. apply different electronic description.</li></ul>	tals of illumination and different lighting fundamental of Electrolytic processes, Electric iate lighting, heating and welding techniques olysis process for different applications. of different aspect of Electric traction and
Name of the Subject Subject Code: 703A Year: 4 <sup>TH</sup> Old syllabus		
Course Outcomes	<ol> <li>select the appropriate</li> <li>analyze the performant</li> <li>evaluate the stability</li> <li>develop measures for</li> </ol>	ower system components e model for required analysis. nce of the system with small signal analysis. of the single and multi machine systems. enhancing the stability of the system. ems of linear dynamical system, modeling of d stability.
Name of the Cubics	AL CONTROL OVETEM III	
Subject Code: : EE 7	t: CONTROL SYSTEM III	
Year: $4^{TH}$	Semester: 8 <sup>th</sup>	
Course Outcomes	<ol> <li>Apply the knowledge control engineering prob</li> <li>Apply the knowledge performance of nonlinea</li> </ol>	of sliding mode control to improve the r complex engineering systems. of optimal control to optimize the performance
		EDINC
Name of the Subject	<b>t:</b> HIGH VOLTAGE ENGINE	
Name of the Subject Subject Code: EE 70	t: HIGH VOLTAGE ENGINE 4A	

Course Outcomes:	After completion of this course the students will be able to 1. choose intelligently AC and DC transmission systems for the
	dedicated application(s). 2. identify the suitable two-level/multilevel configuration for high
	power converters. 3. select the suitable protection method for various converter faults.
	4. identify suitable reactive power compensation method.
	5. decide the configuration for harmonic mitigation on both AC and DC
	sides.
	6. solve numerical problems related to converters, power flow analysis, reactive power control.nts.
Name of the Subject	t: RENEWABLE & NON CONVENTIONAL ENERGY
Year: 4 <sup>TH</sup> Old syllabu	JS Semester: 7 <sup>th</sup>
Subject Code: EE 70	
<u> </u>	
Course Outcomes:	After completion of this course the students will be able to
	1. apply the knowledge of non-conventional energy resources for solving complex electrical engineering problems related to energy
	production, utilization & consumption.
	2. identify and analyze the problems related National scenarios of
	energy production reaching substantiated conclusions.
	3. apply the knowledge of different components of solar systems to
	solve complex electrical engineering problems related to their operating
	principle, construction and working of different equipment based on
	solar system used in domestic and commercial purpose for water
	heating & illumination purpose.
	4. identify and analyze a given physical problem related to different
	ways of utilizing biomass, wind and ocean energy their properties using basic heat transfer principles reaching substantiated conclusions.
Name of the Subject	ct: COMPUTER NETWORK
Subject Code: EE 70	05A
Year: 4TH	Semester: 7 <sup>th</sup>
Course Outcomes:	After completion of this course the students will be able to
	1. develop the concept of OSI reference model, TCP/IP reference
	model and associate them with the terminology.
	2. design and performance issue in different networks and express their
	concept about network protocols, interfaces. 3. analyze different flow and error control mechanism that are must for
	reliable data transmission through an unreliable transmission medium.
	4. apply their concept to solve complex problem that may arise during
	data communication and improve quality of service.
Name of the Subject	ct: ELECTRIC DRIVE (PRACTICAL)
<b>Year:</b> 4 <sup>TH</sup> Old syllabu	us Semester: 7 <sup>th</sup>
Subject Code: EE 79	91

Course Outcomes:	<ul> <li>After completion of this course the students will be able to <ol> <li>Apply the knowledge of power thyristor and chopper for the speed control of DC motor drive.</li> <li>Identify the problems related to speed control of three phase induction motor drives.</li> <li>Analyse the data obtained experimentally by performing the speed control of a single-phase induction motor using triac.</li> <li>Use modern engineering and IT tools to analyse the complex engineering problems related to the performance of different types of AC motor.</li> <li>Identify and analyse the problems related to the performance of permanent magnet synchronous motor to reach substantiated conclusion using modern engineering and IT tools.</li> </ol> </li> </ul>
-	: COMPUTER NETWORK (PRACTICAL)
Subject Code: EE 792	
Year: 4TH	Semester: 7 <sup>th</sup>
Course Outcomes:	<ul> <li>After completion of this course the students will be able to</li> <li>1. apply the different troubleshooting techniques of computer networks to solve engineering problems.</li> <li>2 Students will be able to analyze different components of computer network to configure a Local Area Network.</li> <li>3. Students will be able to implement socket programming and different applications during data communication.</li> <li>4. Students will be able to implement different flow control, error control and file transfer techniques.</li> </ul>
	SEMINAR ON INDUSTRIAL TRAINING (SESSIONAL
Subject Code: EE 78	
Year: 4TH	Semester: 7 <sup>th</sup>
Course Outcomes:	After completion of this course the students will be able to 1. Students will be able to communicate the details of training through Training Report, Presentation and viva voice. 2. Students will be able to understand implication of engineering solutions in social and environment perspective.
Name of the Subject Subject Code: EE 78	: Electrical system design-I (Sessional) 2
Year: 4TH	Semester: 7 <sup>th</sup>
Course Outcomes:	<ul> <li>After completion of this course the students will be able to</li> <li>Students will be able to design a heating element with specified voltage, wattage and temperature rise applying the knowledge of science and engineering fundamentals.</li> <li>Students will be able to design an air core grounding reactor with specified operating voltage and current applying the knowledge of science and engineering fundamentals.</li> <li>Students will be able to design a power distribution system for a township that meet the specified needs with appropriate considerations for the safety and environmental considerations applying the knowledge of science and electrical engineering.</li> </ul>
Name of the Subject Subject Code: EE 80	1A
Year: 4 <sup>TH</sup>	Semester: 8 <sup>th</sup>
Subject Code: EE 80	1A

Course Outcomes	<ol> <li>Students will be able to solve a complex converter circuit with the help of knowledge of fundamentals of high voltage DC transmission. Students will have the ability to apply modern engineering tools like Matlab 2. to model complex engineering problems of HVDC with an understanding of the limitation of the modelling.</li> <li>Students will be able to develop a control scheme for various types of HVDC systems based on requirement.</li> <li>Students will have the ability to design harmonic filters that improves the power quality which is important from the point of view of consumers and that has a vast effect on society.</li> <li>Students will be able to solve complex engineering problems on faults in HVDC systems can select the type of HVDC systems based on requirement.</li> <li>Students will be able to select different types of MTDC HVDC systems based on system requirement.</li> </ol>
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Name of the Subject:	ILLUMINATION ENGINEERING
Subject Code, EE 201	R

Subject Code. LL 00	ID
<b>Year:</b> 4 <sup>TH</sup> Old syllabus	Semester: 8 <sup>th</sup>
Course Outcomes	<ol> <li>Students will be able to apply knowledge of basic physical sciences to assimilate concept of basic terms used in Lighting (i.e. Luminous flux, luminance, illuminance etc.), basic laws of illumination and understanding of visible spectra.</li> <li>Students will be able to apply the knowledge of core electrical engineering subjects for Understanding various light generation techniques and utilization of electricity for lighting</li> </ol>
	<ol> <li>Students will be able to appreciate relevance of energy efficient lighting and environmental issues related to lighting practice.</li> <li>Students will be able to apply basic knowledge of the course towards manual and computer aided lighting design as a modern engineering tool.</li> </ol>

## Name of the Subject: ENERGY MANAGEMENT & AUDIT

Subject Code: EE 801C Semester: 8<sup>th</sup> **Year:** 4<sup>TH</sup> Old syllabus **Semester:** 8<sup>th</sup> 1. Students will be able to use research-based knowledge and research **Course Outcomes** methods on en energy audit and analysis and interpretation of data regarding auditing, synthesis of the information to provide valid conclusions on energy audit. 2. Students will be able to demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a auditor and leader in a team, to manage projects and in multidisciplinary environments. 3. Students will be able to understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable Development. 4. Students will be able to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. 5. Students will be able to identify and analyze a complex problem of energy management and energy crisis in order to reach in substantiated conclusion. Students will be able to apply their knowledge of energy 6 management to solve a complex problem related to energy pricing, tariff structure and reformation of energy sector.

Name of the Subject	
Subject Code: EE 80	t: SENSORS AND TRANSDUCERS 1B
<b>Year:</b> 4 <sup>TH</sup>	Semester: 8 <sup>th</sup>
Course Outcomes	1 The students will be able to apply the knowledge of mechanical
	and electro mechanical sensors to solve complex engineering problem
	related to fundamental electro mechanical principles and their
	applications.
	2 Students will be able to identify and analyze the problems of mechanical and electro mechanical sensors reaching substantiated
	conclusions.
	3 The students will be able to apply the knowledge of thermal
	sensors to solve complex engineering problems related to
	understanding of various strategies for sensing and actuating as well as
	<ul> <li>knowledge of the classes of sensors.</li> <li>Students will be able to identify and analyze a given physical</li> </ul>
	problem related to thermal sensors their properties, manufacturing and
	the theory behind them reaching substantiated conclusions.
	5 The students will be able to apply the knowledge of capacitive
	sensors to solve complex engineering problems related to operations of
	different sensors for industrial and environmental use.
	6 The students will be able to design system components for measuring different physical parameters such as temperature; pressure
	etc. in terms of different forms of energies such as mechanical,
	thermal, electrical, magnetic, radiant and chemical.
	7 The students will know correct use of sensors in measurement
	process control and environmental monitoring applications.
	8 Students will be able to identify and analyze a given physical problem related to magnetic sensors their properties, manufacturing
	and the theory behind them reaching substantiated conclusions.
Name of the Subject	: PROJECT (SESSIONAL)
Subject Code: EE 88	
Year: 4 <sup>TH</sup> Old syllabus	Semester: 8 <sup>th</sup>
Course Outcomes	1 The students will be able to formulate the problem
	2 The students will be able to develop or design a solution for the
	problem 3 Build up project prototype or model in hardware or software
	4 Analyze the experimental collected data
	5 Do investigation/research in the problem area
	6 Apply fundamental and specialized knowledge in the area of the
	problem.
	7 Students will be able to self learn new methods, tools and
	techniques 8 Students will be able to apply modern tools and techniques
	9 Students will be able to work individually and also in team
	10 Students will be able to communicate the details and findings of
	the project through Project report, Presentation, Viva-voice and paper
	presentation if any
	ELECTRICAL SYSTEM LAB-II (PRACTICAL)
Year: 4 <sup>TH</sup> Old syllabus	Semester: 8 <sup>u</sup>
Subject Code: EE 88	

Course Outcomes	<ol> <li>Students will be able to design machines for a given set of parameters.</li> <li>Students will be able to develop power distribution system for a small network system considering safety, legal and environmental aspect.</li> <li>Course will develop team working capability of the students while working in groups.</li> </ol>
Name of the Subject	
Subject Code: EE 88	t: GRAND VIVA (SESSIONAL)
Year 4" ()In svijanjis	
	<b>Semester: 8<sup>th</sup></b> 1 student will be able to identify, analyze and propose solutions to

## PROGRAMME OUTCOMES (PO) BASED ON G.A.

## Name of the Subject: ELECTRIC CIRCUIT THEORY Subject Code: PCE301

Outcomes         COS         CO	Year: 2 <sup>ND</sup>								Sem	ester:	3 <sup>RD</sup>			
Outcomes         Cos         Pos         Po	Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
Image: cost of the subject: ANLOG ELECTRONICS           Subject Code: PCEE302           Year: 2 <sup>ND</sup> Semester: 3 <sup>RD</sup> Programme Outcomes         POS& PO1         PO2         PO3         PO4         PO5         PO5         PO7         PO8         PO9         PO10         PO11         P           Name of the Subject: ELECTRO MAGNETIC FIELD THEORY         Semester: 3 <sup>RD</sup> Semester: 3 <sup>RD</sup> Programme Outcomes         POS         PO1         PO2         PO3         PO4         PO5         PO5         PO7         PO8         PO9         PO10         PO11         P           Cost V         <		COS												
Image: cost of the subject in the subject i		CO1	$\checkmark$	$\checkmark$	1	$\checkmark$								
Image: code         V <th< td=""><td></td><td>CO2</td><td><math>\checkmark</math></td><td>1</td><td>1</td><td><math>\checkmark</math></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>		CO2	$\checkmark$	1	1	$\checkmark$								
Image: cost of the subject:ANLOG ELECTRONICS           Subject Code: PCEE302         Semester: 3 <sup>RD</sup> Programme Outcomes         POS8 COS         P01         P02         P03         P04         P05         P06         P07         P08         P09         P010         P011         P           Outcomes         POS8 COS         P01         P02         P03         P04         P05         P06         P07         P08         P09         P010         P011         P           Outcomes         POS8 COS         P01         P02         P03         P04         P05         P06         P07         P08         P09         P010         P011         P           Outcomes         POS8 COS         P01         P02         P03         P04         V <thv< th="">         V         V</thv<>		CO3	$\checkmark$	1	1									
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Image: cost of the Subject:ANLOG ELECTRONICS           Subject Code:         PCEE302           Year:         2 <sup>ND</sup> Semester:         3 <sup>RD</sup> Programme Outcomes         Posk Cost of the Subject:         Po1         Po2         Po3         Po4         Po5         Po6         Po7         Po8         Po9         Po10         Po11         P           Cost of the Subject:         POS         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         P           Cost of the Vertice         V		CO5	1	√	1									1
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Subject Code:         PCEE302           Year:         2 <sup>ND</sup> Semester:         3 <sup>RD</sup> Programme Outcomes         POS& cos         Po1         Po2         Po3         Po4         Po5         Po6         Po7         Po8         Po9         Po10         Po11         P           Cos         V         <					,	,								
Subject Code:         PCEE302           Year:         2 <sup>ND</sup> Semester:         3 <sup>RD</sup> Programme Outcomes         POS& cos         Po1         Po2         Po3         Po4         Po5         Po6         Po7         Po8         Po9         Po10         Po11         P           Cos         V         <														
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Subject Code: PC-EE 303           Year: 2 <sup>ND</sup> Semester: 3 <sup>RD</sup> Programme Outcomes         POS& PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         P           COS         COI         V														-
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Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup> Programme	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 COS 06 0 COS 01 02 03 04 05 02 03 04 05 04 05 02 03 04 05 04 05 04 05 04 05 04 05 04 05 04 05 04 05 05 04 05 05 04 05 05 04 05 05 04 05 05 04 05 05 05 04 05 05 05 04 05 05 05 05 05 05 05 05 05 05 05 05 05	01 P01 √ √ √ √ √ √ √ √ V V V V V V V V V V V V V	PO2 √ √ √ √ √ √ √ √ × × × × × × × × × × × × ×	P03 √ √	P04         √         √         √         √         ONICS         P04         √         √         √         √         √         √         √         √         √         √         √         √         √         √		P06	PO7	PO8	P09			
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup> Programme	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 COS 06 0 COS 01 02 03 04 05 02 03 04 05 04 05 02 03 04 05 04 05 04 05 04 05 04 05 04 05 04 05 04 05 05 04 05 05 04 05 05 04 05 05 04 05 05 04 05 05 05 04 05 05 05 04 05 05 05 05 05 05 05 05 05 05 05 05 05	01 P01 √ √ √ √ √ √ √ √ V V V V V V V V V V V V V	PO2 √ √ √ √ √ √ √ √ × × × × × × × × × × × × ×	P03 √ √	P04         √         √         √         √         ONICS         P04         √         √         √         √         √         √         √         √         √         √         √         √         √         √		P06	PO7	PO8	P09			
Subject Coo Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Coo Year: 2 <sup>ND</sup> Programme	e Subje	EE 4 OS& COS 01 02 03 04 05 06 0 COS 01 0 COS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	01 P01 √ √ √ √ √ √ √ ↓ 01 01 01 01 01 01 01 01 01 01	PO2 √ √ √ √ √ √ √ √ × × × × × × × × × × × × ×	P03 √ √ V FCTR P03 √ √ √ √ √ √ √ √ √ √ √ √	P04         √         √         √         √         ONICS	PO5	P06	P07	P08	P09			

Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
Outcomes	COS	101	102	105	104	105	100	107	100	105	1010	1011	1012
	CO1	V	1	1	1	$\checkmark$	1			1			
	CO2	1	1	1			1			1			
	CO3	$\checkmark$	$\checkmark$	V									
	CO4	1					1						
	CO5	1			1	$\checkmark$							
	CO6	1	√	1		$\checkmark$							
Name of the Su	ubject	THER		POWF	R FNG	TNEER	TNG						
Subject Code:	FS FF	401		UNL			1110						
Year: 2 <sup>ND</sup>								Seme	ester:	4 <sup>™</sup>			
Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
Outcomes	COS												
	CO1	$\checkmark$	1	1	1	1				1			
	CO2	V	1						1	1		1	
	CO3	V	V	1	L							1	
	CO4	1											
	CO5	$\checkmark$			$\checkmark$	$\checkmark$						$\checkmark$	
	CO6	1	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$							
							EECC						
Name of the Su	ubjectu				1162 1	IN FRU	/FE33.						
Name of the Su	-												
Subject Code:	-							Com		⊿TH			
	-							Seme	ester:	4 <sup>™</sup>			
Subject Code:   Year: 2 <sup>ND</sup>	HM EE	401							1		PO10	PO11	P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS&		P02	PO3	PO4	P05	P06	<b>Sem</b>	PO8	4 <sup>тн</sup> Р09	PO10	P011	P012
Subject Code:   Year: 2 <sup>ND</sup>	POS& COS	<b>401</b> PO1	PO2	PO3	PO4	P05	PO6		1	PO9	PO10	P011	P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS& COS CO1	<b>401</b> P01	PO2 √	РО3 √			P06 √		1	PO9 √	P010		P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS& COS CO1 CO2	<b>401</b> PO1 √ √	PO2	PO3	PO4	P05	PO6		1	PO9	P010	P011 √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS& COS CO1 CO2 CO3	<b>401</b> PO1 √ √ √	PO2 √ √	PO3 √ √	PO4	P05	P06 √ √ √		1	PO9 √	P010	√ √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS& COS CO1 CO2 CO3 CO4	<b>401</b> PO1 √ √ √ √ √ √	PO2 √ √	PO3 √ √	PO4 √	PO5 √	P06 √ √		1	PO9 √	PO10	√ √ √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS& COS CO1 CO2 CO3 CO4 CO5	<b>401</b> PO1 √ √ √ √ √ √	PO2 √ √ √	PO3 √ √ √	PO4 √	P05 √	P06 √ √ √		1	PO9 √	P010	√ √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS& COS CO1 CO2 CO3 CO4	<b>401</b> PO1 √ √ √ √ √ √	PO2 √ √	PO3 √ √	PO4 √	PO5 √	P06 √ √ √		1	PO9 √	P010	√ √ √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme	POS& COS CO1 CO2 CO3 CO4 CO5	<b>401</b> PO1 √ √ √ √ √ √	PO2 √ √ √	PO3 √ √ √	PO4 √	P05 √	P06 √ √ √		1	PO9 √	P010	√ √ √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme Outcomes	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	<b>401</b> PO1 √ √ √ √ √ √ √ √ √	PO2 √ √ √ √	PO3 √ √ √	P04 √ √	PO5       √	P06 √ √ √		1	PO9 √	P010	√ √ √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme Outcomes Name of the Su	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	401 P01 √ √ √ √ √ √ V ENVI	PO2 √ √ √ √	PO3 √ √ √	P04 √ √	PO5       √	P06 √ √ √		1	PO9 √	P010	√ √ √	PO12
Subject Code: Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	401 P01 √ √ √ √ √ √ V ENVI	PO2 √ √ √ √	PO3 √ √ √	P04 √ √	PO5       √	P06 √ √ √	P07	P08	P09 √ √	P010	√ √ √	P012
Subject Code: Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	401 P01 √ √ √ √ √ √ V ENVI	PO2 √ √ √ √	PO3 √ √ √	P04 √ √	PO5       √	P06 √ √ √	P07	1	PO9 √ √	P010	√ √ √	P012
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS& CO1 CO2 CO3 CO4 CO5 CO6 Ubject: MC EE	401 P01 √ √ √ √ √ √ V ENVI	PO2 √ √ √ √	PO3 √ √ √	P04 √ √	PO5       √	P06 √ √ √	P07	P08	PO9 √ √	P010	√ √ √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	HM EE POS& CO3 CO2 CO3 CO4 CO5 CO6 Ubject: MC EE	401 P01 √ √ √ √ √ √ V V V P01 P01 P01	PO2 √ √ √ FRONM	PO3 √ √ √ 1 1 1 1 1 1 1 1 1 1 1 1 1	P04 √ √ √ √ AL SCI	P05 √ √ √ √ ▼ FNCE	PO6 √ √ √ √ 1 - - - - - - - - - - - - -	PO7	PO8	P09 √ √ 			P012
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS& CO3 CO4 CO5 CO6 D D D D D CO5 CO6 D CO5 CO6 D D D D D D CO5 CO5 CO5 CO3 CO4 CO5 CO5 CO5 CO5 CO3 CO4 CO5 CO5 CO5 CO5 CO5 CO5 CO5 CO5	401 P01 √ √ √ √ √ √ V P01 P01 √	PO2 √ √ √	PO3 √ √ √ 1 1 1 1 1 1 1 1 1 1 1 1 1	P04 √ √ √	P05 √ √ √ ■ ■	P06 √ √ √ √ √ P06 √	PO7	PO8	P09 √ √ 		√ √ √ √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS&           COS           CO1           CO2           CO3           CO4           CO5           CO6           D           D           D           CO5           CO6           D	401 P01 √ √ √ √ √ √ V P01 P01 √ √ √ √ √ V V V V V V V V V V V V V	PO2 √ √ √ FONN PO2 √ √	PO3 √ √ √ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	P04 √ √ √ √ AL SCI	P05 √ √ √ √ ▼ FNCE	P06 √ √ √ √ √ P06 √ √	PO7	PO8	P09 √ √ 		√       √       √       √       √       0       0       0       0       0       0       0       0       √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS&           CO1           C02           C03           C04           C05           C06           D           ubject:           MC EE           POS&           C01           C02           C03           C04           C05           C06           D           POS&           C03           C03           C03           C03           C03           C03           C03	401 P01 √ √ √ √ √ √ V P01 P01 √ √ √ √ √ √ V V V V V V V V V V V V V	PO2 √ √ √ √ PO2 √	PO3 √ √ √ 1 1 1 1 1 1 1 1 1 1 1 1 1	P04 √ √ √ √ AL SCI	P05 √ √ √ √ ▼ FNCE	P06 √ √ √ √ √ P06 √ √ √ √	PO7	PO8	P09 √ √ 		√         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS&           CO1           CO2           CO3           CO4           CO5           CO6           Dipect:           MC EE           POS&           CO1           CO3           CO4           CO5           CO6           CO5           CO6           CO5           CO6           CO3           CO3           CO3           CO3           CO3           CO3           CO3           CO3           CO3	401 P01 √ √ √ √ √ √ √ 401 P01 √ √ √ √ √ √ √ √ √ √ √ √ √	PO2 √ √ √ FONN PO2 √ √	PO3 √ √ √ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	P04 √ √ √ √ √ V P04 √ P04	P05 √ √ √ √ ■ ■ ■ ■ ■ ■ ■ ■	P06 √ √ √ √ √ P06 √ √	PO7	PO8	P09 √ √ 		√         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS&           CO1           CO2           CO3           CO4           CO5           CO6           Ubject:           MC EE           POS&           CO1           CO2           CO3           CO4           CO5           CO6           Ubject:           MC EE           CO3           CO1           CO2           CO3           CO4	401 P01 √ √ √ √ √ √ √ V 401 P01 √ √ √ √ √ √ √ √ √ √ √ √ √	PO2 √ √ √ √ × × × × × × × × × × ×	PO3  √  √  √  √  PO3  PO3  √  √  V  V  V  V  V  V  V  V  V  V  V	P04 √ √ √ √ √ × × × × × × × × × × × × ×	P05 √ √ √ √ V ENCE	P06 √ √ √ √ √ P06 √ √ √ √	PO7	PO8	P09 √ √ 		√         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS&           CO1           CO2           CO3           CO4           CO5           CO6           Dipect:           MC EE           POS&           CO1           CO3           CO4           CO5           CO6           CO5           CO6           CO5           CO6           CO3           CO3           CO3           CO3           CO3           CO3           CO3           CO3           CO3	401 P01 √ √ √ √ √ √ √ 401 P01 √ √ √ √ √ √ √ √ √ √ √ √ √	PO2 √ √ √ FONN PO2 √ √	PO3 √ √ √ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	P04 √ √ √ √ √ V P04 √ P04	P05 √ √ √ √ ■ ■ ■ ■ ■ ■ ■ ■	P06 √ √ √ √ √ P06 √ √ √ √	PO7	PO8	P09 √ √ 		√         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup>	POS&           CO1           CO2           CO3           CO4           CO5           CO6           Ubject:           MC EE           POS&           CO1           CO2           CO3           CO4           CO5           CO6           Ubject:           MC EE           CO3           CO1           CO2           CO3           CO4	401 P01 √ √ √ √ √ √ √ V 401 P01 √ √ √ √ √ √ √ √ √ √ √ √ √	PO2 √ √ √ √ × × × × × × × × × × ×	PO3  √  √  √  √  PO3  PO3  √  √  V  V  V  V  V  V  V  V  V  V  V	P04 √ √ √ √ √ × × × × × × × × × × × × ×	P05 √ √ √ √ V ENCE	P06 √ √ √ √ √ P06 √ √ √ √	PO7	PO8	P09 √ √ 		√         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	POS&           CO1           CO2           CO3           CO4           CO5           CO6           Ubject:           MC EE           POS&           CO1           CO2           CO3           CO4           CO5           CO6           Ubject:           MC EE           CO3           CO1           CO2           CO3           CO4	401 P01 √ √ √ √ √ √ √ V 401 P01 √ √ √ √ √ √ √ √ √ √ √ √ √	PO2 √ √ √ √ × × × × × × × × × × ×	PO3  √  √  √  √  PO3  PO3  √  √  V  V  V  V  V  V  V  V  V  V  V	P04 √ √ √ √ √ × × × × × × × × × × × × ×	P05 √ √ √ √ V ENCE	P06 √ √ √ √ √ P06 √ √ √ √	PO7	PO8	P09 √ √ 		√         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes	POS&           CO1           C02           C03           C04           C05           C06           ubject:           MC EE           POS&           C01           C02           C03           C04           C05           C06           D           POS&           C01           C02           C03           C04           C05           C04           C05           C04           C05           C04           C05           C04           C05           C06	401 P01 √ √ √ √ √ √ √ 1 401 P01 √ √ √ √ √ √ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	PO2	PO3 √ √ √ √ ✓ ✓ ✓ ✓ ✓ ✓	P04 √ √ √ √ √ × × × × × × × × × × × × ×	P05 √ √ √ √ √ V P05 √ √ √ √ √ ↓ ↓	P06	P07	PO8	P09 √ √ 		√         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Subject Code:	HM EE POS& CO3 CO4 CO5 CO6 CO6 CO6 POS& CO6 CO5 CO6 CO5 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO5 CO5	401 P01 √ √ √ √ √ √ √ 401 P01 √ √ √ √ √ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	PO2	PO3 √ √ √ √ ✓ ✓ ✓ ✓ ✓ ✓	P04 √ √ √ √ √ × × × × × × × × × × × × ×	P05 √ √ √ √ √ V P05 √ √ √ √ √ ↓ ↓	P06	P07	PO8	P09 √ √ 		√         √	
Subject Code:   Year: 2 <sup>ND</sup> Programme Outcomes Name of the Subject Code:   Year: 2 <sup>ND</sup> Programme	HM EE POS& CO3 CO4 CO5 CO6 CO6 CO6 POS& CO6 CO5 CO6 CO5 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO5 CO5	401 P01 √ √ √ √ √ √ √ 401 P01 √ √ √ √ √ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	PO2	PO3 √ √ √ √ ✓ ✓ ✓ ✓ ✓ ✓	P04 √ √ √ √ √ × × × × × × × × × × × × ×	P05 √ √ √ √ √ V P05 √ √ √ √ √ ↓ ↓	P06	P07	PO8	P09 √ √ - - - - - - - - - - - - -		√         √	

		1		1						1	1		
Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
Dutcomes	COS	,	<u> </u>										
	CO1	1	1	1	1	1							
	CO2	1	1				,						
	CO3	1	1	1			<u>√</u>						
	CO4	1			,	<u> </u>	1						
	CO5	N √		,		$\overline{\mathbf{v}}$							
	CO6	N	1	1	N	Ň							
Name of the S	ubject:	DIGI	TAL EI	LECTR	ONICS	5 LAB	ORAT	ORY					
Subject Code:													
fear: 2 <sup>ND</sup>								Seme	ester:	4 <sup>™</sup>			
Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO1
Dutcomes	COS												
	CO1	$\checkmark$	1	1	1	1	1						
	CO2	1	1	1			$\checkmark$						
	CO3	1	1	1			$\checkmark$						
	CO4	1					$\checkmark$						
	CO5	$\checkmark$			$\checkmark$	$\checkmark$							
	CO6	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$							
lame of the S	ubject:	ELEC	TRICA		D ELEC	TRON	ICS M	EASU	REMEN	IT LAE	BORAT	ORY	
Subject Code:													
fear: 2 <sup>ND</sup>								Seme	ester:	4 <sup>TH</sup>			
				1	-						-		1
Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO1
Programme Dutcomes	POS& COS		_		_			PO7	PO8	PO9	PO10	PO11	PO1
	COS <b>CO1</b>	1	1	1	PO4 √	PO5 √	PO6 √	P07	PO8	PO9	P010	P011	PO1
	COS CO1 CO2	√ √	√ √	√ √	_			PO7	PO8	PO9	PO10	PO11	PO1
	COS CO1 CO2 CO3	イ イ イ	1	1	_			P07	P08	PO9	P010	P011	PO1
	COS CO1 CO2 CO3 CO4	イ イ イ イ	√ √	√ √	√	√		P07	P08	PO9	PO10	P011	P01
	COS CO1 CO2 CO3 CO4 CO5	↓ ↓ ↓ ↓ ↓	√ √ √	√ √ √	√	√ 		PO7	P08	PO9	PO10	P011	P01
	COS CO1 CO2 CO3 CO4	イ イ イ イ	√ √	√ √	√	√		PO7	P08	PO9	PO10	P011	P01
	COS CO1 CO2 CO3 CO4 CO5	↓ ↓ ↓ ↓ ↓	√ √ √	√ √ √	√	√ 		PO7	PO8	PO9	PO10	P011	PO1
	COS CO1 CO2 CO3 CO4 CO5	↓ ↓ ↓ ↓ ↓	√ √ √	√ √ √	√	√ 		PO7	PO8	PO9	PO10	P011	PO1
Outcomes Name of the S	COS CO1 CO2 CO3 CO4 CO5 CO6 UDject:	√ √ √ √ √ THER	√ √ √ √	√ √ √	√ √ √	√ √ √	√ 				PO10	P011	P01
Dutcomes Name of the S Subject Code:	COS CO1 CO2 CO3 CO4 CO5 CO6 UDject:	√ √ √ √ √ THER	√ √ √ √	√ √ √	√ √ √	√ √ √	√ 	ABOR	ATOR	Y	PO10	P011	P01
outcomes lame of the S Subject Code:	COS CO1 CO2 CO3 CO4 CO5 CO6 UDject:	√ √ √ √ √ THER	√ √ √ √	√ √ √	√ √ √	√ √ √	√ 	ABOR		Y	PO10	P011	PO:
Jutcomes Jame of the S Subject Code: Year: 2 <sup>ND</sup>	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject: ES ME	√ √ √ √ √ 1 √ 1 491	√ √ √ ✓	√ √ √ √ >OWEI	√ √ √			ABOR	ATOR	<b>ү</b>			
lame of the S Subject Code: Tear: 2 <sup>ND</sup>	COS CO1 CO2 CO3 CO4 CO5 CO6 UDject: ES ME	√ √ √ √ √ THER	√ √ √ √	√ √ √	√ √ √	√ √ √	√ 	ABOR	ATOR	Y	PO10	P011	
lame of the S ubject Code: ear: 2 <sup>ND</sup> rogramme	COS CO1 CO2 CO3 CO4 CO5 CO6 UDJeCt: ES ME	√       √    <	√ √ √ √ MAL F	√       √       √       √       √       √       POWEI	√ √ √ R ENG	√ √ √ INEER	√ 	ABOR	ATOR	<b>ү</b>			
ame of the S ubject Code: ear: 2 <sup>ND</sup> rogramme	COS CO1 CO2 CO3 CO4 CO5 CO6 UDject: ES ME	√       √       √       √       √       √       √       √       √       √       √       0       √       0       0       √       0       0       0       0       0       0       0       0       0       0       0	√       √       √       √       √       PO2       √	√       √       √       √       √       POWEI	√ √ √		√ 2ING L	ABOR	ATOR	<b>ү</b>			
lame of the S ubject Code: ear: 2 <sup>ND</sup>	COS CO1 CO2 CO3 CO4 CO5 CO6 UDJECT: ES ME POS& COS CO1 CO2	√       √       √       √       √       √       √       P01       √       √       √	√       √       √       √       √       PO2       √       √	√       √       √       √       POWEI	√ √ √ R ENG	√ √ √ INEER	√       ING L       P06       √	ABOR	ATOR	<b>ү</b>			P01
lame of the S Subject Code: Tear: 2 <sup>ND</sup>	COS CO1 CO2 CO3 CO4 CO5 CO6 UDJECT: ES ME ES ME COS CO1 CO2 CO3	√       √       √       √       √       √       √       P01       √       √       √       √	√       √       √       √       √       PO2       √	√       √       √       √       √       POWEI	√ √ √ R ENG	√ √ √ INEER	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			
lame of the S Subject Code: Tear: 2 <sup>ND</sup>	COS CO1 CO2 CO3 CO4 CO5 CO6 UDJeCt: ES ME ES ME COS CO1 CO2 CO3 CO3 CO4	√       √       √       √       √       √       √       0       0       0       0       0       0       0       1       0       0       1       0       1       1       1       1       1       1	√       √       √       √       √       PO2       √       √	√       √       √       √       POWEI	√         √         √         √         √         √         √         √         √         √         P04         √         ✓	√       √       √       √       √       √       √       √       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0	√       ING L       P06       √	ABOR	ATOR	<b>ү</b>			
Dutcomes Name of the S Subject Code: Tear: 2 <sup>ND</sup> Programme	COS CO1 CO2 CO3 CO4 CO5 CO6 ES ME POS& CO3 CO1 CO2 CO3 CO1 CO2 CO3 CO4 CO5	√       √       √       √       √       √       √       0       √	√       √       √       √       √       √       √       PO2       √  <	√       √       √       √       √       √       PO3       √  <	√         √         √         √         √         √         √         P04         √         √         √         √         √         √         √         √         √         √         √	√       √	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			
Dutcomes lame of the S Subject Code: 'ear: 2 <sup>ND</sup> Programme	COS CO1 CO2 CO3 CO4 CO5 CO6 UDJeCt: ES ME ES ME COS CO1 CO2 CO3 CO3 CO4	√       √       √       √       √       √       √       0       0       0       0       0       0       0       1       0       0       1       0       1       1       1       1       1       1	√       √       √       √       √       PO2       √       √	√       √       √       √       POWEI	√         √         √         √         √         √         √         √         √         √         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	√       √       √       √       √       √       √       √       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			
Dutcomes Name of the S Subject Code: Tear: 2 <sup>ND</sup> Programme	COS CO1 CO2 CO3 CO4 CO5 CO6 ES ME POS& CO3 CO1 CO2 CO3 CO1 CO2 CO3 CO4 CO5	√       √       √       √       √       √       √       0       √	√       √       √       √       √       √       √       PO2       √	√       √       √       √       √       √       PO3       √  <	√         √         √         √         √         √         √         P04         √         √         √         √         √         √         √         √         √         √         √	√       √	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			
Outcomes Name of the S	COS CO1 CO2 CO3 CO4 CO5 CO6 ES ME POS& CO3 CO1 CO2 CO3 CO1 CO2 CO3 CO4 CO5	√       √       √       √       √       √       √       0       √	√       √       √       √       √       √       √       PO2       √	√       √       √       √       √       √       PO3       √  <	√         √         √         √         √         √         √         P04         √         √         √         √         √         √         √         √         √         √         √	√       √	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			
Name of the S Subject Code: (ear: 2 <sup>ND</sup> Programme Dutcomes	COS C01 C02 C03 C04 C05 C06 UDject: ES ME POS& COS C01 COS C01 COS C01 COS C03 C04 COS COS C01 COS COS COS COS COS COS COS COS	√       √	√         √         √         √         √         P02         √	√         √         √         √         √         POWEI         √	√         √	√       √	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			
Name of the S Subject Code: (ear: 2 <sup>ND</sup> Programme Dutcomes	COS C01 C02 C03 C04 C05 C06 UDject: ES ME POS& COS C01 COS C01 COS C01 COS C03 C04 COS COS C01 COS COS COS COS COS COS COS COS	√       √	√         √         √         √         √         P02         √	√         √         √         √         √         POWEI         √	√       √	√       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			
lame of the S Subject Code: Year: 2 <sup>ND</sup> Programme Outcomes	COS C01 C02 C03 C04 C05 C06 UDject: ES ME POS& COS C01 COS C01 COS C01 COS C03 C04 COS COS C01 COS COS COS COS COS COS COS COS	√       √	√         √         √         √         √         P02         √	√         √         √         √         √         POWEI         √	√       √	√       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			
Dutcomes lame of the S Subject Code: 'ear: 2 <sup>ND</sup> Programme	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject: ES ME POS& CO3 CO1 CO2 CO3 CO1 CO2 CO3 CO4 CO5 CO1 CO2 CO3 CO4 CO5 CO5 CO1 CO5 CO6 D CO5 CO6 D CO5 CO6 D CO5 CO6 D CO5 CO5 CO6 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO5 CO5	√           √	√         √         √         √         √         P02         √	√         √         √         √         √         POWEI         √	√       √	√       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √       √	√       ING L       PO6       √       √	ABOR	ATOR	<b>ү</b>			

	POS& COS	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO1
	CO1	1	$\checkmark$	1									
	CO2	$\checkmark$			$\checkmark$			$\checkmark$					
	CO3	1		_			1			_	_		
	CO4			1			1			-			
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	CO1	1	1	1									
	CO2	V	1	,	1			1					1
	CO3	1			1								
	CO4				1								
	CO5		√	1				1		1			<u> </u>
	CO6	1	1			_	_			1			
		502						Seme	ester:	5 <sup>TH</sup>			
	POS&	P01	PO2	PO3	PO4	PO5	PO6	Semo	ester:	5 <sup>TH</sup>	PO10	P011	PO
	POS& COS	P01			PO4	P05	PO6				PO10	P011	PO
	POS& COS <b>CO1</b>	P01 √	PO2 √	PO3 √		P05	PO6	P07			PO10	P011	PO
	POS& COS <b>CO1</b> <b>CO2</b>	P01 √ √			√	PO5					P010	P011	PO
	POS& COS CO1 CO2 CO3	P01 √			√ √	PO5	√	P07			P010	P011	PO
	POS& COS <b>CO1</b> <b>CO2</b>	P01 √ √			√	PO5		P07			P010	P011	PO
	POS& COS CO1 CO2 CO3 CO4	P01 √ √	√		√ √	PO5	√ √	P07 √		PO9	PO10	P011	PO
lame of the Subject Code: P	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	P01 √ √ √ POW	√ 	√ √ √ √	↓ ↓ ↓		√ √ √	P07 √		P09 ↓ ↓	PO10	P011	PO
lame of the Subject Code: P	POS& COS CO1 CO2 CO3 CO4 CO5 CO6 Dject: C EE S	P01 √ √ √ POW	√ 	√ √ √ √	↓ ↓ ↓		√ √ √	P07 √	P08	P09 ↓ ↓	PO10	P011	
lame of the Subject Code: P	POS& COS CO1 CO2 CO3 CO4 CO5 CO6 Dject: C EE ! POS& COS	P01 √ √ √ POW 592	√ √ √ ER SY	√ √ √ STEM	√ √ √ I I LA	BORA	√ √ √	P07 √ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	PO8	P09 √ √			
lame of the Subject Code: P	POS& CO3 CO3 CO4 CO5 CO6 Dject: C EE S POS& COS CO1	P01  √  √  √  POW  592  P01  √		√ √ √ STEM	√           ×           ×	BORA	√ √ √	P07 √	PO8	P09 √ √			
lame of the Subject Code: P	POS& CO3 CO4 CO5 CO6 Dject: C EE ! POS& COS CO1 CO2	P01 √ √ √ POW 592 P01 √ √	√ √ √ ER SY	√ √ √ STEM	√       √       √       √       √       I    <	BORA	√ √ √ √ TORY	P07 √ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	PO8	P09 √ √			
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	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
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	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
	COS CO1	1	1	1	1								
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	CO2	1	1						, v				
	CO4	V											
	CO5	1		1	1				1		1		
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	COS	101	F02	FUS	F04	FUS	FOO	F07	F Uð	F03	1010	1011	P012
	C01	1	1	1	1								
	CO2	V	1	1		1			1	1			1
	CO3	V	1			1				1			1
	CO4	1								1			
	CO5	$\checkmark$		1	1				1	1	$\checkmark$		
	CO6	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$					$\checkmark$	$\checkmark$		
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	COS		_		_	PO5	PO6		1	1	PO10	P011	P012
		1	PO2 √	PO3 √	P04 √	P05	PO6		1	1	PO10	P011	P012
	COS <b>CO1</b>	√ √	1		_	PO5	PO6		PO8	1	PO10	P011	PO12
	COS CO1 CO2 CO3	√ √ √	√   √		_	PO5	P06		PO8	1	PO10	P011	P012
	COS CO1 CO2	√ √	√   √		_	PO5	PO6		PO8	1	P010	P011	P012
	COS CO1 CO2 CO3 CO4	↓ ↓ ↓ ↓ ↓	√ √ √	1	1	PO5	PO6		P08 √	1		P011	PO12
	COS CO1 CO2 CO3 CO4 CO5	↓ ↓ ↓ ↓	√   √	√ 	√	PO5	PO6		P08 √	1		P011	P012
	COS CO1 CO2 CO3 CO4 CO5 CO6			√ √ √ √	√ √ √ √			PO7	P08 √	1		P011	P012
ame of the S	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject:	√ √ √ √ √	√ √ √ √	√ √ √ √	√ √ √ √			PO7	P08 √	1		P011	P012
ame of the S ubject Code: ear: 3 <sup>RD</sup>	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject:	√ √ √ √ √	√ √ √ √	↓ ↓ ↓	√ √ √ √			P07	P08 √	PO9		P011	P012
ame of the S ubject Code:	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject: OE EE S	√ √ √ √ √	√ √ √ √	↓ ↓ ↓	√ √ √ √			P07	P08  √  √  1  1  1  1  1  1  1  1  1  1  1	PO9		P011	P012
ame of the S ubject Code:	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject: OE EE S POS& COS	√           √	√ √ √ √ CT OI	√ √ √ N RIENT	√ √ √ ▼ ED PI	ROGR	AMMI	P07	P08 √ √	P09	√ √ √		
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Subject Code: (	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject: OE EE 0 POS& COS CO1	√ √ √ √ √ 501 B	√ √ √ √ MUNI( 3 PO2	√ √ √ ✓ C ATI	√ √ √ ✓ ✓ ✓ ✓ ✓ ✓	NGINE		G	√ √ √	6 <sup>тн</sup>			
Subject Code: (	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject: OE EE 0 POS& COS CO1 CO2	√ √ √ √ √ <b>COMN</b> <b>601 B</b> P01 √	√ √ √ √ MUNI( 3	√ √ √ C ATI	√       √       √       √       0       0       0       0       0       0       √       √       √	NGINE		G	√ √ √	6 <sup>тн</sup>			
Subject Code: (	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject: OE EE 0 POS& COS CO1 CO2 CO3	√ √ √ √ √ 601 B P01 √ √	√       √	√       √       √       √       √       √       0       √       0       √       0       √       0       0       0       0       0       √       0       0       0       √	√       √       √       √       √       0       PO4       √       √       √       √       √       √       √	NGINE	↓ ↓ ↓ ERIN	G P07	√ √ √ √ PO8	6 <sup>тн</sup>			
Subject Code: (	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject: OE EE 0 POS& COS CO1 CO2	√ √ √ √ √ <b>COMN</b> <b>601 B</b> P01 √	√ √ √ √ MUNI( 3 PO2	√ √ √ ✓ C ATI	√       √       √       √       0       0       0       0       0       0       √       √       √	NGINE	√       √       √       √       √	G P07	√ √ √ = = = = = = = √	6 <sup>тн</sup>			PO:
Subject Code: (	COS CO1 CO2 CO3 CO4 CO5 CO6 CO6 CO6 CO6 CO5 CO1 CO2 CO3 CO1 CO2 CO3 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO6 CO5 CO6 CO6 CO5 CO6 CO5 CO6 CO6 CO5 CO6 CO6 CO5 CO6 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO6 CO5 CO6 CO5 CO5 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO5 CO5	√       √       √       √       √       √       √       0       0       0       √	√       √       √       √       √       √       √       Ø       Ø       √       √       √       √       √       √       √       √       √       √       √       √	√       √       √       √       √       √       0       √       √       √       √       √       √       √       √       √       √       √       √       √	√       √	NGINE	√       √       √       √       √       0       0       0       0       0       √       √	G P07	√         √         √         √         √         PO8         √         √         √         √         √         √	6 <sup>тн</sup>			
Subject Code: (	COS CO1 CO2 CO3 CO4 CO5 CO6 Ubject: OE EE 0 POS& COS CO1 CO2 CO3 CO3 CO4	√ √ √ √ √ 501 B P01 √ √ √ √	√       √	√       √       √       √       √       √       0       √       0       √       0       √       0       0       0       0       0       √       0       0       0       √	√       √       √       √       √       0       PO4       √       √       √       √       √       √       √	NGINE	√         √         √         √         √         √         PO6         √         √         √	G P07	√         √         √         √         √         PO8         √         √         √         √         √         √	6 <sup>тн</sup>			
Subject Code: (	COS CO1 CO2 CO3 CO4 CO5 CO6 UDject: OE EE 0 POS& CO3 CO1 CO2 CO3 CO1 CO2 CO3 CO4 CO5 CO1 CO5 CO1 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO5 CO6 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO5 CO5	√         √         √         √         √         √         √         √         0         0         0         √ <t< td=""><td>√       √</td><td>√       √</td><td>√       √</td><td>P05</td><td>√         √</td><td>G P07</td><td>√         √         √         √         √         PO8         √         √         √         √         √         √</td><td>6<sup>тн</sup></td><td></td><td></td><td></td></t<>	√       √	√       √	√       √	P05	√         √	G P07	√         √         √         √         √         PO8         √         √         √         √         √         √	6 <sup>тн</sup>			

PO: CC		01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
C01		1	1	1	1		1					1
CO2	. √	1	$\checkmark$	1	1		1					$\checkmark$
CO3	√ √	1	$\checkmark$	1	1		1					1
CO4	. √	1	$\checkmark$		$\checkmark$							
CO5	√ √	1	$\checkmark$		$\checkmark$		$\checkmark$					
COG	, √		$\checkmark$		$\checkmark$		$\checkmark$					$\checkmark$

Subject Co		<b>701</b>											
<b>Year:</b> 4 <sup>TH</sup>			ster:	7 <sup>TH</sup>									
				-		-	1			-	1	1	T
Programme	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
Outcomes	COS												
	CO1	1	1	1	1	1						1	
	CO2	1	1		-	1		-	-	-		- ,	
	CO3	√ √			1	$\overline{\mathbf{v}}$	1					1	
	CO4	N √	 √	$\overline{\mathbf{v}}$	Ň	- Y	1	-	-			1	
	CO5 CO6	N √	 √	N √	_	1	•	_				Ň	
	00	v	N N	v		V							
Name of th	e Sub	iect: F	LECT			LABO	RATO	DRY					
Subject Co	de: EE	791											
Year: 4 <sup>TH</sup>		Seme	ster:	7 <sup>TH</sup>									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	COS	<u>  .</u>	<u> </u>	<u> </u>			_			_		<u> </u>	
	CO1	1	1	1	1	1						1	
rogramme	CO2	√	1			1							
Dutcomes	CO3	1	1	1	,	1	1					1	
	CO4 CO5		√ √	√   √	1	1	1						
		N					N N					$\checkmark$	
					-	1							
	<u>CO6</u>	1	۲ ۲	<u>الا</u>		1							
Subject Co	coe ne Subj de: EE	√ ject: l 702	JTILI	SATIC				POW	ER				
Subject Co	coe ne Subj de: EE	√ ject: l 702	1	SATIC	DN OF		TRIC	POW	ER				
Subject Co	coe ne Subj de: EE	√ ject: l 702	JTILI	SATIC	<b>DN OF</b>		CTRIC PO6	<b>POW</b>	ER PO8	P09	PO10	P011	P012
Subject Co	co6 ne Subj de: EE	√ ject: l 702 Seme	JTILI ster: PO2 √	SATI( 7 <sup>TH</sup>		ELEC				P09	P010	P011	P012
Subject Co Year: 4 <sup>™</sup>	co6 e Subj de: EE POS& COS co1 co2	√ ject: U 702 Seme ↓ √	JTILI ster: PO2 √ √	SATI( 7 <sup>TH</sup>		ELEC	P06			P09	PO10	P011	P012
<b>Subject Co</b> <b>Year:</b> 4 <sup>TH</sup> Programme	co6 de: EE POS& CO3	√ ject: l 702 Seme	√           JTILI           ester:           PO2           √           √           √	SATI( 7 <sup>TH</sup>		P05				P09	P010	P011	P012
Programme	CO6 CO6 CO5 CO1 CO2 CO3 CO4	√ ject: l 702 Seme P01 √ √ √ √ √ √ √	√           JTILI           sster:           PO2           √           √           √           √           √           √           √	SATI( 7 <sup>TH</sup>		P05	P06	P07		P09	PO10	P011	P012
<b>Subject Co</b> <b>Year:</b> 4 <sup>TH</sup> Programme	CO6 E Subj de: EE POS& COS CO1 CO2 CO3 CO4 CO5	√       ject: l       702       Seme       √	√         JTILI         ster:         PO2         √	SATI( 7 <sup>TH</sup>		PO5	P06			P09	P010	P011	P012
<b>Subject Co</b> <b>Year:</b> 4 <sup>TH</sup> Programme	CO6 CO6 CO5 CO1 CO2 CO3 CO4	√ ject: l 702 Seme P01 √ √ √ √ √ √ √	√           JTILI           sster:           PO2           √           √           √           √           √           √           √	SATI( 7 <sup>TH</sup>		P05	P06	P07		P09	PO10	P011	P012
	CO6 E Subj de: EE POS& COS CO1 CO2 CO3 CO4 CO5	√       ject: l       702       Seme       √	√         JTILI         ster:         PO2         √	SATI( 7 <sup>TH</sup>		PO5	P06	P07		P09	P010	P011	P012
<b>Subject Co</b> <b>Year:</b> 4 <sup>TH</sup> Programme	CO6 E Subj de: EE POS& COS CO1 CO2 CO3 CO4 CO5	√       ject: l       702       Seme       √	√         JTILI         ster:         PO2         √	SATI( 7 <sup>TH</sup>		PO5	P06	P07		P09	PO10	P011	P012
Subject Co Year: 4 <sup>TH</sup> Programme Dutcomes Name of th	CO6 De Subj de: EE POS& CO3 CO3 CO4 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO6 CO5 CO5 CO6 CO5 CO5 CO5 CO5 CO5 CO5 CO5 CO5	√         ject: I         702         Seme         √ <t< td=""><td>√         JTILI         sster:         P02         √      <t< td=""><td>√         SATIC         7<sup>TH</sup>         РОЗ        </td><td>PO4</td><td>P05</td><td>P06</td><td>P07</td><td></td><td>P09</td><td>P010</td><td>P011</td><td>P012</td></t<></td></t<>	√         JTILI         sster:         P02         √ <t< td=""><td>√         SATIC         7<sup>TH</sup>         РОЗ        </td><td>PO4</td><td>P05</td><td>P06</td><td>P07</td><td></td><td>P09</td><td>P010</td><td>P011</td><td>P012</td></t<>	√         SATIC         7 <sup>TH</sup> РОЗ	PO4	P05	P06	P07		P09	P010	P011	P012
Subject Co Year: 4 <sup>TH</sup> Programme	CO6 De Subj de: EE POS& CO3 CO4 CO5 CO6 De Subj de: EE	√         ject: I         702         Seme         01         √      <	√         JTILI         sster:         P02         √ <t< td=""><td>√         SATI(         7<sup>TH</sup>         РОЗ        </td><td>PO4</td><td>P05</td><td>P06</td><td>P07</td><td></td><td>PO9</td><td>PO10</td><td>P011</td><td>P012</td></t<>	√         SATI(         7 <sup>TH</sup> РОЗ	PO4	P05	P06	P07		PO9	PO10	P011	P012

Programm	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
e	COS	101	P02	103	P04	203	P U0	10/	100	109	2010	1011	1012
e Outcomes	<b>CO1</b>	1	1	1		1		1	1				
	CO1	1	1	1		1	1	1	1			1	
	CO2	V	1	1			1	1	1			1	1
	CO4	۰ ۷	Ń	Ń			Ń		,			Ń	
	CO5	v.	Ń	Ń		1	Ń					V	
	CO6	1 V	Ń	1 V		1 V	1 V	1	1				
		,		•			,	1					
	L											1	
Name of th	e Subj	ject: (	CONTI	ROLS	YSTE	M III							
Subject Co	de: EE	703E	3										
<b>Year:</b> 4 <sup>TH</sup>		Seme	ster:	7 <sup>TH</sup>									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
	COS												
Programme	CO1	1	$\checkmark$	1	1	1						$\checkmark$	
Outcomes	CO2	1	$\checkmark$			1						$\checkmark$	
	CO3	1	$\checkmark$			1						$\checkmark$	
	CO4	√	1	1	$\checkmark$	1							
	CO5	1	$\checkmark$	1								1	
	CO6	1	1	V		1							
			•										•
Name of th				VOLT	AGEE	NGIN	EERI	NG					
Subject Co	de: EE	7044	1										
Year: 4TH		Seme	ster:	7 <sup>TH</sup>									
				-									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	COS												
	CO1	√	1	1	1								
	CO2	۰ ۱	Ń		,				1				
Programme	CO2	1	1						-	1			
Outcomes	CO4	1								1			
		1		1	1				1	1	1		
	CO5	v √	1						N	 ↓	V		
	CO6	N .	N N	Ŷ	- Y			-	_	<u>ү</u>	N		-
Name of th	e Subi	iect: F	RENEV	VABL	E AND		CON	VENT	IONAI		RGY		
Name of th Subject Co	e Subj de: EE	ject: F 7041	RENEV	VABL	EAND	NON	CON	VENT	IONA	LENE	RGY		
Subject Co	de: EE	704	)		EAND	NON	CON	VENT	IONA	LENE	RGY		
Name of th Subject Coo Year: 4 <sup>TH</sup>	de: EE	704	RENEV D ster: 1		E ANC	<u>NON</u>	CON	VENT	IONAI	LENE	RGY		
Subject Co	de: EE	704I Seme	) ster: :	7 <sup>TH</sup>								P011	P012
Subject Coo Year: 4 <sup>TH</sup>	POS&	704	)		E AND P04	P05	<b>CON</b> P06	<b>VENT</b>	IONA PO8	P09	PO10	P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS	704[ Seme	D ster: 2 PO2	<b>7</b> <sup>TH</sup> PO3	PO4							P011	P012
Subject Co	POS& COS	704[ Seme <sup>P01</sup>	) ster: : PO2 √	7 <sup>TH</sup>					P08			P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS CO1 CO2	704[ Seme P01 √ √	) ster: : PO2 √ √	<b>7</b> <sup>TH</sup> PO3	PO4					P09		P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS	704[ Seme P01 √ √ √	) ster: : PO2 √	<b>7</b> <sup>TH</sup> PO3	PO4				P08	P09 √		P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS CO1 CO2	704[ Seme P01 √ √ √ √ √	) ster: : PO2 √ √	7 <sup>TH</sup> PO3 √	PO4 √				P08	PO9 イ イ	P010	P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS CO1 CO2 CO3	704I Seme	) ster: : PO2 √ √	<b>7</b> <sup>TH</sup> PO3	PO4 √				P08	P09 √	P010	P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS CO1 CO2 CO3 CO4	704[ Seme P01 √ √ √ √ √	) ster: : PO2 √ √	7 <sup>TH</sup> PO3 √	PO4 √				P08	PO9 イ イ	P010	P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS CO1 CO2 CO3 CO4 CO5	704I Seme	) ster: 7 PO2 √ √ √	7 <sup>TH</sup> PO3 √	PO4 √				P08	P09 	P010	P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS CO1 CO2 CO3 CO4 CO5	704I Seme	) ster: 7 PO2 √ √ √	7 <sup>TH</sup> PO3 √	PO4 √				P08	P09 	P010	P011	P012
<b>Subject Coo</b> <b>Year:</b> 4 <sup>TH</sup> Programme Dutcomes	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	704I Seme P01 √ √ √ √ √ √	) ster: :	7 <sup>TH</sup> PO3 √ √	P04 √ √ √ √	P05	P06		P08	P09 	P010	P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme	POS& COS CO1 CO2 CO3 CO4 CO5 CO6	704I Seme P01 √ √ √ √ √ √	) ster: :	7 <sup>TH</sup> PO3 √ √	P04 √ √ √ √	P05	P06		P08	P09 	P010	P011	P012
Subject Coo Year: 4 <sup>TH</sup> Programme Dutcomes Name of th	POS& COS CO1 CO2 CO3 CO4 CO5 CO6 CO6	704I Seme P01 √ √ √ √ √ √ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	D ster: 2 PO2 √ √ √ √ √ COMP	7 <sup>TH</sup> PO3 √ √	P04 √ √ √ √	P05	P06		P08	P09 	P010	P011	P012
<b>Subject Coo</b> <b>Year:</b> 4 <sup>TH</sup> Programme Outcomes	POS& COS CO1 CO2 CO3 CO4 CO5 CO6 e Subj	704I Seme P01 √ √ √ √ √ √ √ √ √ √ √ √ √	PO2       √       √       √       √       √       √       COMP	7 <sup>TH</sup> PO3 √ √ V UTER	P04 √ √ √ √	P05	P06		P08	P09 	P010	P011	P012

	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
	COS												
rogramme	CO1	1	1	1	√	$\checkmark$							
utcomes	CO2	1	1	1	$\checkmark$								
	CO3	$\checkmark$	$\checkmark$		$\checkmark$								
	CO4	1	1		1	1		1					
	CO5	V	$\checkmark$		√	1		1					
	CO6	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$					
Name of th Subject Co	e Subj	ject: (		UTER	NETV	VORK							
Year: 4 <sup>TH</sup>		Seme	ster:	7 <sup>TH</sup>									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	P011	PO12
	COS												
	CO1	$\checkmark$	1	1	$\checkmark$	√							$\vdash$
	CO2	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$								
	CO3	$\checkmark$	$\checkmark$		$\checkmark$								
	CO4	$\checkmark$	$\checkmark$		1	$\checkmark$		1					
	CO5	$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$		$\checkmark$					
	CO6	$\checkmark$	1	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$					
Name of th	e Subj	ject: S	SEMIN	NAR O	N INI	DUSTI	RIAL '	TRAIN	IING				
Subject Co				<b>∍</b> TH									
<b>Year:</b> 4 <sup>TH</sup>		Seme	ester:	/									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
	COS		1.02	105	104	105	100	107	100	105	1010	1011	101
	CO1	1	1	1			1						
	CO1	1	1	1	1		1						
	CO2	1	, v	1	1								
	CO3	1	1	• •	1			1					
		V	1	1	V			1					
	CO5	N N	1	V	1			 √					
	CO6	N	N		Ň			N					
Name of th Subject Co	e Subj	ject:   782	ELECT	RICS	SYSTE	M DES	SIGN	I					
<b>Year:</b> 4 <sup>TH</sup>			ster:	7 <sup>TH</sup>									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	P011	P012
	COS												
	CO1	1	1	1		1			1			1	1
	CO1	V	1	1		1							1
	CO2		1	v √	1	√							1
		N N	N √	N √	 √	V							1
	CO4		N 	-									4
	CO5	1	N	/	1	-	-					1	-
		$\checkmark$	1	1									
	CO6			1	1							1	
	CO6												
		-											
Name of th	e Subj	ject: I	PROJE	CT I									
Name of th Subject Coo Year: 4 <sup>TH</sup>	e Subj de: EE	783	PROJE										

	POS&	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	COS	,	· .			- ,	-		_		,	-	
	CO1	1	√ √			√   √					√		
	CO2		N √	√ √		N		.1			1		
	CO3	N √	N √	 √		+	-	 ↓	-			+	
	CO4 CO5	N √	1	1	1			N N					
	COS CO6	v √	1	1	 √								
		•	, v	1	•								
Name of th	e Subj	ect: C	DRGA	NISA	FIONA	L BE	HAVIO	DUR					
Subject Coo Year: 4 <sup>TH</sup>				атн									
rear: 4		Seme	ster: 8	3									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12
	COS		<u> </u>	<b>_</b>				_					1
	CO1	1	1	1	1	+						+	
	CO2	<b>√</b>	1	<b>√</b>	<u>√</u>	1							
	CO3	<b>√</b>	1	<b>√</b>	1	√		_					1
	CO4	√ √	1	<b>√</b>	 			_					1
	CO5	√ √	√ √	 ↓	 								_ √
	CO6	N	<b>N</b>	- V	√	+							
		l		<u> </u>				I		<u> </u>	1	1	1
Name of th	e Subj	ect: F	IVDC	TRAN	SMIS	SION							
Subject Cod	de: EE	801	Α										
<b>fear:</b> 4 <sup>TH</sup>		Seme	ster: 8	3 <sup>тн</sup>									
	POS&	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	P012
	COS												
	CO1	1	1	1	1								
	CO2	٦	1	1	$\checkmark$	_							
	CO3	1	1	1	1	1			_			-	
	CO4	1	1	1	1	-			_			-	
	CO5	1	1	1	1								1
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Subject Cod	POS& COS	801E Seme	B ster: 8	8 <sup>TH</sup>					PO8	PO9		P011	P012
Subject Cod	POS& COS CO1	801E Seme <sup>P01</sup>	3 ster: 8 ₽02	8 <sup>TH</sup>					PO8	PO9	P010 √		P012
Subject Cod	POS& COS CO1 CO2	801E Seme P01 √ √	3 ster: { PO2 √	8 <sup>TH</sup>					P08	P09		P011	
Subject Cod	POS& COS CO1 CO2 CO3	801E Seme P01 √ √ √	3 ster: {	8 <sup>TH</sup>					P08	PO9			P012
Subject Cod	POS& COS CO1 CO2 CO3 CO4	801E Seme P01 √ √ √ √ √	3 ster: {	8 <sup>TH</sup>					P08	PO9		1	
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Name of the Subject: PROJECT STAGE II           Subject Code: EE 881           Year: 4 <sup>TH</sup> Semester: 8 <sup>TH</sup> POS&         PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         PO12           COS         V						1				+				+
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# CALCUTTA INSTITUTE OF ENGINEERING AND MANAGEMENT DEPARTMENT OF INFORMATION TECHNOLOGY ACADEMIC YEAR 2021-2022 CO PO MAPPING FOR ODD SEMESTER,2021

## **PROGRAM OUTCOMES**

#### **PO-1: Engineering Knowledge**:

Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

#### **PO-2: Problem Analysis:**

Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

#### PO-3: Design/development of solutions:

Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

#### **PO-4:** Conduct investigations of complex problems:

Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

#### **PO-5: Modern tool usage:**

Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

#### **PO-6:** The engineer and society:

Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

### PO-7: Environment and sustainability:

Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

#### **PO-8: Ethics:**

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

### PO-9: Individual and team work:

Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

#### **PO-10: Communication:**

Communicate effectively on complex engineering activities with the engineering community and with

society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

### **PO-11: Project management and finance:**

Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

#### **PO-12: Life-long learning:**

Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

COURSE NAME	Physics I
COURSE CODE	BS PH-101
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	1

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5		$\checkmark$										
CO6												

### **COURSE DETAILS**

COURSE NAME	Mathematics I(A)
COURSE CODE	BS-M(101)
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	1

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2												
CO3												

COURSE NAME	Basic Electrical Engineering
COURSE CODE	ES-EE101
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	1

# **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2	$\checkmark$											
CO3							$\checkmark$					

#### **COURSE DETAILS**

COURSE NAME	Physics – I Laboratory
COURSE CODE	BS PH-191
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	1

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$	$\checkmark$	$\checkmark$								
CO2												
CO3				$\checkmark$								
CO4		$\checkmark$		$\checkmark$								
CO5		$\checkmark$		$\checkmark$								

## **COURSE DETAILS**

COURSE NAME	Basic Electrical Engineering Laboratory
COURSE CODE	ES-EE191
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	1

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1						$\checkmark$						
CO2	$\checkmark$		$\checkmark$		$\checkmark$							
CO3	$\checkmark$											

COURSE NAME	Workshop/Manufacturing Practices
COURSE CODE	ES - ME 192
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	1

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$											
CO2												
CO3					$\checkmark$							
CO4												

## **COURSE DETAILS**

COURSE NAME	Analog & Digital Electronics
COURSE CODE	ESC301
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$											
CO2	$\checkmark$	$\checkmark$	$\checkmark$									
CO3			$\checkmark$									

COURSE NAME	Data Structure & Algorithm
COURSE CODE	PCC-CS301
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5												

## **COURSE DETAILS**

COURSE NAME	Computer Orgranization
COURSE CODE	PCC-CS302
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4					$\checkmark$							

COURSE NAME	Mathematics – III (Differential Calculus)
COURSE CODE	BSC-301
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5					$\checkmark$							

## **COURSE DETAILS**

COURSE NAME	Economics for Engineers (Humanities – II)
COURSE CODE	HSMC 301
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			$\checkmark$									
CO2		$\checkmark$										
CO3												

COURSE NAME	Analog & Digital Electronics Laboratory
COURSE CODE	ESC391
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			$\checkmark$									
CO2												
CO3												

#### **COURSE DETAILS**

COURSE NAME	Data Structures and Algorithms
COURSE CODE	PCC-CS391
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			$\checkmark$									
CO2			$\checkmark$									
CO3				$\checkmark$								

COURSE NAME	Computer Organisation
COURSE CODE	PCC CS-392
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												

# **COURSE DETAILS**

COURSE NAME	IT Workshop (SciLab/MATLAB/Python/R)
COURSE CODE	PCC-CS393
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	3

### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2		$\checkmark$	$\checkmark$						$\checkmark$			
CO3			$\checkmark$									
CO4	$\checkmark$	$\checkmark$	$\checkmark$									

### **COURSE DETAILS**

COURSE NAME	Software Engineering
COURSE CODE	ESC-501
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$		$\checkmark$									
CO2												
CO3					$\checkmark$							
CO4												
CO5												

COURSE NAME	Compiler Design
COURSE CODE	PCC-CS501
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$											
CO2					$\checkmark$							
CO3												
CO4												

COURSE NAME	Operating Systems
COURSE CODE	PCC-CS502
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2				$\checkmark$								
CO3												$\checkmark$
CO4				$\checkmark$								
CO5		$\checkmark$										$\checkmark$

### **COURSE DETAILS**

COURSE NAME	Object Oriented Programming
COURSE CODE	PCC-CS503
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2			$\checkmark$									
CO3		$\checkmark$										
CO4												

COURSE NAME	Introduction to Industrial Management (Humanities – III)
COURSE CODE	HSMC 501
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2		$\checkmark$	$\checkmark$									
CO3		$\checkmark$										

#### **COURSE DETAILS**

COURSE NAME	Artificial Intelligence
COURSE CODE	PEC-IT501B
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5												

COURSE NAME	Constitution of India
COURSE CODE	MC-CS501
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												

COURSE NAME	Software Engineering
COURSE CODE	ESC-591
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

# **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2												
CO3												
CO4		$\checkmark$										

# **COURSE DETAILS**

COURSE NAME	Operating Systems
COURSE CODE	PCC-CS592
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2			$\checkmark$									
CO3			$\checkmark$									
CO4			$\checkmark$									

COURSE NAME	Object Oriented Programming
COURSE CODE	PCC-CS593
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	5

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2					$\checkmark$							
CO3					$\checkmark$							

#### **COURSE DETAILS**

COURSE NAME	Cloud Computing
COURSE CODE	PEC-IT701C
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	7

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2		$\checkmark$										
CO3												
CO4												

COURSE NAME	Multimedia Technology
COURSE CODE	PEC-IT702A
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	7

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$	$\checkmark$										
CO2												
CO3												
CO4					$\checkmark$							

# **COURSE DETAILS**

COURSE NAME	Operation Research
COURSE CODE	OEC-IT701A
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	7

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2		$\checkmark$	$\checkmark$									
CO3		$\checkmark$	$\checkmark$									
CO4		$\checkmark$										$\checkmark$
CO5												

COURSE NAME	Project Management and Entrepreneurship
COURSE CODE	HSMC 701
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	7

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												

## **COURSE DETAILS**

COURSE NAME	Project - II
COURSE CODE	PROJ-IT 781
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	7

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3			$\checkmark$									
CO4												
CO5											$\checkmark$	
CO6										$\checkmark$	$\checkmark$	

# CALCUTTA INSTITUTE OF ENGINEERING AND MANAGEMENT DEPARTMENT OF INFORMATION TECHNOLOGY CO PO MAPPING FOR EVEN SEMESTER, 2022

### **PROGRAM OUTCOMES**

### **PO-1: Engineering Knowledge**:

Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

### **PO-2: Problem Analysis:**

Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

## PO-3: Design/development of solutions:

Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

### **PO-4: Conduct investigations of complex problems:**

Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

#### **PO-5: Modern tool usage:**

Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

## **PO-6: The engineer and society:**

Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

## PO-7: Environment and sustainability:

Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

## **PO-8: Ethics:**

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

## PO-9: Individual and team work:

Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

#### **PO-10: Communication:**

Communicate effectively on complex engineering activities with the engineering community and

with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

### **PO-11: Project management and finance:**

Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

### **PO-12: Life-long learning:**

Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

COURSE NAME	Chemistry - I
COURSE CODE	BS CH-201
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2	$\checkmark$											
CO3												
CO4	$\checkmark$											
CO5												

COURSE NAME	Mathematics – IIA
COURSE CODE	BS-M201
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												

#### **COURSE DETAILS**

COURSE NAME	Programming for Problem Solving
COURSE CODE	ES-CS201
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$	$\checkmark$									
CO2												
CO3												
CO4												

COURSE NAME	English
COURSE CODE	HM-HU201
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1										$\checkmark$		
CO2												
CO3		$\checkmark$										
CO4	$\checkmark$	$\checkmark$										

#### **COURSE DETAILS**

COURSE NAME	Chemistry – I Laboratory
COURSE CODE	BS CH-291
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3			$\checkmark$									
CO4												
CO5												

COURSE NAME	Programming for Problem Solving Laboratory
COURSE CODE	ES-CS291
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4		$\checkmark$										
CO5												
CO6												
CO7												
CO8												

#### **COURSE DETAILS**

COURSE NAME	Engineering Graphics & Design
COURSE CODE	ES-ME291
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4		$\checkmark$										

COURSE NAME	Language Laboratory
COURSE CODE	HM-HU291
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	2

### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3		$\checkmark$										
CO4		$\checkmark$										

# **COURSE DETAILS**

COURSE NAME	Discrete Mathematics
COURSE CODE	PCC-CS401
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2	$\checkmark$	$\checkmark$										
CO3												
CO4												
CO5					$\checkmark$							

COURSE NAME	Computer Architecture
COURSE CODE	PCC-CS402
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$							
CO2	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$							
CO3												

COURSE NAME	Formal Language and Automata Theory
COURSE CODE	PCC-CS403
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4				$\checkmark$								$\checkmark$

## **COURSE DETAILS**

COURSE NAME	Design & Analysis of Algorithms
COURSE CODE	PCC-CS404
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$	$\checkmark$										
CO2												
CO3												
CO4		$\checkmark$										
CO5												
CO6												
CO7												
CO8												

COURSE NAME	Biology
COURSE CODE	BSC 401
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		$\checkmark$										
CO2		$\checkmark$										
CO3		$\checkmark$										
CO4												
CO5		$\checkmark$										
CO6		$\checkmark$										

# **COURSE DETAILS**

COURSE NAME	Environmental Sciences
COURSE CODE	MC 401
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			$\checkmark$			$\checkmark$	$\checkmark$					
CO2			$\checkmark$			$\checkmark$	$\checkmark$					
CO3						$\checkmark$						
CO4												
CO5		$\checkmark$										
CO6												

COURSE NAME	Computer Architecture Lab
COURSE CODE	PCC-CS 492
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												

### **COURSE DETAILS**

COURSE NAME	Design and Analysis of Algorithms
COURSE CODE	PCC-CS494
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	4

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1				$\checkmark$								
CO2		$\checkmark$										
CO3												
CO4												
CO5		$\checkmark$										

#### **COURSE DETAILS**

COURSE NAME	Database Management Systems
COURSE CODE	PCC-CS601
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	$\checkmark$				$\checkmark$							
CO2												
CO3												
CO4		$\checkmark$										
CO5	$\checkmark$		$\checkmark$									
CO6												

COURSE NAME	Computer Networks
COURSE CODE	PCC-CS602
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4	$\checkmark$			$\checkmark$								

#### **COURSE DETAILS**

COURSE NAME	Image Processing
COURSE CODE	PEC-IT601D
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5												

COURSE NAME	Pattern Recognition
COURSE CODE	PEC-IT602D
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

#### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												
CO5												

### **COURSE DETAILS**

COURSE NAME	Human Resource Development And Organizational Behavior
COURSE CODE	OEC-IT601B
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3											$\checkmark$	
CO4												
CO5												
CO6												

COURSE NAME	Research Methodology
COURSE CODE	PROJ-CS601
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2				$\checkmark$								
CO3												
CO4												
CO5						$\checkmark$						
CO6												

# **COURSE DETAILS**

COURSE NAME	Database Management System
COURSE CODE	PCC-CS691
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1					$\checkmark$							
CO2					$\checkmark$							
CO3					$\checkmark$							
CO4					$\checkmark$							
CO5												

COURSE NAME	Computer Networks
COURSE CODE	PCC-CS692
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	6

### **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												

#### **COURSE DETAILS**

COURSE NAME	CRYPTOGRAPHY AND NETWORK SECURITY
COURSE CODE	PEC-IT801B
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	8

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2												
CO3												
CO4												

COURSE NAME	BIG DATA ANALYSIS
COURSE CODE	OEC-IT801A
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	8

## **CO-PO MAPPING**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1							$\checkmark$					
CO2							$\checkmark$					
CO3				$\checkmark$								
CO4				$\checkmark$								
CO5												

## **COURSE DETAILS**

COURSE NAME	ECOMMERCE & ERP
COURSE CODE	OEC-IT802A
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	8

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												
CO2					$\checkmark$							
CO3					$\checkmark$							
CO4				$\checkmark$								

COURSE NAME	PROJECT-III
COURSE CODE	PROJ CS 881
NAME OF THE PROGRAMME	B.Tech
DEPARTMENT	Information Technology
SEMESTER	8

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1					$\checkmark$							
CO2									$\checkmark$			
CO3												
CO4												
CO5									$\checkmark$	$\checkmark$		
CO6											$\checkmark$	

## CALCUTTA INSTITUTE OF ENGINEERING AND MANAGEMENT DEPARTMENT OF INFORMATION TECHNOLOGY CO ATTAINMENT REPORT <u>ODD SEMESTER 2021</u>

		FIRST SEMESTER	
PAPER CODE (Name)	CO No.	Course Outcomes	Attained (%)
	C01	Apply the knowledge of simple harmonic motion (ideal and real cases) and basic concepts of Mechanics for the solution of complex problems.	82
	CO2	Utilize the knowledge of vector calculus and different coordinate system for the solution of complex problems.	86
BS PH-101	CO3	Apply the knowledge of physical optics (interference, diffraction, polarization) and LASER to solve different complex problems	83
(Physics-1)	CO4	Apply the knowledge of dielectric and magnetic properties of materials to interpret different complex systems.	85
	CO5	Utilize the knowledge of Quantum Physics to analyze a complex engineering problem.	83
	CO6	Apply the knowledge statistical mechanics to solve complex problems.	84
			<u> </u>
BS-M(101)	CO1	To understand the concept and techniques of differential and integral calculus.	83
(Mathematics I(A))	CO2	To understand the domain of application of MVT,to engineers problem.	84
	CO3	To learn the concept of eigen values, eigen vectors, diagonalisation	85
			I
	CO 1	To understand and analyze basic electric and magnetic circuits.	93

	CO 2	To study the working principles of electrical machines and power converters.	94
ES-EE101 (Basic Electrical Engineering)	CO 3	To introduce the components of low voltage electrical installations.	95
		·	
BS PH-191 (Physics-I Laboratory)	CO1	Organize/design the experiment related to various systems and interpret the physical properties of material.	89
	CO2	Generate experimental Data related to electrical and magnetic properties.	93
	CO3	Conduct actual experiment related to optical phenomena.	92
	CO4	Analyze data and draw conclusion related to quantum physics.	91
	CO5	Analyze with proper experimental data and graphs and communicate effectively.	90
	CO1	Gather knowledge about the safety precautions and the do's-don'ts while dealing with electrical equipments.	94
	CO 2	Study about the different electrical instruments and devices through their input-output relationship.	95
ES-EE 191 (Basic Electrical Engineering Laboratory)	CO 3	Organize different electrical instruments like ammeter, voltmeter, wattmeter and different electrical devices like transformer, rheostat, etc. to observe the output through incandescent lamps.	96
	CO1	Utilize the concept of fitting shop and make typical jobs.	93
ES ME 192	CO2	Learn the basics of carpentry shop and utilize the concept to make typical jobs.	97

(Workshop /Manufacturing Practices)	CO3	Develop the concept of various machining processes and make use of Lathe, Shaping and Milling machine to construct typical jobs.	96
	CO4	Develop the concept of metal joining process and utilize the concept of welding to join to metal plates.	94

THIRD SEMESTER					
PAPER CODE (Name)	CO No.	Course Outcomes	Attained ( %)		
	CO1	Convert various number systems and apply logic gates, Boolean algebra and K-Map to design digital circuits.	94		
ESC301 (Analog & Digital Electronics)	CO2	Design the digital combinational circuits likes decoders,encoders,multiplexers and de- multiplexers, half adder, full adder and compare their performance to optimize production cost and also develop sequential digital circuits like flip- flop, register, counter to design memory device.	95		
	CO3	Design and analyse various amplifier circuit, multivibrators, ROM, RAM, FPGA,TTL,CMOS and ECL	96		
	CO1	Differentiate how the choices of data structure & algorithm methods impact the performance of program	91		
PCC-CS301	CO2	Solve problems based upon different data structure & also write programs	93		
(Data Structure & Algorithm)	CO3	Identify appropriate data structure & algorithmic methods in solving problem	95		
	CO4	Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing.	94		
	CO5	Compare and contrast the benefits of dynamic	92		

		and static data structures implementations	
	CO1	Analyze the relevance of classical and modern problems of computer design and construct machine code instructions.	92
PCC CS-302 (Computer	CO2	Design logical expressions and corresponding integrated logic circuits for a variety of problems including the basic components of a CPU such as adders, multiplexers, ALU using fixed-point and floating-point addition, subtraction, multiplication & division algorithm.	95
Organization)	CO3	Analyze hierarchical memory system including cache memories and virtual memory and Calculate their Cost, Speed and Capacity.	96
	CO4	Apply the knowledge of various micro- programmed instructions using the concept of pipelining for designing Control Unit and accessing I/O operation.	94
BSC-301 (Mathematics –	CO1	Express a logic sentence in terms of predicates, quantifiers, and logical connectives	75
III(Differential Calculus))	CO2	Apply the rules of interference and proof by contradiction, mathematical induction.	77
	CO3	Use tree and graph algorithm to solve the problems.	74
	CO4	Apply Boolean function ,and simplify expression	78
	CO5	To apply Boolean algebra to solve engineering problems	76
		1	
HSMC 301 (Economics for Engineers(Humani ties -II))	CO1	Student will able to analyze the economic decisions making, engineering costs & estimation and classification of costs by applying the knowledge of estimating models. Student will develop an understanding of cash flow, rate of return analysis in different socio-environmental	78

		situations.	
	CO2	Analysis of inflation and price change will be done to the students for their proper understanding of the price indexes in economic analysis. Effect of inflation & deflation is analyzed to them to remember and if required to apply in real-life scenarios.	79
	CO3	Illustration of types of property, depreciation and expenses and its impact on business, for better understanding of the business environment and apply the knowledge of it.	80
	CO1	Organize/design the experiment related to analog electronic circuit lab.	86
ESC391 (Analog & Digital Electronics )	CO2	Design the digital combinational circuits likes decoders, encoders, multiplexers and de- multiplexers, half adder, full adder and compare their performance to optimize production cost.	87
	CO3	Develop sequential digital circuits like Flip-Flop, Registers, and Counters to design memory devices.	88
	CO1	Apply the knowledge of linear data structure to implement Linked list, Stack, Queue, Array.	91
PCC-CS391 (Data Structure & Algorithms)	CO2	Apply the knowledge of nonlinear data structure to implement different types of tree.	92
	CO3	Implement different types of searching and sorting techniques in data structure.	93
PCC CS-392	CO1	Analyze the behaviour of logic gates	82
(Computer	CO2	Design combinational circuits for basic	83

Organisation)		components of computer system and applications.	
-	CO3	Design arithmetic circuit for computer system.	84
	CO4	Design Arithmetic logic units and different types of memory blocks.	85
	CO1	To master an understanding of scripting & the contributions of scripting languages	83
PCC-CS393 (IT Workshop (Sci Lab/ MATLAB/	CO2	Design real life problems and think creatively about solutions	86
Python/ R))	CO3	Apply a solution in a program using Python.	84
	CO4	To be exposed to advanced applications of mathematics, engineering and natural sciences to program real life problems.	87
<u> </u>		FIFTH SEMESTER	
	CO1	Understand basic SW engineering methods and practices, and their appropriate application.	88
	CO2	Understand u of software process models such as the waterfall and evolutionary models.	87
ESC-501 (Software Engineering)	CO3	Students will be able perform various life cycle activities like Analysis, Design, Implementation, Testing and Maintenance.	90
6 . 6,	CO4	Students will be able to know various processes used in all the phases of the product.	91
	CO5	Students can apply the knowledge, techniques, and skills in the development of a software product.	89
	CO1	Understand given grammar specification develop the lexical analyser	88
PCC-CS501	CO2	Design a given parser specification design top- down and bottom-up parsers	92
(Compiler Design)	CO3	Develop syntax directed translation schemes	91
	CO4	Develop algorithms to generate code for a target machine	89
	CO1	Analyse processes and threads.	95
PCC-CS502 (Operating Systems)	CO2	Develop algorithms for process scheduling for a given specification of CPU utilization, Throughput, Turnaround Time, Waiting Time, Response time.	93

	CO3	Formulate a given specification of memory organization develop the techniques for optimally allocating memory to processes by increasing memory utilization and for improving the access time. Design and implement file management system.	96
	CO4	Categorize a given I/O devices and OS (specify) develop the I/O management functions in OS as part of a uniform device abstraction by performing operations for synchronization between CPU and I/O controllers.	92
	CO1	Understand Abstract Data Types and their implementations using abstraction functions to document them.	93
PCC-CS503 (Object Oriented Programming)	CO2	Apply the features of object-oriented design to implement encapsulation, polymorphism, inheritance, and composition of systems based on object identity.	95
	CO3	Name and apply some common object-oriented design patterns and give examples of their use.	92
	CO4	Design applications with an event-driven graphical user interface.	96
	CO1	Student will able to analyze the organisation structure, organizational culture and climate by applying the knowledge of factors affecting them.	94
HSMC 501 (Introduction to Industrial Management	CO2	Analysis of determination of critical path on network will be done to the students for their proper understanding of determination of floats, material management, storekeeping- functions.	95
(Humanities – III))	CO3	Illustration of production planning and control, value analysis and its impact on business, for better understanding of the recent trends in IM and apply the knowledge of it.	96
PEC-IT501B	CO1	Apply the good programming skills to formulate the solutions for computational problems.	92
(Artificial Intelligence)	CO2	Design and develop solutions for informed and uninformed search problems in AI.	94

	CO3	Demonstrate and enrich knowledge to select and apply AI tools to synthesize information and develop models within constraints of application area.	95
	CO4	Develop a minor project in multidisciplinary areas to demonstrate team work through reports and presentation.	91
	CO5	To design and develop an Expert System that operates in a realistic problem domain and communicate effectively in a team or individual and prepare reports.	93
MC-CS501 (Constitution of India)	CO1	To be able to identify the fundamental rights and duties, Directive Principles of State Policy in the Constitution of India by assessing the functions of various governmental administrations (Centre & State) and the Election Commission	95
	CO1	To understand the software engineering methodologies involved in the phases for project development.	86
ESC-591 (Software Engineering)	CO2	To gain knowledge about open-source tools used for implementing software engineering methods.	88
Lingineering)	CO3	To exercise developing product-startups implementing software engineering methods.	89
	CO4	Learn simple optimization techniques.	85
PCC-CS592	CO1	Design and solve complex UNIX programs.	85
(Operating	CO2	Apply the knowledge of process and threads.	86
Systems)	CO3	Design and formulate inter process communication through programming.	87
PCC-CS593	CO1	Implement features of object-oriented design such as encapsulation, polymorphism, inheritance, abstraction.	89
(Object Oriented Programming)	CO2	Implementing multithreading concept in object oriented programming.	90
	CO3	Design applications with an event-driven graphical user interface.	91

		SEVENTH SEMESTER	
PEC-IT701C (Cloud Computing)	CO1	Explain the core concepts of the cloud computing paradigm, Cloud classification, Characteristics of Cloud Computing, different cloud models	
	CO2	Discuss concepts of Abstraction and Virtualization technologies, Load Balancing, Hypervisors, compare different service models	95
	CO3	Lifecycle management of cloud services, Concepts of Cloud Security	96
	CO4	Discuss basic concept of Service Oriented Architecture, Applications in the Cloud, Cloud- based Storage	93
PEC-IT702A (Multimedia Technology)	CO1	Apply the knowledge of the diverse functions of Multimedia systems and its related hardware and software for the solution of problem related to Information Technology.	78
	CO2	Apply the knowledge of text, audio, image and video file formats for enhancement of the text, audio, image and video with using text, audio, image and video processing tools for the solution of a complex problem related to text, audio, image and video in the field of Information Technology.	82
	CO3	Able to use various types of multimedia data         storage devices for storage & retrieval of         multimedia data.	81
	CO4	Design different types of multimedia applications like video-on-demand, video conferencing, digital libraries and other industrial applications.	79
OEC-IT701A (Operation Research)	CO1	Solve linear programming problems using appropriate techniques and optimization solvers, interpret the results obtained.	91

	CO2	Determine optimal strategy for Minimization of Cost of shipping of products from source to Destination/ Maximization of profits of shipping products using various methods, Finding initial basic feasible and optimal solution of the Transportation problems	95
	CO3	. Optimize the allocation of resources to Demand points in the best possible way using various techniques and minimize the cost or time of completion of number of jobs by number of persons	94
	CO4	Model competitive real-world phenomena using concepts from game theory. Analyse pure and mixed strategy games	93
	CO5	. Formulate Network models for service and manufacturing systems, and apply operations research techniques and algorithms to solve these Network problems	92
HSMC 701 (Project Management and Entrepreneurship)	CO1	Student will able to analyze the concept of innovation and entrepreneurship, contributions of entrepreneurs to the society, risk- opportunities perspective by applying the knowledge of factors affecting them.	90
	CO2	Analysis of project management, issues and problems in project management, project life cycle - initiation / conceptualization phase, determination of project feasibility studies will be done to the students for their proper understanding of social cost benefit analysis.	91
	CO3	Identification and illustration of the critical path and its significance, types of floats and slacks and its impact on business, for better understanding of the recent trends and apply the knowledge of it.	92
PROJ-IT 781	CO1	To survey the literature; Identify and classify the requirements for the solution of complex	81

(Project - II)		engineering problems.	
	CO2	To define the requirements of the project by proper analysis and interpretation of data and processes supported by standard documentation.	85
	CO3	To analyze the processes by mapping requirements in to Use case diagram(s)/ Data Flow Diagram(s)/ Algorithm(s)/ User-Interface design/ Entity Relationship Diagram(s) etc.	82
	CO4	To design behaviour of the application with modular programming and program flowchart/ class diagrams and sequence diagrams, etc.,following standard guidelines.	84
	CO5	To estimate project metrics like size, effort and cost, reliability and quality, etc and plan project development schedule using PART and GNATT charts.	87
	CO6	To justify the project work with technical documentation, presentation, and discussions as a group to share knowledge.	80

#### CALCUTTA INSTITUTE OF ENGINEERING AND MANAGEMENT DEPARTMENT OF INFORMATION TECHNOLOGY CO ATTAINMENT REPORT <u>EVEN SEMESTER 2022</u>

		SECOND SEMESTER			
PAPER CODE (Name)	CO No.	CO No. Course Outcomes			
	CO1	Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces to solve different engineering problems.	69		
	CO2	Rationalise bulk properties and processes using thermodynamic consideration for various engineering applications.	72		
	CO3	Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.	78		
BS CH-201 (CHEMISTRY- I)	CO4	Rationalise periodic properties (ionization potential, electro negativity, oxidation states) for various engineering applications.	81		
	CO5	Apply the knowledge of structure, stability and reactivity of organic molecular species in order to gain a clear insight into the mechanism of chemical and biochemical reacting systems used in various engineering problems.	82		
	CO1	To understand the concept of basic probability, including sample spaces, events, probability distribution, and conditional probability.	90		
BS-M201 (Mathematics-	CO2	Apply probability theory and statistical interference to solve engineering problems.	75		
IIA)	CO3	Use statistical software and tools to analyze the data.	70		
	CO4	Able to communicate their findings and results through written reports,and visual display	85		
	CO1	Design Algorithm, flow chart and program in C.			

ES-CS201			70
(PROGRAMMI NG FOR PROBLEM SOLVING)	CO2	Apply logical operators and loops in programming.	
			60
-	CO3	Construct arrays using the concept of C programming.	70
_			
	<b>CO4</b>	Analyze how to use arguments and return values and variables from a function.	65
-	CO5	Use pointers for direct memory access and manipulation in C; and how to change the memory address contained within a pointer;	70
	CO6	Apply the programming concepts for manipulating strings in C and file handling.	60
	CO1	To be able to <b>use</b> the correct vocabulary in order to express oneself in English properly	62
_	CO2	To be able to <b>identify</b> common errors in terms of grammar and choice of words in English	58
HM-HU201	CO3	To be able to <b>describe</b> , <b>discuss</b> , and <b>interpret</b> reading	75
(ENGLISH)	CO4	input in English         To be able to demonstrate that one can express         enceded in English through writing	75 64
		oneself in English through writing	04
		Organiza/Design the superiment related to Chamical	
	CO1	Organize/Design the experiment related to Chemical Science as applicable in various Engineering problems.	72
	CO2	Generate experimental Data related to Chemical Science as applicable in complex problems.	78
BS CH-291	CO3	Conduct actual experiment related to Chemical Science as applicable in different engineering application.	83
(CHEMISTRY-	CO4	Analyze data and draw conclusion related to Chemical	76

T		11	
I)		problems.	
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to Chemical Science as applicable in different engineering fields.	84
	CO1	To formulate the algorithms for simple problems	90
ES-CS291			
(PROGRAMMI NG FOR PROBLEM	CO2	To translate given algorithms to a working and correct program	00
SOLVING)			90
	CO3	To be able to correct syntax errors as reported by the compilers	80
	CO4	To be able to identify and correct logical errors encountered at run time	85
	CO5	To be able to write iterative as well as recursive programs	90
	CO6	To be able to represent data in arrays, strings and structures and manipulate them through a program	80
	CO7	To be able to declare pointers of different types and use them in defining self-referential structures.	75
	CO8	To be able to create, read and write to and from simple text files	80
	C01	Develop basic knowledge of engineering drawing including lettering, dimensioning and scaling system.	75
ES-ME291	CO2	Develop basic knowledge on geometrical constructions and curves and apply the knowledge to solve real life problems.	70
(Engineering		proceeding.	

Graphics &	CO3	Learn the basic concept of orthographic and isometric	65
Design)	000	projections related to design of engineering.	00
	CO4	Comprehend the basic knowledge of development of different types of surfaces and analyse their real-life applications.	65
	CO1	To be able to <b>describe, discuss</b> , and <b>interpret</b> the listening input in English	55
HM-HU291	CO2	To be able to <b>demonstrate</b> that one can express oneself in English through speaking	54
(LANGUAGE LABORATORY	CO3	To be able to <b>describe, discuss,</b> and <b>interpret</b> reading input in English	77
)	CO4	To be able to <b>demonstrate</b> that one can express oneself in English through writing	67
		FOURTH SEMESTER	
		Γ	A.(. • 1
PAPER CODE (Name)	CO No.	Course Outcomes	Attained (%)
	CO1	To understand the basic concept of set, relation, mapping	75
PCC-CS401	CO2	To understand the POSET, Lattice	80
(DISCRETE MATHEMATIC S)	CO3	To understand the basic concept of number theory.	75
	CO4	To understand graphs,cycle,trail,path	80
	CO5	To apply the graph colouring, chromatic number to solve engineering problems.	75
	CO1	To learn the basics of stored program concepts.	75
PCC-CS 402	CO2	To learn the principles of pipelining	85
(COMPUTER ARCHITECTU	CO3	To learn mechanism of data storage	80
RE)	CO4	To distinguish between the concepts of serial, parallel, pipeline architecture	70
	CO1	Familiarize with formal notation for strings, languages and machines and Design finite automata to accept a set of strings	70

		of a language.	
PCC-CS403	CO2	Design hierarchy of formal languages, grammars and machines and Determine whether the given language is regular or not	65
FORMAL LANGUAGE AND AUTOMATA THEORY	CO3	Design context free grammars to generate strings of context free language and Determine equivalence of languages accepted by Push Down Automata and languages generated by context free grammars	75
-	CO4	Distinguish between computability and non-computability and Decidability and undecidability	
			-
	C01	For a given algorithms analyse worst-case running times of algorithms based on asymptotic analysis and justify the correctness of algorithms.	85
	CO2	Describe the greedy paradigm and explain when an algorithmic design situation calls for it. For a given problem develop the greedy algorithms.	75
PCC-CS404 DESIGN & ANALYSIS ALGORITHM,	CO3	Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Synthesize divide- and-conquer algorithms. Derive and solve recurrence relation.	70
	CO4	Describe the dynamic-programming paradigm and explain when an algorithmic design situation calls for it. For a given problems of dynamic-programming.	80
-	CO5	Develop the dynamic programming algorithms, and analyse it to determine its computational complexity.	85
-	CO6	For a given model engineering problem model it using graph and write the corresponding algorithm to solve the problems.	70
-	CO7	Explain the ways to analyse randomized algorithms (expected running time, probability of error).	70
	CO8	Explain what an approximation algorithm is. Compute the approximation factor of an approximation algorithm (PTAS and FPTAS).	65
	C01	Describe how biological observations of 18th century lead to major discoveries and understand that the classification of organisms is based on morphological,	82%

		biochemi	cal or ecological parameters.	
	CO2	during the passage of genetic material from parent to offering.		
	CO3			
BSC 401	CO4	mechanis	enzymes and distinguish between different sms of enzyme action and identify DNA as a naterial in the molecular basis of information	83%
(BIOLOGY)	CO5	Analyse biological processes at the reductionistic level and apply thermodynamic principals to the biological systems.		75%
-	CO6	Identify a	and classify microorganisms.	79%
MC 401 (ENVIRONME	CO1		To apply the knowledge of air pollution in order to develop improved technologies to reduce the adverse effect of pollution on human health and environment.	80
NTAL SCIENCES)	CC	)2	To apply the knowledge of water pollution in order to develop improved technologies for controlling water pollution and provide safe and clean drinking water to the society.	82
	CC	)3	To apply the knowledge of solid waste management in order to develop technologies for reducing, reusing and recycling the waste for the benefit of the society.	84
	CC	)4	To apply the knowledge of ecology for understanding the complex interrelationships between the biotic and abiotic components in different types of eco systems in order to ensure sustainable development and growth.	80
	CC	)5	To identify and solve problems related to noise pollution and create awareness among people about its harmful effects and control measures.	88

	CO6	To foster greater community involvement and create social awareness about the important national and international legislations and protocols concerning the protection and conservation of environment.	89
	CO1	Practical experience on Xlinx	95
PCC-CS 492 (COMPUTER ARCHITECTU RE )	CO2	Analyze the operational behaviour and applications of various gates, sequential an combinational circuits.	85 Id
	CO1	Implement Divide and Conquer programmi method with different examples	ng 85
PCC-CS494 (DESIGN &	CO2	Demonstrate Brunch and Bound programmi method with different example	ing 70
ANALYSIS ALGORITHM) CO3		Execute Backtracking programming metho with different examples	od 70
	CO4	Demonstrate Greedy programming method with different examples	d 75
	CO5	Implement Graph Traversal Algorithm wit different examples	h 60
		SIXTH SEMESTER	
PAPER CODE (Name)	CO No.	Course Outcomes	Attained (%)
	CO1	Apply the knowledge of pure query language to write a query in relational algebra, relational	80

		calculus and construct the SQL queries for Open source and Commercial DBMS like MYSQL, ORACLE, and DB2.	
PCC-CS601 (DATABASE MANAGEMEN	CO2	Apply the knowledge of entity relationship models to design the database for a given requirement specification.	75
T SYSTEMS)	CO3	Apply the knowledge of query optimization algorithms to optimize the execution time of a query.	70
	CO4	Apply the knowledge of reducing anomalies during database design.	75
	CO5	Understand the transaction atomicity, consistency, isolation, durability for a given transaction-processing system and implement the isolation property based on concurrency control and serializability of scheduling.	70
	CO6	Understand different processes to secure the database.	65
	CO1	Illustrate of modern network architectures from a design and performance perspective.	70
PCC-CS602 (COMPUTER	CO2	Justify the major concepts involved in wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs).	1 70
NETWORKS) -	CO3	Derive Topologies for the enhancement of OSI/ TCI IP protocol suite.	P 75
PEC-IT601 D	C01	Explain the fundamentals of digital image and its processing.	70
(IMAGE PROCESSING)	CO2	Perform image enhancement techniques in spatial ar frequency domain.	nd 72
	CO3	Elucidate the mathematical modelling of image restoration and compression.	80
	<b>CO4</b>	Apply the concept of image segmentation.	60

	CO5 Describe object detection and recognition techniques.		es. 75		
	L				
		CO1	Ez	xplain and compare a variety of pattern classificati structural pattern recognition and pattern classifie combination techniques.	
PEC-IT602D (PATTERN	(	CO2	Summarize, analyze, and relate research in the pattern recognition area verbally and in writing.		ern 70
RECOGNITIO N)	(	CO3	A	pply performance evaluation methods for pattern a critique comparisons of techniques made in the research literature.	and 75
	(	CO4		Apply pattern recognition techniques to real-world problems such as document analysis and recognition	/0
	(	CO5		Implement simple pattern classifiers, classifier combinations and structural pattern recognizers.	60
	I				
		CO1		Critically assess existing theory and practice in the field of HRM.	75
OEC-IT601B (HUMAN RESOURCE		CO2		Develop an ability to undertake qualitative and quantitative research.	60
		CO3		Apply knowledge about qualitative and quantitative research to an independently constructed piece of work.	70
DEVELOPMEN AND	T	CO4		Respond positively to problems in unfamiliar contexts.	75
ORGANIZATION		CO5		Identify and apply new ideas, methods and way of thinking.	60
BEHAVIOR) CO6			Demonstrate competence in communicating and exchanging ideas in a group context.	60	
				ı	
		CO1		Understand research problem formulation.	78
		CO2		Analyze research related information	82
		CO3		Follow research ethics	67
		CO4		Understand that today's world is controlled by Computer, Information Technology, but	79

		tomorrow's world will be ruled by ideas,	
PROJ - CS601		concepts, and creativity.	
(RESEARCH METHODOLOGY)	CO5	Understanding that when IPR would take such an important place in the growth of individuals & nations, it is needless to emphasize the need for information about Intellectual Property rights to be promoted among students in general & engineering in particular.	75
	CO6	Understanding that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about economic growth and social benefits.	85
	1		
PCC-CS691 (DATABASE MANAGEMENT	CO1	Apply the knowledge of pure query language to write a query in relational algebra, relational calculus and construct the SQL queries for Open source and Commercial DBMS like MYSQL, ORACLE, and DB2	80
SYSTEMS)	CO2	Apply the knowledge of entity relationship models to design the database for a given requirement specification.	75
	CO3	Apply the knowledge of query optimization algorithms to optimize the execution time of a query.	70
	CO4	Apply the knowledge of reducing anomalies during database design.	75
	CO5	Understand the transaction atomicity, consistency, isolation, durability for a given transaction-processing system and implement the isolation property based on concurrency control and serializability of scheduling.	70
	CO6	Understand different processes to secure the database.	65
	CO1	Understand the structure and organization of	90

PCC-CS692 (COMPUTER		computer networks; including the division into network layers, role of each layer, and relationships between the layers, various network command, and network device.	
NETWORKS)	CO2	Understand IPAddressing, Subnetting.	90
	CO3	Understand of transport layer concepts and protocol design; including connection oriented and connection-less models, techniques to provide reliable data delivery and algorithms for congestion control and flow control.	90
	CO4	Understand of Application layer concepts and protocol design.	80

EIGHTH SEMESTER			
PAPER CODE (Name	) CO No	Course Outcomes	Attained (%)
	CO1	Analyze the security of different computer systems & networks	80
PEC-IT801B (CRYPTOGRAPHY AND NETWORK	CO2	Identify the appropriate cryptography scheme & security mechanism for different computing environment and information systems	80
SECURITY)	CO3	Identity security weaknesses in different networking environment	81
	CO4	Design & Evaluate the quality of algorithms to identify and investigate network security threats	85
OEC-IT801A	CO1	Describe big data and use cases from selected business domains	55
(BIG	CO2	Explain NoSQL big data management	50
DATA ANALYSIS)	CO3	Install, configure, and run Hadoop and HDFS	60
	CO4	Perform map-reduce analytics using Hadoop	55

	CO5	Use Hadoop related tools such as HBase, Cassandra, Pig, and Hive for big data analytics	50
	CO1	Analyze the impact of E-Commerce on business models like B2B, B2C, C2C & B2G and business strategies.	84
OEC-IT802A (ECOMMERCE &	CO2	Able to use Electronic Data Interchange for E- Business transactions (order, delivery, invoice).	65
ERP)	CO3	Apply the electronic payment systems like debit card, credit card, online fund transfer for E- Payments.	75
	CO4	Design E-Business applications like Internet Bookshop, Software Supplies & Support, Electronic Newspapers, Internet Banking, Virtual Auction, Gambling etc.	72
	CO1	To determine the software and hardware requirements from implementation perspective of Project-II	78
PROJ CS 881	CO2	To interpret the system design of project-I in to executable code(s) using modern programming languages to Build the system.	82
(PROJECT-			
III)	CO3	To test and validate the developed system following standards testing techniques.	81
	CO4	To adapt the management techniques to handle a project as a whole.	80
	CO5	To justify the project work with technical documentation, presentation, and discussions as a group to share knowledge.	82
	CO6	To determine all the system developments phases towards the completion of the Project and analyze/compare the result(s); evaluate and maximize system performances which contribute to lifelong	85

	learning.	
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#### 2020 odd semester

	СО	Attainment
Subject Code & Subject Name		
MB 101 Managerial Economics (Micro)	CO1:To explain and demonstrate the diff types of markets and their features – determination under different markets along other concepts like Law of Variable Propor and Returns to Scale, Producers equilibrium the help of Isoquants, Expansion path Elasticity of Substitution.	83%
	CO2: To acquire knowledge and develop ideas these concepts in detail and analyse the applicability in real life situations.	85%
MB 102 ORGANIZATIONAL BEHAVIOUR	CO1: The student will be able to evaluate and analyse the various facets of organisationbehaviour including personality, perception, and attitude and job satisfaction.	95%
	CO2: The student will be able to understand the various organisation theories and analyse group behaviour, conflict, change and leadership concepts.	85%
MB 103 Business Communication	CO 1 To demonstratecompetenceinverbalbusinesscom munication & "ProcessofCommunicationinanorganizatio n"	83%
	CO2 To demonstratecompetenceinthefundamentalsof business writing & willenablethestudentstoaugmenttheirreportw ritingskills	84%
	CO3 Itwillhelpthemtoidentifythe BarriersofCom munication and measures to overcome.	83%

	<b>CO4</b> It will enable them to apply the expertise to frame professional cover letter and professional resume.	82%
MB 104	CO1: Student will develop an understanding of different conditions & warranties, the passing of ownership rights by applying the knowledge of the Sale of goods Act and different types of negotiable instruments in different socio environmental situations.	79%
	CO2: Analysis of companies formation, memorandum, articles, and prospectus will be done to the students for their proper understanding of the Companies Act. Consumer protection act is analyzed to them for them to remember and if required to apply in real-life scenarios.Illustration of inflation and its impact on business, unfair trade practice for better understanding of the business	82%
MB 105	CO1 Students will be able to contemplate the ethical standards to be maintained in professional set ups.	85%
	CO2 Students will be able to analyze Indian values related to business enterprises and merge them with relevant global concepts	85%
	CO3 Students will be able to analyze Indian values related to business enterprises and merge them with relevant global concepts	85%
	CO4 Students will be able to emerge as successful Managers/ leaders and lead a bright life.	86%
MB 106	CO1 Understanding the concept of business or industry related operational problems and then applying the knowledge of Operations	65%

Research to solve those problems.	
CO2 Understanding the concept of	65%
Probability and Statistics to analyze	
the problems of Business processes.	

### 3<sup>rd</sup> Semester

Subject Code & Subject Name	СО	Attainment
MB 301 ENTREPRENEURSHIP & PROJECT MANAGEMENT	CO1 : Understand the concept of management, Organization, planning, Staffing and learn the Project evaluation, termination, and controlling process	72%
	CO2: To evaluate the role of entrepreneurs in economic development, and barriers, Identification of business opportunities, and feasibility studies.	69%

MB 302 Corporate Strategy	CO1To understand and apply the methods of environmental scanning, strategic planning techniques & formulation strategies for holistic strategic management in organization.	81%
	CO2 To analyze and evaluate the strategic actions, strategic implementation and evaluation strategies.	83%
HRM 301 TEAM DYNAMICS AT WORK	CO1: The student will be able to understand the meaning of group dynamics and evaluate the concepts and theories behind the group formations including the Schachter Study and its implications.	72%
	CO2: The student will be able to evaluate effective team building strategies and apply knowledge in solving contemporary issues related with teams in modern organisations	69%
HRM 304 Organizational Design	CO1: To apply organization theory for better understanding of organizational structure and design	83%
	CO2: To analyze different organizational models	82%

	for reshaping organizations.	
MM 302: Digital & Social Media Marketing	CO1: To explain the understanding of digital & social media marketing plan that will address common marketing challenges	81%
	CO2: Applying concepts, approaches & the practical aspects of various digital & social media marketing tools like SEO, Paid Search, Social, Mobile, Email & Display media & marketing analytics	81%
	CO3: Analyze key performance indicators tied to any digital & social Media program & Develop return on investment model for any digital & social marketing program	78%
	CO4: Apply creative ideas or evolve with	82%

	existing ideas for	
	development of	
	effective digital &	
	social marketing	
	communication	
MM 303 :Integrated Marketing	CO1: To explain	82%
Communication	the understanding	
	of essential	
	concepts &	
	techniques for the	
	development &	
	designing of an	
	effective IMC	
	program	
	CO2: Applying	82%
	concepts,	
	approaches & the	
	practical aspects of	
	various	
	communication	
	tools	
	CO3: Analyze	77%
	effectiveness of	///0
	different IMC tools	
	for business firms	
		0.20/
	CO4: Apply	82%
	creative ideas for	
	development of	
	effective	
	marketing	
	communication	
FM 302 Project Appraisal and Finance	CO1: To define the Pr	-
	life cycle, the role stakeholders and pr	
	management processes	
	to explain the concep	
	project specifica	
	financial projections, s	
	and team in Pr	
	management.	

	CO2: To describe and evaluate the risks involv in projects and associate costs as demonstrate the control and closure proc related to project management.	
FM 304 Corporate Finance	discuss the concepts & theories related to financial management.	77%
	CO2:To describe and apply the various theories, tools and techniques of Corporate Finance to resolve real life financial problems	75%

#### 2021 Even Semester

## 2<sup>ND</sup> Semester

Subject Code & Subject Name	СО	Attainment
MB 201 Indian Economy and Policy	CO1: To Explain and design concepts of circular flow, theo income determination, infla unemployment, LPG model, as as banking, trade policy monetary reforms.	
	CO2: To Develop ideas of the In Economy and grasp the importa of planning undertaken by the government of India.	00/0

MB 202 Financial Reporting, Statement and Analysis	CO1: To explain the understat of the concepts and apply the practical life like basic fina accounting concept, preparing b of accounts, introduction Accounting Standard, preparation financial statements and its anally CO2: To Summarize the fina	
	transactions in terms of Fina Statements and interpret Fina Statements by using diff financial tools and techniques.	
MB 203: Marketing Management	CO1: To identify & analyze the scope & significance of marketing in Domain Industry	80%
	CO2: To Analyze & examine marketing concepts & phenomenon to current business events in the industry	79%
	CO3: Map the various marketing environment variables & demonstrate them for designing marketing strategies for business firms	80%
	CO4: Demonstrate market analysis skill for developing innovative marketing strategies for firms	79%
MB 204 OPERATIONS MANAGEMENT	CO1 : To understand the suitable control technique in stores, Inventory, and vendor management is adopted for the production is identified.	78%

	CO2: To analyze the scheduling techniques applied in the operations were learned by the students	80%
MB 205 : MANAGEMENT INFORMATION SYSTEM	CO1 : To identify the technologies and methods used for effective decision-making in an organization	85%
	CO2:Make students understand the concepts and terminologies used in Database Management, Systems, SQL, Concurrency Management, and the extended part of data storage technology,Data Warehousing.	85%
MB 206 HUMAN RESOURCE MANAGEMENT	CO1: The student will be able to understand and apply the various concepts behind Human Resource Management and development including planning, Performance Appraisal Systems and strategic HR management	93%
	CO2: The student will be able to understand and apply the theories and strategic concepts behind compensation Management, Industrial Relations and discipline including workers participation in management.	93%

# 4<sup>th</sup> Semester

Subject Code & Subject Name	СО	Attainment
HR 401 MANPOWER PLANNING, RECRUITMENT& SELECTION	CO1: Student will be able to understand and analyze the various manpower planning mechanisms in an organization including forecasting techniques, management information systems and human resources audits.	82%

	CO2: Student will be able to apply and exercise various HRM implementation strategies including recruitment and solve case studies pertaining to real life organisational issues and situations.	74%
HR402Employee Relations &Labour Laws	CO1:To understand EPM,WPM ,concept of collective bargaining,trade unionism in India	84%
	CO2:To apply the various labour legislations in real life industrial scenario	79%
HR 404Performance Management System	CO1: To identify and apply performance planning ,monitoring, appraisal techniques & strategies for better performance management.	83%
	CO2: To understand balance scorecard, competency mapping for application in reward management, employee engagement and potential appraisal	82%
HR 406 INTERNATIONAL HRM	CO1: Student will be able to understand International human resources management and development including the recruitment processes of such	86%

	candidates.	
	CO2: The student will be able to remember and	77%
	apply legislative	
	measures meant for	
	industrial relations, HRM	
	,CSR and employee	
	representation in the	
	international sector and	
	create compensation	
	plans commensurate	
	with the same.	
MM 401	CO1:Analysis consumer	82%
	behaviour and its	
	Impact on marketing	
	strategies. Illustration of consumer decision	
	process.Studednts will	
	be understanding	
	demographic and	
	psychographic	
	characteristics and	
	market	
	segmentation.Analysis	
	of the relation	
	between consumer	
	perception with	
	marketing	
	stimuli.Students will	
	learn to apply the	
	knowledge of	
	consumer motivation	
	for marketing strategy	
	and its relation with	
	corporate social	
	responsibility.	
	CO2: Students will	84%
	develop the	
	understanding of	
	characteristics and	
	functions of attitude,	
	cross-cultural	
	understanding of	
	consumer behaviour	
	and data analysis for	

researches.Students will comprehend and write effective technical reports. They will be able to analyse case studies,explain relevant materials,communicate effectively, identify the appropriate key words,use grammatically correct English for documentation. MM 403: Sales & Distribution Management Management Management CO1: To explain the understanding of sales & distribution processes in Organization To get familiarized with concepts, approaches & the practical aspects of the key decision- making variables in sales management & distribution channel management CO3: To explain market analysis methods & selling concepts CO4: To develop Performance evaluation methods, ethics, trends in sales & distribution management		consumer feedback	
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sales & distribution management			
management		ethics, trends in	
		sales & distribution	
		management	
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	understanding of	
	types, nature,	
	classification &	
	marketing mix of	
	service marketing	
	CO2: Analyze	75%
	service product	
	concept, branding &	
	service positioning	
	that transforming	
	service marketing to	
	a great extent	
	CO3: To explain	78%
	market analysis	
	methods of service	
	marketing	
	CO4: Demonstrate	76%
	the role of	
	identifying the	
	people in service &	
	the role of customer	
	in service delivery	
MM 406: International Marketing	CO1: To explain the	77%
, S	understanding of	
	global business	
	activities, marketing	
	processes in	
	international	
	business	
	To get familiarized	75%
	with concepts,	
	approaches & the	
	practical aspects of	
	the key decision-	
	making variables &	
	global forces that	
	transforming	
	international	
	marketing	

	CO3: To develop general perspective about managing international marketing CO4: To develop evaluation methods for International Marketing both in operational as well	76% 78%
FM 401 Investment Analysis & Portfolio Management	as strategic context CO1To explain the understanding of the conce	77%
	and apply them like portfolio diversification, Construction, portfolio management, portfolio revi portfolio evaluation, portfolio protec and portfolio performance measures.	
	CO2To implement strategies to make an impact on the students in taking investment decisions, and properly manage the portfolio.	75%
FM402 Managing Banks & Financial Institutions	CO1To explain the understanding of the concep and apply them like banking industry models, b support mechanism, Basel committee I & II, interest ra risk management, liquidity management and credit risk management.	
	CO2 Evaluate and analyse the fundamentals & technical aspects of managing banks and financial institutions.	79%
FM405International Finance	CO1To explain the understanding of the concepts and apply them like international financial management,	75%

international monetary       System, balance of         payments, exchange rate       payments, exchange rate         determination and foreign       exchange market.         CO2Evaluate and analyse       72%         the fundamentals &       technical aspects of         International financial market.       76%         FM406 Financial Markets and Services       Co1To Discuss the Indian financial market.         Financial System and multiplicity of Financial Instruments and understand the Indian finan system, money market, secondary market, SEBI, m       76%         Co2E zamine Mutual Fund Merchant Banking under th nodal agency SEBI.       80%         Image: Secondary market, secondary second			1
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