CO-PO Attainment and Mapping (CSE Department) 2022-23

Course Details:

Course Name:	**Data Structure & Algorithm**
Course Code:	**PCC-CS301**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**3rd 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 & Algorithm		CO	Attainment
	CO1	To learn and apply the basics of abstract data types.	84%
	CO2	To learn and apply the principles of linear and nonlinear data structures.	85%
	CO3	To build an application using sorting and searching.	88%
	CO4	Design applications with the knowledge of computation and principles of data structures.	95%

CO-PO Mapping:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO 12
CO1		√	√									
CO2		√	√									
CO3			√		√							
CO4			√		√							

Course Details:

Course Name:	**Data Structure & Algorithm Lab**
Course Code:	**PCC-CS391**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**3rd 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 & algorithmsconcepts 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 & Algorithm Lab		CO	Attainment
	CO1	Design and develop programs using data structure & algorithm concepts.	86%
	CO2	Develop simple applications using linear and non-linear data structures & algorithms concepts and understand the access mechanisms and other use and functionalities.	87%
	CO3	Implement searching and sorting concepts.	88%
	CO4	Implement the concepts of graph and hashing	92%

CO-PO Mapping:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO12
CO1	√	√	√									
CO2	√	√										
CO3		√			√							
CO4		√			√							

Course Details:

Course Name:	**Computer Organization**
Course Code:	**PCC-CS302**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**3rd 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 Organization		CO	Attainment
	CO1	Understand basic structure of digital computer, stored program concept and different arithmetic and control unit operations.	84%
	CO2	Understand basic structure of different combinational circuits- multiplexer, decoder, encoder etc.	86%
	CO3	Perform different operations with sequential circuits.	87%
	CO4	Understand memory and I/O operations.	93%

CO-PO Mapping:

	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	**3rd 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 Organization Lab		CO	Attainment
	CO1	Understand basic structure of digital computer, stored program concept and different arithmetic and control unit operations.	84%
	CO2	Understand basic structure of different combinational circuits- multiplexer, decoder, encoder etc.	85%
	CO3	Perform different operations with sequential circuits.	87%
	CO4	Understand memory and I/O operations.	94%

CO-PO Mapping:

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

Course Details:

Course Name:	**Compiler Design**

Course Code:	**PCC-CS501**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**5th Semester**

COURSE OUTCOME:

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

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 andRun-Time Environments in designing a compiler.
CO5	Apply the knowledge of Intermediate Code Generation, Code Optimization and Code Generations in designing a compiler.

CO Attainment of Subjects

		CO	Attainment
Compiler Design PCC-CS501	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.	84%
	CO2	To understand the role of finite automata in compiler design.	85%
	CO3	To design and analyze algorithms for syntactic or parsing techniques and semantic analysis of the process of designing compilers.	86%
	CO4	Apply the knowledge of Type Checking and Run-Time Environments in designing a compiler.	87%
	CO5	Apply the knowledge of Intermediate Code Generation, Code Optimization and Code Generations in designing a compiler.	92%

CO-PO Mapping:

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

Course Details:

Course Name:	**Operating Systems**
Course Code:	**PCC-CS502**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**5th 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.

		CO	Attainment
Operating Systems	CO1	Understand processes and threads.	84%
	CO2	Design algorithms for process scheduling for a given specification of CPU utilization, Throughput, Turnaround Time, Waiting Time and Response Time.	85%
	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.	88%

CO-PO Mapping:

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

Course Details:

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

		CO	Attainment
Operating System Lab PCC-CS592	CO1	To Analyze different aspects of Linux.	85%
	CO2	To Create or design different scripts using shell programming.	86%
	CO3	To Create or design different scripts using shell programming.	87%
	CO4	Create shared memory with the implementation of reading from, write into shared memory.	90%

CO-PO Mapping:

	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	**5th 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.

CO Attainment of Subjects

		CO	Attainment
Object Oriented Programming	CO1	Specify simple abstract data types and design implementations, using abstraction functions to document them.	81%
	CO2	Recognize features of object-oriented design such as encapsulation, polymorphism, inheritance, and composition of systems based on object identity	84%
	CO3	Name and apply some common object-oriented design patterns and give examples of their use	88%
	CO4	Design applications with an event-driven graphical user interface.	93%

CO-PO Mapping:

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

Course Details:

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

Object Oriented Programming Lab **(PCC-CS593)**		CO	Attainment
	CO1	Design and develop java programs using object oriented programming concepts	84%
	CO2	Develop simple applications using object oriented concepts such as package, exceptions	87%
	CO3	Implement multi-threading, and generics concepts	90%
	CO4	Create GUIs and event driven programming applications for real world problems	95%

CO-PO Mapping:

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

Course Details:

Course Name:	**Software Engineering**
Course Code:	**ESC 501**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**5th Semester**

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.

CO Attainment of Subjects

		CO	Attainment
Software Engineering	CO1	Apply basic SW engineering methods and practices different models, and their appropriate application, SRS Document.	81%
	CO2	Design the role of project management including planning, scheduling, risk management, etc.	83%
	CO3	An understanding of software testing approaches such as unit testing and integration testing.	86%
	CO4	An understanding of software evolution and related issues such as version management.	87%

CO-PO Mapping:

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

Course Details:

Course Name:	**Economics for Engineers**
Course Code:	**HSMC301**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**3rd Semester**

COURSE OUTCOME:

	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.	83 %

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.	86%
	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.	89 %

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

Course Outcomes	ProgramOutcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		✓		✓								
CO2		✓		✓								
CO3							✓					✓

Course Details:

Course Name:	**Artificial Intelligence**
Course Code:	**PEC-IT501B**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**5th Semester**

Paper Code (Name)	CO Number	CourseOutcomes (CO)	ATTAINED
PEC-IT501B Artificial Intelligence	CO1	Apply the good programming skill to formulate the solutions for computational Problems.	84%
	CO2	Design and develop solutions for informed and uninformed search-problems in AI.	86%
	CO3	Understand and enrich knowledge to select and apply AI tools to synthesize information and develop models within constraints of application area.	94%

Mapping of Course Outcomes and Program Outcomes for the Artificial Intelligence

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

Course Details:

Course Name:	**Industrial Management**
Course Code:	**HSMC501**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**5th Semester**

Paper Code (Name)	CO Number	Course Outcomes (CO)	ATTAINED
HSMC501, Industrial Management	CO1	Analyze the concept of innovation And entrepreneurship, contributions of entrepreneurs to the society, risk Opportunities perspective by applying the knowledge of factors affecting them.	77%
	CO2	Analyze the project management issues, Find the problems in project life cycle.	87%
	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.	91%

MappingofCourseOutcomesandProgramOutcomesforthesubjectIndustrialManagement (HSMC501)

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

Course Details:

Course Name:	**Introduction to philosophical thoughts**
Course Code:	**PEC-IT501B**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**5th Semester**

Paper Code (Name)	**CO Number**	**Course Outcomes(CO)**	**ATTAINED**
PEC-IT501B Introduction to Philosophical thoughts	CO1	Identify the evaluation Of the history of philosophy.	77%
	CO2	Identify religious concepts, traditions, And historical practices Overtime and across cultures.	86%
	CO3	Analyze course-related Material to evaluate the Historical development Of contemporary issues.	87%

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

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

Course Details:

Course Name:	**Cloud Computing**
Course Code:	**PEC-CS701B**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**7th Semester**

Paper Code (Name)	**CO Number**	**Course Outcomes (CO)**	**ATTAINED**
PEC-CS701B Cloud Computing	CO1	Understand the fundamental principles of distributed Computing.	87%
	CO2	Understand the importance of Virtualization in Distributed computing And how this has enabled the development of Cloud Computing	88%
	CO3	Identify and define Technical challenges for Cloud applications and Assess their importance.	91%

Mapping of Course Outcomes and Program Outcomes for the subject Cloud Computing (PEC- CS701B)

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

Course Details:

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

Paper Code (Name)	**CO Number**	**Course Outcomes (CO)**	**ATTAINED**
PEC-CS702E Cyber Security	CO1	Recognize And analyze software vulnerabilities and security solutions to reduce the risk Of exploitation.	88%
	CO2	Design operational And strategic cyber Security strategies and policies.	89%
	CO3	Implement cyber Security solutions and use Of cyber security, information assurance, and cyber /computer Forensic software/tools.	91%

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

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

Course Details:

Course Name:	**Project Management and Entrepreneurship**
Course Code:	**HSMC701**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**7th Semester**

Paper Code(Name)	**CO Number**	**Course Outcomes(CO)**	**ATTAINED**
	CO1	Analyze the concept to innovation and entrepreneurship, contributions of entrepreneurs to the society, risk-opportunities perspective by applying the knowledge of factors affectingthem.	77%
HSMC701, Project Management and Entrepreneurship	CO2	Analyze the 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.	86%
	CO3	Identify and recognize the critical path and its significance, types of floatsand slacks and its impact on business, for better understanding of the recent trends and apply the knowledge of it.	89%

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

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

Course Name:	**Design and Analysis of Algorithms**
Course Code:	**PCC-CS404**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**4th 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 manipulationdifferent method.
CO4	To design the algorithm of string matching problem, matrix manipulation algorithm.
CO5	To understand amortize analysis, approximation algorithm, notion of NP-completeness.

CO Attainment of Subjects

		CO	Attainment
Design and Analysis of Algorithms (PCC-CS404)	**CO1**	To analyze and identify the Complexity of a problem and compute the recurrence relation.	83%
	CO2	To analyze the several algorithms design techniques on some certain problems using divide & conquer method, dynamic programming approach and	84%

		backtracking, greedy method.	
	CO3	To understand lower boundtheory, graph traversal algorithm, network flow, disjoint setmanipulation different method.	85%
	CO4	To design the algorithm of string matching problem, matrix manipulation algorithm.	86%
	CO5	To understand amortize analysis, approximation algorithm, notionof NP-completeness.	93%

CO-PO Mapping:

	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. Tech**
Department	**Computer Science Engineering**
Semester	**4th 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 Scienceand Engineering and related fields.
CO2	Design algorithm and implement C program using dynamic programming in Computer Science andEngineering and related fields.
CO3	Design algorithm and implement C program using branch and bound method in Computer Scienceand Engineering and related fields.
CO4	Design algorithm and implement C program using backtracking in Computer Science andEngineering and related fields.
CO5	Design algorithm and implement C program using greedy method in Computer Science andEngineering and related fields.
CO6	Design Graph Traversal Algorithm and implement C program in Computer Science and Engineeringand related fields.

CO Attainment

		CO	Attainment
Design and Analysis of Algorithm Lab (PCC-CS494)	**CO1**	Design algorithm and implement C program using divide and conquer approach in Computer Science and Engineering and related fields.	86%
	CO2	Design algorithm and implement C program using dynamic programming in Computer Science and Engineering and related fields.	87%
	CO3	Design algorithm and implement C program using branch and bound method in Computer Science and Engineering and related fields.	88%

	CO4	Design algorithm and implement C program using backtracking in Computer Science and Engineering and related fields.	90%
	CO5	Design algorithm and implement C program using greedy method in Computer Science and Engineering and related fields.	91%
	CO6	Design Graph Traversal Algorithm and implement C program in Computer Science and Engineering and related fields.	93%

CO-PO Mapping:

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

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

CO Attainment

		CO	Attainment
Computer Architecture (PCC-CS402)	**CO1**	Design pipelining concepts with aprior knowledge of stored program methods	83%
	CO2	Design about memory hierarchyand mapping techniques	85%
	CO3	Understand parallel architecture and interconnection network	93%

CO-PO Mapping:

	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	**4th 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

		CO	Attainment
Computer Architecture Lab (PCC-CS492)	**CO1**	Design pipelining concepts with a prior knowledge of stored program methods	85%
	CO2	Design about memory hierarchy and mapping techniques.	90%
	CO3	Understand of parallel architecture and interconnection network	93%

CO-PO Mapping:

	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	**4th 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 bycontext free grammars
CO6	Analyze the hierarchy of formal languages, grammars and machines.
CO7	Recognize between computability and non-computability and Decidability and undecidability.

CO Attainment

		CO	Attainment
Formal Language & Automata PC C-CS403)	**CO1**	Formulate a formal notation for strings, languages and machines.	**82%**
	CO2	Design finite automata to accept aset of strings of a language	**85%**
	CO3	For a given language understand whether the given language isregular or not.	**85%**
	CO4	Design context free grammars togenerate strings of context free language.	**86%**
	CO5	Understand equivalence of languages accepted by Push Down Automata and languages generated by context free grammars	**86%**
	CO6	Analyze the hierarchy of formallanguages, grammars and machines.	**88%**
	CO7	Recognize between computability and non-computability andDecidability and undecidability.	**88%**

Mapping of Course Outcomes and Program Outcomes for the subject **Formal Language & AutomataPCC-CS403**

Course Out comes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		✓										
CO2			✓	✓						✓		
CO3					✓		✓					
CO4			✓	✓						✓		
CO5					✓		✓					
CO6		✓										
CO7												✓

Course Details

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

Course Outcomes

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 developedexpressions.

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, anddurability.

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

CO Attainment

		CO	Attainment
DBMS	**CO1**	Analyze a given query using relational algebra expressions and SQL for that query and optimize the developed expressions.	85%
	CO2	Design a given specification of the requirement to design the databases.	86%
	CO3	Formulate a given transaction- processing system, determine the transaction, atomicity, consistency, isolation, and durability.	94%
	CO4	Implement the isolation property, including locking, time stamping based on concurrency control and Serializability of scheduling.	96%

CO – PO Mapping

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

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Course Details

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

		CO	Attainment
DBMS LAB	CO1	Understand HTML and Infer database language commands to create simple database.	83%
	CO2	Analyze the database usingqueries to retrieve records.	86%
	CO3	Applying PL/SQL for processing database.	91%
	CO4	Develop solutions using database concepts for real time requirements.	95%

CO – PO Mapping

Course Out comes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO 5	PO 6	PO7	PO8	PO9	PO1 0	PO1 1	PO12
CO1					✓		✓					
CO2		✓								✓		
CO3	✓				✓	✓					✓	
CO4							✓					

Course Details:

Course Name:	**Computer Networks**
Course Code:	**PCC-CS602**
Name of the Program:	**B.Tech**
Department	**Computer Science Engineering**
Semester	**6th 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 areanetworks (LANs) and Wireless LANs (WLANs)
CO3	To provide an opportunity to do network programming
CO4	To provide a WLAN measurement ideas.

CO Attainment

		CO	Attainment
Computer Networks(PCC-CS602)	CO1	To develop an understanding of modern network s from a designand performance perspective.	83%
	CO2	To introduce the student to the major concepts involved in wide- area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs)	86%
	CO3	To provide an opportunity to do network programming	88%
	CO4	To provide a WLAN measurement ideas.	93%

CO-PO Mapping:

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

Course Details:

Course Name:	Computer Networks Lab
Course Code:	PCC-CS692
Name of the Program:	**B.Tech**
Department	**Computer Science Engineering**
Semester	**6th Semester**

COURSEOUTCOMES

After completion of course, students would be able to:

1. Identify and use various networking components.
2. Analyze performance of various communication protocols.
3. Understandthetransportlayerconceptsandprotocoldesignincludingconnectionorientedandconnection-less models.
4. Implement device sharing on network.

CO Attainment of Subjects

Paper Code (Name)	CO Number	Course Outcomes (CO)	ATTAINED
Computer Networks Lab Code: PCC-CS692	CO1	Identify and understand of various networking components.	81%
	CO2	Analyze the performance of various communication protocols.	85%
	CO3	Understand the transport Layer concepts and Protocol design including Connection oriented and Connectionless models.	88%
	CO4	Implement device sharing On network.	93%

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

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO 4	PO5	PO6	PO 7	PO8	PO9	PO10	PO11	PO12
CO1		√					√					
CO2		√		√								
CO3							√					
CO4				√								

Course Details:

Course Name:	**Research Methodology**
Course Code:	**PROJ-CS601**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**6th Semester**

Paper Code (Name)	**CO Number**	**Course Outcomes (CO)**	**ATTAINED**
PROJ-CS601 Research Methodology	CO1	Identify and discuss the issues and concepts Salient to the research process.	81%
	CO2	Analysis of complexissues inherent in Selecting a Research problem, selecting an Appropriate research design, and implementing a Research project.	92%

	CO3	Understand, comprehend and Explain research Articles in their Academic discipline.	93%

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

Course Out comes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		✓										
CO2		✓		✓								
CO3							✓					

Course Name:	**Image Processing**
Course Code:	**PEC-IT601D**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**6th 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.

Paper Code (Name)	CO Number	Course Outcomes (CO)	ATTAINED
Image Processing (PEC-IT601D)	CO1	Review the fundamental concepts of a digital image processing system.	83%
	CO2	Analyze images in the spatial and frequency domain using various transforms.	85%
	CO3	Evaluate the techniques for image enhancement and image restoration.	93%
	CO4	Interpret image segmentation and representation techniques.	94%

CO-PO Mapping:

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

Course Details

Course Name:	Pattern Recognition
Course Code:	PEC-IT602D
Name of the Program:	B. Tech
Department	Computer Science Engineering
Semester	6th Semester

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 patternclassifier 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 inthe research literature.
CO4	Apply pattern recognition techniques to real-world problems such as document analysis andrecognition.
CO5	Implement simple pattern classifiers, classifier combinations and structural pattern recognizers.
CO6	Able to manipulate Bayes' Classifier and implement Decision Trees.

CO Attainment of Subjects

Pattern Recognition PEC-IT602D	**CO1**	**CO**	**Attainment**
		Understand and compare a variety of pattern classification, structural pattern recognition and pattern classifier combination techniques.	81%
	CO2	Summarize, analyze, and relate research in the pattern recognition area verbally and in writing.	83%
	CO3	Apply performance evaluation methods for pattern and critique comparisons of techniques made in the research literature.	84%
	CO4	Apply pattern recognition techniques to real-world problems such as document analysis and recognition.	85%
	CO5	Implement simple Pattern classifiers, classifier combinations and structural pattern recognizers.	86%

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 ResourceDevelopment andOrganizational Behavior**
Course Code:	**OEC-IT601B**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**6th Semester**

Paper Code (Name)	**CO Number**	**Course Outcomes (CO)**	**ATTAINED**
Human Resource Development and Organizational Behavior (OEC-IT601B)	CO1	Understand the organizational structures, the Features and principles of organization. Analysis of the theories of motivation, and Applying the knowledge in the organizational Level and in different socio-environmental Legal situations.	83%

	CO2	Understand and recognize different leadership in different social situations. Analysis of concept of Group Dynamic be done towards the students for their proper understanding and to apply in real-life scenarios.	85%
	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.	89%

Mapping of Course Outcomes and Program Outcomes for the subject Human Resource Development and Organizational Behavior (OEC-IT601B)

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

Course Details

Course Name:	**Cryptography & Network Security**
Course Code:	**CS 801D**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**8th Semester**

Cryptography & Network Security (CS801D)

Course Outcomes:

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

Cryptography & Network Security (CS801D)	**CO1**	**CO**	**Attainment**
		To be able to identify common network security vulnerabilities/attacks; explain the foundations ofCryptography and network security.	81%
	CO2	To be able to analyze the risks and threats to networked computers.	82%
	CO3	To be able to demonstrate detailed knowledge of the role of encryption to protect data.	84%
	CO4	To be able to analyze security issues arising from the use of certain types of technologies.	91%
	CO5	To be able to identify the appropriate procedures required to secure networks, system security testing and procedures of Backup and Recover.	93%

CO-PO Mapping:

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

Course Details:

Course Name:	**E-Commerce & ERP**
Course Code:	**OEC-CS802A**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**8th Semester**

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.

CO Attainment

		CO	Attainment
E-Commerce & ERPOEC-CS802A	**CO1**	To identify and differentiate various types of Ecommerce.	80%
	CO2	To define and understandE-business and its Models.	83%
	CO3	To apply appropriate techniques and resources of Hardware and Software Technologies for Ecommerce.	86%
	CO4	To understand the basic conceptsof ERP and identify different technologies used in ERP.	87%
	CO5	To apply different tools used in ER Diagram.	88%

CO-PO Mapping:

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

Course Details:

Course Name:	**Soft Skill &Interpersonal Communication**
Course Code:	**OEC-CS801E**
Name of the Program:	**B. Tech**
Department	**Computer Science Engineering**
Semester	**8th Semester**

Paper Code (Name)	**CO Number**	**Course Outcomes (CO)**	**ATTAINED**
OEC-CS801E, Soft Skill &Interpersonal Communication	CO1	Understand the importance of Behavioral aspects in the workplace	80%
	CO2	Recognize the conflict resolution skillsat work	83%
	CO3	Understand the importance of Communication skills in daily life And at work	87%

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							✓					
CO2												✓
CO3							✓					

Course Details:

Course Name:	**BIOLOGY**
Course Code:	**BSC-401**
Name of the Program:	**B.Tech**
Department	**Computer Science Engineering**
Semester	**8th Semester**

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 parameters.	83%

	CO2	Highlight the concepts ofexcessiveness and dominance during the passage of genetic material from parent to offspring.	85%
	CO3	Convey that all forms oflife have the same building blocks and yet the manifestations are diverse.	87%
	CO4	Classify enzymes and distinguish between different mechanisms of enzyme action and identify DNA as a geneticmaterial in the molecular basis of information transfer.	88%
	CO5	Analyze biological processes at the reductionist level andapply thermodynamic principals to the biological systems.	89%

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

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO 5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1					✓		✓					
CO2				✓			✓					✓
CO3		✓										✓
CO4												✓
CO5		✓										

2022-2023

Paper Code (Name)	COs	COURSE OUTCOMES(COs)	ATTAINED (%)
3RD SEMESTER			
EC301 (Electronic Devices)	**CO1**	Differentiate the conduction techniques in semiconductor materials	70%
	CO2	Analyze characteristics of semiconductor diodes, bipolar transistors, Mos-Transistors and solve problems.	70%
	CO3	Differentiate between different Opto-electronic devices	70%
EC302 (Digital System Design)	**CO1**	Convert various number system and apply logic gates, Boolean algebra and K-Map to design digital circuits.	71%
	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.	71%
	CO3	Illustrate the knowledge of ROM,RAM,PROM,PLD,FPGA,TTL,CMOS and ECL apply them to design VLSI system.	71%
EC303 (Signals & Systems)	**CO1**	Analyze different types of signals.	55%
	CO2	Represent continuous and discrete systems in time and frequency domain using different transforms.	55%
	CO3	Investigate whether the system is stable.	55%
	CO4	Sampling and reconstruction of a signal.	55%
EC304 Network Theory	**CO1**	**Apply** 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	70%
	CO2	**Apply** Laplace transform technique to **analyze** complex electrical circuits in s domain and solve for voltage & current values related to electronics & communication Engineering.	70%
	CO3	**Apply** 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.	70%
ES-CS301	**CO1**	Implementation of different data structures efficiently.	75%

Data Structure & Algorithm (ES)	**CO2**	Usage of well-organized data structures to handle large amount of data.	75%
	CO3	Usage of appropriate data structures for problem solving.	75%
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.	73%
	CO2	The basic ideas of statistics including measures of central tendency, correlation and	73%
	CO3	The statistical methods of studying data samples.	73%
EC391 Electronic Devices Lab.)	**CO1**	Organize/Design the experiment related to **Solid State Device Lab.**	81%
	CO2	Generate experimental Data related to **Solid State Device Lab.**	81%
	CO3	Conduct actual experiment related to **Solid State Device Lab.**	81%
	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 **Solid State Device Lab.**	81%
EC392 Digital System Design	**CO1**	Organize/Design the experiment related to **Digital System Design Lab.**	88%
	CO2	Generate experimental Data related to **Digital System Design Lab.**	88%
	CO3	Conduct actual experiment related to **Digital System Design Lab.**	88%
	CO4	Analyze data and draw conclusion related to **Digital System Design Lab.**	88%
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to **Digital System Design Lab.**	88%
ESCS391 Data Structure Lab	**CO1**	Design and develop programs using data structure & algorithm concepts.	81%
	CO2	Develop simple applications using linear and non-linear data structures & algorithms concepts and understand the access mechanisms and other use and functionalities.	81%
	CO3	Implement searching and sorting concepts for problem solving.	81%
	CO4	Implement the concepts of graph and hashing concepts for problem solving.	
4TH 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	72%
	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.	72%
	CO3	Analyze a stereo and a multiplexed system as applied to audio, analog or digital communication respectively.	72%
	CO4	Analyze noise parameters and compare signal to noise ratio for analog modulation techniques reaching substantiated conclusions on the performance of analog communication systems.	72%
EC402 Analog Electronic Circuits	**CO1**	Understand the characteristics of diodes and transistors and design and analyse various rectifier and amplifier circuit.	75%
	CO2	Understand the functioning of OP-AMP and design OP-AMP based circuits, Oscillators and multivibrators.	75%
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.	78%
	CO2	Students will be able to distinguish and analyze the properties of microcontroller	78%
ESCS401 Design and Analysis of Algorithm	**CO1**	To analyze and identify the Complexity of a problem and compute the recurrence relation.	75%
	CO2	To analyze the several algorithms design techniques on some certain problems using divide & conquer method, dynamic programming approach, backtracking, greedy method.	75%
	CO3	To understand lower bound theory, graph traversal algorithm, network flow, disjoint set manipulation different method.	75%
	CO4	To design the algorithm of string matching problem, matrix manipulation algorithm.	75%
	CO5	To understand amortize analysis, approximation algorithm, notion of NP-completeness.	75%

BS M401 Numerical Methods	**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.	75%
	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.	75%
	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++.	75%
	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.	75%
EC491 Analog Communication Lab	**CO1**	Organize/Design the experiment related to **Analog Communication Lab.**	85%
	CO2	Generate experimental Data related to **Analog Communication Lab.**	85%
	CO3	Conduct actual experiment related to **Analog Communication Lab.**	85%
	CO4	Analyze data and draw conclusion related to **Analog Communication Lab.**	85%
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to **Analog Communication Lab.**	85%
EC492 Analog Electronic Circuit	**CO1**	Organize/Design the experiment related to **Analog Electronic Circuit Lab.**	85%
	CO2	Generate experimental Data related to **Analog Electronic Circuit Lab.**	85%
	CO3	Conduct actual experiment related to **Analog Electronic Circuit Lab.**	85%
	CO4	Analyze data and draw conclusion related to **Analog Electronic Circuit Lab.**	85%
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to **Analog Electronic Circuit Lab.**	85%
EC493 Microprocessor & Microcontroller Lab	**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.	90%
	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	90%

	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.	90%
	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 Lab** based system in ECE.	90%
	CO5	Analyze with proper experimental data communicate effectively related to **Microprocessor and Microcontroller Lab.**	90%
BS-M(CS)491 Numerical Method Lab.	**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.	63%
	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.	63%
	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.	63%
	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.	63%
5TH SEMESTER			
EC501 **Electromagnetic Waves**	**CO1**	Understand the basic mathematical concepts related to electromagnetic vector fields.	70%
	CO2	Characterize uniform plane wave and calculate reflection and transmission of waves at media interface.	70%
	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.	70%
	CO4	Analyze wave propagation on metallic waveguides in modal form.	70%
	CO5	Understand principle of radiation and radiation characteristics of an antenna.	70%
EC502 Computer Architecture	**CO1**	learn how computers work and know basic principles of computer's Working procedure.	74%
	CO2	Analyze the performance of computers.	74%
	CO3	Know how computers are designed and built.	74%
	CO4	Understand issues affecting modern processors (caches, pipelines etc.)	74%

EC503 Digital Communication & Stochastic Process	**CO1**	Apply the fundamental knowledge of probability theory and random processes for the solution of complex engineering problems related to digital communication techniques.	64%
	CO2	Analyze signal and system parameters using the methods of vector algebra reaching substantiated conclusions on digital communication techniques.	64%
	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 Digital Signal Processing	**CO1**	Appling sampling theorem students can able to **construct/convert** continuous time signal/analog into digital sequence and gain the **knowledge** from time to frequency domain conversion like DTFT,DFT.	60%
	CO2	Student can able to **design** and **implement** 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.	60%
	CO3	They can able to **process** digital signals and can also **design** Digital system/Digital signal Processor by setting proper Algorithm onto FPGA and writing Assembly level program.	60%
PEEC505A Program Elective1 Nano Electronics	**CO1**	Understand various aspects of nano-technology and the processes involved in making nano components and material and appropriate use in solving practical problems	60%
	CO2	Appropriate use of different nano-technology for life-long learning.	60%
EC591 Electromagnetic Wave Lab	**CO1**	Understand the radiation pattern of dipole antenna	91%
	CO2	Understand the radiation pattern of Folded dipole antenna.	91%
	CO3	Understand the radiation pattern of 3 element yagi -uda antenna .	91%
	CO4	Analyze the beam width, gain and radiation pattern of a 3-element,5 element and 7 element yagi- uda antenna.	91%
	CO5	Evaluate the radiation characteristics of a Pyramidal horn antenna	91%
EC592 Digital Communication Lab	**CO1**	Apply the fundamental knowledge of probability theory and random processes for the solution of complex engineering problems related to digital communication techniques.	93%
	CO2	Analyze signal and system parameters using the methods of vector algebra reaching substantiated conclusions on digital communication techniques.	93%
	CO3	Design solution for baseband transmission techniques as applicable to digital communication	93%

	CO4	Design solution for digital carrier modulation techniques as applicable to electronics and Communication Engineering	93%
EC593 Digital Signal Processing Lab.	**CO1**	**Organize/Design** the experiment related to **Digital Signal Processing Lab.**	94.8%
	CO2	**Generate** experimental Data related to **Digital Signal Processing Lab.**	94.8%
	CO3	**Conduct** actual experiment related to **Digital Signal Processing Lab.**	94.6%
	CO4	**Analyze** data and draw conclusion related to **Digital Signal Processing Lab.**	94.9%
	CO5	**Analyze** with proper experimental data and graphs and communicate effectively related to **Digital Signal Processing Lab.**	94.8%
6TH SEMESTER			
EC601 Control System & Instrumentation	**CO1**	**Characterize** a system and find its steady state behavior.	72%
	CO2	**Investigate** stability of a system using different test related to control system.	72%
EC602 Computer Network	**CO1**	Familarization with the fundamental knowledge of data communication and networks and **apply** this knowledge to **investigate** the error in the communication network and **analyze** the errors using different error correcting codes.	74%
	CO2	**Analyze** the internetworking devices and **investigate** different addressing and subnetting protocols to **investigate** proper process to process delivery.	74%
PEEC603D Information Theory & Coding	**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.	70%
	CO2	Assess the fundamental coding theorem for encoding and decoding the information and develop the different techniques for construction of error correction codes .	70%
	CO3	Evaluate the rate and error probabilities in different coding techniques to implement the cost effective system.	70%
OEEC604C Object Oriented Programming	**CO1**	differentiate between structures oriented programming and object oriented programming.	70%
	CO2	use object oriented programming language like C++ and associated libraries to develop object orientedprograms.	70%
	CO3	understand and apply various object oriented features like inheritance, data abstraction, encapsulation andpolymorphism to solve various computing	70%

		problems using C++ language.	
	CO4	apply concepts of operator-overloading, constructors and destructors	70%
	CO5	apply exception handling and use built-in classes from STL.	70%
EC691 Control System & Instrumentation Lab.	**CO1**	**Characterize** a system and investigate stability of the system in time and frequency domain with different method related to **Control and Instrumentation Lab.**	90%
	CO2	**Design** various controllers related to **Control and Instrumentation Lab.**	90%
	CO3	**Conduct** experimental set up with CRO ,Instrumentation Amplifier knowing their functional details related to **Control and Instrumentation Lab.**	90%
	CO4	**Conduct** actual experiment related to **Control System and Instrumentation Lab.**	90%
	CO5	**Analyze** with proper experimental data and graphs and communicate effectively related to **Control System and Instrumentation Lab.**	90%
EC692 Computer Network Lab	**CO1**	Understand the basic concept related to NIC installation and configuration. Apply the knowledge of IPC message queue.	90%
	CO2	Remembering and understanding the networking cables, switches, hubs and connectors.	90%
	CO3	Understand multicast and broadcast socket and analyze TCP/UDP socket programming.	90%
	CO4	Applying the knowledge of socket programming, analyze prototype multithreaded server.	90%
	CO5	Understand the knowledge of data link layer flow control mechanism and apply this knowledge for the error control.	90%
EC681 Electronic Design Mini Project Lab	**CO1**	Formulation of a problem statement either from rigorous literature survey or from the requirements raised need to be analysed.	90%
	CO2	Design, implement and test the photo type/algorithm in order to solve the problem statement.	90%
	CO3	Write comprehensive report on Mini Project work.	90%
7TH SEMESTER			
EC701B Satellite Communication	**CO1**	Visualize the architecture of satellite systems as a means of high speed, high range communication system.	71%
	CO2	State various aspects related to satellite systems such as orbital equations, sub-systems in a satellite, link budget, modulation and multiple access schemes.	71%
	CO3	Solve numerical problems related to orbital motion and design of link budget for the given parameters and conditions.	71%
EC702C Neural Network and Fuzzy Logic Control	**CO1**	Analyze and classify neural networks and its implementation algorithms.	72%
	CO2	Apply suitable algorithms on different cases.	72%

	CO3	Apply fuzzy logic and neural networks.	72%
	CO4	Analyze the applications of Neural Network and Fuzzy logic in image processing.	72%
EC703A **Embeded System**	**CO1**	Understand the internal structure, purpose and application of Embedded system.	74%
	CO2	Apply the concept of Embedded firmware in design of Embedded System.	74%
OEEC704A **Web Technology**	**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.	73%
	CO2	demonstrate the ability to employ various types of selection statements and iteration statements in a Java program.	73%
	CO3	be able to leverage the object-oriented features of Java language using abstract class and interface.	73%
	CO4	be able to handle errors in the program using exception handling techniques of Java.	73%
	CO5	design applets as per the requirements with event handling facility.	73%
	CO3	Conduct actual experiment related to **VLSI Design Lab.**	73%
	CO4	Analyze data and draw conclusion related to **VLSI Design Lab.**	73%
	CO5	Analyze with proper experimental data and graphs and communicate effectively related to **VLSI Design Lab.**	73%
EC781 **Industrial Training & Project**	**CO1**	Apply knowledge(fundamental & specialized) to understand the real life problem in the related field.	**93%**
	CO2	Understand the design and implementation aspects of engineering system/components.	**93%**
	CO3	Work individually and also in a group.	**93%**
	CO4	Communicate the details of training through Training Report, Presentation and Viva-Voce.	**93%**
	CO5	Understand implication of engineering solutions in social and environmental perspective.	**93%**
EC782	**CO1**	Formulate the problem.	**92%**
	CO2	Develop or design a solution of the problem.	**92%**
	CO3	Build up project prototype or model in hardware or software.	**92%**

Project Stage 1	**CO4**	Analyze the experimental/collected data.	**92%**
	CO5	Do investigation/research in the problem area.	**92%**
	CO6	Apply fundamental and specialize knowledge in the area of the problem.	**92%**
	CO7	Self learn new methods, tools and techniques.	**92%**
	CO8	Apply modern tools and techniques.	**92%**
	CO9	Work individually and also in team.	**92%**
	CO10	Communicate the details and findings of the project through project report, presentation, Viva-Voce and paper presentation , if any.	**92%**
	CO11	Apply project management and economic knowledge	**92%**
	CO12	Identify implications of the project in society and environment.	**92%**
8TH SEMESTER			
PEEC 801B Fibre Optics Communication	**CO1**	**Learn** the properties of light in different medium and **utilize** the knowledge in different types of fibres for optical fibre communication system, and also the corresponding losses of each kinds of fibres.	**73%**
	CO2	**Learn** the working of all types of optical source and detectors for signal modulation and demodulation respectively.	**73%**
PEEC802C	**CO1**	Understand the practical situations where mixed signal analysis is required.	**74%**
	CO2	Analyze and handle the inter-conversions between signals.	**74%**
	CO3	Design systems involving mixed signals.	**74%**
OEEC804C	**CO1**	Understand the modern view of AI as the study of agents that receive precepts' from the environment and perform actions.	**75%**
	CO2	Demonstrate awareness of the major challenges facing AI and the complex of typical problems within the field.	**75%**
	CO3	Exhibit strong familiarity with a number of important AI techniques, including in particular search, knowledge representation, planning and constraint management.	**75%**
	CO4	Asses critically the techniques presented and to apply them to real world problems.	**75%**
EC881 Project II	**CO1**	Formulate the problem.	**93%**
	CO2	Develop or design a solution of the problem.	**93%**
	CO3	Build up project prototype or model in hardware or software.	**93%**

	CO4	Analyze the experimental/collected data.	**93%**
	CO5	Do investigation/research in the problem area.	**93%**
	CO6	Apply fundamental and specialize knowledge in the area of the problem.	**93%**
	CO7	Self learn new methods, tools and techniques.	**93%**
	CO8	Apply modern tools and techniques.	**93%**
	CO9	Work individually and also in team.	**93%**
	CO10	Communicate the details and findings of the project through project report, presentation, Viva-Voce and paper presentation , if any.	**93%**
	CO11	Apply project management and economic knowledge	**93%**
	CO12	Identify implications of the project in society and environment.	**93%**
EC882 **Grand Viva**	**CO1**	. Demonstrate the capability to formulate the problem.	**95%**
	CO2	Demonstrate the capability to develop or design a solution of the problem.	**95%**
	CO3	Demonstrate the capability to build up project prototype or model in hardware or software.	**95%**
	CO4	Demonstrate the capability to analyze the experimental/collected data.	**95%**
	CO5	Show the capability to demonstrate the research based knowledge	**95%**
	CO6	Demonstrate the capability to apply fundamental and specialize knowledge in the area of the problem.	**95%**
	CO7	Demonstrate the capability for self learning new methods, tools and techniques.	**95%**
	CO8	Demonstrate the capability to apply modern tools and techniques.	**95%**
	CO9	Demonstrate the capability to work individually and also in team.	**95%**
	CO10	Demonstrate the capability to communicate in details and present a topic related to Electronics & Communication Engineering.	**95%**

PO NO.	BROAD	ELABORATE
1	Engineering knowledge	engineering fundam
2	Problem analysis:	Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions usi
3	Design/development of	Design solutions for complex engineering problems and desig public health and safety, and cultural, societal, and environme
4	Conduct investigations of complex	Use research-based knowledge and research methods includ interpretation of data, and synthesis of the information to prov
5	Modern tool usage:	Create, select, and apply appropriate techniques, resources, a activities, with an understanding of the limitations.
6	The engineer and society:	Apply reasoning informed by the contextual knowledge to ass the professional engineering practice.
7	Environment and sustainability:	Understand the impact of the professional engineering solutio development.
8	Ethics:	Apply ethical principles and commit to professional ethics and
9	Individual and team work:	Function effectively as an individual, and as a member or lea
10	Communication:	Communicate effectively on complex engineering activities wi write effective reports and design documentation, make effect
11	Project management	Demonstrate knowledge and understanding of t h e engineer to manage projects and in multidisciplinary environments
12	Life-long learning:	Recognise the need for, and have the preparation and ability

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 s life problems faced in industries and/or during research work.

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

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

PSO4: Ability to identify and analyze the role of measurement, instrumentatic modern control engineering to enhance sustainability, reliability and efficiency electrical systems.
PSO5: Ability to demonstrate proficiency in operating and handling modern er tools to cop up with dynamic industrial environment.
PSO6: Ability to work and communicate effectively in the corporate life keepir responsible outlook towards socio-economic and environmental issues.

JRSE OUTCOMES

Nam

CO1	describe different type of networks, sources and signals with examples.
CO2	explain different network theorems, coupled circuit and tools for solution
CO3	apply network theorems and different tools to solve network problems.
CO4	select suitable techniques of network analysis for efficient solution.
CO5	estimate parameters of two-port networks.
CO6	design filter circuits.

Na

CO1	1. describe analog electronic components and analog electronics circuits
CO2	2. explain principle of operation of analog electronic components, filters,
CO3	3. compute parameters and operating points of analog electronic circuits.
CO4	4. determine response of analog electronic circuits.
CO5	5. distinguish different types amplifier and different types oscillators base
CO6	6. construct operational amplifier based circuits for different applications.

Name of

CO1	1. Relate different coordinate systems for efficient solution of electromag
CO2	2. describe mathematical s tools to solve electromagnetic problems.
CO3	3. explain laws applied to electromagnetic field.
CO4	4. apply mathematical tools and laws to solve electromagnetic problems.
CO5	5. analyze electromagnetic wave propagation
CO6	6. estimate transmission line parameters

Nam

Course	After completing this course, the students will be able to:
CO1	explain the co-ordinate system, principle of three dimensional rotation,kir
CO2	elaborate the theory of general motion, bending moment, torsional motio
CO3	develop free body diagram of different arrangements.

CO4	solve problems with the application of theories and principle of motion , fr
CO5	analyze torsional motion and bending moment.

N

CO1	explain basics of probability theories, rules, distribution and properties of
CO2	describe different methods of numerical analysis.
CO3	solve numerical problems based on probability theories , numerical analys
CO4	apply numerical methods to solve engineering problems.
CO5	5. solve engineering problems using z transform and probability theory.

Nam

Course	Upon completion of this course, students will be able to:
CO1	Describe with examples the biological observations lead to major discover
CO2	Explain the classification of kingdom of life the building blocks of life
CO3	Different techniques of bio physics used to study biological phenomena.
CO4	The role of imaging in the screening, diagnosis, staging, and treatments o
CO5	Identify DNA as a genetic material in the molecular basis of information t
CO6	Analyze biological processes at the reductionistic level.
CO7	Apply thermodynamic principles to biological systems.
CO8	Identify microorganisms..

Na

Course	After completing this course, the students will be able to:
CO1	Describe different features of Indian constitution.Power and functioning o
CO2	Identify authority to redress a problem in the profession and in the societ

Name o

Course	Up
CO1	Determine transient response of different electrical circuit, frequency res
CO2	Generate different signals in both discrete and analog form
CO3	Analyze amplitude and phase spectrum of different signals.
CO4	Verify network theorems.
CO5	Construct circuits with appropriate instruments and safety precautions.
CO5	Simulate electrical circuit experiments using suitable software.

Name

Course	Up
	At
CO1	Determine characteristics of full wave rectifier with filter and without filte
CO2	Verify function of DAC and ADC
CO3	Construct function generator using IC, R-C coupled amplifier,linear volta

CO4	Work in a team
CO5	Validate theoretical learning with practical Special Remarks: The above-m

Name

Course	Upon successful completion of the course, student will have:
CO1	Solve problems with Newton forward /backward, Lagrange's interpolatio
CO2	problems of numerical integration using Trapezoidal rule, Simpson's 1/3
CO3	rule, Weddle's rule problems to find numerical solution of a system of lin
CO4	Gauss elimination and Gauss-Seidel iterations. problems to find numerica
CO5	Ordinary differential equation by Euler's and Runga-Kutta methods.
CO6	Find appropriate numerical methods to solve engineering problems.
CO7	Use software package to solve numerical problems.

Na

Course	Up
CO1	Describe the function of different components of magnetic circuit, DC ma
CO2	Explain the principle of operation of different types of DC machines and tr
CO3	Solve numerical problems of DC machines and transformers.
CO4	Estimate the parameters and efficiency of transformer.
CO5	Determine the characteristics of DC machines
CO6	recommend methods to control output of DC machines.

Nam

Course	Up
CO1	Describe the function of different building blocks of digital electronics, ser
CO2	Explain the principle of operation of combinational and sequential digital c
CO3	Solve numerical problems of Boolean algebra, number system, combinati
CO4	Specify applications of combinational and sequential digital circuits.
CO5	Determine specifications of different digital circuits.
CO6	Design combinational and sequential digital circuits

Name of the S

Course	Up
CO1	Explain the terms accuracy, precision, resolution, speed of response, erro
CO2	Describe methods of measurement of power, energy by instruments and
CO3	Explain the principle of operation of analog meters, instrument transform
CO4	Explain the different building block, principle of operation of oscilloscope a
CO5	Solve numerical problems related to analog meters, instrument transform
CO6	Specify applications of analog and digital measuring instruments, sensors

Name o

Course	Upon successful completion of the course, student will have:

CO1	Describe the function of different components of boilers. Engines and turb
CO2	Explain the principle of operation of different types of boilers, turbines, IC
CO3	Solve numerical problems of boilers, turbines, IC engines and Gas turbine
CO4	Analyze the performance of boilers, engines and turbines.
CO5	Determine efficiency of boilers, engines and turbines.
CO6	Explain methods to control boiler, engines and turbines parameters.

Name of t

Course	Upon successful completion of the course, student will have:
CO1	1. Illustrate different aspects of human values, ethics, engineers' respons
CO2	2. Explain different principles, different theories and laws of engineering e
CO3	3. Identify different factors in the light of Engineers' responsibility toward
CO4	4. Correlate ethics of different work environment.
CO5	5. Explain the need for intellectual property rights.

Name

Course	Upon successful completion of the course, student will have:
CO1	Understand the natural environment and its relationships with human ac
CO2	Apply the fundamental knowledge of science and engineering to assess e
CO3	Develop guidelines and procedures for health and safety issues obeying th
CO4	Acquire skills for scientific problem-solving related to air, water, noise& la

Name of t

Course	Upon successful completion of the course, student will have:
CO1	Identify appropriate equipment and instruments for the experiment.
CO2	Test the instrument for application to the experiment.
CO3	Construct circuits with appropriate instruments and safety precautions
CO4	Validate different characteristics of DC machine , methods of speed contr
CO5	Work effectively in a team

Name of t

Course	Upon successful completion of the course, student will have:
CO1	Identify appropriate equipment and instruments for the experiment
CO2	2. Test the instruments for application to the experiment
CO3	3. Construct decoder , multiplexer, adder and subtractor circuits with app
CO4	4. Realize RS-JK and D flip flop, universal register with gates, multiplexer
CO5	5. Validate the operation of code conversion circuit –BCD to Excess 3 & vi
CO5	Work effectively in a team

Name of the Subjec

Course	Upon successful completion of the course, student will have:
	1. identify appropriate equipment and instruments for the experiment

	2. test the instrument for application to the experiment
	3. construct circuits with appropriate instruments and safety precautions
	4. evaluate and adjust the precision and accuracy of AC energy meter, m
	5. measure voltage, current, power, energy, phase , frequency, resistanc
	6. work effectively in a team

Name of the S

Course	Upon successful completion of the course, student will have:
CO1	Identify appropriate equipment and instruments for the experiment
CO2	Construct experimental setup with appropriate instruments and safety pr
CO3	Identify different parts of Lanchashire Boiler, Bahcock & Willcox Boiler, Co
CO4	Test 4 stroke petrol engine by electrical load box and diesel engine by ele
CO5	Find calorific value, flash point, fire point, cloud point, pour point of fuel.
C06	Work effectively in a team

Name of t

Course	On successful completion of the course the student will be able to:
	1. To understand the arrangement of windings of AC machines.
	2. To understand the principle of production of pulsating and revolving m
	3. To understand the principle of operation and characteristics of three ph
	4. To understand the principle of operation and characteristics of single p
	5. To understand the principle of operation and characteristics of synchro
	6. To understand the principle of operation and characteristics of special e
	7. To solve problems of Induction machines, synchronous machines and s

I

Course	After completion of this course the students will be able to:
CO1	To understand the basic principle of generation of Electricity from differen
CO2	To find parameters and characteristics of overhead transmission lines and
CO3	To find different parameters for the construction of overhead transmissio
CO4	To determine the performance of transmission lines.
CO5	To understand the principle tariff calculation.
CO6	To solve numerical problems on the topics studied.

N

Course	On completion of this course a student will be in a position to:
CO1	1. To find mathematical representation of LTI systems.
CO2	2. To find time response of LTI systems of different orders
CO3	3. To find the frequency response of LTI systems of different orders
CO4	4. To understand stabilityof differentLTI systems.
CO5	5. To analyze LTIsystems with state variables.
CO6	6. To solve problems of mathematical modelling and stability of LTI syste

Na

Course	On completion of this course a students will be able to
CO1	To understand the functioning and characteristics of power switching dev
CO2	To understand the principle of operation of converters.
CO3	To understand different triggering circuits and techniques of commutatior
CO4	To find external performance parameter of converters.
CO5	To analyze methods of voltage control, improvement of power factor and
CO6	To solve numerical problems of converters

Name of

Course	After completion of the course, the students will be able to:
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.
CO3	construct circuits with appropriate instruments and safety precautions.
CO4	validate different characteristics of single phase Induction motor, three ph
CO5	work effectively in a team

Name c

Course	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.
CO3	3. construct circuits with appropriate instruments and safety precautions.
CO4	4. validate different characteristics of transmission line.
CO5	5. determine earth resistance, dielectric strength of insulating oil, breakd
CO6	6. analyze an electrical transmission line circuit with the help of software
CO7	7. work effectively in a team

Name c

Course	After completion of this course the students will be able to
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.
CO3	construct circuits with appropriate instruments and safety precautions.
CO4	use MAT-Lab control system tool box, MAT-Lab- simulink tool box & PSPI
CO5	5. determinecontrol system specifications of first and second order syster

Name of

Course	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.
CO3	construct circuits with appropriate instruments and safety precautions

Name o

Course	On completion of this course a student will be in a position to:
CO1	differentiate how the choices of data structure & algorithm methods enha
CO2	solve problems based upon different data structure & also write programs
CO3	write programs based on different data structure
CO4	identify appropriate data structure & algorithmic methods in solving probl
CO5	discuss the computational efficiency of the principal algorithms for sortinc
CO6	comparethe benefits of dynamic and static data structures implementatio

Name of

Year: 3rd

Course	After completion of this course the students will be able to
CO1	specify simple abstract data types.
CO2	recognise features of object-oriented design such as encapsulation, polyn
CO3	inheritance, and composition of systems based on object identity.
CO4	apply common object-oriented design patterns
CO5	specify uses of common object oriented design patterns with examples.
CO6	design applications with an event-driven graphical user interface.

N

Course	After completion of the course, the students will be able to:
CO1	Represent power system components in line diagrams.
CO2	Determine the location of distribution substation.
CO3	Determine the performance of power system with the help of load flowv s
CO4	Analyse faults in Electrical systems.
CO5	Determine the stabilty of Power system.
CO6	Explain principle of operation of different power system protection equipn
CO7	Solve numerical problems related to representation, load flow, faults, stal

Name of th

Year: 3rd

Course	After completion of the course, the students will be able to
CO1	1. explain the architecture of 8086 and 8051.
CO2	2. do assembly language programming of 8086, 8051
CO3	3. interface different peripheral with 8086 and 8051
CO4	4. develop micro processor/ microcontroller based systems.
CO5	5. compare microprocessor, microcontroller, PIC and ARM processors

Nam

Course	On completion of this course a students will be able to
CO1	explain the principle of sampling and reconstrction of analog signal. syst
CO2	perform Z-transformation and inverse Z-tranaformation of systems.
CO3	analyse and design digital control
CO4	design compensators for digital control system to achieve desired specifi

CO5	represent digital control systems using state space models.
CO6	analyze the effect sampling on stability, controllability and observability

Na

Course	A
CO1	choose intelligently AC and DC transmission systems for the dedicated ap
CO2	identify the suitable two-level/multilevel configuration for high power cor
CO3	select the suitable protection method for various converter faults.
CO4	4. identify suitable reactive power compensation method.
CO5	5. decide the configuration for harmonic mitigation on both AC and DC sic
CO6	6. solve numerical problems related to converters, power flow analysis, re

Name

Course	After completion of this course the students will be able to
CO1	specify the rating of electrical machines with standard specifications.
CO2	explain the principles of electrical machine design and carry out basic des
CO3	3. determine the various factors which influence the design of electrical, r
CO4	4. explain the construction and performance characteristics of electrical m
CO5	5. use software tools to do design calculations.

Name of

Course	On completion of this course a students will be able to
CO1	explain the principle of Electric traction.
CO2	choose a suitable drive scheme for developing an electric hybrid vehicle d
CO3	design and develop basic schemes of electric vehicles and hybrid electric
CO4	choose proper energy storage systems for vehicle applications
CO5	implement different energy management strategies for hybrid vehicle.

Name

Course Outcomes	analyse uncompensated AC transmission line. explain the working principles of FACTS devices and their operating chara 3. apply FACTS devices for power flow control and stabilty. 4. identify different issues of power quality in distribution system. 5. apply different compensation and control techniques for DSTATCOM6.
Name of the Subject: INDUSTRIAL ELECTRICALSYSTEMS	
Subject Code: PE-EE-602C	
Year: 3rd	
Course Outcomes	1. Represent electrical wiring system for residential, commercial and indu 2. Determine the rating of components of residential and commercial elec 3. Design lighting scheme for a residential and commercial premises. 4. Select transformer, switchgear, protection equipments for industrial el 5. explain methods of automation of Industrial Electrical Systems 6. Solve numerical problems related to earthing system, lighting scheme,

Name of the Subject: DIGITAL SIGNALPROCESSING

Subject Code: PE-EE-601A

Year: 3rd

Course Outcomes	1. represent signals mathematically in continuous and discrete-time and i 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.

Name of the Subject: COMMUNICATION ENGINEERING

Subject Code: PE-EE-601B

Year: 3rd

Course Outcomes	1. compare the performance of AM, FM and PM schemes with reference to 2. explain noise as a random process and its effect on communication rec 3. evaluate the performance of ASK, FSK, PSK, BPSK, QPSK in a digital co 4. identify source coding and channel coding schemes for a given commu 5. analyze various digital modulation methods 6. compute band width requirement and probability of error in various dig

Name of the Subject: VLSI AND MICROELECTRONICS

Subject Code: PE-EE-603C

Year: 3rd

Course Outcomes	1. explain the principle of design of VLSI circuits 2. explain different MOS structure with characteristics 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 Subject: ECONOMICS FOR ENGINEERS

Subject Code: HM-EE-601

Year: 3rd

Course Outcomes	1. evaluate the economic theories, cost concepts and pricing policies 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, depreciа 5. analyze financial statements using ratio analysis 6. explain financial planning, economic basis for replacement, project sch

Name of the Subject: POWER SYSTEM-II LABORATORY

Subject Code: PC-EE 691

Year: 3rd

Course Outcomes	1. Identify appropriate equipment and instruments for the experiment. 2. Test the instrument for application to the experiment. 3. Construct circuits with appropriate instruments and safety precautions 4. Validate the characteristics of under voltage relay, over current relay, (5. Validate protection schemes of transformer, generator, motor and feed 7. work effectively in a team

Name of the Subject: MICRO PROCESSOR AND MICRO CONTROLLERLABORATORY

Subject Code: : PC-EE 692

Year: 3rd

Course	1. identify appropriate equipment and instruments for the experiment

Outcomes	2. test the instrument for application to the experiment 3. construct circuits with appropriate instruments and safety precautions 4. program 8086 for arithmatic operation, sorting of array, searching for 5. interface ADC/DAC, 8255, 8251 to 8086 and LCD, keyboard to 8051 6. program 8051 using arithmatic, logical and bit manipulation instructior 7. work effectively in a team

Name of the Subject: ELECTRICAL AND ELECTRONICS DESIGNLABORATORY

Subject Code: PC-EE 681

Year: 3rd

Course Outcomes	1. explain basic concept of measurement, noise in electronic system, sens 2. implement PC based data acquisition systems 3. construct circuits with appropriate instruments and safety precautions 4. design heating elements, air core grounding reactor, power distributior 5. do wiring and installation design of a multistoried residential building w 6. design electronic hardware for controller of lift, speed of AC/DC motor,

Name of the Subject: ELECTRIC DRIVE

Subject Code: PC-EE 701

Year: 4TH

Course Outcomes	1. Explain the principle of operation of Electric Drive. 2. Describe different methods of starting and braking of Electric Drive. 3. Model and control DC Drive 4. Control speed of Induction and Synchronous motors. 5. Recommend drives for different applications. 6. Estimate ratings, variables and parameters of Electric Drives.

Name of the Subject: CONTROL SYSTEM DESIGN

Subject Code: PE-EE 701 A

Year: 4TH

Course Outcomes	1. explain the effect of gain, addition of pole and zeros on system's perfor 2. describe time domain and frequency domain design specifications. 3. demonstrate the effect of nonlinearity on system performance. 4. design control system in time domain , in frequency domain and in sta 5. design PID controllers. 6. select appropriate method for design of control system.

Name of the Subject: ELECTRICAL ENERGY CONSERVATION& AUDITING

Subject Code: : PE-EE 701B

Year: 4TH

Course Outcomes	1. explain the basic of energy resources, energy security, energy conserv 2. quantify the energy conservation opportunities in different thermal sys 3. quantify the energy conservation opportunities in different electrical sy 4. identify the common energy conservation opportunities in different ene 5. explain the methods of energy management and audit. 6. analyse and report the outcome of energy audit

Name of the Subject: POWER GENERATION ECONOMICS

Subject Code: : PE-EE 701C

Year: 4TH

Course	1. explain the different terms e.g. load factor etc for economics of genera

Outcomes	2. apply different types of tariff for electricity pricing. 3. optimize the operation of power system with unit commitment. 4. determine generation levels such that the total cost of generation beco 5. determine the state of the system given by the voltage magnitudes an 6. predict the power or energy needed to balance the supply and load de

Name of the Subject: ARTIFICIAL INTELLIGENCE

Subject Code: OE-EE-701A

Year: 4TH

Course Outcomes	1. explain the concept of knowledge representation and predicate logic ar 2. describe state space and its searching strategies 3. demonstrate profciency in applying scientifc method to models of mach 4. apply the machine learning concepts in real life problems 5. demonstrate an ability to share in discussions of AI, its current scope a

Name of the Subject: INTERNET OF THINGS

Subject Code: OE-EE-701B

Year:4TH

Course Outcomes	1. explain the definition and usage of the term "Internet of Things" in diff 2. explain the key components that make up an IoT system. 3. differentiate between the levels of the IoT stack and be familiar with t 4. build and test a IoT system involving prototyping, programming and da 5. apply cloud computing and data analytics in a typical IoT system

Name of the Subject: COMPUTER GRAPHICS

Subject Code: OE-EE-701C

Year: 4TH

Course Outcomes	1. explain Computer graphics and graphic systems. 2. test and implement line drawing algorithm, circle and ellipse drawing a 3. Perform 2D and 3D transformation and viewing. 4. apply algorithms for visible surface determination. 5. explain colors and shading models and ray tracing.

Name of the Subject: EMBEDDED SYSTEM

Subject Code: OE-EE 702A

Year: 4TH

Course Outcomes	1. discuss the definition, purpose, application, classification , quality char 2. explain the internal structure of the Embedded system. 3. interface IO devices and other peripherals with micro controllers in Em 4. write programs for Micro controllers in Embedded systems. 5. apply the concept of Embedded firmware in design of Embedded syste

Name of the Subject: DIGITAL IMAGE PROCESSING

Subject Code: OE-EE 702B

Year: 4TH

Course Outcomes	1. explain the fundamental concepts of a digital image processing system 3. apply different image segmentation techniques. 4. categorize various compression techniques. 5. implement image process and analysis algorithms. 6. apply image processing algorithms in practical applications.

Name of the Subject: COMPUTER NETWORK

Subject Code: : OE-EE 702C

Year: 4TH

Course Outcomes	1. explain the concepts of data communication and networking. 2. identify the different types of network topologies and protocols. 3. describe the function of a network system with OSI and TCP/IP model. 4. differentiate different types of routing protocol. 5. apply principles of congestion control . 6. implement different schemes for security of the networks.

Name of the Subject: PRINCIPLE OF MANAGEMEENT

Subject Code: : HM-EE 701

Year: 4TH

Course Outcomes	1. explain the concepts and approaches of management. 2. demonstrate the roles, skills and functions of management. 3. diagnose and solve organizational problems. 4. identify the complexities associated with management of human resou 5. apply different methods of Customer, Operation and Technology mana 6. acquire skills of good leader in an organization.

Name of the Subject: ELECTRIC DRIVE LABORATORY

Subject Code: PC-EE 791

Year: 4TH

Course Outcomes	1. identify appropriate equipment and instruments for the experiment. 2. test the instrument for application to the experiment. 3. construct circuits with appropriate instruments and safety precautions. 4. apply different methods of control of Electric Drive in the laboratory. 5. analyse experimental data obtained in the laboratory. 6. work effectively in a team

Name of the Subject: UTILIZATION OF ELECTRIC POWER

Subject Code: : PC-EE 801

Year: 4TH

Course Outcomes	1. explain the fundamentals of illumination and different lighting schemes 3. able to select appropriate lighting, heating and welding techniques for 4. apply different electrolysis process for different applications. 5. explain the principle of different aspect of Electric traction and control

Name of the Subject: LINE COMMUTATED AND ACTIVE PWM RECTIFIERS

Subject Code: PE-EE 801A

Year: 4TH

Course Outcomes	1. explain the principle of operation of different converters. 2. suggest the application of different filters. 3. apply converters for different applications. 4. analyze converter circuits. 5. develop appropriate scheme for control of different converters. 6. solve numerical problems relating to different converters.

Name of the Subject: POWER SYSTEM DYNAMICS AND CONTROL

Subject Code: PE-EE 801B

Year: 4TH

Course Outcomes	1. explain the model of power system components 2. select the appropriate model for required analysis. 3. analyze the performance of the system with small signal analysis.

	4. evaluate the stability of the single and multi machine systems. 5. develop measures for enhancing the stability of the system. 6. Solve numerical problems of linear dynamical system, modeling of diffe
Name of the Subject: ADVANCED ELECTRIC DRIVE	
Subject Code: PE-EE 801C	
Year: 4TH	
Course Outcomes	1. explain the principle of operation of converters for AC drives. 2. model Induction and Synchronous motor by reference frame theory. 3. apply different control methods to control speed and torque of Inductic 4. explain the configurations and method of speed control of BLDC, PMSM 5. realize basic blocks for DSP based motion control. 6. develop appropriate scheme for speed control of Induction and Synchr
Name of the Subject: INDUSTRIAL AUTOMATION AND CONTROL	
Subject Code: : PE-EE 801D	
Year: 4TH	
Course Outcomes	1. explain the basic structure of industrial automation and control 2. classify different types of control actions of controllers. 3. analyze control strategies of different processes of industry. 4. illustrate the construction and use of different types of actuators and c 5. use PLC, DCS and SCADA in advanced industrial control.
Name of the Subject: SOFT COMPUTING TECHNIQUES	
Subject Code: OE-EE 801A	
Year: 4TH	
Course Outcomes	1. explain soft computing techniques and their roles in building intelligent 2. anlyse the feasibility of application of soft computing techniques for a p 3. effectively use existing software tools to solve real problems using a sc 4. evaluate solutions by various soft computing approaches for a given pr 5. apply different soft computing techniques to solve Engineering problem
Name of the Subject: BIOMEDICAL INSTRUMENTATION	
Subject Code: OE-EE 801B	
Year: 4TH	
Course Outcomes	1. describe the principle of medical transducers for temperature, pressure 2. explain the principle of operation of Biomedical recorders, Medical Ima 3. use different Medical laboratory equipments for different tests . 4. analyze any measurement application and suggest suitable measurem 5. suggest suitable imaging methodology for a specific ailment.
Name of the Subject: INTRODUCTION TO MACHINE LEARNING	
Subject Code: OE-EE 801C	
Year: 4TH	
Course Outcomes	1. explain the basics concepts and classification of Machine Learning . 2. write simple programs using python. 3. describe Supervised Learning concepts. 4. explain the concept of Support Vector Machine. 5. describe unsupervised learning concepts and dimensionality reduction 6. apply Machine Learning in a range of real-world applications .
Name of the Subject: SENSORS AND TRANSDUCERS	
Subject Code: OE-EE 801D	

Year: 4TH

Course Outcomes	1. explain the basic principle of operation of Transducers and Sensors. 2. distinguish different sensors and transducers. 3. identify suitable transducer by comparing different industrial standards 4. estimate the performance of different transducers. 5. design real life electronics and instrumentation measurement systems

PROGRAMME OUTCOMES (PO) BASED ON G.A.

		PO1	PO2	PO3	PO4
Course Outcomes	CO1	0.67	0.67	0.67	0.67
	CO2	0.67	0.67	0.67	0.67
	CO3	0.67	0.67	0.67	
	CO4	0.67	0.67	0.67	0.67
	CO5	0.67	0.67	0.67	
	CO6	0.67	0.67	0.67	0.67
Course Outcomes	CO1	0.66	0.66	0.66	0.66
	CO2	0.66	0.66	0.66	0.66
	CO3	0.66	0.66	0.66	
	CO4	0.66	0.66	0.66	0.66
	CO5	0.66	0.66	0.66	
	CO1	0.74	0.74	0.74	0.74
Course Outcomes	CO2	0.74	0.74	0.74	0.74
	CO3	0.74	0.74	0.74	0.74
	CO4	0.74	0.74	0.74	0.74
	CO5	0.74	0.74	0.74	0.74
	CO6	0.74	0.74	0.74	0.74

	CO1	0.77	0.77	0.77	0.77
Course Outcomes	CO2	0.77	0.77	0.77	0.77
	CO3	0.77	0.77	0.77	0.77
	CO4	0.77	0.77	0.77	0.77
	CO5	0.77	0.77	0.77	0.77
	CO1	0.78	0.78		0.78
	CO2	0.78	0.78		0.78
Course Outcomes	CO3	0.78	0.78		0.78
	CO4	0.78	0.78		0.78
	CO5	0.78	0.78		0.78
	CO6	0.78	0.78		0.78
	CO1	0.75			
	CO2	0.75			0.75
Course Outcomes	CO3	0.75			0.75
	CO4	0.75			0.75
	CO5	0.75			0.75
	CO6	0.75			0.75
	CO1	0.92			
	CO2				
Course Outcomes	CO1	0.9	0.9	0.9	0.9
	CO2	0.9	0.9	0.9	0.9
	CO3	0.9	0.9	0.9	
	CO4	0.9	0.9	0.9	0.9
	CO5	0.9	0.9	0.9	
	CO6	0.9	0.9	0.9	0.9
Course Outcomes	CO1	0.89	0.89	0.89	0.89
	CO2	0.89	0.89	0.89	0.89
	CO3	0.89	0.89	0.89	
	CO4	0.89	0.89	0.89	0.89
	CO5	0.89	0.89	0.89	
	CO1	0.84	0.84		0.84
Course Outcomes	CO2	0.84	0.84		0.84
	CO3	0.84	0.84		0.84
	CO4	0.84	0.84		0.84
	CO5	0.84	0.84		0.84
	CO6	0.84	0.84		0.84
	CO1	0.87	0.87	0.87	0.87
Course Outcomes	CO2	0.87	0.87	0.87	0.87
	CO3	0.87	0.87		
	CO4	0.87	0.87		
	CO5	0.87	0.87		
	CO6	0.87	0.87	0.87	0.87
	CO1	0.76	0.76	0.76	0.76
Course Outcomes	CO2	0.76	0.76	0.76	0.76
	CO3	0.76	0.76	0.76	
	CO4	0.76	0.76	0.76	
	CO5	0.76	0.76	0.76	0.76

	CO6	0.76	0.76	0.76	0.76
	CO1	0.72	0.72	0.72	0.72
Course Outcomes	CO2	0.72	0.72	0.72	
	CO3	0.72	0.72	0.72	
	CO4	0.72			
	CO5	0.72			0.72
	CO6	0.72	0.72	0.72	
	CO1	0.71	0.71	0.71	0.71
Course Outcomes	CO2	0.71	0.71		
	CO3	0.71	0.71	0.71	
	CO4	0.71			
	CO5	0.71			0.71
	CO6	0.71	0.71	0.71	0.71
	CO1	0.88	0.88	0.88	0.88
Course Outcomes	CO2	0.88	0.88	0.88	
	CO3	0.88	0.88	0.88	
	CO4	0.88			
	CO5	0.88			0.88
	CO6	0.88	0.88	0.88	0.88
	CO1	0.95	0.95	0.95	0.95
Course Outcomes	CO2	0.95	0.95	0.95	
	CO3	0.95	0.95	0.95	
	CO4	0.95			
	CO5	0.95			0.95
	CO6	0.95	0.95	0.95	0.95
	CO1	0.76	0.76	0.76	0.76
Course Outcomes	CO2	0.76	0.76		
	CO3	0.76	0.76	0.76	
	CO4	0.76			
	CO5	0.76			0.76
	CO6	0.76	0.76	0.76	0.76
	CO1	0.92	0.92	0.92	0.92
Course Outcomes	CO2	0.92	0.92	0.92	
	CO3	0.92	0.92	0.92	
	CO4	0.92			
	CO5	0.92			0.92
	CO6	0.92	0.92	0.92	0.92
	CO1	0.91	0.91	0.91	0.91
Course Outcomes	CO2	0.91	0.91	0.91	
	CO3	0.91	0.91	0.91	
	CO4	0.91			
	CO5	0.91			0.91
	CO6	0.91	0.91	0.91	0.91
	CO1	0.87	0.87	0.87	0.87
Course Outcomes	CO2	0.87	0.87	0.87	
	CO3	0.87	0.87	0.87	
	CO4	0.87			

	CO5	0.87			0.87
	CO6	0.87	0.87	0.87	0.87
	CO1	0.67	0.67	0.67	
Course Outcomes	CO2	0.67			0.67
	CO3	0.67			0.67
	CO4				0.67
	CO5		0.67	0.67	
	CO6	0.67	0.67	0.67	
	CO1	0.84	0.84	0.84	
Course Outcomes	CO2	0.84			0.84
	CO3	0.84			0.84
	CO4				0.84
	CO5		0.84	0.84	
	CO6	0.84	0.84	0.84	
	CO1	0.71	0.71	0.71	
Course Outcomes	CO2	0.71			0.71
	CO3	0.71			0.71
	CO4				0.71
	CO5		0.71	0.71	
	CO6	0.71	0.71	0.71	
	CO1	0.92	0.92	0.92	
Course Outcomes	CO2	0.92			0.92
	CO3	0.92			0.92
	CO4				0.92
	CO5		0.92	0.92	
	CO6	0.92	0.92	0.92	
	CO1	0.63	0.63	0.63	
Course Outcomes	CO2	0.63			0.63
	CO3	0.63			0.63
	CO4				0.63
	CO5		0.63	0.63	
	CO6	0.63	0.63	0.63	
	CO1	0.87	0.87	0.87	
Course Outcomes	CO2	0.87			0.87
	CO3	0.87			0.87
	CO4				0.87
	CO5		0.87	0.87	
	CO6	0.87	0.87	0.87	
	CO1	0.68	0.68	0.68	
Course Outcomes	CO2	0.68			
	CO3	0.68			
	CO4				
	CO5		0.68	0.68	
	CO6	0.68	0.68	0.68	
	CO1	0.83	0.83	0.83	
Course Outcomes	CO2	0.83			
	CO3	0.83			

	CO4				
	CO5		0.83	0.83	
	CO6	0.83	0.83	0.83	
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1		0.83	0.83	0.83
Course Outcomes	CO2	0.83	0.83		
	CO3	0.83	0.83		
	CO4	0.83			
	CO5	0.83		0.83	0.83
	CO6	0.83	0.83	0.83	0.83
	CO1	0.71	0.71	0.71	0.71
Course Outcomes	CO2	0.71	0.71		
	CO3	0.71	0.71		
	CO4	0.71			
	CO5	0.71		0.71	0.71
	CO6	0.71	0.71	0.71	0.71
	CO1	0.68	0.68	0.68	0.68
Course Outcomes	CO2	0.68	0.68		
	CO3	0.68	0.68		
	CO4	0.68			
	CO5	0.68		0.68	0.68
	CO6	0.68	0.68	0.68	0.68
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	0.73	0.73	0.73	0.73
Course Outcomes	CO2	0.73	0.73		
	CO3	0.73	0.73		
	CO4	0.73			
	CO5	0.73		0.73	0.73
	CO6	0.73	0.73	0.73	0.73
	CO1	0.89	0.89	0.89	0.89
Course Outcomes	CO2	0.89	0.89		
	CO3	0.89	0.89		
	CO4	0.89			
	CO5	0.89		0.89	0.89
	CO6	0.89	0.89	0.89	0.89
	CO1	0.65	0.65	0.65	0.65
Course	CO2	0.65	0.65		

Outcomes	CO3	0.65	0.65		
	CO4	0.65	0.65		
	CO5	0.65	0.65	0.65	0.65
	CO6	0.65	0.65	0.65	0.65
	CO1	0.89	0.89	0.89	0.89
Course Outcomes	CO2	0.89	0.89		
	CO3	0.89	0.89		
	CO4	0.89	0.89		
	CO5	0.89	0.89	0.89	0.89
	CO6	0.89	0.89	0.89	0.89
	CO1	0.92	0.92	0.92	0.92
Course Outcomes	CO2	0.92	0.92		
	CO3	0.92	0.92		
	CO4	0.92	0.92		
	CO5	0.92	0.92	0.92	0.92
	CO6	0.92	0.92	0.92	0.92
	CO1	0.68	0.68	0.68	0.68
Course Outcomes	CO2	0.68			0.68
	CO3	0.68			0.68
	CO4	0.68			0.68
	CO5	0.68	0.68	0.68	0.68
	CO6	0.68	0.68	0.68	0.68
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	0.9	0.9	0.9	0.9
Course Outcomes	CO2	0.9	0.9	0.9	0.9
	CO3	0.9	0.9		
	CO4	0.9	0.9		
	CO5	0.9	0.9	0.9	0.9
	CO6	0.9	0.9	0.9	0.9
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	0.87	0.87	0.87	0.87

Course Outcomes	CO2	0.87	0.87	0.87	0.87
	CO3	0.87			0.87
	CO4	0.87	0.87	0.87	0.87
	CO5	0.87			
	CO6	0.87	0.87	0.87	0.87
	CO1	0.86	0.86	0.86	0.86
Course Outcomes	CO2	0.86	0.86	0.86	0.86
	CO3	0.86	0.86	0.86	0.86
	CO4	0.86	0.86		0.86
	CO5	0.86	0.86		0.86
	CO6	0.86	0.86		0.86
	CO1	0.83	0.83	0.83	0.83
Course Outcomes	CO2	0.83	0.83		
	CO3	0.83			
	CO4	0.83	0.83	0.83	0.83
	CO5	0.83	0.83	0.83	
	CO6	0.83	0.83	0.83	
	CO1	0.92	0.92	0.92	0.92
Course Outcomes	CO2	0.92	0.92		
	CO3	0.92			
	CO4	0.92	0.92	0.92	0.92
	CO5	0.92	0.92	0.92	
	CO6	0.92	0.92	0.92	
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	0.82	0.82	0.82	
Course Outcomes	CO2	0.82	0.82	0.82	
	CO3	0.82	0.82	0.82	
	CO4	0.82	0.82	0.82	
	CO5	0.82	0.82	0.82	
	CO6	0.82	0.82	0.82	
	CO1	0.84	0.84	0.84	0.84
Course Outcomes	CO2	0.84	0.84	0.84	0.84
	CO3	0.84			
	CO4	0.84			
	CO5	0.84	0.84	0.84	0.84
	CO6	0.84	0.84	0.84	0.84

	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	0.82	0.82		
Course Outcomes	CO2	0.82	0.82	0.82	
	CO3	0.82	0.82	0.82	
	CO4	0.82	0.82	0.82	
	CO5	0.82	0.82	0.82	0.82
	CO6	0.82	0.82	0.82	0.82
	CO1	0.86	0.86		
Course Outcomes	CO2	0.86	0.86		
	CO3	0.86	0.86		
	CO4	0.86	0.86		
	CO5	0.86	0.86		
	CO6	0.86	0.86		
	CO1	0.91	0.91	0.91	0.91
Course Outcomes	CO2	0.91	0.91	0.91	0.91
	CO3	0.91	0.91	0.91	0.91
	CO4	0.91	0.91	0.91	0.91
	CO5	0.91	0.91	0.91	
	CO6	0.91	0.91	0.91	0.91
	CO1	0.92	0.92	0.92	0.92
Course Outcomes	CO2	0.92	0.92	0.92	0.92
	CO3	0.92	0.92	0.92	0.92
	CO4	0.92	0.92	0.92	0.92
	CO5	0.92	0.92	0.92	0.92

	CO6	0.92	0.92	0.92	0.92
	CO1	0.86	0.86		
Course Outcomes	CO2	0.86	0.86		
	CO3	0.86	0.86		
	CO4	0.86	0.86		
	CO5	0.86	0.86		
	CO6	0.86	0.86		
	CO1	0.87	0.87	0.87	0.87
Course Outcomes	CO2	0.87	0.87	0.87	0.87
	CO3	0.87	0.87	0.87	0.87
	CO4	0.87	0.87	0.87	0.87
	CO5	0.87	0.87	0.87	0.87
	CO6	0.87	0.87	0.87	0.87
	CO1	0.85	0.85		
Course Outcomes	CO2	0.85	0.85		0.85
	CO3	0.85	0.85		
	CO4	0.85	0.85		0.85
	CO5	0.85	0.85		0.85
	CO6	0.85	0.85		0.85
	CO1	0.94	0.94	0.94	0.94
Course Outcomes	CO2	0.94	0.94	0.94	0.94
	CO3	0.94	0.94	0.94	0.94
	CO4	0.94	0.94	0.94	0.94
	CO5	0.94	0.94	0.94	0.94
	CO6	0.94	0.94	0.94	0.94
	AVERAGE	0.818013937	0.822268908	0.819392265	0.81755814
	PERCENTAGE (%)	81	82	81	81

Apply the knowledge of mathematics, science,
nentals, and an engineering specialisation for the solution of complex engineering problem

ng first principles of mathematics, natural sciences, and engineering sciences.

gn system components or processes that meet the specified needs with appropriate consid
ental considerations.

ding design of experiments, analysis and
ide valid conclusions.

and modern engineering and IT tools, including prediction and modelling to complex engin

ess societal, health, safety, legal, and cultural issues and the consequent responsibilities

ns in societal and environmental contexts, and demonstrate the knowledge of, and need fo

d responsibilities and norms of the engineering practice.

der in diverse teams, and in multidisciplinary settings.

th the engineering community and with t h e society at large, such as, being able to compr
ive presentations, and give and receive clear instructions.

ing and management principles and apply these to one's own work, as a member and lead

y to engage in independent and life-long learning in the broadest context of technological c

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ɔn and
' of

ıgineering

ıg a

e of the Subject: ELECTRIC CIRCUIT THEORY
Subject Code: : PC-EE 301
Year: 2nd (New Syllabus)

of networks.

me of the Subject: ANALOG ELECTRONICS
Subject Code: PC-EE 302
Year: 2nd (New Syllabus)

regulators and analog electronic circuits.

ɛd on application.

the Subject: ELECTRO MAGNETIC FIELD THEORY
Subject Code: PC-EE 303
Year: 2nd (New Syllabus)

ıetic problems.

e of the Subject: ENGINEERING MECHANICS
Subject Code: ES-ME 301
Year: 2nd (New Syllabus)

ıematics and kinetics of rigid bodies.
ɔn and friction.

riction and rigid bodies.

Name of the Subject: MATHEMATICS-III
Subject Code: BS- M 301
Year: 2nd (New Syllabus)

Z transform

sis and Z transform

e of the Subject: BIOLOGY FOR ENGINEERS
Subject Code: BS-EE- 301
Year: 2nd (New Syllabus)

ries.

of cancer.
transfer

me of the Subject: INDIAN CONSTITUTION
Subject Code: : MC-EE 301
Year: 2nd (New Syllabus)

f Union, state and local self-government.Structure, jurisdiction and function of Indian
y.

f the Subject: : Electric circuit theory Laboratory
Subject Code: PC-EE391
Year: 2nd (New Syllabus)

on successful completion of the course, student will have:
ponse of filters, Laplace transform and inverse Laplace transform

of the Subject: : Analog Electronic laboratory
Subject Code: PC-EE392
Year: 2nd (New Syllabus)

on successful completion of the course, student will have:
fter completion of this course, the learners will be able to
r (A)characteristics of BJT and FET,(B)characteristics of Zener diode as voltage regula

ge regulator using regulator IC chip.timer circuit using 555 for monostable, astable an

hentioned outcomes are not limited. Institute may redefine outcomes based their progr

of the Subject: : Numerical Methods laboratory

Subject Code: PC-CS 391

Year: 2nd (New Syllabus)

n

ear equations using

al solution of Algebraic Equation by Regularfalsi and Newton Raphson methods.

me of the Subject: : ELECTRIC MACHINE-I

Subject Code: PC-EE-401

Year: 2nd (New Syllabus)

on successful completion of the course, student will have:

chines and transformers

ransformers

ne of the Subject: : DIGITAL ELECTRONICS

Subject Code: PC-EE-402

Year: 2nd (New Syllabus)

on successful completion of the course, student will have:

niconductor memories and programmable logic devices.

circuits, A/D and D/A converter

onal & sequential digital circuits and A/D and D/A converter.

ubject: : ELECTRICAL & ELECTRONICS MEASUREMENTS

Subject Code: PC-EE-403

Year: 2nd (New Syllabus)

on successful completion of the course, student will have:

rs in measurement, loading effect

resistance, capacitance and inductance by bridges and potentiometer

er, digital multimeter, digital voltmeter, digital frequency meter, signal generator, stra

and measurement techniques of voltage, current, frequency and phase by oscilloscope

ner, measurement of power, energy, resistance, inductance and capacitance

and transducers

f the Subject: : THERMAL POWER ENGINEERING

Subject Code: ES-EE-401

Year: 2nd (New Syllabus)

ɔines
engines and Gas turbines.
es.

he Subject: : VALUES AND ETHICS IN PROFESSION
Subject Code: HM-EE-401
Year: 2nd (New Syllabus)

ibility and duties
ethics and social experimentation
s safety and risk

e of the Subject: : ENVIRONMEMTAL SCIENCE
Subject Code: MC-EE-401
Year: 2nd (New Syllabus)

tivities
environmental and health risk
he environmental laws and regulations
nd pollution.

the Subject: : ELECTRIC MACHINE-I LABORATORY
Subject Code: PC-EE491
Year: 2nd (New Syllabus)

ol of DC motor and parallel operation of the transformer

he Subject: : DIGITAL ELECTRONICS LABORATORY
Subject Code: PC-EE492
Year: 2nd (New Syllabus)

ɔropriate instruments and precaution
and flip-flops and asynchronous and synchronous up down counters
ice versa, 4 bit parity generator & comparator circuits,

t: : ELECTRICAL & ELECTRONICS MEASUREMENT LABORATORY
Subject Code: PC-EE493
Year: 2nd (New Syllabus)

oving iron and dynamometer type ammeter, voltmeter and wattmeter by potentiomet
e, inductance, capacitance

Subject: : THERMAL POWER ENGINEEING LABORATORY
Subject Code: ES-ME-491
Year: 2nd (New Syllabus)

ecautions
ochran Boiler, Vertical Tubular Boiler, Locomotive Boiler, 4S Diesel Engine, 4S Petrol En
ctrical load box and rope brake dynamometer

he Subject: ELECTRIC MACHINE-II PC-EE-501
Subject Code: PC-EE-501
Year: 3rd

agnetic fields.
hase Induction machines
hase Induction machines
nous machine
electromechanical devices.
special eletromechanical device.

Name of the Subject: POWER SYSTEM-I
Subject Code: : PC-EE-502
Year: 3rd (Old Syllabus)

nt sources
d cables.
n line

Name of the Subject: CONTROL SYSTEM
Subject Code: PC-EE-503
Year: 3rd

ms

me of the Subject: POWER ELECTRONICS

Subject Code: PC-EE-504
Year: 3rd

ices.

n of SCR

reduction of harmonics of the converter

the Subject: ELECTRIC MACHINE-IILABORATORY
Subject Code: : PC-EE 591
Year: 3rd

hase Inductionmotor, Induction generator and synchronous motor , methods of speed

of the Subject: POWER SYSTEM-I LABORATORY
Subject Code: PC-EE 592
Year: 3rd

own strength of solidinsulating material and dielectric constant of transformer oil.

of the Subject: CONTROL SYSTEMLABORATORY

Subject Code: PC-EE 593
Year: 3rd

ICE for simulation of systems.
ns.

the Subject: POWER ELECTRONICSLABORATORY
Subject Code: PC-EE 594
Year: 3rd

of the Subject: DATA STRUCTURE & ALGORITHM

Subject Code: OE-EE-501A
Year: 3rd

nce the performanceof the program.
s.

lem.
g, searching, and hashing
ns.
the Subject: OBJECT ORIENTED PROGRAMMING
Subject Code: OE-EE-501B

norphism,

Name of the Subject: POWER SYSTEM-II
Subject Code: PC-EE-601
Year: 3rd

studies.

ments.
bilty and protection ofpower system.
e Subject: MICROPROCESSOR & MICROCONTROLLER
Subject Code: PC-EE-602

e of the Subject: DIGITAL CONTROL SYSTEM
Subject Code: PE-EE-601A
Year: 3rd

tems.

cations.

ıme of the Subject: HVDC TRANSMISSION
Subject Code: PE-EE-601B
Year: 3rd

fter completion of this course the students will be able to
pplication(s).
ıverters.

des.
eactive power control.nts.

of the Subject: ELECTRICAL MACHINE DESIGN
Subject Code: PE-EE-601C
Year: 3rd

ign of an ac machine
magnetic and thermalloading of electrical machines
nachines.

the Subject: ELECTRICAL AND HYBRID VEHICLE
Subject Code: PE-EE-602A
Year: 3rd

lepending on resources.
vehicles.

e of the Subject: POWER QUALITYANDFACTS
Subject Code: PE-EE-602B
Year: 3rd

ıcteristics.

explain working principle of dynamic voltage restorer and UPQC

ıstrial consumers.
:trical systems.

ectrical systems.

power factor correction.

in the frequencydomain.

o SNR
eivers
ommunication system
nication link

gital modulation systems

ıtion

eduling, legal andregulatory issues applied to economic investment and project-mana

.
earth fault relay, on loadtime delay relay, off load time delay relay, CT and PT.
der. 6. Apply software tools to find bus voltage, currents and power flows throughout t

a number in a string andstring manipulation

ns of 8051

sor and signal conditioning circuits

;
n system for small township, double circuit transmission line and Electric machines
with lift and pump
and for an applicationwith analog, digital, mixed signal, microcontroller and PCB

rmance.

te space.

ation and pollution.
tems
stems
ergy intensive industrialequipments

ition.

›mes minimum for a definedlevel of load.
d phase angles at all buses.
mand at all the times.

nd transform the real lifeinformation in different representation

nine learning

and limitations, and societalimplications

erent contexts

he key technologies andprotocols employed at each layer of the stack
ata analysis

lgorithm, areafilling algorithms.

acteristics and attributesof Embedded Systems

bedded systems.

ms. 6. design RTOS based Embedded systems.

. 2. enhance images in the spatial and frequency domain using various transforms.

rces in the organizationsand integrate the learning in handling these complexities.
gement.

s. 2. explain the fundamental of Electrolytic processes, Electric heating and Welding.
specific applications.

of traction motor.

erent components and stability.

on and Synchronous motor.
1 and SRM.

onous motor.

ontrol valves.

machines
particular problem
oft computing approach
roblem.
ns.

e and respiration rate.
ging equipments Surgical & Therapeutic Instruments and Medical Laboratory Instrume

nent methods.

techniques.

s and procedures for measurement of physical parameters

. 6. apply smart sensors, bio-sensors, PLC and Internet of Things to different applicati

PO5	PO6	PO7	PO8	PO9	PO10
0.67					

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	0.75				
		0.75			
		0.75			
		0.75			
	0.92	0.92			
	0.92	0.92			
0.9					
0.84					
0.84					
	0.76				

0.72	0.72			0.72	
	0.72			0.72	
	0.72				
0.72					
0.72					
0.71				0.71	
				0.71	
0.71					
0.71					
0.88	0.88			0.88	
	0.88			0.88	
	0.88				
	0.88				
0.88					
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0.95	0.95			0.95	
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0.92					
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0.91	0.91				
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0.87	0.87				
	0.87				
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		0.84			
		0.84		0.84	
				0.84	
		0.71			
	0.71				
	0.71				
	0.71	0.71		0.71	
				0.71	
		0.92			
	0.92				
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	0.92	0.92		0.92	
				0.92	
		0.63			
		0.63		0.63	
				0.63	
		0.87			
		0.87		0.87	
				0.87	
		0.68			
		0.68		0.68	
				0.68	
		0.83			

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NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
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				0.83	
			0.83	0.83	0.83
				0.83	0.83
			0.71		
			0.71		0.71
					0.71
			0.68		
			0.68		0.68
					0.68
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
		0.73	0.73		
		0.73			
		0.73	0.73		0.73
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		0.89	0.89		
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	0.68	0.68			
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				0.68	
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
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NA	NA	NA	NA	NA	NA
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NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
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NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
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Judiciary,Basics of PIL and guideline for 92
92

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tor, (C) characteristics of class A, C and 89
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d multistable, multivibrator. V to I and I 89

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ngine, 2S Petrol engine	87
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DEPARTMENT OF ELECTRICAL ENGINEERING

Program Outcomes & Course Outcomes

PROGRAM OUTCOMES

PO NO.		
1	**Engineering knowledge**	Apply the knowledge of mathematics, science,
2	**Problem analysis:**	Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principle
3	**Design/development of solutions:**	Design solutions for complex engineering problems and design system comp safety, and cultural, societal, and environmental considerations.
4	**Conduct investigations of complex problems:**	Use research-based knowledge and research methods including design of ex interpretation of data, and synthesis of the information to provide valid conclu
5	**Modern tool usage:**	Create, select, and apply appropriate techniques, resources, and modern eng understanding of the limitations.
6	**The engineer and society:**	Apply reasoning informed by the contextual knowledge to assess societal, he engineering practice.
7	**Environment and**	Understand the impact of the professional engineering solutions in societal au

7	**sustainability:**	Understand the impact of the professional engineering solutions in societal al
8	**Ethics:**	Apply ethical principles and commit to professional ethics and responsibilities
9	**Individual and team work:**	Function effectively as an individual, and as a member or leader in diverse te
10	**Communication:**	Communicate effectively on complex engineering activities with the engineeri and design documentation, make effective presentations, and give and recei
11	**Project management and finance:**	Demonstrate knowledge and understanding of t h e engineering and manage and in multidisciplinary environments
12	**Life-long learning:**	Recognise the need for, and have the preparation and ability to engage in inc

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 & COURSE ATTAINMENTS

Name of the Subject: ELECTRIC CIRCUIT THEORY	
Subject Code: : PC-EE 301 **Year: 2nd (New Syllabus)**	
Course Outcomes:	After completion of this course the students will be able to
CO1	describe different type of networks, sources and signals with examples.
CO2	explain different network theorems, coupled circuit and tools for solution of networks.
CO3	apply network theorems and different tools to solve network problems.
CO4	select suitable techniques of network analysis for efficient solution.
CO5	estimate parameters of two-port networks.
CO6	design filter circuits.
Name of the Subject: ANALOG ELECTRONICS	
Subject Code: PC-EE 302 **Year: 2nd (New Syllabus)**	
Course Outcomes:	After completion of this course the students will be able to
CO1	1. describe analog electronic components and analog electronics circuits
CO2	2. explain principle of operation of analog electronic components, filters, regulators and analog e
CO3	3. compute parameters and operating points of analog electronic circuits.
CO4	4. determine response of analog electronic circuits.
CO5	5. distinguish different types amplifier and different types oscillators based on application.
CO6	6. construct operational amplifier based circuits for different applications.
Name of the Subject: ELECTRO MAGNETIC FIELD THEORY	
Subject Code: PC-EE 303 **Year: 2nd (New Syllabus)**	
Course Outcomes:	After completion of this course the students will be able to
CO1	1. Relate different coordinate systems for efficient solution of electromagnetic problems.
CO2	2. describe mathematical s tools to solve electromagnetic problems.
CO3	3. explain laws applied to electromagnetic field.
CO4	4. apply mathematical tools and laws to solve electromagnetic problems.

CO5	5. analyze electromagnetic wave propagation
CO6	6. estimate transmission line parameters
Name of the Subject: ENGINEERING MECHANICS	
Subject Code: ES-ME 301 **Year: 2nd (New Syllabus)**	
Course Outcomes:	After completing this course, the students will be able to:
CO1	explain the co-ordinate system, principle of three dimensional rotation,kinematics and kinetics o
CO2	elaborate the theory of general motion, bending moment, torsional motion and friction.
CO3	develop free body diagram of different arrangements.
CO4	solve problems with the application of theories and principle of motion , friction and rigid bodies
CO5	analyze torsional motion and bending moment.
Name of the Subject: MATHEMATICS-III	
Subject Code: BS- M 301 **Year: 2nd (New Syllabus)**	
Course Outcomes:	Upon completion of this course, students will be able to:
CO1	explain basics of probability theories, rules, distribution and properties of Z transform
CO2	describe different methods of numerical analysis.
CO3	solve numerical problems based on probability theories , numerical analysis and Z transform
CO4	apply numerical methods to solve engineering problems.
CO5	5. solve engineering problems using z transform and probability theory.
Name of the Subject: BIOLOGY FOR ENGINEERS	
Subject Code: BS-EE- 301 **Year: 2nd (New Syllabus)**	
Course Outcomes:	Upon completion of this course, students will be able to:
CO1	Describe with examples the biological observations lead to major discoveries.
CO2	Explain the classification of kingdom of life the building blocks of life
CO3	Different techniques of bio physics used to study biological phenomena.
CO4	The role of imaging in the screening, diagnosis, staging, and treatments of cancer.
CO5	Identify DNA as a genetic material in the molecular basis of information transfer
CO6	Analyze biological processes at the reductionistic level.
CO7	Apply thermodynamic principles to biological systems.
CO8	Identify microorganisms..
Name of the Subject: INDIAN CONSTITUTION	

Subject Code: : MC-EE 301	
Year: 2nd (New Syllabus)	
Course Outcomes:	After completing this course, the students will be able to:
CO1	Describe different features of Indian constitution.Power and functioning of Union, state and loca
CO2	Identify authority to redress a problem in the profession and in the society.
Name of the Subject: : Electric circuit theory Laboratory	
Subject Code: PC-EE391	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Determine transient response of different electrical circuit, frequency response of filters, Laplace
CO2	Generate different signals in both discrete and analog form
CO3	Analyze amplitude and phase spectrum of different signals.
CO4	Verify network theorems.
CO5	Construct circuits with appropriate instruments and safety precautions.
CO5	Simulate electrical circuit experiments using suitable software.
Name of the Subject: : Analog Electronic laboratory	
Subject Code: PC-EE392	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
	After completion of this course, the learners will be able to
CO1	Determine characteristics of full wave rectifier with filter and without filter (A)characteristics of E
CO2	Verify function of DAC and ADC
CO3	Construct function generator using IC, R-C coupled amplifier,linear voltage regulator using regul
CO4	Work in a team
CO5	Validate theoretical learning with practical Special Remarks: The above-mentioned outcomes are
Name of the Subject: : Numerical Methods laboratory	
Subject Code: PC-CS 391	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Solve problems with Newton forward /backward, Lagrange’s interpolation
CO2	problems of numerical integration using Trapezoidal rule, Simpson’s 1/3
CO3	rule, Weddle’s rule problems to find numerical solution of a system of linear equations using

CO4	Gauss elimination and Gauss-Seidel iterations. problems to find numerical solution of Algebraic E
CO5	Ordinary differential equation by Euler's and Runga-Kutta methods.
CO6	Find appropriate numerical methods to solve engineering problems.
CO7	Use software package to solve numerical problems.
Name of the Subject: : ELECTRIC MACHINE-I	
Subject Code: PC-EE-401 **Year: 2nd (New Syllabus)**	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Describe the function of different components of magnetic circuit, DC machines and transformer
CO2	Explain the principle of operation of different types of DC machines and transformers
CO3	Solve numerical problems of DC machines and transformers.
CO4	Estimate the parameters and efficiency of transformer.
CO5	Determine the characteristics of DC machines
CO6	recommend methods to control output of DC machines.
Name of the Subject: : DIGITAL ELECTRONICS	
Subject Code: PC-EE-402 **Year: 2nd (New Syllabus)**	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Describe the function of different building blocks of digital electronics, semiconductor memories
CO2	Explain the principle of operation of combinational and sequential digital circuits, A/D and D/A co
CO3	Solve numerical problems of Boolean algebra, number system, combinational & sequential digita
CO4	Specify applications of combinational and sequential digital circuits.
CO5	Determine specifications of different digital circuits.
CO6	Design combinational and sequential digital circuits
Name of the Subject: : ELECTRICAL & ELECTRONICS MEASUREMENTS	
Subject Code: PC-EE-403 **Year: 2nd (New Syllabus)**	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Explain the terms accuracy, precision, resolution, speed of response, errors in measurement, loa
CO2	Describe methods of measurement of power, energy by instruments and resistance, capacitance
CO3	Explain the principle of operation of analog meters, instrument transformer, digital multimeter, d
CO4	Explain the different building block, principle of operation of oscilloscope and measurement tech
CO5	Solve numerical problems related to analog meters, instrument transformer, measurement of po

CO6	Specify applications of analog and digital measuring instruments, sensors and transducers
Name of the Subject: : THERMAL POWER ENGINEERING	
Subject Code: ES-EE-401	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Describe the function of different components of boilers. Engines and turbines
CO2	Explain the principle of operation of different types of boilers, turbines, IC engines and Gas turbi
CO3	Solve numerical problems of boilers, turbines, IC engines and Gas turbines.
CO4	Analyze the performance of boilers, engines and turbines.
CO5	Determine efficiency of boilers, engines and turbines.
CO6	Explain methods to control boiler, engines and turbines parameters.
Name of the Subject: : VALUES AND ETHICS IN PROFESSION	
Subject Code: HM-EE-401	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	1. Illustrate different aspects of human values, ethics, engineers' responsibility and duties
CO2	2. Explain different principles, different theories and laws of engineering ethics and social experi
CO3	3. Identify different factors in the light of Engineers' responsibility towards safety and risk
CO4	4. Correlate ethics of different work environment.
CO5	5. Explain the need for intellectual property rights.
Name of the Subject: : ENVIRONMEMTAL SCIENCE	
Subject Code: MC-EE-401	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Understand the natural environment and its relationships with human activities
CO2	Apply the fundamental knowledge of science and engineering to assess environmental and healt
CO3	Develop guidelines and procedures for health and safety issues obeying the environmental laws
CO4	Acquire skills for scientific problem-solving related to air, water, noise& land pollution.
Name of the Subject: : ELECTRIC MACHINE-I LABORATORY	
Subject Code: PC-EE491	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Identify appropriate equipment and instruments for the experiment.

CO2	Test the instrument for application to the experiment.
CO3	Construct circuits with appropriate instruments and safety precautions
CO4	Validate different characteristics of DC machine , methods of speed control of DC motor and par
CO5	Work effectively in a team
Name of the Subject: : DIGITAL ELECTRONICS LABORATORY	
Subject Code: PC-EE492 **Year: 2nd (New Syllabus)**	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Identify appropriate equipment and instruments for the experiment
CO2	2. Test the instruments for application to the experiment
CO3	3. Construct decoder , multiplexer, adder and subtractor circuits with appropriate instruments a
CO4	4. Realize RS-JK and D flip flop, universal register with gates, multiplexer and flip-flops and asyr
CO5	5. Validate the operation of code conversion circuit –BCD to Excess 3 & vice versa, 4 bit parity g
CO5	Work effectively in a team
Name of the Subject: : ELECTRICAL & ELECTRONICS MEASUREMENT LABORATORY	
Subject Code: PC-EE493 **Year: 2nd (New Syllabus)**	
Course Outcomes:	Upon successful completion of the course, student will have:
	1. identify appropriate equipment and instruments for the experiment
	2. test the instrument for application to the experiment
	3. construct circuits with appropriate instruments and safety precautions
	4. evaluate and adjust the precision and accuracy of AC energy meter, moving iron and dynamo
	5. measure voltage, current, power, energy, phase , frequency, resistance, inductance, capacita
	6. work effectively in a team
Name of the Subject: : THERMAL POWER ENGINEEING LABORATORY	
Subject Code: ES-ME-491 **Year: 2nd (New Syllabus)**	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Identify appropriate equipment and instruments for the experiment
CO2	Construct experimental setup with appropriate instruments and safety precautions
CO3	Identify different parts of Lanchashire Boiler, Bahcock & Willcox Boiler, Cochran Boiler, Vertical T
CO4	Test 4 stroke petrol engine by electrical load box and diesel engine by electrical load box and ro
CO5	Find calorific value, flash point, fire point, cloud point, pour point of fuel.

C06	Work effectively in a team
Name of the Subject: ELECTRIC MACHINE-II PC-EE-501	
Subject Code: PC-EE-501 Year: 3rd	
Course Outcomes:	On successful completion of the course the student will be able to:
	1. To understand the arrangement of windings of AC machines.
	2. To understand the principle of production of pulsating and revolving magnetic fields.
	3. To understand the principle of operation and characteristics of three phase Induction machine
	4. To understand the principle of operation and characteristics of single phase Induction machin
	5. To understand the principle of operation and characteristics of synchronous machine
	6. To understand the principle of operation and characteristics of special electromechanical devi
	7. To solve problems of Induction machines, synchronous machines and special eletromechanica
Name of the Subject: POWER SYSTEM-I	
Subject Code: : PC-EE-502 **Year: 3rd (Old Syllabus)**	
Course Outcomes:	After completion of this course the students will be able to:
CO1	To understand the basic principle of generation of Electricity from different sources
CO2	To find parameters and characteristics of overhead transmission lines and cables.
CO3	To find different parameters for the construction of overhead transmission line
CO4	To determine the performance of transmission lines.
CO5	To understand the principle tariff calculation.
CO6	To solve numerical problems on the topics studied.
Name of the Subject: CONTROL SYSTEM	
Subject Code: PC-EE-503 **Year: 3rd**	
Course Outcomes:	On completion of this course a student will be in a position to:
CO1	1. To find mathematical representation of LTI systems.
CO2	2. To find time response of LTI systems of different orders
CO3	3. To find the frequency response of LTI systems of different orders
CO4	4. To understand stabilityof differentLTI systems.
CO5	5. To analyze LTIsystems with state variables.
CO6	6. To solve problems of mathematical modelling and stability of LTI systems
Name of the Subject: POWER ELECTRONICS	

Subject Code: PC-EE-504

Year: 3rd

Course Outcomes:	On completion of this course a students will be able to
CO1	To understand the functioning and characteristics of power switching devices.
CO2	To understand the principle of operation of converters.
CO3	To understand different triggering circuits and techniques of commutation of SCR
CO4	To find external performance parameter of converters.
CO5	To analyze methods of voltage control, improvement of power factor and reduction of harmonics
CO6	To solve numerical problems of converters

Name of the Subject: ELECTRIC MACHINE-IILABORATORY

Subject Code: : PC-EE 591

Year: 3rd

Course Outcomes:	After completion of the course, the students will be able to:
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.
CO3	construct circuits with appropriate instruments and safety precautions.
CO4	validate different characteristics of single phase Induction motor, three phase Inductionmotor, I
CO5	work effectively in a team

Name of the Subject: POWER SYSTEM-I LABORATORY

Subject Code: PC-EE 592

Year: 3rd

Course Outcomes:	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.
CO3	3. construct circuits with appropriate instruments and safety precautions.
CO4	4. validate different characteristics of transmission line.
CO5	5. determine earth resistance, dielectric strength of insulating oil, breakdown strength of solidins
CO6	6. analyze an electrical transmission line circuit with the help of software
CO7	7. work effectively in a team

Name of the Subject: CONTROL SYSTEMLABORATORY

Subject Code: PC-EE 593

Year: 3rd

Course Outcomes:	After completion of this course the students will be able to

CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.
CO3	construct circuits with appropriate instruments and safety precautions.
CO4	use MAT-Lab control system tool box, MAT-Lab- simulink tool box & PSPICE for simulation of sys
CO5	5. determinecontrol system specifications of first and second order systems.
Name of the Subject: POWER ELECTRONICSLABORATORY	
Subject Code: PC-EE 594 **Year: 3rd**	
Course Outcomes:	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.
CO3	construct circuits with appropriate instruments and safety precautions
Name of the Subject: DATA STRUCTURE & ALGORITHM	
Subject Code: OE-EE-501A **Year: 3rd**	
Course Outcomes:	On completion of this course a student will be in a position to:
CO1	differentiate how the choices of data structure & algorithm methods enhance the performanceof
CO2	solve problems based upon different data structure & also write programs.
CO3	write programs based on different data structure
CO4	identify appropriate data structure & algorithmic methods in solving problem.
CO5	discuss the computational efficiency of the principal algorithms for sorting, searching, and hashi
CO6	comparethe benefits of dynamic and static data structures implementations.
Name of the Subject: OBJECT ORIENTED PROGRAMMING	
Subject Code: OE-EE-501B **Year: 3rd**	
Course Outcomes:	After completion of this course the students will be able to
CO1	specify simple abstract data types.
CO2	recognise features of object-oriented design such as encapsulation, polymorphism,
CO3	inheritance, and composition of systems based on object identity.
CO4	apply common object-oriented design patterns
CO5	specify uses of common object oriented design patterns with examples.
CO6	design applications with an event-driven graphical user interface.
Name of the Subject: POWER SYSTEM-II	

Subject Code: PC-EE-601	
Year: 3rd	
Course Outcomes:	After completion of the course, the students will be able to:
CO1	Represent power system components in line diagrams.
CO2	Determine the location of distribution substation.
CO3	Determine the performance of power system with the help of load flowv studies.
CO4	Analyse faults in Electrical systems.
CO5	Determine the stabilty of Power system.
CO6	Explain principle of operation of different power system protection equipments.
CO7	Solve numerical problems related to representation, load flow, faults, stabilty and protection ofp
Name of the Subject: MICROPROCESSOR & MICROCONTROLLER	
Subject Code: PC-EE-602	
Year: 3rd	
Course Outcomes:	After completion of the course, the students will be able to
CO1	1. explain the architecture of 8086 and 8051.
CO2	2. do assembly language programming of 8086, 8051
CO3	3. interface different peripheral with 8086 and 8051
CO4	4. develop micro processor/ microcontroller based systems.
CO5	5. compare microprocessor, microcontroller, PIC and ARM processors
Name of the Subject: DIGITAL CONTROL SYSTEM	
Subject Code: PE-EE-601A	
Year: 3rd	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the principle of sampling and reconstrction of analog signal. systems.
CO2	perform Z-transformation and inverse Z-tranaformation of systems.
CO3	analyse and design digital control
CO4	design compensators for digital control system to achieve desired specifications.
CO5	represent digital control systems using state space models.
CO6	analyze the effect sampling on stability, controllability and observability
Name of the Subject: HVDC TRANSMISSION	
Subject Code: PE-EE-601B	
Year: 3rd	
Course Outcomes:	After completion of this course the students will be able to

CO1	choose intelligently AC and DC transmission systems for the dedicated application(s).
CO2	identify the suitable two-level/multilevel configuration for high power converters.
CO3	select the suitable protection method for various converter faults.
CO4	4. identify suitable reactive power compensation method.
CO5	5. decide the configuration for harmonic mitigation on both AC and DC sides.
CO6	6. solve numerical problems related to converters, power flow analysis, reactive power control.n
Name of the Subject: ELECTRICAL MACHINE DESIGN	
Subject Code: PE-EE-601C	
Year: 3rd	
Course Outcomes:	After completion of this course the students will be able to
CO1	specify the rating of electrical machines with standard specifications.
CO2	explain the principles of electrical machine design and carry out basic design of an ac machine
CO3	3. determine the various factors which influence the design of electrical, magnetic and thermallc
CO4	4. explain the construction and performance characteristics of electrical machines.
CO5	5. use software tools to do design calculations.
Name of the Subject: ELECTRICAL AND HYBRID VEHICLE	
Subject Code: PE-EE-602A	
Year: 3rd	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the principle of Electric traction.
CO2	choose a suitable drive scheme for developing an electric hybrid vehicle depending on resources
CO3	design and develop basic schemes of electric vehicles and hybrid electric vehicles.
CO4	choose proper energy storage systems for vehicle applications
CO5	implement different energy management strategies for hybrid vehicle.
Name of the Subject: POWER QUALITY AND FACTS	
Subject Code: PE-EE-602B	
Year: 3rd	
Course Outcomes:	On completion of this course a students will be able to
CO1	analyse uncompensated AC transmission line.
CO2	explain the working principles of FACTS devices and their operating characteristics.
CO3	apply FACTS devices for power flow control and stabilty.
CO4	identify different issues of power quality in distribution system.
CO5	apply different compensation and control techniques for DSTATCOM6. explain working principle

Name of the Subject: INDUSTRIAL ELECTRICAL SYSTEMS	
Subject Code: PE-EE-602C **Year: 3rd**	
Course Outcomes:	On completion of this course a students will be able to
CO1	Represent electrical wiring system for residential, commercial and industrial consumers.
CO2	Determine the rating of components of residential and commercial electrical systems.
CO3	Design lighting scheme for a residential and commercial premises.
CO4	Select transformer, switchgear, protection equipments for industrial electrical systems.
CO5	explain methods of automation of Industrial Electrical Systems
CO6	Solve numerical problems related to earthing system, lighting scheme, power factor correction.
Name of the Subject: DIGITAL SIGNAL PROCESSING	
Subject Code: OE-EE-601A **Year: 3rd**	
Course Outcomes:	On completion of this course a students will be able to
CO1	represent signals mathematically in continuous and discrete-time and in the frequencydomain.
CO2	analyse discrete-time systems using z-transform.
CO3	explain the Discrete-Fourier Transform (DFT) and the FFT algorithms.
CO4	design digital filters for various applications.
CO5	apply digital signal processing for the analysis of real-life signals.
Name of the Subject: COMMUNICATION ENGINEERING	
Subject Code: OE-EE-601B **Year: 3rd**	
Course Outcomes:	On completion of this course a students will be able to
CO1	compare the performance of AM, FM and PM schemes with reference to SNR
CO2	explain noise as a random process and its effect on communication receivers
CO3	evaluate the performance of ASK, FSK, PSK, BPSK, QPSK in a digital communication system
CO4	identify source coding and channel coding schemes for a given communication link
CO5	analyze various digital modulation methods
CO6	compute band width requirement and probability of error in various digital modulation systems
Name of the Subject: VLSI AND MICROELECTRONICS	
Subject Code: PE-EE-603C **Year: 3rd**	
Course Outcomes:	On completion of this course a students will be able to

CO1	explain the principle of design of VLSI circuits
CO2	explain different MOS structure with characteristics
CO3	apply different processes for VLSI fabrication
CO4	use programming language for the design of logic circuits
CO5	draw the stick diagram and layout for simple MOS circuits
Name of the Subject: ECONOMICS FOR ENGINEERS	
Subject Code: HM-EE-601 **Year: 3rd**	
Course Outcomes:	On completion of this course a students will be able to
CO1	evaluate the economic theories, cost concepts and pricing policies
CO2	explain the market structures and integration concepts
CO3	apply the concepts of financial management for project appraisal
CO4	explain accounting systems , the impact of inflation, taxation, depreciation
CO5	analyze financial statements using ratio analysis
CO6	explain financial planning, economic basis for replacement, project scheduling, legal andregulatc
Name of the Subject: POWER SYSTEM-II LABORATORY	
Subject Code: PC-EE 691 **Year: 3rd**	
Course Outcomes:	On completion of this course a students will be able to
CO1	Identify appropriate equipment and instruments for the experiment.
CO2	Test the instrument for application to the experiment.
CO3	Construct circuits with appropriate instruments and safety precautions.
CO4	Validate the characteristics of under voltage relay, over current relay, earth fault relay, on loadt
CO5	Validate protection schemes of transformer, generator, motor and feeder. 6. Apply software too
CO6	work effectively in a team
Name of the Subject: MICRO PROCESSOR AND MICRO CONTROLLER LABORATORY	
Subject Code: : PC-EE 692 **Year: 3rd**	
Course Outcomes:	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment
CO2	test the instrument for application to the experiment
CO3	construct circuits with appropriate instruments and safety precautions
CO4	program 8086 for arithmatic operation, sorting of array, searching for a number in a string ands

CO5	interface ADC/DAC, 8255, 8251 to 8086 and LCD, keyboard to 8051
CO6	program 8051 using arithmatic, logical and bit manipulation instructions of 8051
CO7	work effectively in a team
Name of the Subject: ELECTRICAL AND ELECTRONICS DESIGN LABORATORY	
Subject Code: PC-EE 681 **Year: 3rd**	
Course Outcomes:	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment
CO2	explain basic concept of measurement, noise in electronic system, sensor and signal conditionin
CO3	implement PC based data acquisition systems
CO4	construct circuits with appropriate instruments and safety precautions
CO5	design heating elements, air core grounding reactor, power distribution system for small townsh
CO6	do wiring and installation design of a multistoried residential building with lift and pump
CO7	design electronic hardware for controller of lift, speed of AC/DC motor, and for an applicationwit
Name of the Subject: ELECTRIC DRIVE	
Subject Code: PC-EE 701 **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment
CO2	Explain the principle of operation of Electric Drive.
CO3	Describe different methods of starting and braking of Electric Drive.
CO4	Model and control DC Drive
CO5	Control speed of Induction and Synchronous motors.
CO6	Recommend drives for different applications.
CO7	Estimate ratings, variables and parameters of Electric Drives.
Name of the Subject: CONTROL SYSTEM DESIGN	
Subject Code: PE-EE 701 A **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment
CO2	explain the effect of gain, addition of pole and zeros on system’s performance.
CO3	describe time domain and frequency domain design specifications.
CO4	demonstrate the effect of nonlinearity on system performance.

CO5	design control system in time domain , in frequency domain and in state space.
CO6	design PID controllers.
CO7	select appropriate method for design of control system.
Name of the Subject: ELECTRICAL ENERGY CONSERVATION& AUDITING	
Subject Code: : PE-EE 701B	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the basic of energy resources, energy security, energy conservation and pollution.
CO2	quantify the energy conservation opportunities in different thermal systems
CO3	quantify the energy conservation opportunities in different electrical systems
CO4	identify the common energy conservation opportunities in different energy intensive industrialec
CO5	explain the methods of energy management and audit.
CO6	analyse and report the outcome of energy audit
Name of the Subject: POWER GENERATION ECONOMICS	
Subject Code: : PE-EE 701C	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the different terms e.g. load factor etc for economics of generation.
CO2	apply different types of tariff for electricity pricing.
CO3	optimize the operation of power system with unit commitment.
CO4	determine generation levels such that the total cost of generation becomes minimum for a defin
CO5	determine the state of the system given by the voltage magnitudes and phase angles at all buse
CO6	predict the power or energy needed to balance the supply and load demand at all the times.
Name of the Subject: ARTIFICIAL INTELLIGENCE	
Subject Code: OE-EE-701A	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the concept of knowledge representation and predicate logic and transform the real lifeir
CO2	describe state space and its searching strategies
CO3	demonstrate profciency in applying scientifc method to models of machine learning
CO4	apply the machine learning concepts in real life problems
CO5	demonstrate an ability to share in discussions of AI, its current scope and limitations, and societ
Name of the Subject: INTERNET OF THINGS	

Subject Code: OE-EE-701B	
Year:4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the definition and usage of the term “Internet of Things” in different contexts
CO2	explain the key components that make up an IoT system.
CO3	differentiate between the levels of the IoT stack and be familiar with the key technologies andpr
CO4	build and test a IoT system involving prototyping, programming and data analysis
CO5	apply cloud computing and data analytics in a typical IoT system
Name of the Subject: COMPUTER GRAPHICS	
Subject Code: OE-EE-701C	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain Computer graphics and graphic systems.
CO2	test and implement line drawing algorithm, circle and ellipse drawing algorithm, areafilling algor
CO3	Perform 2D and 3D transformation and viewing.
CO4	apply algorithms for visible surface determination.
CO5	explain colors and shading models and ray tracing.
Name of the Subject: EMBEDDED SYSTEM	
Subject Code: OE-EE 702A	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	discuss the definition, purpose, application, classification , quality characteristics and attributeso
CO2	explain the internal structure of the Embedded system.
CO3	interface IO devices and other peripherals with micro controllers in Embedded systems.
CO4	write programs for Micro controllers in Embedded systems.
CO5	apply the concept of Embedded firmware in design of Embedded systems. 6. design RTOS base
Name of the Subject: DIGITAL IMAGE PROCESSING	
Subject Code: OE-EE 702B	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the fundamental concepts of a digital image processing system.
CO2	enhance images in the spatial and frequency domain using various transforms.
CO3	apply different image segmentation techniques.

CO4	categorize various compression techniques.
CO5	implement image process and analysis algorithms.
CO6	apply image processing algorithms in practical applications.
Name of the Subject: COMPUTER NETWORK	
Subject Code: : OE-EE 702C	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the concepts of data communication and networking.
CO2	identify the different types of network topologies and protocols.
CO3	describe the function of a network system with OSI and TCP/IP model.
CO4	differentiate different types of routing protocol.
CO5	apply principles of congestion control .
CO6	implement different schemes for security of the networks.
Name of the Subject: PRINCIPLE OF MANAGEMENT	
Subject Code: : HM-EE 701	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the concepts and approaches of management.
CO2	demonstrate the roles, skills and functions of management.
CO3	diagnose and solve organizational problems.
CO4	identify the complexities associated with management of human resources in the organizationsa
CO5	apply different methods of Customer, Operation and Technology management.
CO6	acquire skills of good leader in an organization.
Name of the Subject: ELECTRIC DRIVE LABORATORY	
Subject Code: PC-EE 791	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. identify appropriate equipment and instruments for the experiment.
CO2	2. test the instrument for application to the experiment.
CO3	3. construct circuits with appropriate instruments and safety precautions.
CO4	4. apply different methods of control of Electric Drive in the laboratory.
CO5	5. analyse experimental data obtained in the laboratory.
CO6	6. work effectively in a team

Name of the Subject: PROJECT STAGE-I	
Subject Code: PW-EE 781 **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	The students will be able to formulate the problem
CO2	The students will be able to develop or design a solution for the problem
CO3	Build up project prototype or model in hardware or software
CO4	Analyze the experimental collected data
CO5	Do investigation/research in the problem area
CO6	Apply fundamental and specialized knowledge in the area of the problem
CO7	Students will be able to self learn new methods, tools and techniques
CO8	Students will be able to apply modern tools and techniques
CO9	Students will be able to work individually and also in team
CO10	Students will be able to communicate the details and findings of the project through Project report, Presentation, Viva
CO11	Students will be able to apply project management and economics knowledge
CO12	Students will be able to identify implications of the project in society and environment.
Name of the Subject: ELECTRIC DRIVE LABORATORY	
Subject Code: PC-EE 791 **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	Students will be able to apply fundamental and specialized knowledge to under stand the real life pro
CO2	Students will be able to understand the design and implementation aspects of engineering systems/c
CO3	Students will be able to communicate the details of training through Training Report, Presentation ar
CO4	Students will be able to understand implication of engineering solutions in social and environment pe
Name of the Subject: UTILIZATION OF ELECTRIC POWER	
Subject Code: : PC-EE 801 **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain the fundamentals of illumination and different lighting schemes.
CO2	2. explain the fundamental of Electrolytic processes, Electric heating and Welding.
CO3	3. able to select appropriate lighting, heating and welding techniques for specific applications.
CO4	4. apply different electrolysis process for different applications.
CO5	5. explain the principle of different aspect of Electric traction and control of traction motor.

Name of the Subject: LINE COMMUTATED AND ACTIVE PWM RECTIFIERS	
Subject Code: PE-EE 801A **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain the principle of operation of different converters.
CO2	2. suggest the application of different filters.
CO3	3. apply converters for different applications.
CO4	4. analyze converter circuits.
CO5	5. develop appropriate scheme for control of different converters.
CO6	6. solve numerical problems relating to different converters.
Name of the Subject: POWER SYSTEM DYNAMICS AND CONTROL	
Subject Code: PE-EE 801B **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain the model of power system components
CO2	2. select the appropriate model for required analysis.
CO3	3. analyze the performance of the system with small signal analysis.
CO4	4. evaluate the stability of the single and multi machine systems.
CO5	5. develop measures for enhancing the stability of the system.
CO6	6. Solve numerical problems of linear dynamical system, modeling of different components and
Name of the Subject: ADVANCED ELECTRIC DRIVE	
Subject Code: PE-EE 801C **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain the principle of operation of converters for AC drives.
CO2	2. model Induction and Synchronous motor by reference frame theory.
CO3	3. apply different control methods to control speed and torque of Induction and Synchronous m
CO4	4. explain the configurations and method of speed control of BLDC, PMSM and SRM.
CO5	5. realize basic blocks for DSP based motion control.
CO6	6. develop appropriate scheme for speed control of Induction and Synchronous motor.
Name of the Subject: INDUSTRIAL AUTOMATION AND CONTROL	
Subject Code: : PE-EE 801D **Year: 4TH**	

Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain the basic structure of industrial automation and control
CO2	2. classify different types of control actions of controllers.
CO3	3. analyze control strategies of different processes of industry.
CO4	4. illustrate the construction and use of different types of actuators and control valves.
CO5	5. use PLC, DCS and SCADA in advanced industrial control.
Name of the Subject: SOFT COMPUTING TECHNIQUES	
Subject Code: OE-EE 801A **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain soft computing techniques and their roles in building intelligent machines
CO2	2. anlyse the feasibility of application of soft computing techniques for a particular problem
CO3	3. effectively use existing software tools to solve real problems using a soft computing approach
CO4	4. evaluate solutions by various soft computing approaches for a given problem.
CO5	5. apply different soft computing techniques to solve Engineering problems.
Name of the Subject: BIOMEDICAL INSTRUMENTATION	
Subject Code: OE-EE 801B **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. describe the principle of medical transducers for temperature, pressure and respiration rate.
CO2	2. explain the principle of operation of Biomedical recorders, Medical Imaging equipments Surgi
CO3	3. use different Medical laboratory equipments for different tests .
CO4	4. analyze any measurement application and suggest suitable measurement methods.
CO5	5. suggest suitable imaging methodology for a specific ailment.
Name of the Subject: INTRODUCTION TO MACHINE LEARNING	
Subject Code: OE-EE 801C **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain the basics concepts and classification of Machine Learning .
CO2	2. write simple programs using python.
CO3	3. describe Supervised Learning concepts.
CO4	4. explain the concept of Support Vector Machine.
CO5	5. describe unsupervised learning concepts and dimensionality reduction techniques.

CO7	6. apply Machine Learning in a range of real-world applications .
Name of the Subject: SENSORS AND TRANSDUCERS	
Subject Code: OE-EE 801D	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain the basic principle of operation of Transducers and Sensors.
CO2	2. distinguish different sensors and transducers.
CO3	3. identify suitable transducer by comparing different industrial standards and procedures for m
CO4	4. estimate the performance of different transducers.
CO5	5. design real life electronics and instrumentation measurement systems. 6. apply smart sensor

PROGRAMME OUTCOMES (PO) BASED ON G.A.

	POS& COS	PO1	PO2	PO3	PO4	PO5
Name of the Subject: ELECTRIC CIRCUIT THEORY Subject Code: PCE301	CO1	0.65	0.65	0.65	0.65	
	CO2	0.65	0.65	0.65	0.65	
	CO3	0.65	0.65	0.65		
	CO4	0.65	0.65	0.65	0.65	
	CO5	0.65	0.65	0.65		
	CO6	0.65	0.65	0.65	0.65	0.65
Name of the Subject:ANALOG ELECTRONICS Subject Code: PCEE302	CO1	0.66	0.66	0.66	0.66	
	CO2	0.66	0.66	0.66	0.66	
	CO3	0.66	0.66	0.66		
	CO4	0.66	0.66	0.66	0.66	
	CO5	0.66	0.66	0.66		
Name of the Subject: ELECTRO MAGNETIC FIELD THEORY Subject Code: PC-EE 303	CO1	0.53	0.53	0.53	0.53	
	CO2	0.53	0.53	0.53	0.53	
	CO3	0.53	0.53	0.53	0.53	
	CO4	0.53	0.53	0.53	0.53	
	CO5	0.53	0.53	0.53	0.53	
	CO6	0.53	0.53	0.53	0.53	
Name of the Subject: ENGINEERING	CO1	0.57	0.57	0.57	0.57	
	CO2	0.57	0.57	0.57	0.57	

ENGINEERING MECHANICS Subject Code: ES-ME 301	CO3	0.57	0.57	0.57	0.57	
	CO4	0.57	0.57	0.57	0.57	
	CO5	0.57	0.57	0.57	0.57	
Name of the Subject: MATHEMATICS Subject Code: BS M 301	CO1	0.78	0.78		0.78	
	CO2	0.78	0.78		0.78	
	CO3	0.78	0.78		0.78	0.78
	CO4	0.78	0.78		0.78	
	CO5	0.78	0.78		0.78	0.78
	CO6	0.78	0.78		0.78	
Name of the Subject: BIOLOGY FOR ENGINEERS Subject Code: BS EE 301	CO1	0.75				
	CO2	0.75			0.75	
	CO3	0.75			0.75	
	CO4	0.75			0.75	
	CO5	0.75			0.75	
	CO6	0.75			0.75	
Name of the Subject: INDIAN CONSTITUTION Subject Code: MC EE 301	CO1	0.92				
	CO2					
Name of the Subject: ELECTRIC CIRCUIT THEORY LABORATORY Subject Code: PC EE 391	CO1	0.9	0.9	0.9	0.9	
	CO2	0.9	0.9	0.9	0.9	
	CO3	0.9	0.9	0.9		
	CO4	0.9	0.9	0.9	0.9	
	CO5	0.9	0.9	0.9		
	CO6	0.9	0.9	0.9	0.9	0.9
Name of the Subject: ANALOG ELECTRONICS LABORATORY Subject Code: PCEE392	CO1	0.81	0.81	0.81	0.81	
	CO2	0.81	0.81	0.81	0.81	
	CO3	0.81	0.81	0.81		
	CO4	0.81	0.81	0.81	0.81	
	CO5	0.81	0.81	0.81		
Name of the Subject: NUMERICAL METHODS LABORATORY Subject Code: BS M 301	CO1	0.84	0.84		0.84	
	CO2	0.84	0.84		0.84	
	CO3	0.84	0.84		0.84	0.84
	CO4	0.84	0.84		0.84	
	CO5	0.84	0.84		0.84	0.84

301	CO6	0.84	0.84		0.84	
Name of the Subject:ELECTRIC MACHINE I Subject Code: PC EE 401	CO1	0.77	0.77	0.77	0.77	
	CO2	0.77	0.77	0.77	0.77	
	CO3	0.77	0.77			
	CO4	0.77	0.77			
	CO5	0.77	0.77			
	CO6	0.77	0.77	0.77	0.77	
Name of the Subject: DIGITAL ELECTRONICS Subject Code: PC EE 402	CO1	0.58	0.58	0.58	0.58	
	CO2	0.58	0.58	0.58	0.76	
	CO3	0.58	0.58	0.58		
	CO4	0.58	0.58	0.58		
	CO5	0.58	0.58	0.58	0.58	
	CO6	0.58	0.58	0.58	0.58	
Name of the Subject: ELECTRICAL AND ELECTRONICS MEASUREMENT Subject Code: PC EE 403	CO1	0.72	0.72	0.72	0.72	0.72
	CO2	0.72	0.72	0.72		
	CO3	0.72	0.72	0.72		
	CO4	0.72				
	CO5	0.72			0.72	0.72
	CO6	0.72	0.72	0.72		0.72
Name of the Subject: THERMAL POWER ENGINEERING Subject Code: ES EE 401	CO1	0.61	0.61	0.61	0.61	0.61
	CO2	0.61	0.61			
	CO3	0.61	0.61	0.61		
	CO4	0.61				
	CO5	0.61			0.61	0.61
	CO6	0.61	0.61	0.61	0.61	0.61
Name of the Subject: VALUES AND ETHICS IN PROFESSION Subject Code: HM EE 401	CO1	0.72	0.72	0.72	0.72	0.72
	CO2	0.72	0.72	0.72		
	CO3	0.72	0.72	0.72		
	CO4	0.72				
	CO5	0.72			0.72	0.72
	CO6	0.72	0.72	0.72	0.72	0.72
Name of the Subject:	CO1	0.81	0.81	0.81	0.81	0.81
	CO2	0.81	0.81	0.95		

Subject: ENVIRONMENTAL SCIENCE Subject Code: MC EE 401	CO3	0.81	0.81	0.95		
	CO4	0.81				
	CO5	0.81			0.81	0.81
	CO6	0.81	0.81	0.81	0.81	0.81
Name of the Subject: ELECTRIC MACHINE I LABORATORYS ubject Code: PC EE 491	CO1	0.76	0.76	0.76	0.76	0.76
	CO2	0.76	0.76			
	CO3	0.76	0.76	0.76		
	CO4	0.76				
	CO5	0.76			0.76	0.76
	CO6	0.76	0.76	0.76	0.76	0.76
Name of the Subject: DIGITAL ELECTRONICS LABORATORY Subject Code: PC EE 492	CO1	0.92	0.92	0.92	0.92	0.92
	CO2	0.92	0.92	0.92		
	CO3	0.92	0.92	0.92		
	CO4	0.92				
	CO5	0.92			0.92	0.92
	CO6	0.92	0.92	0.92	0.92	0.92
Name of the Subject: ELECTRICAL AND ELECTRONICS MEASUREMENT LABORATORY Subject Code: PC EE	CO1	0.91	0.91	0.91	0.91	0.91
	CO2	0.91	0.91	0.91		
	CO3	0.91	0.91	0.91		
	CO4	0.91				
	CO5	0.91			0.91	0.91
	CO6	0.91	0.91	0.91	0.91	0.91
Name of the Subject: THERMAL POWER ENGINEERING LABORATORYS ubject Code: ES ME	CO1	0.87	0.87	0.87	0.87	0.87
	CO2	0.87	0.87	0.87		
	CO3	0.87	0.87	0.87		
	CO4	0.87				
	CO5	0.87			0.87	0.87
	CO6	0.87	0.87	0.87	0.87	0.87
Name of the Subject: ELECTRIC MACHINE II Subject Code: PC EE 501	CO1	0.54	0.54	0.54		
	CO2	0.54			0.54	
	CO3	0.54			0.54	
	CO4				0.54	
	CO5		0.54	0.54		0.54

501	CO6	0.54	0.54	0.54		0.54
Name of the Subject: ELECTRIC MACHINE II LABORATORY Subject Code: PC EE 591	CO1	0.84	0.84	0.84		
	CO2	0.84			0.84	
	CO3	0.84			0.84	
	CO4				0.84	
	CO5		0.84	0.84		
	CO6	0.84	0.84	0.84		
Name of the Subject: POWER SYSTEM I Subject Code: PC EE 502	CO1	0.56	0.56	0.56		
	CO2	0.56			0.56	
	CO3	0.56			0.56	
	CO4				0.56	
	CO5		0.56	0.56		
	CO6	0.56	0.56	0.56		
Name of the Subject: POWER SYSTEM I LABORATORY Subject Code: PC EE 592	CO1	0.92	0.92	0.92		
	CO2	0.92			0.92	
	CO3	0.92			0.92	
	CO4				0.92	
	CO5		0.92	0.92		
	CO6	0.92	0.92	0.92		
Name of the Subject: CONTROL SYSTEM Subject Code: PC EE 503	CO1	0.55	0.55	0.55		
	CO2	0.55			0.55	
	CO3	0.55			0.55	
	CO4				0.55	
	CO5		0.55	0.55		
	CO6	0.55	0.55	0.55		
Name of the Subject: CONTROL SYSTEM LABORATORY Subject Code: PC EE 593	CO1	0.87	0.87	0.87		
	CO2	0.87			0.87	
	CO3	0.87			0.87	
	CO4				0.87	
	CO5		0.87	0.87		
	CO6	0.87	0.87	0.87		
Name of the Subject: POWER ELECTRONICS	CO1	0.6	0.6	0.6		
	CO2	0.6				

ELECTRONICS Subject Code: PC EE 504	CO3	0.6				
	CO4					
	CO5		0.6	0.6		
	CO6	0.68	0.6	0.6		
Name of the Subject: POWER ELECTRONICS LABORATORY Subject Code: PC EE 594	CO1	0.92	0.92	0.92		
	CO2	0.92				
	CO3	0.92				
	CO4					
	CO5		0.92	0.92		
	CO6	0.92	0.92	0.92		
Name of the Subject: HIGH VOLTAGE ENGINEERING Subject Code: EE PE 501 A	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: RENEWABLE AND NON CONVENTIONAL ENERGY Subject Code: EE PE 501 C	CO1	0.72	0.72	0.72	0.72	
	CO2	0.72	0.72			
	CO3	0.72	0.72			
	CO4	0.72				
	CO5	0.72		0.72	0.72	
	CO6	0.72	0.72	0.72	0.72	
Name of the Subject: DATA STRUCTURE AND ALGORITHM Subject Code: OE EE 501A	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: OBJECT ORIENTED PROGRAMMING Subject Code: OE EE 501B	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA

301B	CO6	NA	NA	NA	NA	NA
Name of the Subject: COMPUTER ORGANISTION AND ARCHITECTURE Subject Code: OE EE	CO1		0.71	0.71	0.71	
	CO2	0.71	0.71			
	CO3	0.71	0.71			
	CO4	0.71				
	CO5	0.71		0.71	0.71	
	CO6	0.71	0.71	0.71	0.71	
Name of the Subject: POWER SYSTEM II Subject Code: PC EE 601	CO1	0.65	0.65	0.65	0.65	
	CO2	0.65	0.65			
	CO3	0.65	0.65			
	CO4	0.65				
	CO5	0.65		0.65	0.65	
	CO6	0.65	0.65	0.65	0.65	
Name of the Subject: POWER SYSTEM II LABORATORY Subject Code: PC EE 691	CO1	0.91	0.91	0.91	0.91	
	CO2	0.91	0.91			
	CO3	0.91	0.91			
	CO4	0.91				
	CO5	0.91		0.91	0.91	
	CO6	0.91	0.91	0.91	0.91	
Name of the Subject: MICRO PROCESSOR AND MICROCONTROLLER Subject Code: PC EE 602	CO1	0.65	0.65	0.65	0.65	
	CO2	0.65	0.65			
	CO3	0.65	0.65			
	CO4	0.65	0.65			0.65
	CO5	0.65	0.65	0.65	0.65	0.65
	CO6	0.65	0.65	0.65	0.65	0.65
Name of the Subject: MICRO PROCESSOR AND MICROCONTROLLER LABORATORY Subject Code: PC EE 692	CO1	0.92	0.92	0.92	0.92	
	CO2	0.92	0.92			
	CO3	0.92	0.92			
	CO4	0.92	0.92			0.92
	CO5	0.92	0.92	0.92	0.92	0.92
	CO6	0.92	0.92	0.92	0.92	0.92
Name of the Subject: ELECTRICAL AND ELECTRONIC DESIGN	CO1	0.89	0.89	0.89	0.89	0.89
	CO2	0.89	0.89			0.89

ELECTRONIC DESIGN LABORATORY Subject Code: PC EE 681	CO3	0.89	0.89			
	CO4	0.89	0.89			
	CO5	0.89	0.89	0.89	0.89	0.89
	CO6	0.89	0.89	0.89	0.89	0.89
Name of the Subject: ELECTRICAL AND ELECTRONIC DESIGN LABORATORY Subject Code: PC EE 681	CO1	0.68	0.68	0.68	0.68	
	CO2	0.68			0.68	
	CO3	0.68			0.68	
	CO4	0.68			0.68	
	CO5	0.68	0.68	0.68	0.68	
	CO6	0.68	0.68	0.68	0.68	
Name of the Subject: HVDC TRANSMISSION Subject Code: PE EE 601B	CO1	0.64	0.64	0.64	0.64	
	CO2	0.64			0.64	
	CO3	0.64			0.64	
	CO4	0.64			0.64	
	CO5	0.64	0.64	0.64	0.64	
	CO6	0.64	0.64	0.64	0.64	
Name of the Subject: ELECTRICAL MACHINE DESIGN Subject Code: PE EE 601C	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: POWER QUALITY AND FACTS Subject Code: PE EE 602 B	CO1	0.61	0.61	0.61	0.61	
	CO2	0.61	0.61	0.61	0.61	
	CO3	0.61	0.61			
	CO4	0.61	0.61			
	CO5	0.61	0.61	0.61	0.61	
	CO6	0.61	0.61	0.61	0.61	
Name of the Subject: DIGITAL SIGNAL PROCESSING Subject Code: OE EE 601 A	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA

A	CO6	NA	NA	NA	NA	NA
Name of the Subject: COMMUNICATION ENGINEERING Subject Code: OE EE 601 B	CO1	0.62	0.62	0.62	0.62	
	CO2	0.62	0.62	0.62	0.62	
	CO3	0.62			0.62	
	CO4	0.62	0.62	0.62	0.62	
	CO5	0.62				
	CO6	0.62	0.62	0.62	0.62	
Name of the Subject: ECONOMICS FOR ENGINEERS Subject Code: HM EE 601	CO1	0.57	0.57	0.57	0.57	
	CO2	0.57	0.57	0.57	0.57	
	CO3	0.57	0.57	0.57	0.57	
	CO4	0.57	0.57		0.57	
	CO5	0.57	0.57		0.57	
	CO6	0.57	0.57		0.57	
Name of the Subject: ELECTRIC DRIVE Subject Code: PC EE 701	CO1	0.61	0.61	0.61	0.61	0.61
	CO2	0.61	0.61			0.61
	CO3	0.61				0.61
	CO4	0.61	0.61	0.61	0.61	0.61
	CO5	0.61	0.61	0.61		
	CO6	0.61	0.61	0.61		0.61
Name of the Subject: ELECTRIC DRIVE LABORATORY Subject Code: PC EE 791	CO1	0.95	0.95	0.95	0.95	0.95
	CO2	0.95	0.95			0.95
	CO3	0.95				0.95
	CO4	0.95	0.95	0.95	0.95	0.95
	CO5	0.95	0.95	0.95		
	CO6	0.95	0.95	0.95		0.95
Name of the Subject: CONTROL SYSTEM DESIGN Subject Code: PE EE 701 A	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: ELECTRICAL ENERGY CONSERVTION AND	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA

CONSERVATION AND AUDITING Subject Code: PE EE 701 B	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: POWER GENERATION ECONOMICS Subject Code: PE EE 701 C	CO1	0.76	0.76	0.76		0.76
	CO2	0.76	0.76	0.76		0.76
	CO3	0.76	0.76	0.76		
	CO4	0.76	0.76	0.76		
	CO5	0.76	0.76	0.76		0.76
	CO6	0.76	0.76	0.76		0.76
Name of the Subject: ARTIFICIAL INTELLIGENCE Subject Code: OE EE 701 A	CO1	0.74	0.74	0.74	0.74	0.74
	CO2	0.74	0.74	0.74	0.74	
	CO3	0.74				0.74
	CO4	0.74				0.74
	CO5	0.74	0.74	0.74	0.74	0.74
	CO6	0.74	0.74	0.74	0.74	0.74
Name of the Subject: INTERNET OF THINGS Subj ect Code: OE EE 701 B	CO1	0.61	0.61	0.61		
	CO2	0.61	0.61		0.61	0.61
	CO3	0.61	0.61		0.61	0.61
	CO4	0.61	0.61		0.61	0.61
	CO5	0.61	0.61			0.61
	CO6	0.61	0.61	0.61	0.61	0.61
Name of the Subject: COMPUTER GRAPHICS Subject Code: OE EE 701 C	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: EMBEDDED SYSTEM Subj ect Code: OE EE 702 A	CO1	0.63	0.63	0.63		
	CO2	0.63	0.63	0.63	0.63	
	CO3	0.63		0.63	0.63	
	CO4	0.63	0.63		0.63	
	CO5	0.63	0.63	0.63		

A	CO6	0.63	0.63		0.63	
Name of the Subject: DIGITAL IMAGE PROCESSING Subject Code: OEEE 702 B	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: COMPUTER NETWORK Subject Code: OEEE 702 C	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: PRINCIPLE OF MANAGEMENT Subject Code: HMEE 701	CO1	0.7	0.7			
	CO2	0.7	0.7			
	CO3	0.7	0.7			
	CO4	0.7	0.7			
	CO5	0.7	0.7			
	CO6	0.7	0.7			
Name of the Subject: PROJECT STAGE I Subject Code: PW EE 781	CO1	0.92	0.92	0.92	0.92	0.92
	CO2	0.92	0.92	0.92	0.92	
	CO3	0.92	0.92	0.92	0.92	
	CO4	0.92	0.92	0.92	0.92	
	CO5	0.92	0.92	0.92		
	CO6	0.92	0.92	0.92	0.92	
Name of the Subject: SEMINAR Subject Code: PW EE 781	CO1	0.9	0.9	0.9	0.9	0.9
	CO2	0.9	0.9	0.9	0.9	
	CO3	0.9	0.9	0.9	0.9	
	CO4	0.9	0.9	0.9	0.9	
	CO5	0.9	0.9	0.9	0.9	
	CO6	0.9	0.9	0.9	0.9	
Name of the Subject: UTILISATION OF	CO1	0.65	0.65			
	CO2	0.65	0.65			

ELECTRIC POWER Subject Code: PC EE 801	CO3	0.65	0.65			
	CO4	0.65	0.65			0.65
	CO5	0.65	0.65			0.65
	CO6	0.65	0.65			0.65
Name of the Subject: POWER SYSTEM DYNAMICS AND CONTROL Subject Code: PE EE 801 B	CO1	0.69	0.69	0.69	0.69	
	CO2	0.69	0.69	0.69	0.69	
	CO3	0.69	0.69	0.69	0.69	0.69
	CO4	0.69	0.69	0.69	0.69	
	CO5	0.69	0.69	0.69	0.69	
	CO6	0.69	0.69	0.69	0.69	
Name of the Subject: SENSORS AND TRANSDUCERS Subject Code: OE EE 801 D	CO1	0.62	0.62			
	CO2	0.62	0.62		0.62	
	CO3	0.62	0.62			0.62
	CO4	0.62	0.62		0.62	
	CO5	0.62	0.62		0.62	
	CO6	0.62	0.62		0.71	0.71
Name of the Subject: PROJECT STAGE II Subject Code: PW EE 881	CO1	0.94	0.94	0.94	0.94	0.94
	CO2	0.94	0.94	0.94	0.94	
	CO3	0.94	0.94	0.94	0.94	
	CO4	0.94	0.94	0.94	0.94	
	CO5	0.94	0.94	0.94	0.94	
	CO6	0.94	0.94	0.94	0.94	
AVERAGE		0.737713311	0.735826446	0.742857143	0.732707182	0.7656

PO	PO1	PO2	PO3	PO4	PO5	PO6
AVERAGE	0.737713311	0.738617572	0.736899277	0.744404762	0.733626151	0.7656
PERCENTAGE(%)	73	73	73	74	73	76

s of mathematics, natural sciences, and engineering sciences.

onents or processes that meet the specified needs with appropriate consideration for public health and

xperiments, analysis and
sions.

gineering and IT tools, including prediction and modelling to complex engineering activities, with an

alth, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional

nd environmental contexts, and demonstrate the knowledge of, and need for sustainable development

nd environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
s and norms of the engineering practice
ams, and in multidisciplinary settings.
ng community and with t h e society at large, such as, being able to comprehend and write effective reports ve clear instructions.
ement principles and apply these to one’s own work, as a member and leader in a team, to manage projects
dependent and life-long learning in the broadest context of technological change.

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electronic circuits.	66
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f rigid bodies.	77
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l self-government.Structure, jurisdiction and function of Indian Judiciary,Basics of PIL and guideline for	92
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e transform and inverse Laplace transform	90
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lator IC chip.timer circuit using 555 for monostable, astable and multistable, multivibrator. V to I and I to V	92
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e not limited. Institute may redefine outcomes based their program educational objective.	92
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s of the converter	68
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sulating material and dielectric constant of transformer oil.	92
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:h analog, digital, mixed signal, microcontroller and PCB	89
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f Embedded Systems	63
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d Embedded systems.	63
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ınd integrate the learning in handling these complexities.	76
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erspective.	95
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cal & Therapeutic Instruments and Medical Laboratory Instruments.	NA
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easurement of physical parameters	81
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s, bio-sensors, PLC and Internet of Things to different applications.	81

PO6	PO7	PO8	PO9	PO10	PO11	PO12

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	0.92	0.92				
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0.68	0.68					
0.68	0.68					
0.68	0.68		0.68			
			0.68			
0.64	0.64					
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NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
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0.61	0.61					
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NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
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NA	NA	NA	NA	NA	NA	NA

NA	NA	NA	NA	NA	NA	NA
0.62	0.62	0.62				
0.62		0.62				
0.62		0.62				
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0.57					0.57	0.76
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0.731506849	0.728064516	0.774166667	0.736969697	0.797777778	0.737	0.766315789

PO7	PO8	PO9	PO10	PO11	PO12
0.731506849	0.728064516	0.774166667	0.736969697	0.797777778	0.737
73	**72**	**77**	**73**	**79**	**73**

CALCUTTA INSTITUTE OF ENGINEERING AND MANAGEMENT
DEPARTMENT OF INFORMATION TECHNOLOGY
CO-PO ATTAINMENT REPORT 2022_23

Paper Name	COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P9	P10	P11	P12
BS PH-101	CO1	0.81											
	CO2		0.72	0.72									
	CO3	0.75			0.75								
	CO4					0.83							
	CO5		0.69		0.69								
	CO6			0.79	0.79								
BS-M(101)	CO1	0.75	0.75										
	CO2	0.9		0.9									
	CO3	0.72	0.72										
ES-EE101	CO1	0.7	0.7										
	CO2	0.75											
	CO3	0.7						0.7					
BS PH-191	CO1			0.72	0.72								
	CO2			0.8	0.8								
	CO3			0.78	0.78								
	CO4		0.85	0.85	0.85								
	CO5		0.75	0.75									
ES-EE191	CO1	0.75											
	CO2		0.65	0.65									
	CO3		0.7	0.7				0.7					
ES - ME 192	CO1			0.7									
	CO2	0.7		0.7									
	CO3			0.65									
	CO4	0.7	0.7										
BS CH-201	CO1		0.69	0.69									
	CO2	0.72											
	CO3	0.78											
	CO4	0.81											

	CO5			0.82	0.82	0.82							
BS-M201	CO1	0.9											
	CO2	0.75	0.75	0.75									
	CO3					0.7							
	CO4										0.85		
ES-CS201	CO1		0.75	0.75									
	CO2	0.62	0.62	0.62									
	CO3	0.65	0.65	0.65	0.65	0.65							
	CO4		0.65		0.65								
HM-HU201	CO1	0.62									0.62		
	CO2	0.58											
	CO3	0.75	0.75										
	CO4	0.64	0.64										
BS CH-291	CO1		0.72	0.72									
	CO2			0.78	0.78			0.78					
	CO3		0.83	0.83									
	CO4		0.76	0.76									
	CO5		0.84	0.84									
ES-CS291	CO1		0.9										
	CO2			0.9									
	CO3			0.8									
	CO4		0.85	0.85									
	CO5			0.75									
	CO6			0.8									
	CO7		0.8	0.8									
	CO8			0.8									
ES-ME291	CO1	0.75											
	CO2	0.7		0.7									
	CO3	0.65											
	CO4	0.65	0.65										
HM-HU291	CO1	0.55											
	CO2										0.54		

HM-HU291	CO3		0.77	0.77									
	CO4	0.67	0.67										
ESC301	CO1	0.6		0.6									
	CO2	0.62	0.62	0.62									
	CO3		0.55	0.55									
PCC-CS301	CO1	0.79	0.79										
	CO2		0.83	0.83									
	CO3			0.8	0.8								
	CO4		0.82		0.82								
	CO5		0.71	0.71									
PCC-CS302	CO1	0.7	0.7										
	CO2			0.75									
	CO3		0.7		0.7								
	CO4			0.65	0.65	0.65							
BSC-301	CO1	0.7	0.7										
	CO2	0.72	0.72	0.72									
	CO3			0.75	0.75								
	CO4			0.7	0.7								
	CO5		0.74			0.74							
HSMC 301	CO1		0.58	0.58									
	CO2		0.59									0.59	0.59
	CO3							0.61					
ESC391	CO1			0.7									
	CO2			0.65	0.65								
	CO3			0.7									
PCC-CS391	CO1	0.85		0.85		0.85							
	CO2	0.8		0.8		0.8							
	CO3				0.82	0.82							0.82
PCC CS-392	CO1		0.8										
	CO2			0.8									
	CO3			0.8		0.8							
	CO4			0.8		0.8							
	CO1	0.83				0.83							

PCC-CS393	CO2		0.85	0.85						0.85			
	CO3	0.82		0.82		0.82							
	CO4	0.74	0.74	0.74	0.74								
PCC-CS401	CO1	0.75											
	CO2	0.8	0.8										
	CO3	0.75	0.75										
	CO4	0.8	0.8										
	CO5			0.75		0.75							
PCC-CS402	CO1	0.75	0.75	0.75		0.75							
	CO2	0.85	0.85	0.85		0.85							
	CO3	0.85	0.85	0.85	0.85	0.85						0.8	
PCC-CS403	CO1	0.66											
	CO2		0.62	0.62									
	CO3			0.56									
	CO4				0.72								0.72
PCC-CS404	CO1	0.6	0.85										
	CO2		0.75	0.75									
	CO3		0.8	0.8									
	CO4		0.75	0.75									
	CO5		0.85	0.85									
	CO6		0.7	0.7									
	CO7		0.65			0.65							
	CO8		0.65			0.65							
BSC 401	CO1	0.82	0.82		0.82								
	CO2	0.81	0.81										
	CO3		0.78		0.78								
	CO4		0.83		0.83								
	CO5		0.75	0.75				0.75					
	CO6	0.79	0.79										
MC 401	CO1			0.8			0.8	0.8					
	CO2			0.82			0.82	0.82					
	CO3			0.84		0.84	0.84	0.84					

MC 401	CO4			0.8	0.8			0.8					
	CO5		0.88	0.88				0.88	0.88		0.88		
	CO6						0.89	0.89	0.89		0.89		
PCC-CS 492	CO1		0.95	0.95		0.95							
	CO2		0.8	0.8									
PCC-CS494	CO1			0.8	0.85								
	CO2		0.75									0.75	
	CO3			0.7		0.7							
	CO4			0.75	0.75							0.75	
	CO5		0.6	0.6									
ESC-501	CO1	0.85	0.85	0.85									
	CO2	0.8	0.8										
	CO3			0.9		0.9							
	CO4	0.7											
	CO5			0.65	0.65	0.65						0.65	
PCC-CS501	CO1	0.9	0.9	0.9									
	CO2			0.85		0.85							
	CO3			0.8							0.8		
	CO4			0.75	0.75								
PCC-CS502	CO1	0.6	0.6										
	CO2		0.7	0.7	0.7								
	CO3	0.65		0.65									0.65
	CO4		0.6		0.6								
PCC-CS503	CO1	0.7	0.7										
	CO2			0.8	0.8								
	CO3		0.65	0.65	0.65								
	CO4			0.8		0.8							
HSMC 501	CO1	0.59	0.59					0.59					
	CO2		0.61	0.61									
	CO3		0.62								0.62		
	CO1	0.6				0.6	0.6						
	CO2			0.7	0.7						0.7		

PEC-IT501B	**CO3**							**0.75**					
	CO4		**0.7**					**0.7**					
	CO5			**0.6**	**0.6**						**0.6**		
PEC-IT501C	**CO1**	**0.7**		**0.7**								**0.7**	
	CO2	**0.85**	**0.85**										
	CO3	**0.75**	**0.75**										
	CO4		**0.7**	**0.7**	**0.7**								
	CO5		**0.65**	**0.65**		**0.65**							
MC-CS501	**CO1**								**0.72**	**0.72**	**0.72**		**0.72**
ESC-591	**CO1**	**0.85**	**0.85**										
	CO2	**0.9**		**0.9**		**0.9**							
	CO3			**0.6**	**0.6**								
	CO4	**0.75**	**0.75**										
PCC-CS592	**CO1**	**0.6**		**0.6**									
	CO2	**0.7**		**0.7**									
	CO3	**0.65**		**0.65**									
PCC-CS593	**CO1**	**0.93**				**0.93**							
	CO2	**0.92**		**0.92**		**0.92**							
	CO3			**0.95**	**0.95**	**0.95**							**0.95**
PCC-CS601	**CO1**	**0.9**	**0.9**			**0.9**							
	CO2		**0.62**	**0.62**	**0.62**								
	CO3		**0.71**		**0.71**								
	CO4		**0.69**	**0.69**									
	CO5	**0.65**		**0.65**									
	CO6		**0.8**				**0.8**						**0.8**
PCC-CS602	**CO1**	**0.7**	**0.7**	**0.7**	**0.7**								
	CO2		**0.7**	**0.7**	**0.7**								
	CO3		**0.75**		**0.75**	**0.75**							**0.75**
PEC-IT601A	**CO1**		**0.65**		**0.65**								
	CO2												**0.6**
	CO3		**.**					**0.6**					
	CO4		**0.55**					**0.55**					

PEC-IT602D	CO1							0.9					
	CO2		0.55		0.55								
	CO3	0.86				0.86	0.86					0.86	
	CO4	0.6				0.6	0.6						
	CO5				0.75								
OEC-IT601B	CO1				0.75								
	CO2				0.6								
	CO3	0.7				0.7	0.7					0.7	
	CO4								0.75				
	CO5		0.6										
	CO6			0.6	0.6								
PROJ-CS601	CO1		0.78										
	CO2				0.82	0.82							
	CO3								0.67				
	CO4						0.79						
	CO5						0.75						
	CO6							0.85					
PCC-CS691	CO1	0.9		0.9		0.9							
	CO2			0.92		0.92							
	CO3			0.9		0.9							
	CO4			0.7		0.7							
	CO5	0.75				0.75							0.75
PCC-CS692	CO1		0.9										
	CO2	0.9	0.9										
	CO3			0.9									
	CO4			0.8	0.8								
PEC-IT701C	CO1		0.85										
	CO2	0.75	0.75										
	CO3	0.65						0.65					
	CO4												0.7
PEC-IT702A	CO1	0.77	0.77	0.77									
	CO2			0.76	0.76	0.76							

[illegible]	CO3					0.73							
	CO4			0.72		0.72						0.72	
OEC-IT701C	CO1						0.83						
	CO2									0.81			0.81
	CO3								0.74	0.74			
	CO4						0.68				0.68		
HSMC 701	CO1						0.58	0.58					
	CO2										0.59	0.59	0.59
	CO3		0.6									0.6	0.6
PROJ-IT 781	CO1				0.77					0.77			
	CO2		0.78							0.78	0.78		
	CO3		0.8	0.8									
	CO4			0.81	0.81								
	CO5							0.82				0.82	
	CO6									0.82	0.82	0.82	
PEC-IT801B	CO1		0.8										
	CO2		0.7	0.7									
	CO3		0.78										
	CO4			0.82	0.82								
OEC-IT801A	CO1							0.55					
	CO2		0.5					0.5					
	CO3				0.6								
	CO4				0.55								
	CO5				0.5								
OEC-IT802A	CO1		0.75										
	CO2		0.65	0.65		0.65							
	CO3					0.7							0.7
	CO4			0.7	0.7								
PROJ CS 881	CO1			0.78		0.78						0.78	
	CO2					0.82				0.82			
	CO3					0.81		0.81		0.81			
	CO4								0.8			0.8	0.8
	CO5									0.82	0.82		

	CO6						**0.85**	**0.85**	**0.85**			**0.85**	**0.85**
Average PO Attainment		0.741446	0.73513	0.751984	0.725333	0.784706	0.759333	0.7308	0.7875	0.794	0.727333	0.73625	0.729412

2018 Odd Semester: Subject Code & Subject Name	CO	Attainment
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 and 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 analyze the various facets of organization behavior including personality, perception, and attitude and job satisfaction.	72%
	CO2: The student will be able to understand the various organization theories and analyze group behavior, conflict, change and leadership concepts.	72%
MB 103 Business Communication	CO 1 To demonstratecompetenceinverbalbusinesscommunication &"ProcessofCommunicationinanorganization"	83%
	CO2 Todemonstratecompetenceinthefundamentalsofbusiness writing & willenablethestudentstoaugmenttheirreportwritingskills	84%

	CO3ItwillhelpthemtoidentifytheBarriersofCommunication and measures to overcome.	83%
	CO4Itwillenable themtoapply 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.	80%
	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	79%
MB 105	CO1 Students will be able to contemplate the ethical standards to be maintained in professional set ups.	60%
	CO 2:Students will be able to analyze Indian values related to business enterprises and merge them with relevant global concepts.	60%
	CO3: Students will be able to work comfortably in the professional world.	60%
	CO4: Students will be able to emerge as successful Managers/ leaders and lead a bright life	60%
MB 106	CO1 Understanding the concept of	65%

	business or industry related operational problems and then applying the knowledge of Operations Research to solve those problems.	
	CO2 Understanding the concept of Probability and Statistics to analyze the problems of Business processes.	65%

3rd Semester

Subject Code & Subject Name	CO	Attainment
MB 301 ENTREPRENEURSHIP & PROJECT MANAGEMENT	CO 1: Understand the concept of management, Organization, planning,	79%

	Staffing and learn the Project evaluation, termination, and controlling process	
	CO2: To evaluate the role of entrepreneurs in economic development, and barriers, Identification of business opportunities, and feasibility studies	80%
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	CO !: 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	83%
	CO2: The student will be able to evaluate effective team building strategies and apply knowledge in solving	83%

	contemporary issues related with teams in modern organisations.	
HRM 304 Organizational Design	CO1: To apply organization theory for better understanding of organizational structure and design	83%
	CO2: To analyze different organizational models for reshaping organizations.	82%
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 &	78%

	social Media program & Develop return on investment model for any digital & social marketing program	
	CO4: Apply creative ideas or evolve with existing ideas for development of effective digital & social marketing communication	82%
MM 303 :Integrated Marketing Communication	CO1: To explain the understanding of essential concepts & techniques for the development & designing of an effective IMC program	82%
	CO2: Applying concepts, approaches & the practical aspects of various communication tools	82%
	CO3: Analyze effectiveness of different IMC tools for business firms	77%
	CO4: Apply creative ideas for development of	82%

	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.	77%
	CO2: To describe and evaluate the risks involv in projects and associate costs as demonstrate the control and closure proc related to project management.	75%
FM 304 Corporate Finance	CO1:To define and 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%

2019 Even Semester

2ND Semester

Subject Code & Subject Name	CO	Attainment

MB 201 Indian Economy and Policy	CO1: To Explain and design concepts of circular flow, theor income determination, infl unemployment, LPG model, as we banking, trade policy and mon reforms.	85%
	CO2: To Develop ideas of the Indian Economy and grasp the importance planning undertaken by the governm of India.	83%
MB 202 Financial Reporting, Statement and Analysis	CO1: To explain the understandin the concepts and apply them in pra life like basic financial accou concept, preparing books of acc introduction of Accounting Stan preparation of financial statements its analysis.	71%
	CO2: To Summarize the fina transactions in terms of Fina Statements and interpret Fina Statements by using different fina tools and techniques.	74%
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	79%

	analysis skill for developing innovative marketing strategies for firms	
MB 204 OPERATIONS MANAGEMENT	CO1: To understand the suitable control technique in stores, Inventory, and vendor management is adopted for the production is identified.	81%
	CO2 : To analyze the scheduling techniques applied in the operations were learned by the students	79%
MB 205 MANAGEMENT INFORMATION SYSTEM	CO1 :To identify the technologies and methods used for effective decision-making in an organization	81%
	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.	83%
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.	82%
	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.	81%

4th Semester

Subject Code & Subject Name	CO	Attainment
HR 401 : MANPOWER PLANNING, RECRUITMENT& SELECTION	CO1: Student will be able to understand and analyze the various manpower planning mechanisms in an	80%

	organization including forecasting techniques, management information systems and human resources audits.	
	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.	70%
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	80%

	International human resources management and development including the recruitment processes of such candidates.	
	CO2: The student will be able to remember and apply legislative measures meant for industrial relations,CSR and employee representation in the international sector and create compensation plans commensurate with the same.	70%
MM 401	CO1:Analysis consumer 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.	72%
	CO2: Students will develop the understanding of characteristics and	78%

	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 Management	CO1: To explain the understanding of sales & distribution processes in Organization	77%
	To get familiarized with concepts, approaches & the practical aspects of the key decision-making variables in sales management & distribution channel management	75%
	CO3: To explain market analysis methods & selling concepts	78%
	CO4: To develop Performance	76%

	evaluation methods, ethics, trends in sales & distribution management	
MM 404: Service Marketing	CO1: To explain the understanding of types, nature, classification & marketing mix of service marketing	77%
	CO2: Analyze service product concept, branding & service positioning that transforming service marketing to a great extent	75%
	CO3: To explain market analysis methods of service marketing	78%
	CO4: Demonstrate the role of identifying the people in service & the role of customer in service delivery	76%
MM 406: International Marketing	CO1: To explain the understanding of global business activities, marketing processes in international business	77%
	To get familiarized with concepts, approaches & the practical aspects of the key decision-	75%

	making variables & global forces that transforming international marketing	
	CO3: To develop general perspective about managing international marketing	76%
	CO4: To develop evaluation methods for International Marketing both in operational as well as strategic context	78%
OM 402 Behavioral Operations Management	CO1: To apply experimental learning theories & organizational behavior to ensure performance in work design	83%
	CO2: To understand emotional intelligence in operations management & supply chain management	82%
FM 401 Investment Analysis & Portfolio Management	CO1To explain the understanding of the concep and apply them like portfolio diversification, Construction, portfolio management, portfolio revi portfolio evaluation, portfolio protec and portfolio performance measures.	77%
	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.	80%
	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, international monetary System, balance of payments, exchange rate determination and foreign exchange market.	75%
	CO2Evaluate and analyse the fundamentals & technical aspects of International financial market.	72%
FM406 Financial Markets and Services	CO1To Discuss the Indian Financial System and multiplicity of Financial Instruments and understand the Indian finan system, money market, secondary market, SEBI, m Funds and credit rating agencies.	76%
	CO2 Examine Mutual Fund Merchant Banking under th nodal agency SEBI.	80%

2019 odd semester

Subject Code & Subject Name	CO	Attainment
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 analyze the various facets of organization behavior including personality, perception, and attitude and job satisfaction.	81%
	CO2: The student will be able to understand the various organization theories and analyse group behavior, conflict, change and leadership concepts.	82%
MB 103 Business Communication	CO 1 To demonstratecompetenceinverbalbusinesscommunication &"ProcessofCommunicationinanorganization"	83%
	CO2 To demonstratecompetenceinthefundamentalsof	84%

	business writing & willenablethestudentstoaugmenttheirreportwritingskills	
	CO3 Itwillhelpthemtoidentifythe‘BarriersofCommunication and measures to overcome.	83%
	CO4 Itwillenable themtoapply 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.	80%
	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	81%
MB 105	CO1 Students will be able to contemplate the ethical standards to be maintained in professional set ups	80%
	CO2 Students will be able to contemplate the ethical standards to be maintained in professional set ups	80%
	CO3 Students will be able to work comfortably in the professional world	80%

	CO4 Students will be able to emerge as successful Managers/ leaders and lead a bright life	80%
MB 106	CO1 Understanding the concept of business or industry related operational problems and then applying the knowledge of Operations Research to solve those problems.	65%
	CO2 Understanding the concept of Probability and Statistics to analyze the problems of Business processes.	65%

3rd Semester

Subject Code & Subject Name	CO	Attainment
MB 301 ENTREPRENEURSHIP & PROJECT MANAGEMENT	CO1 : Understand the concept of management, Organization, planning, Staffing and learn the Project evaluation, termination, and	67%

	controlling process	
	CO2: To evaluate the role of entrepreneurs in economic development, and barriers, Identification of business opportunities, and feasibility studies.	61%
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	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.	69%
	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	67%
HRM 304 Organizational Design	CO1: To apply	83%

	organization theory for better understanding of organizational structure and design	
	CO2: To analyze different organizational models for reshaping organizations.	82%
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	78%

	for any digital & social marketing program	
	CO4: Apply creative ideas or evolve with existing ideas for development of effective digital & social marketing communication	82%
MM 303 :Integrated Marketing Communication	CO1: To explain the understanding of essential concepts & techniques for the development & designing of an effective IMC program	82%
	CO2: Applying concepts, approaches & the practical aspects of various communication tools	82%
	CO3: Analyze effectiveness of different IMC tools for business firms	77%
	CO4: Apply creative ideas for development of effective marketing communication	82%
FM 302 Project Appraisal and Finance	CO1: To define the Pr	77%

	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.	75%
FM 304 Corporate Finance	CO1:To define and 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%

2020 Even Semester

2ND Semester

Subject Code & Subject Name	CO	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	85%

	monetary reforms.	
	CO2: To Develop ideas of the In Economy and grasp the importa of planning undertaken by the government of India.	83%
MB 202 Financial Reporting, Statement and Analysis	CO1: To explain the understar of the concepts and apply the practical life like basic fina accounting concept, preparing b of accounts, introduction Accounting Standard, preparati financial statements and its anal	71%
	CO2: To Summarize the fina transactions in terms of Fina Statements and interpret Fina Statements by using diff financial tools and techniques.	74%
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	79%

	firms	
MB 204 OPERATIONS MANAGEMENT	CO1 :To understand the suitable control technique in stores, Inventory, and vendor management is adopted for the production is identified.	75%
	CO2: To analyze the scheduling techniques applied in the operations were learned by the students	91%
MB 205 : MANAGEMENT INFORMATION SYSTEM	CO1 : To identify the technologies and methods used for effective decision-making in an organization	75%
	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.	92%
MB 206 HUMAN RESOURCE MANAGEMENT	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.	91%
	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.	67%

4th Semester

Subject Code & Subject Name	CO	Attainment
HR 401 MANPOWER PLANNING, RECRUITMENT&	CO1 : Student will be able to understand and	94%

SELECTION	analyze the various manpower planning mechanisms in an organization including forecasting techniques, management information systems and human resources audits.	
	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.	81%
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 candidates.	94%
	CO2: The student will be able to remember and apply legislative measures meant for industrial relations ,CSR and employee representation in the international sector and create compensation plans commensurate with the same.	81%
MM 401	CO1:Analysis consumer 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.	82%
	CO2: Students will develop the	83%

	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 Management	CO1: To explain the understanding of sales & distribution processes in Organization	77%
	To get familiarized with concepts, approaches & the practical aspects of the key decision-making variables in sales management & distribution channel management	75%
	CO3: To explain market analysis methods & selling concepts	78%
	CO4: To develop	76%

	Performance evaluation methods, ethics, trends in sales & distribution management	
MM 404: Service Marketing	CO1: To explain the understanding of types, nature, classification & marketing mix of service marketing	77%
	CO2: Analyze service product concept, branding & service positioning that transforming service marketing to a great extent	75%
	CO3: To explain market analysis methods of service marketing	78%
	CO4: Demonstrate the role of identifying the people in service & the role of customer in service delivery	76%
MM 406: International Marketing	CO1: To explain the understanding of global business activities, marketing processes in international business	77%
	To get familiarized with concepts, approaches & the practical aspects of	75%

	the key decision-making variables & global forces that transforming international marketing	
	CO3: To develop general perspective about managing international marketing	76%
	CO4: To develop evaluation methods for International Marketing both in operational as well as strategic context	78%
FM 401 Investment Analysis & Portfolio Management	CO1To explain the understanding of the concep and apply them like portfolio diversification, Construction, portfolio management, portfolio revi portfolio evaluation, portfolio protec and portfolio performance measures.	77%
	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.	80%
	CO2 Evaluate and analyse the fundamentals & technical aspects of	79%

	managing banks and financial institutions.	
FM405International Finance	CO1To explain the understanding of the concepts and apply them like international financial management, international monetary System, balance of payments, exchange rate determination and foreign exchange market.	75%
	CO2Evaluate and analyse the fundamentals & technical aspects of International financial market.	72%
FM406 Financial Markets and Services	CO1To Discuss the Indian Financial System and multiplicity of Financial Instruments and understand the Indian finan system, money market, secondary market, SEBI, m Funds and credit rating agencies.	76%
	CO2 Examine Mutual Fund Merchant Banking under th nodal agency SEBI.	80%

2020 odd semester

Subject Code & Subject Name	CO	Attainment

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 demonstratecompetenceinverbalbusinesscommunication &"ProcessofCommunicationinanorganization"	83%
	CO2 To demonstratecompetenceinthefundamentalsof business writing & willenablethestudentstoaugmenttheirreportwritingskills	84%
	CO3 Itwillhelpthemtoidentifythe'BarriersofCommunication and measures to overcome.	83%
	CO4 Itwillenable themtoapply the expertise to frame professional cover letter and professional resume.	82%
MB 104	CO1: Student will develop an understanding of different conditions & warranties, the	79%

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

3rd Semester

Subject Code & Subject Name	CO	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	81%

	management in organization.	
	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 for reshaping organizations.	82%
MM 302: Digital & Social Media Marketing	CO1: To explain the understanding of digital & social media marketing	81%

	plan that will address common marketing challenges	
	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 existing ideas for development of effective digital & social marketing communication	82%
MM 303 :Integrated Marketing	CO1: To explain the understanding	82%

Communication	of essential concepts & techniques for the development & designing of an effective IMC program	
	CO2: Applying concepts, approaches & the practical aspects of various communication tools	82%
	CO3: Analyze effectiveness of different IMC tools for business firms	77%
	CO4: Apply creative ideas for development of effective marketing communication	82%
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 specificat financial projections, s and team in Pr management.	77%
	CO2: To describe and evaluate the risks involv in projects and associate costs as demonstrate the control and closure proc related to project	75%

	management.	
FM 304 Corporate Finance	CO1:To define and 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

2ND Semester

Subject Code & Subject Name	CO	Attainment
MB 201 Indian Economy and Policy	CO1: To Explain and desig concepts of circular flow, theo income determination, infl unemployment, LPG model, as as banking, trade policy monetary reforms.	85%
	CO2: To Develop ideas of the I Economy and grasp the importa of planning undertaken by the government of India.	83%
MB 202 Financial Reporting, Statement and Analysis	CO1: To explain the understa of the concepts and apply the practical life like basic fina accounting concept, preparing b of accounts, introduction Accounting Standard, preparati financial statements and its anal	71%

	CO2: To Summarize the fina transactions in terms of Fina Statements and interpret Fina Statements by using diff financial tools and techniques.	74%
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%

4th Semester

Subject Code & Subject Name	CO	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	74%

	issues and situations.	
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 candidates.	86%
	CO2: The student will be able to remember and apply legislative measures meant for industrial relations, HRM ,CSR and employee representation in the international sector and create compensation	77%

	plans commensurate with the same.	
MM 401	CO1:Analysis consumer 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.	82%
	CO2: Students will 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	84%

	effectively, identify the appropriate key words,use grammatically correct English for documentation.	
MM 403: Sales & Distribution Management	CO1: To explain the understanding of sales & distribution processes in Organization	77%
	To get familiarized with concepts, approaches & the practical aspects of the key decision-making variables in sales management & distribution channel management	75%
	CO3: To explain market analysis methods & selling concepts	78%
	CO4: To develop Performance evaluation methods, ethics, trends in sales & distribution management	76%
MM 404: Service Marketing	CO1: To explain the understanding of types, nature, classification & marketing mix of service marketing	77%
	CO2: Analyze service product concept, branding &	75%

	service positioning that transforming service marketing to a great extent	
	CO3: To explain market analysis methods of service marketing	78%
	CO4: Demonstrate the role of identifying the people in service & the role of customer in service delivery	76%
MM 406: International Marketing	CO1: To explain the understanding of global business activities, marketing processes in international business	77%
	To get familiarized with concepts, approaches & the practical aspects of the key decision-making variables & global forces that transforming international marketing	75%
	CO3: To develop general perspective about managing international marketing	76%
	CO4: To develop evaluation methods for International	78%

	Marketing both in operational as well as strategic context	
FM 401 Investment Analysis & Portfolio Management	CO1To explain the understanding of the concep and apply them like portfolio diversification, Construction, portfolio management, portfolio revi portfolio evaluation, portfolio protec and portfolio performance measures.	77%
	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.	80%
	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, international monetary System, balance of payments, exchange rate determination and foreign exchange market.	75%
	CO2Evaluate and analyse the fundamentals & technical aspects of International financial market.	72%

FM406 Financial Markets and Services	CO1To Discuss the Indian Financial System and multiplicity of Financial Instruments and understand the Indian finan system, money market, secondary market, SEBI, m Funds and credit rating agencies.	76%
	CO2 Examine Mutual Fund Merchant Banking under th nodal agency SEBI.	80%

2021 Odd Semester

Subject Code & Subject Name	CO	Attainment
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.	92%
	CO2 : The student will be able to understand the various organisation theories and analyse group behaviour, conflict, change and leadership concepts.	83%
MB 103 Business Communication	CO 1 To demonstratecompetenceinverbalbusinesscommunication &"ProcessofCommunicationinanorganization"	83%
	CO2 To demonstratecompetenceinthefundamentalsof business writing & willenablethestudentstoaugmenttheirreportwritingskills	84%
	CO3 Itwillhelpthemtoidentifythe'BarriersofCommunication and measures to overcome.	83%
	CO4 Itwillenable themtoapply 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.	80%
	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	81%

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.	84%
	CO3 Students will be able to work comfortably in the professional world.	86%
	CO4 Students will be able to emerge as successful Managers/ leaders and lead a bright life.	84%
MB 106	CO1 Understanding the concept of business or industry related operational problems and then applying the knowledge Operations Research to solve it.	
	CO2 Understanding the concept of Probability and Statistics to analyze the problems of Business processes.	65%

3rd Semester

Subject Code & Subject Name	CO	Attainment
MB 301 : ENTREPRENEURSHIP & PROJECT MANAGEMENT	CO1: Understand the concept of management, Organization, planning, Staffing and learn the Project evaluation, termination, and controlling process	82%
	CO2: To evaluate the role of entrepreneurs in economic development, and barriers, Identification of business opportunities, and feasibility studies.	98%
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	83%

	evaluation strategies.	
HRM 301 TEAM DYNAMICS AT WORK	CO1: 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.	93%
	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	93%
HRM 304 Organizational Design	CO1: To apply organization theory for better understanding of organizational structure and design	83%
	CO2: To analyze different organizational models for reshaping organizations.	82%
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,	81%

	approaches & the practical aspects of various digital & social media marketing tools like SEO, Paid Search, Social, Mobile, Email & Display media & marketing analytics	
	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 existing ideas for development of effective digital & social marketing communication	82%
MM 303 :Integrated Marketing Communication	CO1: To explain the understanding of essential concepts & techniques for the development & designing of an effective IMC	82%

	program	
	CO2: Applying concepts, approaches & the practical aspects of various communication tools	82%
	CO3: Analyze effectiveness of different IMC tools for business firms	77%
	CO4: Apply creative ideas for development of effective marketing communication	82%
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 specificat financial projections, s and team in Pr management.	77%
	CO2: To describe and evaluate the risks involv in projects and associate costs as demonstrate the control and closure proc related to project management.	75%
FM 304 Corporate Finance	CO1:To define and 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%

2022 Even Semester

2ND Semester

Subject Code & Subject Name	CO	Attainment
MB 201 Indian Economy and Policy	CO1: To Explain and desig concepts of circular flow, theo income determination, infl unemployment, LPG model, as as banking, trade policy monetary reforms.	85%
	CO2: To Develop ideas of the I Economy and grasp the importa of planning undertaken by the government of India.	83%
MB 202 Financial Reporting, Statement and Analysis	CO1: To explain the understa of the concepts and apply the practical life like basic fina accounting concept, preparing b of accounts, introduction Accounting Standard, preparati financial statements and its anal	71%
	CO2: To Summarize the fina transactions in terms of Fina Statements and interpret Fina Statements by using diff financial tools and techniques.	74%
MB 203: Marketing	CO1: To identify &	80%

Management	analyze the scope & significance of marketing in Domain Industry	
	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.	80%
	CO2: To analyze the scheduling techniques applied in the operations were learned by the students	75%
MB 205 MANAGEMENT INFORMATION SYSTEM	CO1: To identify the technologies and methods used for effective decision-making in an organization	92%
	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.	96%
MB 206	CO1: The student will be able	95%

: HUMAN RESOURCE MANAGEMENT	to understand and apply the various concepts behind Human Resource Management and development including planning, Performance Appraisal Systems and strategic HR management.	
	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.	85%

4th Semester

Subject Code & Subject Name	CO	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.	93%
	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.	93%
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 candidates.	93%
	CO2: The student will be able to remember and apply legislative measures meant for industrial relations, CSR and employee representation in the international sector and create compensation plans commensurate with the same.	93%
MM 401	CO1:Analysis consumer behaviour and its Impact on marketing	82%

	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 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	85%

	documentation.	
MM 403: Sales & Distribution Management	CO1: To explain the understanding of sales & distribution processes in Organization	77%
	To get familiarized with concepts, approaches & the practical aspects of the key decision-making variables in sales management & distribution channel management	75%
	CO3: To explain market analysis methods & selling concepts	78%
	CO4: To develop Performance evaluation methods, ethics, trends in sales & distribution management	76%
MM 404: Service Marketing	CO1: To explain the understanding of types, nature, classification & marketing mix of service marketing	77%
	CO2: Analyze service product concept, branding & service positioning that transforming service marketing to a great extent	75%

	CO3: To explain market analysis methods of service marketing	78%
	CO4: Demonstrate the role of identifying the people in service & the role of customer in service delivery	76%
MM 406: International Marketing	CO1: To explain the understanding of global business activities, marketing processes in international business	77%
	To get familiarized with concepts, approaches & the practical aspects of the key decision-making variables & global forces that transforming international marketing	75%
	CO3: To develop general perspective about managing international marketing	76%
	CO4: To develop evaluation methods for International Marketing both in operational as well as strategic context	78%
OM 401		

OM 402 Behavioral Operations Management	CO1: To apply experimental learning theories & organizational behavior to ensure performance in work design	83%
	CO2: To understand emotional intelligence in operations management & supply chain management	82%
FM 401 Investment Analysis & Portfolio Management	CO1To explain the understanding of the concep and apply them like portfolio diversification, Construction, portfolio management, portfolio revi portfolio evaluation, portfolio protec and portfolio performance measures.	77%
	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.	80%
	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	75%

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

2022 ODD AND 2023 EVEN SEMESTE								
PAPER NAME	COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CE(ES)302	CO1		0.72					
	CO2			0.73	0.69	0.67		
CE(HS)302	CO1	0.68	0.67					
CE(ES)392	CO1		0.69	0.72	0.75			
CE(ES)401	CO1	0.70	0.68					
	CO2		0.68	0.75	0.75			
CE(ES)402)	CO1		0.65			0.65	0.65	
	CO2	0.73	0.65				0.60	0.65
CE(PC)401	CO1		0.63			0.71	0.67	
	CO2		0.70				0.63	0.71
CE(PC)402	CO1	0.69		0.64		0.65	0.64	
	CO2		0.66					0.66
CE(PC)403	CO1		0.65		0.76		0.65	0.70
	CO2		0.64					
CE(PC)404	CO1		0.71	0.61	0.78	0.62	0.63	
	CO2		0.68		0.75		0.62	
CE(HS)401	CO1		0.65	0.64	0.76			
	CO2		0.62		0.76	0.60		
CE(ES)491	CO1	0.69	0.70	0.63		0.68		0.67
CE(ES)492	CO1		0.75			0.65	0.62	
	CO2		0.74	0.63			0.60	0.68
CE(ES)493	CO1		0.68			0.69	0.61	
CE(PC)493	CO1		0.70			0.65	0.66	
CE(PC)494	CO1	0.69	0.75			0.64	0.63	0.67
CE(PC)501	CO1	0.65	0.67		0.75		0.65	
	CO2		0.70	0.61	0.75			0.60
CE(PC)502	CO1		0.68					
	CO2			0.65		0.69	0.68	
CE(PC)503	CO1		0.66					
	CO2	0.68			0.76	0.68		
CE(PC)504	CO1		0.69			0.64	0.70	
	CO2		0.72			0.63	0.64	
CE(PC)505	CO1		0.70	0.67	0.75		0.70	
	CO2	0.69	0.67					
CE(PC)506	CO1		0.65			0.61	0.69	
	CO2		0.64		0.74		0.65	0.67
	CO3				0.73			
CE(PC)591	CO1		0.66			0.73	0.65	

CE(PC)594	CO1		0.63			0.72	0.61	
CE(PC)595	CO1		0.60	0.76				
CE(PC)596	CO1		0.64	0.72	0.71			
CE(PC)597	CO1		0.68					
CE(PC)601	CO1		0.65			0.68	0.63	
	CO2		0.63				0.65	0.69
CE(PC)602	CO1		0.67			0.63	0.63	
	CO2		0.64				0.64	0.63
CE(PC)603	CO1		0.68			0.64	0.60	
	CO2		0.73				0.67	0.68
CE(PC)604	CO1		0.72	0.65	0.66			0.68
	CO2		0.71	0.61	0.64			0.64
CE(PE)601B	CO1		0.69		0.65			
	CO2		0.70				0.62	
CE(PE)602A	CO1		0.67			0.69	0.64	
	CO2		0.66				0.66	0.67
CE(PC)693	CO1	0.70	0.71	0.70	0.66	0.68	0.70	0.70
CE(PC)694	CO1	0.71	0.68					
CE(PC)695	CO1		0.65					
CE(OE)701A	CO1	0.62	0.69	0.68	0.65	0.67	0.70	0.69
	CO2	0.61	0.70	0.70	0.67	0.65	0.69	0.70
CE(PE)701C	CO1	0.75	0.71	0.65	0.69	0.68	0.70	0.68
	CO2	0.73	0.74	0.69	0.67	0.69	0.69	0.67
CE(PE)702A	CO1	0.66	0.73	0.68	0.66	0.65	0.68	0.65
	CO2	0.65	0.72	0.66	0.68	0.66	0.64	0.66
CE(PE)703A	CO1	0.70	0.71	0.65	0.68	0.72	0.65	0.67
	CO2	0.74	0.70	0.64	0.64	0.70	0.61	0.63
CE(PE)704C	CO1	0.73	0.69	0.62	0.62	0.69	0.63	0.64
	CO2	0.71	0.65	0.59	0.62	0.68	0.64	0.60
CE(PE)705A	CO1	0.69	0.68	0.60		0.79	0.65	0.65
	CO2	0.67		0.61	0.60	0.79	0.66	0.64
CE(CV)891	CO1	0.73	0.70	0.76	0.71	0.76	0.74	
CE(PROJ)892	CO1	0.75	0.74	0.74	0.73	0.75	0.72	0.70
CE(PE)801D	CO1	0.70	0.74	0.62	0.64	0.74		0.62
	CO2		0.73	0.69	0.66	0.73		0.64
CE(0E)801C DEEP	CO1	0.70	0.68	0.70	0.65	0.72		0.68
	CO2		0.67			0.75		0.70
CE(CV)891	CO1	0.78	0.74	0.76	0.75	0.75	0.78	
CE(PROJ)892	CO1	0.79	0.78	0.80	0.78	0.79	0.76	0.78
Average		0.70	0.68	0.67	0.70	0.70	0.63	0.67

Average Attainment(%)	**70**	**68**	**67**	**70**	**70**	**63**	**67**

R_CE					
PO7	PO8	PO9	PO10	P11	P12
			0.70		
			0.73		
0.71					
	0.72				
0.67		0.71	0.71		
	0.61	0.62			
		0.64		0.65	
	0.74				0.68
0.69					
0.70					
				0.66	
0.67	0.68				0.63
	0.55	0.69			
	0.67				
0.64			0.68		0.69
				0.68	
			0.67		
0.67					
			0.68		
0.62					
		0.66	0.67		

				0.66	
0.64					0.72
		0.70			
0.67			0.71		
	0.61				
			0.65		
	0.68				
		0.74	0.64		
0.69	0.63	0.70			
0.70			0.70		
0.63	0.68	0.62			
0.65	0.65	0.66	0.70	0.69	0.66
0.68		0.68			
0.62					
0.68	0.68	0.65	0.71	0.67	0.63
0.64	0.64	0.64	0.68	0.65	0.70
0.70	0.70	0.68	0.71	0.71	0.72
0.60	0.69	0.61	0.69	0.61	0.69
0.66	0.68	0.69	0.67	0.68	0.65
0.71	0.69	0.68	0.66	0.66	0.66
0.63	0.59	0.62	0.61	0.63	0.72
0.67	0.66	0.63	0.60	0.68	0.70
0.56	0.63	0.64	0.62	0.67	0.69
0.66	0.62	0.68	0.67	0.65	0.66
0.60	0.66	0.69	0.66	0.65	
0.61	0.70	0.67	0.61		
0.71	0.71	0.62	0.71	0.75	0.71
	0.65	0.64			
	0.63	0.66	0.64	0.71	0.69
0.64	0.65	0.68	0.64	0.66	0.70
0.65	0.61	0.65	0.70	0.70	0.71
0.75	0.74	0.78	0.79	0.80	0.79
0.66	0.66	0.64	0.68	0.68	0.69

66	**66**	**64**	**68**	**68**	**69**

ECE PO Attainment

2022 Odd and 2023 Even Semester

Paper Name	COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P9	P10	P11	P12
EC301	CO1	0.70											
	CO2		0.70										
	CO3	0.70											
EC302	CO1	0.71											
	CO2	0.71		0.71									
	CO3	0.71											
EC303	CO1	0.55	0.55										
	CO2	0.55											
	CO3	0.55											
	CO4	0.55											
EC304	CO1	0.70											
	CO2	0.70	0.70										
	CO3	0.70											
ESCS301	CO1	0.75		0.75									
	CO2			0.75									
	CO3	0.75											
BSM301	CO1	.73											
	CO2		.73										

	CO3			.73									
EC391	CO1	0.81		0.81									
	CO2	0.81		0.81	0.81								
	CO3	0.81	0.81										
	CO4	0.81		0.81									
	CO5	0.81		0.81									
EC392	CO1	0.88		0.88									
	CO2	0.88		0.88	0.88								
	CO3		0.88										
	CO4	0.88		0.88									
	CO5	0.88		0.88									
ESCS391	CO1			0.81									
	CO2	0.81											
	CO3	0.81											
	CO4	0.81											
EC401	CO1			0.72									
	CO2	0.72											
	CO3	0.72											
	CO4	0.72											
EC402	CO1	0.75											
	CO2	0.75											

EC403	CO1	0.78		0.78									
	CO2	0.78	0.78										
ECS401	CO1	0.75	0.75										
	CO2	0.75	0.75										
	CO3	0.75											
	CO4	0.75		0.75									
	CO5	0.75											
BSM401	CO1	0.75				0.75							
	CO2	0.75											
	CO3	0.75	0.75										
	CO4	0.75											
EC491	CO1	0.85		0.85									
	CO2	0.85		0.85	0.85								
	CO3		0.85										
	CO4	0.85		0.85									
	CO5	0.85		0.85									
EC492	CO1	0.85		0.85									
	CO2	0.85		0.85	0.85								
	CO3		0.85										
	CO4	0.85		0.85									

	CO5	0.85		0.85									
EC493	CO1	0.90		0.90									
	CO2	0.90		0.90	0.90								
	CO3		0.90										
	CO4	0.90		0.90									
	CO5	0.90		0.90									
BSMCS491	CO1	0.63		0.63									
	CO2	0.63		0.63									
	CO3	0.63		0.63									
	CO4	0.63		0.63									
EC 501	CO1	0.7											
	CO2	0.7											
	CO3	0.7											
	CO4			0.7									
	CO5	0.7											
EC502	CO1	0.74											
	CO2			0.74									
	CO3			0.74									
	CO4					0.74							
EC503	CO1	0.64											
	CO2		0.64										
	CO3			0.64									

	CO4			0.64									
EC504	CO1	0.6		0.6									
	CO2	0.6		0.6									
	CO3	0.8		0.6									
PEEC505A	CO1	0.60											
	CO2	0.60											
EC591	CO1	0.91		0.91									
	CO2	0.91		0.91	0.91								
	CO3		0.91										
	CO4	0.91		0.91									
	CO5	0.91		0.91									
EC592	CO1	0.93		0.93									
	CO2	0.93		0.93	0.93								
	CO3		0.93										
	CO4	0.93		0.93									
	CO5	0.93		0.93									
EC593	CO1	0.94		0.94									
	CO2	0.94		0.94	0.94								
	CO3		0.94										
	CO4	0.94		0.94									
	CO5	0.94		0.94									

EC601	CO1	0.72											
	Co2	0.72											
EC602	CO1	.74	.74										
	CO2	.74	.74										
PEEC603D	CO1	0.70											
	CO2	0.70											
	CO3	0.70											
EC604C	CO1	0.7			0.7								
	CO2	0.7											
	CO3	0.7	0.7	0.7									
	CO4	0.7			0.7								
EC691	CO1	0.90		0.90									
	CO2	0.90		0.90	0.90								
	CO3		0.90										
	CO4	0.90		0.90									
	CO5	0.90		0.90									
EC692	CO1	0.90		0.90									
	CO2	0.90		0.90	0.90								
	CO3		0.90										
	CO4	0.90		0.90									

	CO5	0.90		0.90									
EC681	CO1	0.90		0.90									
	CO2	0.90		0.90	0.90								
	CO3		0.90										
	CO4	0.90		0.90									
	CO5	0.90		0.90			0.90	0.90			0.90		
EC701B	CO1	0.71	0.71										
	CO2	0.71	0.71										
	CO3				0.71								
EC702C	CO1	0.72	0.72										
	CO2	0.72	0.72										
	CO3	0.72	0.72										
	CO4	0.72	0.72										
EC703A	CO1	0.74			0.74								
	CO2	0.74		0.74									
OEEC704A	CO1	0.73											
	CO2	0.73	0.73										
	CO3	0.73		0.73									
	CO4	0.73		0.73									
	CO5	0.73		0.73									

EC781	CO1	0.93		0.93									
	CO2	0.93		0.93	0.93								
	CO3		0.93										
	CO4	0.93		0.93									
	CO5	0.93		0.93			0.93	0.93			0.93		
EC782	CO1	0.92											
	CO2		0.92										
	CO3			0.92									
	CO4				0.92								
	CO5					0.92							
	CO6						0.92						
	CO7							0.92					
	CO8								0.92				
	CO9									0.92			
	CO10										0.92		
	CO11											0.92	
	CO12												0.92
PEEC801B	CO1	0.73	0.73										
	CO2	0.73	0.73										

OEEC802C	CO1	0.74											
	CO2	0.74											
	CO3	0.74		0.74									
OEEC804C	CO1		0.75										
	CO2		0.75										
	CO3			0.75									
EC881	CO1	0.93											
	CO2		0.93										
	CO3			0.93									
	CO4				0.93								
	CO5					0.93							
	CO6						0.93						
	CO7							0.93					
	CO8								0.93				
	CO9									0.9			
	CO10										0.93		
	CO11											0.93	
	CO12												0.93
EC882	CO1	0.95											

	CO2		0.95										
	CO3			0.95									
	CO4				0.95								
	CO5					0.95							
	CO6						0.95						
	CO7							0.95					
	CO8								0.95				
	CO9									0.95			
	CO10										0.95		
	CO11											0.95	
	CO12												0.95
Average PO Attainment		0.78 = **78%**	0.73 = **77%**	0.75 = **75%**	0.78 = **78%**	0.80 = **80%**	0.81 = **81%**	0.84 = **84%**	0.78 = **78%**	0.85 = **85%**	0.73 = **73%**	0.85 = **85%**	0.85 = **85%**

PO NO.	BROAD	ELABORATE
1	Engineering knowledge	Apply the knowle engineering fundan
2	Problem analysis:	Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions usi
3	Design/development of	Design solutions for complex engineering problems and desi public health and safety, and cultural, societal, and environme
4	Conduct investigations of	Use research-based knowledge and research methods includ interpretation of data, and synthesis of the information to prov
5	Modern tool usage:	Create, select, and apply appropriate techniques, resources, activities, with an understanding of the limitations.
6	The engineer and society:	Apply reasoning informed by the contextual knowledge to ass the professional engineering practice.
7	Environment and sustainability:	Understand the impact of the professional engineering solutio sustainable development.
8	Ethics:	Apply ethical principles and commit to professional ethics an
9	Individual	Function effectively as an individual, and as a member or lea

	and team work:	
10	Communication:	Communicate effectively on complex engineering activities wi write effective reports and design documentation, make effect
11	Project management	Demonstrate knowledge and understanding of t h e engineer to manage projects and in multidisciplinary environments
12	Life-long learning:	Recognise the need for, and have the preparation and ability

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 s life problems faced in industries and/or during research work.

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

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

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

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

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

JRSE OUTCOMES

Nam

CO1	describe different type of networks, sources and signals with examples.
CO2	explain different network theorems, coupled circuit and tools for solution
CO3	apply network theorems and different tools to solve network problems.
CO4	select suitable techniques of network analysis for efficient solution.
CO5	estimate parameters of two-port networks.
CO6	design filter circuits.

Na

CO1	1. describe analog electronic components and analog electronics circuits

CO2	2. explain principle of operation of analog electronic components, filters, r
CO3	3. compute parameters and operating points of analog electronic circuits.
CO4	4. determine response of analog electronic circuits.
CO5	5. distinguish different types amplifier and different types oscillators base
CO6	6. construct operational amplifier based circuits for different applications.

Name of

CO1	1. Relate different coordinate systems for efficient solution of electromagr
CO2	2. describe mathematical s tools to solve electromagnetic problems.
CO3	3. explain laws applied to electromagnetic field.
CO4	4. apply mathematical tools and laws to solve electromagnetic problems.
CO5	5. analyze electromagnetic wave propagation
CO6	6. estimate transmission line parameters

Nam

Course	After completing this course, the students will be able to:
CO1	explain the co-ordinate system, principle of three dimensional rotation,kir
CO2	elaborate the theory of general motion, bending moment, torsional motio
CO3	develop free body diagram of different arrangements.
CO4	solve problems with the application of theories and principle of motion , fr
CO5	analyze torsional motion and bending moment.

N

CO1	explain basics of probability theories, rules, distribution and properties of
CO2	describe different methods of numerical analysis.
CO3	solve numerical problems based on probability theories , numerical analys
CO4	apply numerical methods to solve engineering problems.
CO5	5. solve engineering problems using z transform and probability theory.

Nam

Course	Upon completion of this course, students will be able to:
CO1	Describe with examples the biological observations lead to major discover
CO2	Explain the classification of kingdom of life the building blocks of life
CO3	Different techniques of bio physics used to study biological phenomena.
CO4	The role of imaging in the screening, diagnosis, staging, and treatments c
CO5	Identify DNA as a genetic material in the molecular basis of information t
CO6	Analyze biological processes at the reductionistic level.
CO7	Apply thermodynamic principles to biological systems.
CO8	Identify microorganisms..

Nar

Course	After completing this course, the students will be able to:
CO1	Describe different features of Indian constitution.Power and functioning o
CO2	Identify authority to redress a problem in the profession and in the societ

Name o

Course	Up
CO1	Determine transient response of different electrical circuit, frequency res
CO2	Generate different signals in both discrete and analog form
CO3	Analyze amplitude and phase spectrum of different signals.
CO4	Verify network theorems.
CO5	Construct circuits with appropriate instruments and safety precautions.
CO5	Simulate electrical circuit experiments using suitable software.

Name

Course	Up
	A
CO1	Determine characteristics of full wave rectifier with filter and without filte
CO2	Verify function of DAC and ADC
CO3	Construct function generator using IC, R-C coupled amplifier,linear volta
CO4	Work in a team
CO5	Validate theoretical learning with practical Special Remarks: The above-m

Name

Course	Upon successful completion of the course, student will have:
CO1	Solve problems with Newton forward /backward, Lagrange's interpolatio
CO2	problems of numerical integration using Trapezoidal rule, Simpson's 1/3
CO3	rule, Weddle's rule problems to find numerical solution of a system of lin
CO4	Gauss elimination and Gauss-Seidel iterations. problems to find numerica
CO5	Ordinary differential equation by Euler's and Runga-Kutta methods.
CO6	Find appropriate numerical methods to solve engineering problems.
CO7	Use software package to solve numerical problems.

Na

Course	Up
CO1	Describe the function of different components of magnetic circuit, DC ma
CO2	Explain the principle of operation of different types of DC machines and tr
CO3	Solve numerical problems of DC machines and transformers.
CO4	Estimate the parameters and efficiency of transformer.
CO5	Determine the characteristics of DC machines
CO6	recommend methods to control output of DC machines.

Nam

Course	Up
CO1	Describe the function of different building blocks of digital electronics, ser
CO2	Explain the principle of operation of combinational and sequential digital c
CO3	Solve numerical problems of Boolean algebra, number system, combinati
CO4	Specify applications of combinational and sequential digital circuits.
CO5	Determine specifications of different digital circuits.
CO6	Design combinational and sequential digital circuits

Name of the S

Course	Up
CO1	Explain the terms accuracy, precision, resolution, speed of response, erro
CO2	Describe methods of measurement of power, energy by instruments and
CO3	Explain the principle of operation of analog meters, instrument transform
CO4	Explain the different building block, principle of operation of oscilloscope a
CO5	Solve numerical problems related to analog meters, instrument transform
CO6	Specify applications of analog and digital measuring instruments, sensors

Name o

Course	Upon successful completion of the course, student will have:
CO1	Describe the function of different components of boilers. Engines and turb
CO2	Explain the principle of operation of different types of boilers, turbines, IC
CO3	Solve numerical problems of boilers, turbines, IC engines and Gas turbine
CO4	Analyze the performance of boilers, engines and turbines.
CO5	Determine efficiency of boilers, engines and turbines.
CO6	Explain methods to control boiler, engines and turbines parameters.

Name of t

Course	Upon successful completion of the course, student will have:
CO1	1. Illustrate different aspects of human values, ethics, engineers' respons
CO2	2. Explain different principles, different theories and laws of engineering e
CO3	3. Identify different factors in the light of Engineers' responsibility toward
CO4	4. Correlate ethics of different work environment.
CO5	5. Explain the need for intellectual property rights.

Name

Course	Upon successful completion of the course, student will have:
CO1	Understand the natural environment and its relationships with human ac
CO2	Apply the fundamental knowledge of science and engineering to assess e
CO3	Develop guidelines and procedures for health and safety issues obeying tl
CO4	Acquire skills for scientific problem-solving related to air, water, noise& la

Name of t

Course	Upon successful completion of the course, student will have:
CO1	Identify appropriate equipment and instruments for the experiment.
CO2	Test the instrument for application to the experiment.
CO3	Construct circuits with appropriate instruments and safety precautions
CO4	Validate different characteristics of DC machine , methods of speed contr
CO5	Work effectively in a team

Name of t

Course	Upon successful completion of the course, student will have:
CO1	Identify appropriate equipment and instruments for the experiment
CO2	2. Test the instruments for application to the experiment
CO3	3. Construct decoder , multiplexer, adder and subtractor circuits with app
CO4	4. Realize RS-JK and D flip flop, universal register with gates, multiplexer
CO5	5. Validate the operation of code conversion circuit –BCD to Excess 3 & vi
CO5	Work effectively in a team

Name of the Subjec

Course	Upon successful completion of the course, student will have:
	1. identify appropriate equipment and instruments for the experiment
	2. test the instrument for application to the experiment
	3. construct circuits with appropriate instruments and safety precautions
	4. evaluate and adjust the precision and accuracy of AC energy meter, m
	5. measure voltage, current, power, energy, phase , frequency, resistanc
	6. work effectively in a team

Name of the S

Course	Upon successful completion of the course, student will have:
CO1	Identify appropriate equipment and instruments for the experiment
CO2	Construct experimental setup with appropriate instruments and safety pr
CO3	Identify different parts of Lanchashire Boiler, Bahcock & Willcox Boiler, Co
CO4	Test 4 stroke petrol engine by electrical load box and diesel engine by ele
CO5	Find calorific value, flash point, fire point, cloud point, pour point of fuel.
C06	Work effectively in a team

Name of t

Course	On successful completion of the course the student will be able to:
	1. To understand the arrangement of windings of AC machines.
	2. To understand the principle of production of pulsating and revolving m
	3. To understand the principle of operation and characteristics of three ph
	4. To understand the principle of operation and characteristics of single p
	5. To understand the principle of operation and characteristics of synchro

	6. To understand the principle of operation and characteristics of special
	7. To solve problems of Induction machines, synchronous machines and s

I

Course	After completion of this course the students will be able to:
CO1	To understand the basic principle of generation of Electricity from differer
CO2	To find parameters and characteristics of overhead transmission lines and
CO3	To find different parameters for the construction of overhead transmissio
CO4	To determine the performance of transmission lines.
CO5	To understand the principle tariff calculation.
CO6	To solve numerical problems on the topics studied.

N

Course	On completion of this course a student will be in a position to:
CO1	1. To find mathematical representation of LTI systems.
CO2	2. To find time response of LTI systems of different orders
CO3	3. To find the frequency response of LTI systems of different orders
CO4	4. To understand stabilityof differentLTI systems.
CO5	5. To analyze LTIsystems with state variables.
CO6	6. To solve problems of mathematical modelling and stability of LTI syste

Na

Course	On completion of this course a students will be able to
CO1	To understand the functioning and characteristics of power switching dev
CO2	To understand the principle of operation of converters.
CO3	To understand different triggering circuits and techniques of commutatior
CO4	To find external performance parameter of converters.
CO5	To analyze methods of voltage control, improvement of power factor and
CO6	To solve numerical problems of converters

Name of

Course	After completion of the course, the students will be able to:
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.
CO3	construct circuits with appropriate instruments and safety precautions.
CO4	validate different characteristics of single phase Induction motor, three ph
CO5	work effectively in a team

Name

Course	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.

CO3	3. construct circuits with appropriate instruments and safety precautions.
CO4	4. validate different characteristics of transmission line.
CO5	5. determine earth resistance, dielectric strength of insulating oil, breakd
CO6	6. analyze an electrical transmission line circuit with the help of software
CO7	7. work effectively in a team

Name c

Course	After completion of this course the students will be able to
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.
CO3	construct circuits with appropriate instruments and safety precautions.
CO4	use MAT-Lab control system tool box, MAT-Lab- simulink tool box & PSP
CO5	5. determinecontrol system specifications of first and second order syster

Name of

Course	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.
CO3	construct circuits with appropriate instruments and safety precautions

Name o

Course	On completion of this course a student will be in a position to:
CO1	differentiate how the choices of data structure & algorithm methods enha
CO2	solve problems based upon different data structure & also write programs
CO3	write programs based on different data structure
CO4	identify appropriate data structure & algorithmic methods in solving prob
CO5	discuss the computational efficiency of the principal algorithms for sortinc
CO6	comparethe benefits of dynamic and static data structures implementatio

Name of

Year: 3rd

Course	After completion of this course the students will be able to
CO1	specify simple abstract data types.
CO2	recognise features of object-oriented design such as encapsulation, polyn
CO3	inheritance, and composition of systems based on object identity.
CO4	apply common object-oriented design patterns
CO5	specify uses of common object oriented design patterns with examples.
CO6	design applications with an event-driven graphical user interface.

N

Course	After completion of the course, the students will be able to:
CO1	Represent power system components in line diagrams.

CO2	Determine the location of distribution substation.
CO3	Determine the performance of power system with the help of load flowv s
CO4	Analyse faults in Electrical systems.
CO5	Determine the stabilty of Power system.
CO6	Explain principle of operation of different power system protection equipm
CO7	Solve numerical problems related to representation, load flow, faults, stal

Name of the

Year: 3rd	
Course	After completion of the course, the students will be able to
CO1	1. explain the architecture of 8086 and 8051.
CO2	2. do assembly language programming of 8086, 8051
CO3	3. interface different peripheral with 8086 and 8051
CO4	4. develop micro processor/ microcontroller based systems.
CO5	5. compare microprocessor, microcontroller, PIC and ARM processors

Name

Course	On completion of this course a students will be able to
CO1	explain the principle of sampling and reconstrction of analog signal. syst
CO2	perform Z-transformation and inverse Z-tranaformation of systems.
CO3	analyse and design digital control
CO4	design compensators for digital control system to achieve desired specifi
CO5	represent digital control systems using state space models.
CO6	analyze the effect sampling on stability, controllability and observability

Na

Course	A
CO1	choose intelligently AC and DC transmission systems for the dedicated ap
CO2	identify the suitable two-level/multilevel configuration for high power con
CO3	select the suitable protection method for various converter faults.
CO4	4. identify suitable reactive power compensation method.
CO5	5. decide the configuration for harmonic mitigation on both AC and DC sid
CO6	6. solve numerical problems related to converters, power flow analysis, re

Name

Course	After completion of this course the students will be able to
CO1	specify the rating of electrical machines with standard specifications.
CO2	explain the principles of electrical machine design and carry out basic des
CO3	3. determine the various factors which influence the design of electrical, r
CO4	4. explain the construction and performance characteristics of electrical m
CO5	5. use software tools to do design calculations.

Name of

Course	On completion of this course a students will be able to
CO1	explain the principle of Electric traction.
CO2	choose a suitable drive scheme for developing an electric hybrid vehicle d
CO3	design and develop basic schemes of electric vehicles and hybrid electric
CO4	choose proper energy storage systems for vehicle applications
CO5	implement different energy management strategies for hybrid vehicle.

Nam

Course Outcomes	analyse uncompensated AC transmission line. explain the working principles of FACTS devices and their operating chara 3. apply FACTS devices for power flow control and stabilty. 4. identify different issues of power quality in distribution system. 5. apply different compensation and control techniques for DSTATCOM6.
Name of the Subject: INDUSTRIAL ELECTRICALSYSTEMS	
Subject Code: PE-EE-602C	
Year: 3rd	
Course Outcomes	1. Represent electrical wiring system for residential, commercial and indu 2. Determine the rating of components of residential and commercial elec 3. Design lighting scheme for a residential and commercial premises. 4. Select transformer, switchgear, protection equipments for industrial el 5. explain methods of automation of Industrial Electrical Systems 6. Solve numerical problems related to earthing system, lighting scheme,
Name of the Subject: DIGITAL SIGNALPROCESSING	
Subject Code: PE-EE-601A	
Year: 3rd	
Course Outcomes	1. represent signals mathematically in continuous and discrete-time and i 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.
Name of the Subject: COMMUNICATION ENGINEERING	
Subject Code: PE-EE-601B	
Year: 3rd	
Course Outcomes	1. compare the performance of AM, FM and PM schemes with reference t 2. explain noise as a random process and its effect on communication rec 3. evaluate the performance of ASK, FSK, PSK, BPSK, QPSK in a digital c 4. identify source coding and channel coding schemes for a given commu 5. analyze various digital modulation methods 6. compute band width requirement and probability of error in various dig
Name of the Subject: VLSI AND MICROELECTRONICS	
Subject Code: PE-EE-603C	
Year: 3rd	
Course Outcomes	1. explain the principle of design of VLSI circuits 2. explain different MOS structure with characteristics 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 Subject: ECONOMICS FOR ENGINEERS	
Subject Code: HM-EE-601	
Year: 3rd	
Course Outcomes	1. evaluate the economic theories, cost concepts and pricing policies 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, deprecia 5. analyze financial statements using ratio analysis 6. explain financial planning, economic basis for replacement, project sch
Name of the Subject: POWER SYSTEM-II LABORATORY	
Subject Code: PC-EE 691	
Year: 3rd	
Course Outcomes	1. Identify appropriate equipment and instruments for the experiment. 2. Test the instrument for application to the experiment. 3. Construct circuits with appropriate instruments and safety precautions 4. Validate the characteristics of under voltage relay, over current relay, (5. Validate protection schemes of transformer, generator, motor and feed 7. work effectively in a team
Name of the Subject: MICRO PROCESSOR AND MICRO CONTROLLERLABORATORY	
Subject Code: : PC-EE 692	
Year: 3rd	
Course Outcomes	1. identify appropriate equipment and instruments for the experiment 2. test the instrument for application to the experiment 3. construct circuits with appropriate instruments and safety precautions 4. program 8086 for arithmatic operation, sorting of array, searching for 5. interface ADC/DAC, 8255, 8251 to 8086 and LCD, keyboard to 8051 6. program 8051 using arithmatic, logical and bit manipulation instructior 7. work effectively in a team
Name of the Subject: ELECTRICAL AND ELECTRONICS DESIGNLABORATORY	
Subject Code: PC-EE 681	
Year: 3rd	
Course Outcomes	1. explain basic concept of measurement, noise in electronic system, sens 2. implement PC based data acquisition systems 3. construct circuits with appropriate instruments and safety precautions 4. design heating elements, air core grounding reactor, power distributior 5. do wiring and installation design of a multistoried residential building w 6. design electronic hardware for controller of lift, speed of AC/DC motor,
Name of the Subject: ELECTRIC DRIVE	
Subject Code: PC-EE 701	
Year: 4TH	
Course Outcomes	1. Explain the principle of operation of Electric Drive. 2. Describe different methods of starting and braking of Electric Drive. 3. Model and control DC Drive 4. Control speed of Induction and Synchronous motors. 5. Recommend drives for different applications. 6. Estimate ratings, variables and parameters of Electric Drives.

Name of the Subject: CONTROL SYSTEM DESIGN

Subject Code: PE-EE 701 A

Year: 4TH

Course Outcomes	1. explain the effect of gain, addition of pole and zeros on system's perfo 2. describe time domain and frequency domain design specifications. 3. demonstrate the effect of nonlinearity on system performance. 4. design control system in time domain , in frequency domain and in sta 5. design PID controllers. 6. select appropriate method for design of control system.

Name of the Subject: ELECTRICAL ENERGY CONSERVATION& AUDITING

Subject Code: : PE-EE 701B

Year: 4TH

Course Outcomes	1. explain the basic of energy resources, energy security, energy conserv 2. quantify the energy conservation opportunities in different thermal sys 3. quantify the energy conservation opportunities in different electrical sy 4. identify the common energy conservation opportunities in different ene 5. explain the methods of energy management and audit. 6. analyse and report the outcome of energy audit

Name of the Subject: POWER GENERATION ECONOMICS

Subject Code: : PE-EE 701C

Year: 4TH

Course Outcomes	1. explain the different terms e.g. load factor etc for economics of genera 2. apply different types of tariff for electricity pricing. 3. optimize the operation of power system with unit commitment. 4. determine generation levels such that the total cost of generation beco 5. determine the state of the system given by the voltage magnitudes an 6. predict the power or energy needed to balance the supply and load de

Name of the Subject: ARTIFICIAL INTELLIGENCE

Subject Code: OE-EE-701A

Year: 4TH

Course Outcomes	1. explain the concept of knowledge representation and predicate logic ar 2. describe state space and its searching strategies 3. demonstrate profciency in applying scientifc method to models of mach 4. apply the machine learning concepts in real life problems 5. demonstrate an ability to share in discussions of AI, its current scope a

Name of the Subject: INTERNET OF THINGS

Subject Code: OE-EE-701B

Year:4TH

Course Outcomes	1. explain the definition and usage of the term "Internet of Things" in diff 2. explain the key components that make up an IoT system. 3. differentiate between the levels of the IoT stack and be familiar with t 4. build and test a IoT system involving prototyping, programming and d 5. apply cloud computing and data analytics in a typical IoT system

Name of the Subject: COMPUTER GRAPHICS

Subject Code: OE-EE-701C

Year: 4TH

Course Outcomes	1. explain Computer graphics and graphic systems. 2. test and implement line drawing algorithm, circle and ellipse drawing a 3. Perform 2D and 3D transformation and viewing. 4. apply algorithms for visible surface determination. 5. explain colors and shading models and ray tracing.

Name of the Subject: EMBEDDED SYSTEM

Subject Code: OE-EE 702A

Year: 4TH

Course Outcomes	1. discuss the definition, purpose, application, classification , quality char 2. explain the internal structure of the Embedded system. 3. interface IO devices and other peripherals with micro controllers in Em 4. write programs for Micro controllers in Embedded systems. 5. apply the concept of Embedded firmware in design of Embedded syste

Name of the Subject: DIGITAL IMAGE PROCESSING

Subject Code: OE-EE 702B

Year: 4TH

Course Outcomes	1. explain the fundamental concepts of a digital image processing system 3. apply different image segmentation techniques. 4. categorize various compression techniques. 5. implement image process and analysis algorithms. 6. apply image processing algorithms in practical applications.

Name of the Subject: COMPUTER NETWORK

Subject Code: : OE-EE 702C

Year: 4TH

Course Outcomes	1. explain the concepts of data communication and networking. 2. identify the different types of network topologies and protocols. 3. describe the function of a network system with OSI and TCP/IP model. 4. differentiate different types of routing protocol. 5. apply principles of congestion control . 6. implement different schemes for security of the networks.

Name of the Subject: PRINCIPLE OF MANAGEMEENT

Subject Code: : HM-EE 701

Year: 4TH

Course Outcomes	1. explain the concepts and approaches of management. 2. demonstrate the roles, skills and functions of management. 3. diagnose and solve organizational problems. 4. identify the complexities associated with management of human resou 5. apply different methods of Customer, Operation and Technology mana 6. acquire skills of good leader in an organization.

Name of the Subject: ELECTRIC DRIVE LABORATORY

Subject Code: PC-EE 791

Year: 4TH

Course Outcomes	1. identify appropriate equipment and instruments for the experiment. 2. test the instrument for application to the experiment. 3. construct circuits with appropriate instruments and safety precautions. 4. apply different methods of control of Electric Drive in the laboratory. 5. analyse experimental data obtained in the laboratory.

	6. work effectively in a team
Name of the Subject: UTILIZATION OF ELECTRIC POWER	
Subject Code: : PC-EE 801	
Year: 4TH	
Course Outcomes	1. explain the fundamentals of illumination and different lighting schemes 3. able to select appropriate lighting, heating and welding techniques for 4. apply different electrolysis process for different applications. 5. explain the principle of different aspect of Electric traction and control
Name of the Subject: LINE COMMUTATED AND ACTIVE PWM RECTIFIERS	
Subject Code: PE-EE 801A	
Year: 4TH	
Course Outcomes	1. explain the principle of operation of different converters. 2. suggest the application of different filters. 3. apply converters for different applications. 4. analyze converter circuits. 5. develop appropriate scheme for control of different converters. 6. solve numerical problems relating to different converters.
Name of the Subject: POWER SYSTEM DYNAMICS AND CONTROL	
Subject Code: PE-EE 801B	
Year: 4TH	
Course Outcomes	1. explain the model of power system components 2. select the appropriate model for required analysis. 3. analyze the performance of the system with small signal analysis. 4. evaluate the stability of the single and multi machine systems. 5. develop measures for enhancing the stability of the system. 6. Solve numerical problems of linear dynamical system, modeling of diff
Name of the Subject: ADVANCED ELECTRIC DRIVE	
Subject Code: PE-EE 801C	
Year: 4TH	
Course Outcomes	1. explain the principle of operation of converters for AC drives. 2. model Induction and Synchronous motor by reference frame theory. 3. apply different control methods to control speed and torque of Inductio 4. explain the configurations and method of speed control of BLDC, PMSM 5. realize basic blocks for DSP based motion control. 6. develop appropriate scheme for speed control of Induction and Synchr
Name of the Subject: INDUSTRIAL AUTOMATION AND CONTROL	
Subject Code: : PE-EE 801D	
Year: 4TH	
Course Outcomes	1. explain the basic structure of industrial automation and control 2. classify different types of control actions of controllers. 3. analyze control strategies of different processes of industry. 4. illustrate the construction and use of different types of actuators and c 5. use PLC, DCS and SCADA in advanced industrial control.
Name of the Subject: SOFT COMPUTING TECHNIQUES	
Subject Code: OE-EE 801A	
Year: 4TH	
Course	1. explain soft computing techniques and their roles in building intelligent

Outcomes	2. anlyse the feasibility of application of soft computing techniques for a p 3. effectively use existing software tools to solve real problems using a sc 4. evaluate solutions by various soft computing approaches for a given pr 5. apply different soft computing techniques to solve Engineering problem
Name of the Subject: BIOMEDICAL INSTRUMENTATION	
Subject Code: OE-EE 801B	
Year: 4TH	
Course Outcomes	1. describe the principle of medical transducers for temperature, pressure 2. explain the principle of operation of Biomedical recorders, Medical Ima 3. use different Medical laboratory equipments for different tests . 4. analyze any measurement application and suggest suitable measurem 5. suggest suitable imaging methodology for a specific ailment.
Name of the Subject: INTRODUCTION TO MACHINE LEARNING	
Subject Code: OE-EE 801C	
Year: 4TH	
Course Outcomes	1. explain the basics concepts and classification of Machine Learning . 2. write simple programs using python. 3. describe Supervised Learning concepts. 4. explain the concept of Support Vector Machine. 5. describe unsupervised learning concepts and dimensionality reduction 6. apply Machine Learning in a range of real-world applications .
Name of the Subject: SENSORS AND TRANSDUCERS	
Subject Code: OE-EE 801D	
Year: 4TH	
Course Outcomes	1. explain the basic principle of operation of Transducers and Sensors. 2. distinguish different sensors and transducers. 3. identify suitable transducer by comparing different industrial standards 4. estimate the performance of different transducers. 5. design real life electronics and instrumentation measurement systems
	PROGRAMME OUTCOMES (PO) BASED ON G.A.

		PO1	PO2	PO3	PO4
Course Outcomes	CO1	0.67	0.67	0.67	0.67
	CO2	0.67	0.67	0.67	0.67
	CO3	0.67	0.67	0.67	
	CO4	0.67	0.67	0.67	0.67
	CO5	0.67	0.67	0.67	
	CO6	0.67	0.67	0.67	0.67
Course Outcomes	CO1	0.66	0.66	0.66	0.66
	CO2	0.66	0.66	0.66	0.66
	CO3	0.66	0.66	0.66	
	CO4	0.66	0.66	0.66	0.66
	CO5	0.66	0.66	0.66	
	CO1	0.74	0.74	0.74	0.74
Course Outcomes	CO2	0.74	0.74	0.74	0.74
	CO3	0.74	0.74	0.74	0.74
	CO4	0.74	0.74	0.74	0.74
	CO5	0.74	0.74	0.74	0.74
	CO6	0.74	0.74	0.74	0.74
	CO1	0.77	0.77	0.77	0.77
Course Outcomes	CO2	0.77	0.77	0.77	0.77
	CO3	0.77	0.77	0.77	0.77
	CO4	0.77	0.77	0.77	0.77
	CO5	0.77	0.77	0.77	0.77
	CO1	0.78	0.78		0.78
	CO2	0.78	0.78		0.78
Course Outcomes	CO3	0.78	0.78		0.78
	CO4	0.78	0.78		0.78
	CO5	0.78	0.78		0.78
	CO6	0.78	0.78		0.78
	CO1	0.75			
	CO2	0.75			0.75
Course Outcomes	CO3	0.75			0.75
	CO4	0.75			0.75
	CO5	0.75			0.75
	CO6	0.75			0.75
	CO1	0.92			
	CO2				
Course Outcomes	CO1	0.9	0.9	0.9	0.9
	CO2	0.9	0.9	0.9	0.9
	CO3	0.9	0.9	0.9	
	CO4	0.9	0.9	0.9	0.9
	CO5	0.9	0.9	0.9	

	CO6	0.9	0.9	0.9	0.9
Course Outcomes	CO1	0.89	0.89	0.89	0.89
	CO2	0.89	0.89	0.89	0.89
	CO3	0.89	0.89	0.89	
	CO4	0.89	0.89	0.89	0.89
	CO5	0.89	0.89	0.89	
Course Outcomes	CO1	0.84	0.84		0.84
	CO2	0.84	0.84		0.84
	CO3	0.84	0.84		0.84
	CO4	0.84	0.84		0.84
	CO5	0.84	0.84		0.84
	CO6	0.84	0.84		0.84
Course Outcomes	CO1	0.87	0.87	0.87	0.87
	CO2	0.87	0.87	0.87	0.87
	CO3	0.87	0.87		
	CO4	0.87	0.87		
	CO5	0.87	0.87		
	CO6	0.87	0.87	0.87	0.87
Course Outcomes	CO1	0.76	0.76	0.76	0.76
	CO2	0.76	0.76	0.76	0.76
	CO3	0.76	0.76	0.76	
	CO4	0.76	0.76	0.76	
	CO5	0.76	0.76	0.76	0.76
	CO6	0.76	0.76	0.76	0.76
Course Outcomes	CO1	0.72	0.72	0.72	0.72
	CO2	0.72	0.72	0.72	
	CO3	0.72	0.72	0.72	
	CO4	0.72			
	CO5	0.72			0.72
	CO6	0.72	0.72	0.72	
Course Outcomes	CO1	0.71	0.71	0.71	0.71
	CO2	0.71	0.71		
	CO3	0.71	0.71	0.71	
	CO4	0.71			
	CO5	0.71			0.71
	CO6	0.71	0.71	0.71	0.71
Course Outcomes	CO1	0.88	0.88	0.88	0.88
	CO2	0.88	0.88	0.88	
	CO3	0.88	0.88	0.88	
	CO4	0.88			
	CO5	0.88			0.88
	CO6	0.88	0.88	0.88	0.88
Course Outcomes	CO1	0.95	0.95	0.95	0.95
	CO2	0.95	0.95	0.95	
	CO3	0.95	0.95	0.95	
	CO4	0.95			
	CO5	0.95			0.95

	CO6	0.95	0.95	0.95	0.95
	CO1	0.76	0.76	0.76	0.76
Course Outcomes	CO2	0.76	0.76		
	CO3	0.76	0.76	0.76	
	CO4	0.76			
	CO5	0.76			0.76
	CO6	0.76	0.76	0.76	0.76
	CO1	0.92	0.92	0.92	0.92
Course Outcomes	CO2	0.92	0.92	0.92	
	CO3	0.92	0.92	0.92	
	CO4	0.92			
	CO5	0.92			0.92
	CO6	0.92	0.92	0.92	0.92
	CO1	0.91	0.91	0.91	0.91
Course Outcomes	CO2	0.91	0.91	0.91	
	CO3	0.91	0.91	0.91	
	CO4	0.91			
	CO5	0.91			0.91
	CO6	0.91	0.91	0.91	0.91
	CO1	0.87	0.87	0.87	0.87
Course Outcomes	CO2	0.87	0.87	0.87	
	CO3	0.87	0.87	0.87	
	CO4	0.87			
	CO5	0.87			0.87
	CO6	0.87	0.87	0.87	0.87
	CO1	0.67	0.67	0.67	
Course Outcomes	CO2	0.67			0.67
	CO3	0.67			0.67
	CO4				0.67
	CO5		0.67	0.67	
	CO6	0.67	0.67	0.67	
	CO1	0.84	0.84	0.84	
Course Outcomes	CO2	0.84			0.84
	CO3	0.84			0.84
	CO4				0.84
	CO5		0.84	0.84	
	CO6	0.84	0.84	0.84	
	CO1	0.71	0.71	0.71	
Course Outcomes	CO2	0.71			0.71
	CO3	0.71			0.71
	CO4				0.71
	CO5		0.71	0.71	
	CO6	0.71	0.71	0.71	
	CO1	0.92	0.92	0.92	
Course Outcomes	CO2	0.92			0.92
	CO3	0.92			0.92
	CO4				0.92

	CO5		0.92	0.92	
	CO6	0.92	0.92	0.92	
	CO1	0.63	0.63	0.63	
Course Outcomes	CO2	0.63			0.63
	CO3	0.63			0.63
	CO4				0.63
	CO5		0.63	0.63	
	CO6	0.63	0.63	0.63	
	CO1	0.87	0.87	0.87	
Course Outcomes	CO2	0.87			0.87
	CO3	0.87			0.87
	CO4				0.87
	CO5		0.87	0.87	
	CO6	0.87	0.87	0.87	
	CO1	0.68	0.68	0.68	
Course Outcomes	CO2	0.68			
	CO3	0.68			
	CO4				
	CO5		0.68	0.68	
	CO6	0.68	0.68	0.68	
	CO1	0.83	0.83	0.83	
Course Outcomes	CO2	0.83			
	CO3	0.83			
	CO4				
	CO5		0.83	0.83	
	CO6	0.83	0.83	0.83	
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1		0.83	0.83	0.83
Course Outcomes	CO2	0.83	0.83		
	CO3	0.83	0.83		
	CO4	0.83			
	CO5	0.83		0.83	0.83
	CO6	0.83	0.83	0.83	0.83
	CO1	0.71	0.71	0.71	0.71
Course Outcomes	CO2	0.71	0.71		
	CO3	0.71	0.71		
	CO4	0.71			
	CO5	0.71		0.71	0.71
	CO6	0.71	0.71	0.71	0.71
	CO1	0.68	0.68	0.68	0.68
Course Outcomes	CO2	0.68	0.68		
	CO3	0.68	0.68		

	CO4	0.68			
	CO5	0.68		0.68	0.68
	CO6	0.68	0.68	0.68	0.68
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	0.73	0.73	0.73	0.73
Course Outcomes	CO2	0.73	0.73		
	CO3	0.73	0.73		
	CO4	0.73			
	CO5	0.73		0.73	0.73
	CO6	0.73	0.73	0.73	0.73
	CO1	0.89	0.89	0.89	0.89
Course Outcomes	CO2	0.89	0.89		
	CO3	0.89	0.89		
	CO4	0.89			
	CO5	0.89		0.89	0.89
	CO6	0.89	0.89	0.89	0.89
	CO1	0.65	0.65	0.65	0.65
Course Outcomes	CO2	0.65	0.65		
	CO3	0.65	0.65		
	CO4	0.65	0.65		
	CO5	0.65	0.65	0.65	0.65
	CO6	0.65	0.65	0.65	0.65
	CO1	0.89	0.89	0.89	0.89
Course Outcomes	CO2	0.89	0.89		
	CO3	0.89	0.89		
	CO4	0.89	0.89		
	CO5	0.89	0.89	0.89	0.89
	CO6	0.89	0.89	0.89	0.89
	CO1	0.92	0.92	0.92	0.92
Course Outcomes	CO2	0.92	0.92		
	CO3	0.92	0.92		
	CO4	0.92	0.92		
	CO5	0.92	0.92	0.92	0.92
	CO6	0.92	0.92	0.92	0.92
	CO1	0.68	0.68	0.68	0.68
Course Outcomes	CO2	0.68			0.68
	CO3	0.68			0.68
	CO4	0.68			0.68
	CO5	0.68	0.68	0.68	0.68
	CO6	0.68	0.68	0.68	0.68
	CO1	NA	NA	NA	NA
Course	CO2	NA	NA	NA	NA

Outcomes	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	0.9	0.9	0.9	0.9
Course Outcomes	CO2	0.9	0.9	0.9	0.9
	CO3	0.9	0.9		
	CO4	0.9	0.9		
	CO5	0.9	0.9	0.9	0.9
	CO6	0.9	0.9	0.9	0.9
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	0.87	0.87	0.87	0.87
Course Outcomes	CO2	0.87	0.87	0.87	0.87
	CO3	0.87			0.87
	CO4	0.87	0.87	0.87	0.87
	CO5	0.87			
	CO6	0.87	0.87	0.87	0.87
	CO1	0.86	0.86	0.86	0.86
Course Outcomes	CO2	0.86	0.86	0.86	0.86
	CO3	0.86	0.86	0.86	0.86
	CO4	0.86	0.86		0.86
	CO5	0.86	0.86		0.86
	CO6	0.86	0.86		0.86
	CO1	0.83	0.83	0.83	0.83
Course Outcomes	CO2	0.83	0.83		
	CO3	0.83			
	CO4	0.83	0.83	0.83	0.83
	CO5	0.83	0.83	0.83	
	CO6	0.83	0.83	0.83	
	CO1	0.92	0.92	0.92	0.92
Course Outcomes	CO2	0.92	0.92		
	CO3	0.92			
	CO4	0.92	0.92	0.92	0.92
	CO5	0.92	0.92	0.92	
	CO6	0.92	0.92	0.92	
	CO1	NA	NA	NA	NA

Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	0.82	0.82	0.82	
Course Outcomes	CO2	0.82	0.82	0.82	
	CO3	0.82	0.82	0.82	
	CO4	0.82	0.82	0.82	
	CO5	0.82	0.82	0.82	
	CO6	0.82	0.82	0.82	
	CO1	0.84	0.84	0.84	0.84
Course Outcomes	CO2	0.84	0.84	0.84	0.84
	CO3	0.84			
	CO4	0.84			
	CO5	0.84	0.84	0.84	0.84
	CO6	0.84	0.84	0.84	0.84
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA
	CO1	NA	NA	NA	NA
Course Outcomes	CO2	NA	NA	NA	NA
	CO3	NA	NA	NA	NA
	CO4	NA	NA	NA	NA
	CO5	NA	NA	NA	NA
	CO6	NA	NA	NA	NA

	CO1	0.82	0.82		
Course Outcomes	CO2	0.82	0.82	0.82	
	CO3	0.82	0.82	0.82	
	CO4	0.82	0.82	0.82	
	CO5	0.82	0.82	0.82	0.82
	CO6	0.82	0.82	0.82	0.82
	CO1	0.86	0.86		
Course Outcomes	CO2	0.86	0.86		
	CO3	0.86	0.86		
	CO4	0.86	0.86		
	CO5	0.86	0.86		
	CO6	0.86	0.86		
	CO1	0.91	0.91	0.91	0.91
Course Outcomes	CO2	0.91	0.91	0.91	0.91
	CO3	0.91	0.91	0.91	0.91
	CO4	0.91	0.91	0.91	0.91
	CO5	0.91	0.91	0.91	
	CO6	0.91	0.91	0.91	0.91
	CO1	0.92	0.92	0.92	0.92
Course Outcomes	CO2	0.92	0.92	0.92	0.92
	CO3	0.92	0.92	0.92	0.92
	CO4	0.92	0.92	0.92	0.92
	CO5	0.92	0.92	0.92	0.92
	CO6	0.92	0.92	0.92	0.92
	CO1	0.86	0.86		
Course Outcomes	CO2	0.86	0.86		
	CO3	0.86	0.86		
	CO4	0.86	0.86		
	CO5	0.86	0.86		
	CO6	0.86	0.86		
	CO1	0.87	0.87	0.87	0.87
Course Outcomes	CO2	0.87	0.87	0.87	0.87
	CO3	0.87	0.87	0.87	0.87
	CO4	0.87	0.87	0.87	0.87
	CO5	0.87	0.87	0.87	0.87
	CO6	0.87	0.87	0.87	0.87
	CO1	0.85	0.85		
Course Outcomes	CO2	0.85	0.85		0.85
	CO3	0.85	0.85		
	CO4	0.85	0.85		0.85
	CO5	0.85	0.85		0.85
	CO6	0.85	0.85		0.85
	CO1	0.94	0.94	0.94	0.94
Course Outcomes	CO2	0.94	0.94	0.94	0.94
	CO3	0.94	0.94	0.94	0.94
	CO4	0.94	0.94	0.94	0.94
	CO5	0.94	0.94	0.94	0.94

	CO6	0.94	0.94	0.94	0.94
	AVERAGE	0.818013937	0.822268908	0.819392265	0.81755814
	PERCENTAGE (%)	81	82	81	81

dge of mathematics, science,
nentals, and an engineering specialisation for the solution of complex engineering problem

ng first principles of mathematics, natural sciences, and engineering sciences.

gn system components or processes that meet the specified needs with appropriate consid
ental considerations.

ding design of experiments, analysis and
ide valid conclusions.

and modern engineering and IT tools, including prediction and modelling to complex engin

ess societal, health, safety, legal, and cultural issues and the consequent responsibilities

ns in societal and environmental contexts, and demonstrate the knowledge of, and need fo

d responsibilities and norms of the engineering practice.

der in diverse teams, and in multidisciplinary settings.

th the engineering community and with t h e society at large, such as, being able to compr
ive presentations, and give and receive clear instructions.

ing and management principles and apply these to one's own work, as a member and lead

y to engage in independent and life-long learning in the broadest context of technological c

l
olve real

lated to
urces, high

ory
ves,

on and
of

ngineering

ng a

e of the Subject: ELECTRIC CIRCUIT THEORY
Subject Code: : PC-EE 301
Year: 2nd (New Syllabus)

of networks.

me of the Subject: ANALOG ELECTRONICS
Subject Code: PC-EE 302
Year: 2nd (New Syllabus)

regulators and analog electronic circuits.

d on application.

the Subject: ELECTRO MAGNETIC FIELD THEORY
Subject Code: PC-EE 303
Year: 2nd (New Syllabus)

netic problems.

e of the Subject: ENGINEERING MECHANICS
Subject Code: ES-ME 301
Year: 2nd (New Syllabus)

nematics and kinetics of rigid bodies.
n and friction.

riction and rigid bodies.

Name of the Subject: MATHEMATICS-III
Subject Code: BS- M 301
Year: 2nd (New Syllabus)

Z transform

sis and Z transform

e of the Subject: BIOLOGY FOR ENGINEERS
Subject Code: BS-EE- 301
Year: 2nd (New Syllabus)

ries.

of cancer.
transfer

me of the Subject: INDIAN CONSTITUTION
Subject Code: : MC-EE 301

Year: 2nd (New Syllabus)

f Union, state and local self-government.Structure, jurisdiction and function of Indian
y.

f the Subject: : Electric circuit theory Laboratory
Subject Code: PC-EE391
Year: 2nd (New Syllabus)
on successful completion of the course, student will have:
ponse of filters, Laplace transform and inverse Laplace transform

of the Subject: : Analog Electronic laboratory
Subject Code: PC-EE392
Year: 2nd (New Syllabus)
on successful completion of the course, student will have:
fter completion of this course, the learners will be able to
r (A)characteristics of BJT and FET,(B)characteristics of Zener diode as voltage regula

ge regulator using regulator IC chip.timer circuit using 555 for monostable, astable an

entioned outcomes are not limited. Institute may redefine outcomes based their prog
of the Subject: : Numerical Methods laboratory
Subject Code: PC-CS 391
Year: 2nd (New Syllabus)

n

ear equations using
al solution of Algebraic Equation by Regularfalsi and Newton Raphson methods.

me of the Subject: : ELECTRIC MACHINE-I
Subject Code: PC-EE-401
Year: 2nd (New Syllabus)
on successful completion of the course, student will have:
chines and transformers
ransformers

ne of the Subject: : DIGITAL ELECTRONICS

Subject Code: PC-EE-402
Year: 2nd (New Syllabus)

on successful completion of the course, student will have:
niconductor memories and programmable logic devices.
circuits, A/D and D/A converter
onal & sequential digital circuits and A/D and D/A converter.

ubject: : ELECTRICAL & ELECTRONICS MEASUREMENTS
Subject Code: PC-EE-403
Year: 2nd (New Syllabus)

on successful completion of the course, student will have:
rs in measurement, loading effect
resistance, capacitance and inductance by bridges and potentiometer
er, digital multimeter, digital voltmeter, digital frequency meter, signal generator, stra
and measurement techniques of voltage, current, frequency and phase by oscilloscope
ner, measurement of power, energy, resistance, inductance and capacitance
and transducers

f the Subject: : THERMAL POWER ENGINEERING
Subject Code: ES-EE-401
Year: 2nd (New Syllabus)

bines
engines and Gas turbines.
es.

he Subject: : VALUES AND ETHICS IN PROFESSION
Subject Code: HM-EE-401
Year: 2nd (New Syllabus)

sibility and duties
ethics and social experimentation
s safety and risk

e of the Subject: : ENVIRONMEMTAL SCIENCE
Subject Code: MC-EE-401
Year: 2nd (New Syllabus)

tivities
environmental and health risk
he environmental laws and regulations
nd pollution.

the Subject: : ELECTRIC MACHINE-I LABORATORY

Subject Code: PC-EE491
Year: 2nd (New Syllabus)

ol of DC motor and parallel operation of the transformer

he Subject: : DIGITAL ELECTRONICS LABORATORY
Subject Code: PC-EE492
Year: 2nd (New Syllabus)

ropriate instruments and precaution
and flip-flops and asynchronous and synchronous up down counters
ice versa, 4 bit parity generator & comparator circuits,

t: : ELECTRICAL & ELECTRONICS MEASUREMENT LABORATORY
Subject Code: PC-EE493
Year: 2nd (New Syllabus)

oving iron and dynamometer type ammeter, voltmeter and wattmeter by potentiomet
e, inductance, capacitance

Subject: : THERMAL POWER ENGINEEING LABORATORY
Subject Code: ES-ME-491
Year: 2nd (New Syllabus)

ecautions
ochran Boiler, Vertical Tubular Boiler, Locomotive Boiler, 4S Diesel Engine, 4S Petrol En
ctrical load box and rope brake dynamometer

he Subject: <u>ELECTRIC MACHINE-II PC-EE-501</u>
Subject Code: <u>PC-EE-501</u>
Year: 3rd

agnetic fields.
hase Induction machines
hase Induction machines
nous machine

electromechanical devices.

special eletromechanical device.

Name of the Subject: POWER SYSTEM-I
Subject Code: : PC-EE-502
Year: 3rd (Old Syllabus)

nt sources

d cables.

n line

Name of the Subject: CONTROL SYSTEM
Subject Code: PC-EE-503
Year: 3rd

ms

me of the Subject: POWER ELECTRONICS
Subject Code: PC-EE-504
Year: 3rd

ices.

n of SCR

reduction of harmonics of the converter

the Subject: ELECTRIC MACHINE-IILABORATORY
Subject Code: : PC-EE 591
Year: 3rd

hase Inductionmotor, Induction generator and synchronous motor , methods of speed

of the Subject: POWER SYSTEM-I LABORATORY
Subject Code: PC-EE 592
Year: 3rd

own strength of solidinsulating material and dielectric constant of transformer oil.

of the Subject: CONTROL SYSTEMLABORATORY

Subject Code: PC-EE 593
Year: 3rd

ICE for simulation of systems.
ns.

the Subject: POWER ELECTRONICSLABORATORY
Subject Code: PC-EE 594
Year: 3rd

of the Subject: DATA STRUCTURE & ALGORITHM
Subject Code: OE-EE-501A
Year: 3rd

nce the performanceof the program.
s.

lem.
g, searching, and hashing
ns.

the Subject: OBJECT ORIENTED PROGRAMMING
Subject Code: OE-EE-501B

norphism,

Name of the Subject: POWER SYSTEM-II
Subject Code: PC-EE-601
Year: 3rd

studies.

ments.
bilty and protection ofpower system.
e Subject: MICROPROCESSOR & MICROCONTROLLER
Subject Code: PC-EE-602

e of the Subject: DIGITAL CONTROL SYSTEM
Subject Code: PE-EE-601A
Year: 3rd

tems.

cations.

me of the Subject: HVDC TRANSMISSION
Subject Code: PE-EE-601B
Year: 3rd
fter completion of this course the students will be able to
pplication(s).
nverters.

des.
eactive power control.nts.
of the Subject: ELECTRICAL MACHINE DESIGN
Subject Code: PE-EE-601C
Year: 3rd

sign of an ac machine
magnetic and thermalloading of electrical machines
machines.

the Subject: ELECTRICAL AND HYBRID VEHICLE
Subject Code: PE-EE-602A
Year: 3rd

lepending on resources.
vehicles.

e of the Subject: POWER QUALITYANDFACTS
Subject Code: PE-EE-602B
Year: 3rd

ıcteristics.

explain working principle of dynamic voltage restorer and UPQC

ıstrial consumers.
:trical systems.

ectrical systems.

power factor correction.

in the frequencydomain.

ɔ SNR
:eivers
ɔmmunication system
nication link

gital modulation systems

ıtion

eduling, legal andregulatory issues applied to economic investment and project-mana

.
earth fault relay, on loadtime delay relay, off load time delay relay, CT and PT.
der. 6. Apply software tools to find bus voltage, currents and power flows throughout t

a number in a string andstring manipulation

ns of 8051

sor and signal conditioning circuits

;
n system for small township, double circuit transmission line and Electric machines
with lift and pump
and for an applicationwith analog, digital, mixed signal, microcontroller and PCB

rmance.

te space.

ation and pollution.
tems
stems
ergy intensive industrialequipments

ition.

mes minimum for a definedlevel of load.
d phase angles at all buses.
mand at all the times.

nd transform the real lifeinformation in different representation

nine learning

and limitations, and societalimplications

erent contexts

he key technologies andprotocols employed at each layer of the stack
ata analysis

ılgorithm, areafilling algorithms.

acteristics and attributesof Embedded Systems

bedded systems.

ms. 6. design RTOS based Embedded systems.

ı. 2. enhance images in the spatial and frequency domain using various transforms.

rces in the organizationsand integrate the learning in handling these complexities.
gement.

s. 2. explain the fundamental of Electrolytic processes, Electric heating and Welding.
specific applications.

of traction motor.

erent components and stability.

on and Synchronous motor.
M and SRM.

onous motor.

ontrol valves.

machines

particular problem
oft computing approach
roblem.
ns.

e and respiration rate.
ging equipments Surgical & Therapeutic Instruments and Medical Laboratory Instrume

nent methods.

techniques.

s and procedures for measurement of physical parameters

. 6. apply smart sensors, bio-sensors, PLC and Internet of Things to different applicati

PO5	PO6	PO7	PO8	PO9	PO10
0.67					
0.78					
0.78					
	0.75				
		0.75			
		0.75			
		0.75			
	0.92	0.92			
	0.92	0.92			

0.9					
0.84					
0.84					
	0.76				
0.72	0.72			0.72	
	0.72			0.72	
	0.72				
0.72					
0.72					
0.71				0.71	
				0.71	
0.71					
0.71					
0.88	0.88			0.88	
	0.88			0.88	
	0.88				
	0.88				
0.88					
0.88					
0.95	0.95			0.95	
	0.95			0.95	
	0.95				
	0.95				
0.95					

0.95					
0.76					
	0.76				
	0.76				
0.76					
0.76					
0.92	0.92				
	0.92				
	0.92				
	0.92				
0.92					
0.92					
0.91	0.91				
0.91					
0.91					
0.87	0.87				
	0.87				
	0.87				
	0.87				
0.87					
0.87					
		0.67			
	0.67				
	0.67				
0.67	0.67	0.67		0.67	
0.67				0.67	
		0.84			
		0.84		0.84	
				0.84	
		0.71			
	0.71				
	0.71				
	0.71	0.71		0.71	
				0.71	
		0.92			
	0.92				
	0.92				

	0.92	0.92		0.92	
				0.92	
		0.63			
		0.63		0.63	
				0.63	
		0.87			
		0.87		0.87	
				0.87	
		0.68			
		0.68		0.68	
				0.68	
		0.83			
		0.83		0.83	
				0.83	
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
			0.83		
				0.83	
				0.83	
			0.83	0.83	0.83
				0.83	0.83
			0.71		
			0.71		0.71
					0.71
			0.68		

			0.68		0.68
					0.68
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
		0.73	0.73		
		0.73			
		0.73	0.73		0.73
					0.73
		0.89	0.89		
		0.89			
		0.89	0.89		0.89
					0.89
		0.65	0.65		
		0.65			
0.65					
0.65		0.65	0.65		0.65
0.65					0.65
		0.89	0.89		
		0.89			
0.89					
0.89		0.89	0.89		0.89
0.89					0.89
0.92					
0.92		0.92			
		0.92			
0.92		0.92	0.92		0.92
0.92					0.92
	0.68	0.68			
	0.68	0.68			
	0.68	0.68		0.68	
				0.68	
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
	0.9	0.9			
	0.9	0.9			
		0.9			
		0.9			
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
	0.87	0.87	0.87		
	0.87		0.87		
	0.87		0.87		
	0.86				
	0.86				
	0.86				
	0.86				
	0.86				
0.83					
0.83					
0.83					
0.83	0.83				
	0.83				
0.83					
0.92					
0.92					
0.92					
0.92	0.92				
	0.92				
0.92					
NA	NA	NA	NA	NA	NA

NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
0.82		0.82	0.82		
0.82	0.82	0.82	0.82		
	0.82	0.82	0.82		
	0.82				
0.82	0.82				
0.82	0.82	0.82	0.82		
0.84	0.84	0.84			
		0.84			
0.84	0.84				
0.84	0.84				
		0.84			
0.84	0.84	0.84			
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
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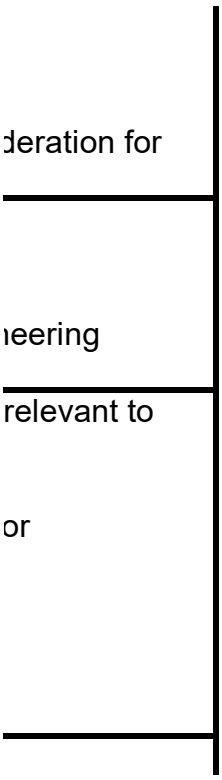

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DEPARTMENT OF ELECTRICAL ENGINEERING

Program Outcomes & Course Outcomes

PROGRAM OUTCOMES

PO NO.		
1	**Engineering knowledge**	Apply the knowledge of mathematics, science,
2	**Problem analysis:**	Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principle
3	**Design/development of solutions:**	Design solutions for complex engineering problems and design system comp safety, and cultural, societal, and environmental considerations.
	Conduct	Use research-based knowledge and research methods including design of ex

4	**investigations of complex problems:**	Use research-based knowledge and research methods including design of ex interpretation of data, and synthesis of the information to provide valid conclu
5	**Modern tool usage:**	Create, select, and apply appropriate techniques, resources, and modern eng understanding of the limitations.
6	**The engineer and society:**	Apply reasoning informed by the contextual knowledge to assess societal, he engineering practice.
7	**Environment and sustainability:**	Understand the impact of the professional engineering solutions in societal ar
8	**Ethics:**	Apply ethical principles and commit to professional ethics and responsibilities
9	**Individual and team work:**	Function effectively as an individual, and as a member or leader in diverse te
10	**Communication:**	Communicate effectively on complex engineering activities with the engineeri and design documentation, make effective presentations, and give and receiv
11	**Project management and**	Demonstrate knowledge and understanding of t h e engineering and manage and in multidisciplinary environments
12	**Life-long learning:**	Recognise the need for, and have the preparation and ability to engage in inc

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 & COURSE ATTAINMENTS

Name of the Subject: ELECTRIC CIRCUIT THEORY	
Subject Code: : PC-EE 301 **Year: 2nd (New Syllabus)**	
Course Outcomes:	After completion of this course the students will be able to
CO1	describe different type of networks, sources and signals with examples.
CO2	explain different network theorems, coupled circuit and tools for solution of networks.
CO3	apply network theorems and different tools to solve network problems.
CO4	select suitable techniques of network analysis for efficient solution.
CO5	estimate parameters of two-port networks.
CO6	design filter circuits.
Name of the Subject: ANALOG ELECTRONICS	
Subject Code: PC-EE 302 **Year: 2nd (New Syllabus)**	
Course Outcomes:	After completion of this course the students will be able to
CO1	1. describe analog electronic components and analog electronics circuits
CO2	2. explain principle of operation of analog electronic components, filters, regulators and analog e
CO3	3. compute parameters and operating points of analog electronic circuits.
CO4	4. determine response of analog electronic circuits.
CO5	5. distinguish different types amplifier and different types oscillators based on application.

CO6	6. construct operational amplifier based circuits for different applications.
Name of the Subject: ELECTRO MAGNETIC FIELD THEORY	
Subject Code: PC-EE 303 **Year: 2nd (New Syllabus)**	
Course Outcomes:	After completion of this course the students will be able to
CO1	1. Relate different coordinate systems for efficient solution of electromagnetic problems.
CO2	2. describe mathematical s tools to solve electromagnetic problems.
CO3	3. explain laws applied to electromagnetic field.
CO4	4. apply mathematical tools and laws to solve electromagnetic problems.
CO5	5. analyze electromagnetic wave propagation
CO6	6. estimate transmission line parameters
Name of the Subject: ENGINEERING MECHANICS	
Subject Code: ES-ME 301 **Year: 2nd (New Syllabus)**	
Course Outcomes:	After completing this course, the students will be able to:
CO1	explain the co-ordinate system, principle of three dimensional rotation,kinematics and kinetics o
CO2	elaborate the theory of general motion, bending moment, torsional motion and friction.
CO3	develop free body diagram of different arrangements.
CO4	solve problems with the application of theories and principle of motion , friction and rigid bodies
CO5	analyze torsional motion and bending moment.
Name of the Subject: MATHEMATICS-III	
Subject Code: BS- M 301 **Year: 2nd (New Syllabus)**	
Course Outcomes:	Upon completion of this course, students will be able to:
CO1	explain basics of probability theories, rules, distribution and properties of Z transform
CO2	describe different methods of numerical analysis.
CO3	solve numerical problems based on probability theories , numerical analysis and Z transform
CO4	apply numerical methods to solve engineering problems.
CO5	5. solve engineering problems using z transform and probability theory.
Name of the Subject: BIOLOGY FOR ENGINEERS	
Subject Code: BS-EE- 301 **Year: 2nd (New Syllabus)**	
Course Outcomes:	Upon completion of this course, students will be able to:

CO1	Describe with examples the biological observations lead to major discoveries.
CO2	Explain the classification of kingdom of life the building blocks of life
CO3	Different techniques of bio physics used to study biological phenomena.
CO4	The role of imaging in the screening, diagnosis, staging, and treatments of cancer.
CO5	Identify DNA as a genetic material in the molecular basis of information transfer
CO6	Analyze biological processes at the reductionistic level.
CO7	Apply thermodynamic principles to biological systems.
CO8	Identify microorganisms..
Name of the Subject: INDIAN CONSTITUTION	
Subject Code: : MC-EE 301	
Year: 2nd (New Syllabus)	
Course Outcomes:	After completing this course, the students will be able to:
CO1	Describe different features of Indian constitution.Power and functioning of Union, state and loca
CO2	Identify authority to redress a problem in the profession and in the society.
Name of the Subject: : Electric circuit theory Laboratory	
Subject Code: PC-EE391	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Determine transient response of different electrical circuit, frequency response of filters, Laplace
CO2	Generate different signals in both discrete and analog form
CO3	Analyze amplitude and phase spectrum of different signals.
CO4	Verify network theorems.
CO5	Construct circuits with appropriate instruments and safety precautions.
CO5	Simulate electrical circuit experiments using suitable software.
Name of the Subject: : Analog Electronic laboratory	
Subject Code: PC-EE392 **Year: 2nd (New Syllabus)**	
Course Outcomes:	Upon successful completion of the course, student will have:
	After completion of this course, the learners will be able to
CO1	Determine characteristics of full wave rectifier with filter and without filter (A)characteristics of E
CO2	Verify function of DAC and ADC
CO3	Construct function generator using IC, R-C coupled amplifier,linear voltage regulator using regul

CO4	Work in a team
CO5	Validate theoretical learning with practical Special Remarks: The above-mentioned outcomes are
Name of the Subject: : Numerical Methods laboratory	
Subject Code: PC-CS 391	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Solve problems with Newton forward /backward, Lagrange's interpolation
CO2	problems of numerical integration using Trapezoidal rule, Simpson's 1/3
CO3	rule, Weddle's rule problems to find numerical solution of a system of linear equations using
CO4	Gauss elimination and Gauss-Seidel iterations. problems to find numerical solution of Algebraic E
CO5	Ordinary differential equation by Euler's and Runga-Kutta methods.
CO6	Find appropriate numerical methods to solve engineering problems.
CO7	Use software package to solve numerical problems.
Name of the Subject: : ELECTRIC MACHINE-I	
Subject Code: PC-EE-401	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Describe the function of different components of magnetic circuit, DC machines and transformer
CO2	Explain the principle of operation of different types of DC machines and transformers
CO3	Solve numerical problems of DC machines and transformers.
CO4	Estimate the parameters and efficiency of transformer.
CO5	Determine the characteristics of DC machines
CO6	recommend methods to control output of DC machines.
Name of the Subject: : DIGITAL ELECTRONICS	
Subject Code: PC-EE-402	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Describe the function of different building blocks of digital electronics, semiconductor memories
CO2	Explain the principle of operation of combinational and sequential digital circuits, A/D and D/A co
CO3	Solve numerical problems of Boolean algebra, number system, combinational & sequential digita
CO4	Specify applications of combinational and sequential digital circuits.
CO5	Determine specifications of different digital circuits.
CO6	Design combinational and sequential digital circuits

Name of the Subject: : ELECTRICAL & ELECTRONICS MEASUREMENTS	
Subject Code: PC-EE-403	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Explain the terms accuracy, precision, resolution, speed of response, errors in measurement, loa
CO2	Describe methods of measurement of power, energy by instruments and resistance, capacitance
CO3	Explain the principle of operation of analog meters, instrument transformer, digital multimeter, d
CO4	Explain the different building block, principle of operation of oscilloscope and measurement tech
CO5	Solve numerical problems related to analog meters, instrument transformer, measurement of po
CO6	Specify applications of analog and digital measuring instruments, sensors and transducers
Name of the Subject: : THERMAL POWER ENGINEERING	
Subject Code: ES-EE-401	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Describe the function of different components of boilers. Engines and turbines
CO2	Explain the principle of operation of different types of boilers, turbines, IC engines and Gas turbi
CO3	Solve numerical problems of boilers, turbines, IC engines and Gas turbines.
CO4	Analyze the performance of boilers, engines and turbines.
CO5	Determine efficiency of boilers, engines and turbines.
CO6	Explain methods to control boiler, engines and turbines parameters.
Name of the Subject: : VALUES AND ETHICS IN PROFESSION	
Subject Code: HM-EE-401	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	1. Illustrate different aspects of human values, ethics, engineers' responsibility and duties
CO2	2. Explain different principles, different theories and laws of engineering ethics and social experi
CO3	3. Identify different factors in the light of Engineers' responsibility towards safety and risk
CO4	4. Correlate ethics of different work environment.
CO5	5. Explain the need for intellectual property rights.
Name of the Subject: : ENVIRONMEMTAL SCIENCE	
Subject Code: MC-EE-401	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:

CO1	Understand the natural environment and its relationships with human activities
CO2	Apply the fundamental knowledge of science and engineering to assess environmental and healt
CO3	Develop guidelines and procedures for health and safety issues obeying the environmental laws
CO4	Acquire skills for scientific problem-solving related to air, water, noise& land pollution.
Name of the Subject: : ELECTRIC MACHINE-I LABORATORY	
Subject Code: PC-EE491	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Identify appropriate equipment and instruments for the experiment.
CO2	Test the instrument for application to the experiment.
CO3	Construct circuits with appropriate instruments and safety precautions
CO4	Validate different characteristics of DC machine , methods of speed control of DC motor and par
CO5	Work effectively in a team
Name of the Subject: : DIGITAL ELECTRONICS LABORATORY	
Subject Code: PC-EE492	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Identify appropriate equipment and instruments for the experiment
CO2	2. Test the instruments for application to the experiment
CO3	3. Construct decoder , multiplexer, adder and subtractor circuits with appropriate instruments a
CO4	4. Realize RS-JK and D flip flop, universal register with gates, multiplexer and flip-flops and asyr
CO5	5. Validate the operation of code conversion circuit –BCD to Excess 3 & vice versa, 4 bit parity g
CO5	Work effectively in a team
Name of the Subject: : ELECTRICAL & ELECTRONICS MEASUREMENT LABORATORY	
Subject Code: PC-EE493	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
	1. identify appropriate equipment and instruments for the experiment
	2. test the instrument for application to the experiment
	3. construct circuits with appropriate instruments and safety precautions
	4. evaluate and adjust the precision and accuracy of AC energy meter, moving iron and dynamo
	5. measure voltage, current, power, energy, phase , frequency, resistance, inductance, capacita
	6. work effectively in a team

Name of the Subject: : THERMAL POWER ENGINEEING LABORATORY	
Subject Code: ES-ME-491	
Year: 2nd (New Syllabus)	
Course Outcomes:	Upon successful completion of the course, student will have:
CO1	Identify appropriate equipment and instruments for the experiment
CO2	Construct experimental setup with appropriate instruments and safety precautions
CO3	Identify different parts of Lanchashire Boiler, Bahcock & Willcox Boiler, Cochran Boiler, Vertical T
CO4	Test 4 stroke petrol engine by electrical load box and diesel engine by electrical load box and ro
CO5	Find calorific value, flash point, fire point, cloud point, pour point of fuel.
C06	Work effectively in a team
Name of the Subject: ELECTRIC MACHINE-II PC-EE-501	
Subject Code: PC-EE-501	
Year: 3rd	
Course Outcomes:	On successful completion of the course the student will be able to:
	1. To understand the arrangement of windings of AC machines.
	2. To understand the principle of production of pulsating and revolving magnetic fields.
	3. To understand the principle of operation and characteristics of three phase Induction machine
	4. To understand the principle of operation and characteristics of single phase Induction machin
	5. To understand the principle of operation and characteristics of synchronous machine
	6. To understand the principle of operation and characteristics of special electromechanical devi
	7. To solve problems of Induction machines, synchronous machines and special eletromechanica
Name of the Subject: POWER SYSTEM-I	
Subject Code: : PC-EE-502	
Year: 3rd (Old Syllabus)	
Course Outcomes:	After completion of this course the students will be able to:
CO1	To understand the basic principle of generation of Electricity from different sources
CO2	To find parameters and characteristics of overhead transmission lines and cables.
CO3	To find different parameters for the construction of overhead transmission line
CO4	To determine the performance of transmission lines.
CO5	To understand the principle tariff calculation.
CO6	To solve numerical problems on the topics studied.
Name of the Subject: CONTROL SYSTEM	
Subject Code: PC-EE-503	

Year: 3rd

Course Outcomes:	On completion of this course a student will be in a position to:
CO1	1. To find mathematical representation of LTI systems.
CO2	2. To find time response of LTI systems of different orders
CO3	3. To find the frequency response of LTI systems of different orders
CO4	4. To understand stabilityof differentLTI systems.
CO5	5. To analyze LTIsystems with state variables.
CO6	6. To solve problems of mathematical modelling and stability of LTI systems

Name of the Subject: POWER ELECTRONICS

Subject Code: PC-EE-504

Year: 3rd

Course Outcomes:	On completion of this course a students will be able to
CO1	To understand the functioning and characteristics of power switching devices.
CO2	To understand the principle of operation of converters.
CO3	To understand different triggering circuits and techniques of commutation of SCR
CO4	To find external performance parameter of converters.
CO5	To analyze methods of voltage control, improvement of power factor and reduction of harmonics
CO6	To solve numerical problems of converters

Name of the Subject: ELECTRIC MACHINE-IILABORATORY

Subject Code: : PC-EE 591

Year: 3rd

Course Outcomes:	After completion of the course, the students will be able to:
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.
CO3	construct circuits with appropriate instruments and safety precautions.
CO4	validate different characteristics of single phase Induction motor, three phase Inductionmotor, I
CO5	work effectively in a team

Name of the Subject: POWER SYSTEM-I LABORATORY

Subject Code: PC-EE 592

Year: 3rd

Course Outcomes:	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.

CO3	3. construct circuits with appropriate instruments and safety precautions.
CO4	4. validate different characteristics of transmission line.
CO5	5. determine earth resistance, dielectric strength of insulating oil, breakdown strength of solidins
CO6	6. analyze an electrical transmission line circuit with the help of software
CO7	7. work effectively in a team
Name of the Subject: CONTROL SYSTEMLABORATORY	
Subject Code: PC-EE 593	
Year: 3rd	
Course Outcomes:	After completion of this course the students will be able to
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.
CO3	construct circuits with appropriate instruments and safety precautions.
CO4	use MAT-Lab control system tool box, MAT-Lab- simulink tool box & PSPICE for simulation of sys
CO5	5. determinecontrol system specifications of first and second order systems.
Name of the Subject: POWER ELECTRONICSLABORATORY	
Subject Code: PC-EE 594	
Year: 3rd	
Course Outcomes:	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment.
CO2	test the instrument for application to the experiment.
CO3	construct circuits with appropriate instruments and safety precautions
Name of the Subject: DATA STRUCTURE & ALGORITHM	
Subject Code: OE-EE-501A	
Year: 3rd	
Course Outcomes:	On completion of this course a student will be in a position to:
CO1	differentiate how the choices of data structure & algorithm methods enhance the performanceof
CO2	solve problems based upon different data structure & also write programs.
CO3	write programs based on different data structure
CO4	identify appropriate data structure & algorithmic methods in solving problem.
CO5	discuss the computational efficiency of the principal algorithms for sorting, searching, and hashi
CO6	comparethe benefits of dynamic and static data structures implementations.
Name of the Subject: OBJECT ORIENTED PROGRAMMING	
Subject Code: OE-EE-501B	

Year: 3rd	
Course Outcomes:	After completion of this course the students will be able to
CO1	specify simple abstract data types.
CO2	recognise features of object-oriented design such as encapsulation, polymorphism,
CO3	inheritance, and composition of systems based on object identity.
CO4	apply common object-oriented design patterns
CO5	specify uses of common object oriented design patterns with examples.
CO6	design applications with an event-driven graphical user interface.
Name of the Subject: POWER SYSTEM-II	
Subject Code: PC-EE-601	
Year: 3rd	
Course Outcomes:	After completion of the course, the students will be able to:
CO1	Represent power system components in line diagrams.
CO2	Determine the location of distribution substation.
CO3	Determine the performance of power system with the help of load flowv studies.
CO4	Analyse faults in Electrical systems.
CO5	Determine the stabilty of Power system.
CO6	Explain principle of operation of different power system protection equipments.
CO7	Solve numerical problems related to representation, load flow, faults, stabilty and protection ofp
Name of the Subject: MICROPROCESSOR & MICROCONTROLLER	
Subject Code: PC-EE-602	
Year: 3rd	
Course Outcomes:	After completion of the course, the students will be able to
CO1	1. explain the architecture of 8086 and 8051.
CO2	2. do assembly language programming of 8086, 8051
CO3	3. interface different peripheral with 8086 and 8051
CO4	4. develop micro processor/ microcontroller based systems.
CO5	5. compare microprocessor, microcontroller, PIC and ARM processors
Name of the Subject: DIGITAL CONTROL SYSTEM	
Subject Code: PE-EE-601A	
Year: 3rd	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the principle of sampling and reconstrction of analog signal. systems.

CO2	perform Z-transformation and inverse Z-tranaformation of systems.
CO3	analyse and design digital control
CO4	design compensators for digital control system to achieve desired specifications.
CO5	represent digital control systems using state space models.
CO6	analyze the effect sampling on stability, controllability and observability
Name of the Subject: HVDC TRANSMISSION	
Subject Code: PE-EE-601B	
Year: 3rd	
Course Outcomes:	After completion of this course the students will be able to
CO1	choose intelligently AC and DC transmission systems for the dedicated application(s).
CO2	identify the suitable two-level/multilevel configuration for high power converters.
CO3	select the suitable protection method for various converter faults.
CO4	4. identify suitable reactive power compensation method.
CO5	5. decide the configuration for harmonic mitigation on both AC and DC sides.
CO6	6. solve numerical problems related to converters, power flow analysis, reactive power control.n
Name of the Subject: ELECTRICAL MACHINE DESIGN	
Subject Code: PE-EE-601C	
Year: 3rd	
Course Outcomes:	After completion of this course the students will be able to
CO1	specify the rating of electrical machines with standard specifications.
CO2	explain the principles of electrical machine design and carry out basic design of an ac machine
CO3	3. determine the various factors which influence the design of electrical, magnetic and thermallc
CO4	4. explain the construction and performance characteristics of electrical machines.
CO5	5. use software tools to do design calculations.
Name of the Subject: ELECTRICAL AND HYBRID VEHICLE	
Subject Code: PE-EE-602A	
Year: 3rd	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the principle of Electric traction.
CO2	choose a suitable drive scheme for developing an electric hybrid vehicle depending on resources
CO3	design and develop basic schemes of electric vehicles and hybrid electric vehicles.
CO4	choose proper energy storage systems for vehicle applications
CO5	implement different energy management strategies for hybrid vehicle.

Name of the Subject: POWER QUALITY AND FACTS	
Subject Code: PE-EE-602B Year: 3rd	
Course Outcomes:	On completion of this course a students will be able to
CO1	analyse uncompensated AC transmission line.
CO2	explain the working principles of FACTS devices and their operating characteristics.
CO3	apply FACTS devices for power flow control and stabilty.
CO4	identify different issues of power quality in distribution system.
CO5	apply different compensation and control techniques for DSTATCOM6. explain working principle
Name of the Subject: INDUSTRIAL ELECTRICAL SYSTEMS	
Subject Code: PE-EE-602C Year: 3rd	
Course Outcomes:	On completion of this course a students will be able to
CO1	Represent electrical wiring system for residential, commercial and industrial consumers.
CO2	Determine the rating of components of residential and commercial electrical systems.
CO3	Design lighting scheme for a residential and commercial premises.
CO4	Select transformer, switchgear, protection equipments for industrial electrical systems.
CO5	explain methods of automation of Industrial Electrical Systems
CO6	Solve numerical problems related to earthing system, lighting scheme, power factor correction.
Name of the Subject: DIGITAL SIGNAL PROCESSING	
Subject Code: OE-EE-601A Year: 3rd	
Course Outcomes:	On completion of this course a students will be able to
CO1	represent signals mathematically in continuous and discrete-time and in the frequencydomain.
CO2	analyse discrete-time systems using z-transform.
CO3	explain the Discrete-Fourier Transform (DFT) and the FFT algorithms.
CO4	design digital filters for various applications.
CO5	apply digital signal processing for the analysis of real-life signals.
Name of the Subject: COMMUNICATION ENGINEERING	
Subject Code: OE-EE-601B Year: 3rd	
Course Outcomes:	On completion of this course a students will be able to
CO1	compare the performance of AM, FM and PM schemes with reference to SNR

CO2	explain noise as a random process and its effect on communication receivers
CO3	evaluate the performance of ASK, FSK, PSK, BPSK, QPSK in a digital communication system
CO4	identify source coding and channel coding schemes for a given communication link
CO5	analyze various digital modulation methods
CO6	compute band width requirement and probability of error in various digital modulation systems
Name of the Subject: VLSI AND MICROELECTRONICS	
Subject Code: PE-EE-603C **Year: 3rd**	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the principle of design of VLSI circuits
CO2	explain different MOS structure with characteristics
CO3	apply different processes for VLSI fabrication
CO4	use programming language for the design of logic circuits
CO5	draw the stick diagram and layout for simple MOS circuits
Name of the Subject: ECONOMICS FOR ENGINEERS	
Subject Code: HM-EE-601 **Year: 3rd**	
Course Outcomes:	On completion of this course a students will be able to
CO1	evaluate the economic theories, cost concepts and pricing policies
CO2	explain the market structures and integration concepts
CO3	apply the concepts of financial management for project appraisal
CO4	explain accounting systems , the impact of inflation, taxation, depreciation
CO5	analyze financial statements using ratio analysis
CO6	explain financial planning, economic basis for replacement, project scheduling, legal andregulatc
Name of the Subject: POWER SYSTEM-II LABORATORY	
Subject Code: PC-EE 691 **Year: 3rd**	
Course Outcomes:	On completion of this course a students will be able to
CO1	Identify appropriate equipment and instruments for the experiment.
CO2	Test the instrument for application to the experiment.
CO3	Construct circuits with appropriate instruments and safety precautions.
CO4	Validate the characteristics of under voltage relay, over current relay, earth fault relay, on loadt
CO5	Validate protection schemes of transformer, generator, motor and feeder. 6. Apply software too

CO6	work effectively in a team
Name of the Subject: MICRO PROCESSOR AND MICRO CONTROLLER LABORATORY	
Subject Code: : PC-EE 692 **Year: 3rd**	
Course Outcomes:	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment
CO2	test the instrument for application to the experiment
CO3	construct circuits with appropriate instruments and safety precautions
CO4	program 8086 for arithmatic operation, sorting of array, searching for a number in a string ands
CO5	interface ADC/DAC, 8255, 8251 to 8086 and LCD, keyboard to 8051
CO6	program 8051 using arithmatic, logical and bit manipulation instructions of 8051
CO7	work effectively in a team
Name of the Subject: ELECTRICAL AND ELECTRONICS DESIGN LABORATORY	
Subject Code: PC-EE 681 **Year: 3rd**	
Course Outcomes:	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment
CO2	explain basic concept of measurement, noise in electronic system, sensor and signal conditionin
CO3	implement PC based data acquisition systems
CO4	construct circuits with appropriate instruments and safety precautions
CO5	design heating elements, air core grounding reactor, power distribution system for small townsh
CO6	do wiring and installation design of a multistoried residential building with lift and pump
CO7	design electronic hardware for controller of lift, speed of AC/DC motor, and for an applicationwit
Name of the Subject: ELECTRIC DRIVE	
Subject Code: PC-EE 701 **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment
CO2	Explain the principle of operation of Electric Drive.
CO3	Describe different methods of starting and braking of Electric Drive.
CO4	Model and control DC Drive
CO5	Control speed of Induction and Synchronous motors.
CO6	Recommend drives for different applications.

CO7	Estimate ratings, variables and parameters of Electric Drives.
Name of the Subject: CONTROL SYSTEM DESIGN	
Subject Code: PE-EE 701 A **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	identify appropriate equipment and instruments for the experiment
CO2	explain the effect of gain, addition of pole and zeros on system's performance.
CO3	describe time domain and frequency domain design specifications.
CO4	demonstrate the effect of nonlinearity on system performance.
CO5	design control system in time domain , in frequency domain and in state space.
CO6	design PID controllers.
CO7	select appropriate method for design of control system.
Name of the Subject: ELECTRICAL ENERGY CONSERVATION& AUDITING	
Subject Code: : PE-EE 701B **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the basic of energy resources, energy security, energy conservation and pollution.
CO2	quantify the energy conservation opportunities in different thermal systems
CO3	quantify the energy conservation opportunities in different electrical systems
CO4	identify the common energy conservation opportunities in different energy intensive industrialec
CO5	explain the methods of energy management and audit.
CO6	analyse and report the outcome of energy audit
Name of the Subject: POWER GENERATION ECONOMICS	
Subject Code: : PE-EE 701C **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the different terms e.g. load factor etc for economics of generation.
CO2	apply different types of tariff for electricity pricing.
CO3	optimize the operation of power system with unit commitment.
CO4	determine generation levels such that the total cost of generation becomes minimum for a defin
CO5	determine the state of the system given by the voltage magnitudes and phase angles at all buse
CO6	predict the power or energy needed to balance the supply and load demand at all the times.
Name of the Subject: ARTIFICIAL INTELLIGENCE	

Subject Code: OE-EE-701A	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the concept of knowledge representation and predicate logic and transform the real lifeir
CO2	describe state space and its searching strategies
CO3	demonstrate profciency in applying scientifc method to models of machine learning
CO4	apply the machine learning concepts in real life problems
CO5	demonstrate an ability to share in discussions of AI, its current scope and limitations, and societ
Name of the Subject: INTERNET OF THINGS	
Subject Code: OE-EE-701B	
Year:4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the definition and usage of the term “Internet of Things” in different contexts
CO2	explain the key components that make up an IoT system.
CO3	differentiate between the levels of the IoT stack and be familiar with the key technologies andpr
CO4	build and test a IoT system involving prototyping, programming and data analysis
CO5	apply cloud computing and data analytics in a typical IoT system
Name of the Subject: COMPUTER GRAPHICS	
Subject Code: OE-EE-701C	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain Computer graphics and graphic systems.
CO2	test and implement line drawing algorithm, circle and ellipse drawing algorithm, areafilling algori
CO3	Perform 2D and 3D transformation and viewing.
CO4	apply algorithms for visible surface determination.
CO5	explain colors and shading models and ray tracing.
Name of the Subject: EMBEDDED SYSTEM	
Subject Code: OE-EE 702A	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	discuss the definition, purpose, application, classification , quality characteristics and attributeso
CO2	explain the internal structure of the Embedded system.
CO3	interface IO devices and other peripherals with micro controllers in Embedded systems.

CO4	write programs for Micro controllers in Embedded systems.
CO5	apply the concept of Embedded firmware in design of Embedded systems. 6. design RTOS based
Name of the Subject: DIGITAL IMAGE PROCESSING	
Subject Code: OE-EE 702B **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the fundamental concepts of a digital image processing system.
CO2	enhance images in the spatial and frequency domain using various transforms.
CO3	apply different image segmentation techniques.
CO4	categorize various compression techniques.
CO5	implement image process and analysis algorithms.
CO6	apply image processing algorithms in practical applications.
Name of the Subject: COMPUTER NETWORK	
Subject Code: : OE-EE 702C **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the concepts of data communication and networking.
CO2	identify the different types of network topologies and protocols.
CO3	describe the function of a network system with OSI and TCP/IP model.
CO4	differentiate different types of routing protocol.
CO5	apply principles of congestion control .
CO6	implement different schemes for security of the networks.
Name of the Subject: PRINCIPLE OF MANAGEMENT	
Subject Code: : HM-EE 701 **Year: 4TH**	
Course Outcomes:	On completion of this course a students will be able to
CO1	explain the concepts and approaches of management.
CO2	demonstrate the roles, skills and functions of management.
CO3	diagnose and solve organizational problems.
CO4	identify the complexities associated with management of human resources in the organizationsa
CO5	apply different methods of Customer, Operation and Technology management.
CO6	acquire skills of good leader in an organization.
Name of the Subject: ELECTRIC DRIVE LABORATORY	

Subject Code: PC-EE 791	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. identify appropriate equipment and instruments for the experiment.
CO2	2. test the instrument for application to the experiment.
CO3	3. construct circuits with appropriate instruments and safety precautions.
CO4	4. apply different methods of control of Electric Drive in the laboratory.
CO5	5. analyse experimental data obtained in the laboratory.
CO6	6. work effectively in a team
Name of the Subject: PROJECT STAGE-I	
Subject Code: PW-EE 781	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	The students will be able to formulate the problem
CO2	The students will be able to develop or design a solution for the problem
CO3	Build up project prototype or model in hardware or software
CO4	Analyze the experimental collected data
CO5	Do investigation/research in the problem area
CO6	Apply fundamental and specialized knowledge in the area of the problem
CO7	Students will be able to self learn new methods, tools and techniques
CO8	Students will be able to apply modern tools and techniques
CO9	Students will be able to work individually and also in team
CO10	Students will be able to communicate the details and findings of the project through Project report, Presentation, Viv
CO11	Students will be able to apply project management and economics knowledge
CO12	Students will be able to identify implications of the project in society and environment.
Name of the Subject: ELECTRIC DRIVE LABORATORY	
Subject Code: PC-EE 791	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	Students will be able to apply fundamental and specialized knowledge to under stand the real life pro
CO2	Students will be able to understand the design and implementation aspects of engineering systems/
CO3	Students will be able to communicate the details of training through Training Report, Presentation ar
CO4	Students will be able to understand implication of engineering solutions in social and environment pe

Name of the Subject: UTILIZATION OF ELECTRIC POWER	
Subject Code: : PC-EE 801 Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain the fundamentals of illumination and different lighting schemes.
CO2	2. explain the fundamental of Electrolytic processes, Electric heating and Welding.
CO3	3. able to select appropriate lighting, heating and welding techniques for specific applications.
CO4	4. apply different electrolysis process for different applications.
CO5	5. explain the principle of different aspect of Electric traction and control of traction motor.
Name of the Subject: LINE COMMUTATED AND ACTIVE PWM RECTIFIERS	
Subject Code: PE-EE 801A Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain the principle of operation of different converters.
CO2	2. suggest the application of different filters.
CO3	3. apply converters for different applications.
CO4	4. analyze converter circuits.
CO5	5. develop appropriate scheme for control of different converters.
CO6	6. solve numerical problems relating to different converters.
Name of the Subject: POWER SYSTEM DYNAMICS AND CONTROL	
Subject Code: PE-EE 801B Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain the model of power system components
CO2	2. select the appropriate model for required analysis.
CO3	3. analyze the performance of the system with small signal analysis.
CO4	4. evaluate the stability of the single and multi machine systems.
CO5	5. develop measures for enhancing the stability of the system.
CO6	6. Solve numerical problems of linear dynamical system, modeling of different components and
Name of the Subject: ADVANCED ELECTRIC DRIVE	
Subject Code: PE-EE 801C Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to

CO1	1. explain the principle of operation of converters for AC drives.
CO2	2. model Induction and Synchronous motor by reference frame theory.
CO3	3. apply different control methods to control speed and torque of Induction and Synchronous m
CO4	4. explain the configurations and method of speed control of BLDC, PMSM and SRM.
CO5	5. realize basic blocks for DSP based motion control.
CO6	6. develop appropriate scheme for speed control of Induction and Synchronous motor.
Name of the Subject: INDUSTRIAL AUTOMATION AND CONTROL	
Subject Code: : PE-EE 801D	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain the basic structure of industrial automation and control
CO2	2. classify different types of control actions of controllers.
CO3	3. analyze control strategies of different processes of industry.
CO4	4. illustrate the construction and use of different types of actuators and control valves.
CO5	5. use PLC, DCS and SCADA in advanced industrial control.
Name of the Subject: SOFT COMPUTING TECHNIQUES	
Subject Code: OE-EE 801A	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain soft computing techniques and their roles in building intelligent machines
CO2	2. anlyse the feasibility of application of soft computing techniques for a particular problem
CO3	3. effectively use existing software tools to solve real problems using a soft computing approach
CO4	4. evaluate solutions by various soft computing approaches for a given problem.
CO5	5. apply different soft computing techniques to solve Engineering problems.
Name of the Subject: BIOMEDICAL INSTRUMENTATION	
Subject Code: OE-EE 801B	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. describe the principle of medical transducers for temperature, pressure and respiration rate.
CO2	2. explain the principle of operation of Biomedical recorders, Medical Imaging equipments Surgi
CO3	3. use different Medical laboratory equipments for different tests .
CO4	4. analyze any measurement application and suggest suitable measurement methods.
CO5	5. suggest suitable imaging methodology for a specific ailment.

Name of the Subject: INTRODUCTION TO MACHINE LEARNING	
Subject Code: OE-EE 801C	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain the basics concepts and classification of Machine Learning .
CO2	2. write simple programs using python.
CO3	3. describe Supervised Learning concepts.
CO4	4. explain the concept of Support Vector Machine.
CO5	5. describe unsupervised learning concepts and dimensionality reduction techniques.
CO7	6. apply Machine Learning in a range of real-world applications .
Name of the Subject: SENSORS AND TRANSDUCERS	
Subject Code: OE-EE 801D	
Year: 4TH	
Course Outcomes:	On completion of this course a students will be able to
CO1	1. explain the basic principle of operation of Transducers and Sensors.
CO2	2. distinguish different sensors and transducers.
CO3	3. identify suitable transducer by comparing different industrial standards and procedures for m
CO4	4. estimate the performance of different transducers.
CO5	5. design real life electronics and instrumentation measurement systems. 6. apply smart sensor

PROGRAMME OUTCOMES (PO) BASED ON G.A.

	POS& COS	PO1	PO2	PO3	PO4	PO5
Name of the Subject: ELECTRIC CIRCUIT THEORY	**CO1**	**0.65**	**0.65**	**0.65**	**0.65**	
	CO2	**0.65**	**0.65**	**0.65**	**0.65**	
	CO3	**0.65**	**0.65**	**0.65**		
	CO4	**0.65**	**0.65**	**0.65**	**0.65**	
	CO5	**0.65**	**0.65**	**0.65**		
	CO6	**0.65**	**0.65**	**0.65**	**0.65**	**0.65**
Name of the Subject:ANALOG ELECTRONICS	**CO1**	**0.66**	**0.66**	**0.66**	**0.66**	
	CO2	**0.66**	**0.66**	**0.66**	**0.66**	
	CO3	**0.66**	**0.66**	**0.66**		
	CO4	**0.66**	**0.66**	**0.66**	**0.66**	

Subject Code: PCEE302	CO5	0.66	0.66	0.66		
Name of the Subject: ELECTRO MAGNETIC FIELD THEORY	CO1	0.53	0.53	0.53	0.53	
	CO2	0.53	0.53	0.53	0.53	
	CO3	0.53	0.53	0.53	0.53	
	CO4	0.53	0.53	0.53	0.53	
	CO5	0.53	0.53	0.53	0.53	
	CO6	0.53	0.53	0.53	0.53	
Name of the Subject: ENGINEERING MECHANICS	CO1	0.57	0.57	0.57	0.57	
	CO2	0.57	0.57	0.57	0.57	
	CO3	0.57	0.57	0.57	0.57	
	CO4	0.57	0.57	0.57	0.57	
Subject	CO5	0.57	0.57	0.57	0.57	
Name of the Subject: MATHEMATICS Subject Code: BS M 301	CO1	0.78	0.78		0.78	
	CO2	0.78	0.78		0.78	
	CO3	0.78	0.78		0.78	0.78
	CO4	0.78	0.78		0.78	
	CO5	0.78	0.78		0.78	0.78
	CO6	0.78	0.78		0.78	
Name of the Subject: BIOLOGY FOR ENGINEERS Subject Code: BS EE 301	CO1	0.75				
	CO2	0.75			0.75	
	CO3	0.75			0.75	
	CO4	0.75			0.75	
	CO5	0.75			0.75	
	CO6	0.75			0.75	
Name of the Subject: INDIAN CONSTITUTION Subject Code: MC EE 301	CO1	0.92				
	CO2					
Name of the Subject: ELECTRIC CIRCUIT THEORY LABORATORY Subject Code: PC EE	CO1	0.9	0.9	0.9	0.9	
	CO2	0.9	0.9	0.9	0.9	
	CO3	0.9	0.9	0.9		
	CO4	0.9	0.9	0.9	0.9	
	CO5	0.9	0.9	0.9		
	CO6	0.9	0.9	0.9	0.9	0.9
	CO1	0.81	0.81	0.81	0.81	

Name of the Subject: ANALOG ELECTRONICS LABORATORY	CO2	0.81	0.81	0.81	0.81	
	CO3	0.81	0.81	0.81		
	CO4	0.81	0.81	0.81	0.81	
	CO5	0.81	0.81	0.81		
Name of the Subject: NUMERICAL METHODS LABORATORY Subject Code: BS M 301	CO1	0.84	0.84		0.84	
	CO2	0.84	0.84		0.84	
	CO3	0.84	0.84		0.84	0.84
	CO4	0.84	0.84		0.84	
	CO5	0.84	0.84		0.84	0.84
	CO6	0.84	0.84		0.84	
Name of the Subject:ELECTRIC MACHINE I Subject Code: PC EE 401	CO1	0.77	0.77	0.77	0.77	
	CO2	0.77	0.77	0.77	0.77	
	CO3	0.77	0.77			
	CO4	0.77	0.77			
	CO5	0.77	0.77			
	CO6	0.77	0.77	0.77	0.77	
Name of the Subject: DIGITAL ELECTRONICS Subject Code: PC EE 402	CO1	0.58	0.58	0.58	0.58	
	CO2	0.58	0.58	0.58	0.76	
	CO3	0.58	0.58	0.58		
	CO4	0.58	0.58	0.58		
	CO5	0.58	0.58	0.58	0.58	
	CO6	0.58	0.58	0.58	0.58	
Name of the Subject: ELECTRICAL AND ELECTRONICS MEASUREMENT Subject Code: PC EE	CO1	0.72	0.72	0.72	0.72	0.72
	CO2	0.72	0.72	0.72		
	CO3	0.72	0.72	0.72		
	CO4	0.72				
	CO5	0.72			0.72	0.72
	CO6	0.72	0.72	0.72		0.72
Name of the Subject: THERMAL POWER ENGINEERING Subject Code: ES EE	CO1	0.61	0.61	0.61	0.61	0.61
	CO2	0.61	0.61			
	CO3	0.61	0.61	0.61		
	CO4	0.61				
	CO5	0.61			0.61	0.61

Code: ES EE 401	CO6	0.61	0.61	0.61	0.61	0.61
Name of the Subject: VALUES AND ETHICS IN PROFESSION Subject Code: HM EE 401	CO1	0.72	0.72	0.72	0.72	0.72
	CO2	0.72	0.72	0.72		
	CO3	0.72	0.72	0.72		
	CO4	0.72				
	CO5	0.72			0.72	0.72
	CO6	0.72	0.72	0.72	0.72	0.72
Name of the Subject: ENVIRONMENTAL SCIENCE Subject Code: MC EE 401	CO1	0.81	0.81	0.81	0.81	0.81
	CO2	0.81	0.81	0.95		
	CO3	0.81	0.81	0.95		
	CO4	0.81				
	CO5	0.81			0.81	0.81
	CO6	0.81	0.81	0.81	0.81	0.81
Name of the Subject: ELECTRIC MACHINE I LABORATORY Subject Code: PC EE 491	CO1	0.76	0.76	0.76	0.76	0.76
	CO2	0.76	0.76			
	CO3	0.76	0.76	0.76		
	CO4	0.76				
	CO5	0.76			0.76	0.76
	CO6	0.76	0.76	0.76	0.76	0.76
Name of the Subject: DIGITAL ELECTRONICS LABORATORY Subject Code: PC EE 492	CO1	0.92	0.92	0.92	0.92	0.92
	CO2	0.92	0.92	0.92		
	CO3	0.92	0.92	0.92		
	CO4	0.92				
	CO5	0.92			0.92	0.92
	CO6	0.92	0.92	0.92	0.92	0.92
Name of the Subject: ELECTRICAL AND ELECTRONICS MEASUREMENT LABORATORY Subject Code:	CO1	0.91	0.91	0.91	0.91	0.91
	CO2	0.91	0.91	0.91		
	CO3	0.91	0.91	0.91		
	CO4	0.91				
	CO5	0.91			0.91	0.91
	CO6	0.91	0.91	0.91	0.91	0.91
Name of the Subject: THERMAL	CO1	0.87	0.87	0.87	0.87	0.87
	CO2	0.87	0.87	0.87		

POWER ENGINEERING LABORATORY S ubject Code: ES ME	CO3	0.87	0.87	0.87		
	CO4	0.87				
	CO5	0.87			0.87	0.87
	CO6	0.87	0.87	0.87	0.87	0.87
Name of the Subject: ELECTRIC MACHINE II Subject Code: PC EE 501	CO1	0.54	0.54	0.54		
	CO2	0.54			0.54	
	CO3	0.54			0.54	
	CO4				0.54	
	CO5		0.54	0.54		0.54
	CO6	0.54	0.54	0.54		0.54
Name of the Subject: ELECTRIC MACHINE II LABORATORY Subject Code: PC EE 591	CO1	0.84	0.84	0.84		
	CO2	0.84			0.84	
	CO3	0.84			0.84	
	CO4				0.84	
	CO5		0.84	0.84		
	CO6	0.84	0.84	0.84		
Name of the Subject: POWER SYSTEM I Subject Code: PC EE 502	CO1	0.56	0.56	0.56		
	CO2	0.56			0.56	
	CO3	0.56			0.56	
	CO4				0.56	
	CO5		0.56	0.56		
	CO6	0.56	0.56	0.56		
Name of the Subject: POWER SYSTEM I LABORATORY Subject Code: PC EE 592	CO1	0.92	0.92	0.92		
	CO2	0.92			0.92	
	CO3	0.92			0.92	
	CO4				0.92	
	CO5		0.92	0.92		
	CO6	0.92	0.92	0.92		
Name of the Subject: CONTROL SYSTEM Su bject Code: PC EE 503	CO1	0.55	0.55	0.55		
	CO2	0.55			0.55	
	CO3	0.55			0.55	
	CO4				0.55	
	CO5		0.55	0.55		

503	CO6	0.55	0.55	0.55		
Name of the Subject: CONTROL SYSTEM LABORATORY Subject Code: PC EE 593	CO1	0.87	0.87	0.87		
	CO2	0.87			0.87	
	CO3	0.87			0.87	
	CO4				0.87	
	CO5		0.87	0.87		
	CO6	0.87	0.87	0.87		
Name of the Subject: POWER ELECTRONICS Subject Code: PC EE 504	CO1	0.6	0.6	0.6		
	CO2	0.6				
	CO3	0.6				
	CO4					
	CO5		0.6	0.6		
	CO6	0.68	0.6	0.6		
Name of the Subject: POWER ELECTRONICS LABORATORY Subject Code: PC EE 594	CO1	0.92	0.92	0.92		
	CO2	0.92				
	CO3	0.92				
	CO4					
	CO5		0.92	0.92		
	CO6	0.92	0.92	0.92		
Name of the Subject: HIGH VOLTAGE ENGINEERING Subject Code: EE PE 501 A	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: RENEWABLE AND NON CONVENTIONAL ENERGY Subject Code: EE PE 501 C	CO1	0.72	0.72	0.72	0.72	
	CO2	0.72	0.72			
	CO3	0.72	0.72			
	CO4	0.72				
	CO5	0.72		0.72	0.72	
	CO6	0.72	0.72	0.72	0.72	
Name of the Subject: DATA STRUCTURE	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA

AND ALGORITHM Subject Code: OE EE 501A	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: OBJECT ORIENTED PROGRAMMING Subject Code: OE EE 501B	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: COMPUTER ORGANISTION AND ARCHITECTURE Subject Code: OE EE	CO1		0.71	0.71	0.71	
	CO2	0.71	0.71			
	CO3	0.71	0.71			
	CO4	0.71				
	CO5	0.71		0.71	0.71	
	CO6	0.71	0.71	0.71	0.71	
Name of the Subject: POWER SYSTEM II Subject Code: PC EE 601	CO1	0.65	0.65	0.65	0.65	
	CO2	0.65	0.65			
	CO3	0.65	0.65			
	CO4	0.65				
	CO5	0.65		0.65	0.65	
	CO6	0.65	0.65	0.65	0.65	
Name of the Subject: POWER SYSTEM II LABORATORY Subject Code: PC EE 691	CO1	0.91	0.91	0.91	0.91	
	CO2	0.91	0.91			
	CO3	0.91	0.91			
	CO4	0.91				
	CO5	0.91		0.91	0.91	
	CO6	0.91	0.91	0.91	0.91	
Name of the Subject: MICRO PROCESSOR AND MICROCONTROLLER Subject Code: PC EE 602	CO1	0.65	0.65	0.65	0.65	
	CO2	0.65	0.65			
	CO3	0.65	0.65			
	CO4	0.65	0.65			0.65
	CO5	0.65	0.65	0.65	0.65	0.65

	CO6	0.65	0.65	0.65	0.65	0.65
Name of the Subject: MICRO PROCESSOR AND MICROCONTROLLER LABORATORY Subject Code: PC EE 692	CO1	0.92	0.92	0.92	0.92	
	CO2	0.92	0.92			
	CO3	0.92	0.92			
	CO4	0.92	0.92			0.92
	CO5	0.92	0.92	0.92	0.92	0.92
	CO6	0.92	0.92	0.92	0.92	0.92
Name of the Subject: ELECTRICAL AND ELECTRONIC DESIGN LABORATORY Subject Code: PC EE 681	CO1	0.89	0.89	0.89	0.89	0.89
	CO2	0.89	0.89			0.89
	CO3	0.89	0.89			
	CO4	0.89	0.89			
	CO5	0.89	0.89	0.89	0.89	0.89
	CO6	0.89	0.89	0.89	0.89	0.89
Name of the Subject: ELECTRICAL AND ELECTRONIC DESIGN LABORATORY Subject Code: PC EE 681	CO1	0.68	0.68	0.68	0.68	
	CO2	0.68			0.68	
	CO3	0.68			0.68	
	CO4	0.68			0.68	
	CO5	0.68	0.68	0.68	0.68	
	CO6	0.68	0.68	0.68	0.68	
Name of the Subject: HVDC TRANSMISSION Subject Code: PE EE 601B	CO1	0.64	0.64	0.64	0.64	
	CO2	0.64			0.64	
	CO3	0.64			0.64	
	CO4	0.64			0.64	
	CO5	0.64	0.64	0.64	0.64	
	CO6	0.64	0.64	0.64	0.64	
Name of the Subject: ELECTRICAL MACHINE DESIGN Subject Code: PE EE 601C	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: POWER QUALITY AND	CO1	0.61	0.61	0.61	0.61	
	CO2	0.61	0.61	0.61	0.61	

FACTS Subject Code: PE EE 602 B	CO3	0.61	0.61			
	CO4	0.61	0.61			
	CO5	0.61	0.61	0.61	0.61	
	CO6	0.61	0.61	0.61	0.61	
Name of the Subject: DIGITAL SIGNAL PROCESSING Subject Code: OE EE 601 A	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: COMMUNICATION ENGINEERING Subject Code: OE EE 601 B	CO1	0.62	0.62	0.62	0.62	
	CO2	0.62	0.62	0.62	0.62	
	CO3	0.62			0.62	
	CO4	0.62	0.62	0.62	0.62	
	CO5	0.62				
	CO6	0.62	0.62	0.62	0.62	
Name of the Subject: ECONOMICS FOR ENGINEERS Subject Code: HM EE 601	CO1	0.57	0.57	0.57	0.57	
	CO2	0.57	0.57	0.57	0.57	
	CO3	0.57	0.57	0.57	0.57	
	CO4	0.57	0.57		0.57	
	CO5	0.57	0.57		0.57	
	CO6	0.57	0.57		0.57	
Name of the Subject: ELECTRIC DRIVE Subject Code: PC EE 701	CO1	0.61	0.61	0.61	0.61	0.61
	CO2	0.61	0.61			0.61
	CO3	0.61				0.61
	CO4	0.61	0.61	0.61	0.61	0.61
	CO5	0.61	0.61	0.61		
	CO6	0.61	0.61	0.61		0.61
Name of the Subject: ELECTRIC DRIVE LABORATORY Subject Code: PC EE 791	CO1	0.95	0.95	0.95	0.95	0.95
	CO2	0.95	0.95			0.95
	CO3	0.95				0.95
	CO4	0.95	0.95	0.95	0.95	0.95
	CO5	0.95	0.95	0.95		

	CO6	0.95	0.95	0.95		0.95
Name of the Subject: CONTROL SYSTEM DESIGN Subject Code: PE EE 701 A	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: ELECTRICAL ENERGY CONSERVTION AND AUDITING Subject Code: PE EE 701 B	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: POWER GENERATION ECONOMICS Subject Code: PE EE 701 C	CO1	0.76	0.76	0.76		0.76
	CO2	0.76	0.76	0.76		0.76
	CO3	0.76	0.76	0.76		
	CO4	0.76	0.76	0.76		
	CO5	0.76	0.76	0.76		0.76
	CO6	0.76	0.76	0.76		0.76
Name of the Subject: ARTIFICIAL INTELLIGENCE Subject Code: OE EE 701 A	CO1	0.74	0.74	0.74	0.74	0.74
	CO2	0.74	0.74	0.74	0.74	
	CO3	0.74				0.74
	CO4	0.74				0.74
	CO5	0.74	0.74	0.74	0.74	0.74
	CO6	0.74	0.74	0.74	0.74	0.74
Name of the Subject: INTERNET OF THINGS Subj ect Code: OE EE 701 B	CO1	0.61	0.61	0.61		
	CO2	0.61	0.61		0.61	0.61
	CO3	0.61	0.61		0.61	0.61
	CO4	0.61	0.61		0.61	0.61
	CO5	0.61	0.61			0.61
	CO6	0.61	0.61	0.61	0.61	0.61
Name of the Subject: COMPUTER	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA

GRAPHICS Subject Code: OE EE 701 C	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: EMBEDDED SYSTEM Subj ect Code: OE EE 702 A	CO1	0.63	0.63	0.63		
	CO2	0.63	0.63	0.63	0.63	
	CO3	0.63		0.63	0.63	
	CO4	0.63	0.63		0.63	
	CO5	0.63	0.63	0.63		
	CO6	0.63	0.63		0.63	
Name of the Subject: DIGITAL IMAGE PROCESSING S ubject Code: OE EE 702 B	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: COMPUTER NETWORK Su bject Code: OE EE 702 C	CO1	NA	NA	NA	NA	NA
	CO2	NA	NA	NA	NA	NA
	CO3	NA	NA	NA	NA	NA
	CO4	NA	NA	NA	NA	NA
	CO5	NA	NA	NA	NA	NA
	CO6	NA	NA	NA	NA	NA
Name of the Subject: PRINCIPLE OF MANAGEMENT S ubject Code: HM EE 701	CO1	0.7	0.7			
	CO2	0.7	0.7			
	CO3	0.7	0.7			
	CO4	0.7	0.7			
	CO5	0.7	0.7			
	CO6	0.7	0.7			
Name of the Subject: PROJECT STAGE I Subject Code: PW EE 781	CO1	0.92	0.92	0.92	0.92	0.92
	CO2	0.92	0.92	0.92	0.92	
	CO3	0.92	0.92	0.92	0.92	
	CO4	0.92	0.92	0.92	0.92	
	CO5	0.92	0.92	0.92		

	CO6	0.92	0.92	0.92	0.92	
Name of the Subject: SEMINAR Subject Code: PW EE 781	CO1	0.9	0.9	0.9	0.9	0.9
	CO2	0.9	0.9	0.9	0.9	
	CO3	0.9	0.9	0.9	0.9	
	CO4	0.9	0.9	0.9	0.9	
	CO5	0.9	0.9	0.9	0.9	
	CO6	0.9	0.9	0.9	0.9	
Name of the Subject: UTILISATION OF ELECTRIC POWER Subject Code: PC EE 801	CO1	0.65	0.65			
	CO2	0.65	0.65			
	CO3	0.65	0.65			
	CO4	0.65	0.65			0.65
	CO5	0.65	0.65			0.65
	CO6	0.65	0.65			0.65
Name of the Subject: POWER SYSTEM DYNAMICS AND CONTROL Subject Code: PE EE 801 B	CO1	0.69	0.69	0.69	0.69	
	CO2	0.69	0.69	0.69	0.69	
	CO3	0.69	0.69	0.69	0.69	0.69
	CO4	0.69	0.69	0.69	0.69	
	CO5	0.69	0.69	0.69	0.69	
	CO6	0.69	0.69	0.69	0.69	
Name of the Subject: SENSORS AND TRANSDUCERS Subject Code: OE EE 801 D	CO1	0.62	0.62			
	CO2	0.62	0.62		0.62	
	CO3	0.62	0.62			0.62
	CO4	0.62	0.62		0.62	
	CO5	0.62	0.62		0.62	
	CO6	0.62	0.62		0.71	0.71
Name of the Subject: PROJECT STAGE II Subject Code: PW EE 881	CO1	0.94	0.94	0.94	0.94	0.94
	CO2	0.94	0.94	0.94	0.94	
	CO3	0.94	0.94	0.94	0.94	
	CO4	0.94	0.94	0.94	0.94	
	CO5	0.94	0.94	0.94	0.94	
	CO6	0.94	0.94	0.94	0.94	
AVERAGE		0.737713311	0.735826446	0.742857143	0.732707182	0.7656

PO	PO1	PO2	PO3	PO4	PO5	PO6
AVERAGE	0.737713311	0.738617572	0.736899277	0.744404762	0.733626151	0.7656
PERCENTAGE(%)	73	73	73	74	73	76

s of mathematics, natural sciences, and engineering sciences.

onents or processes that meet the specified needs with appropriate consideration for public health and

periments, analysis and

xperiments, analysis and
isions.

gineering and IT tools, including prediction and modelling to complex engineering activities, with an

ealth, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional

nd environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

s and norms of the engineering practice

ams, and in multidisciplinary settings.

ng community and with t h e society at large, such as, being able to comprehend and write effective reports
ve clear instructions.

ement principles and apply these to one’s own work, as a member and leader in a team, to manage projects

dependent and life-long learning in the broadest context of technological change.

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	CO ATTAINMENT
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	CO ATTAINMENT
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nd integrate the learning in handling these complexities.	76
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	CO

	CO ATTAINMENT
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	CO ATTAINMENT
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a-voice and paper presentation if any	92
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	92
	CO ATTAINMENT
oblem in the field of Electrical Engineering	95
components.	95
nd viva voice.	95
erspective.	95

	CO ATTAINMENT
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	CO ATTAINMENT
	NA
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	CO ATTAINMENT
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stability.	69
	CO ATTAINMENT

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otor.	NA
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	CO ATTAINMENT
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cal & Therapeutic Instruments and Medical Laboratory Instruments.	NA
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	CO ATTAINMENT
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	CO ATTAINMENT
	81
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easurement of physical parameters	81
	81
s, bio-sensors, PLC and Internet of Things to different applications.	81

PO6	PO7	PO8	PO9	PO10	PO11	PO12

0.75						
	0.75					
	0.75					
	0.75					
0.92	0.92					
0.92	0.92					

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0.72			**0.72**			
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0.81					0.81	
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0.76						
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0.92						
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0.92						
0.91						
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	0.54					
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0.54	0.54		0.54			
			0.54			
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	0.84		0.84			
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	0.56					
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0.56	0.56		0.56			
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0.92	0.92		0.92			
			0.92			
	0.55					
	0.55		0.55			

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	0.87					
	0.87		0.87			
			0.87			
						0.6
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	0.6		0.6			
			0.6			0.6
						0.92
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	0.92		0.92			
			0.92			0.92
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
		0.72				
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			0.72	0.72		
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA

NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
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NA	NA	NA	NA	NA	NA	NA
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		0.71		0.71		
				0.71		
	0.65	0.65				0.65
	0.65					0.65
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	0.65	0.65		0.65		
				0.65		
	0.91	0.91				
	0.91	0.91				
	0.91	0.91		0.91		
				0.91		
	0.65	0.65				
	0.65					
	0.65	0.65		0.65		

				0.65		
	0.92	0.92				
	0.92					
	0.92	0.92		0.92		
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	0.89	0.89		0.89		
				0.89		
0.68	0.68					
0.68	0.68					
0.68	0.68		0.68			
			0.68			
0.64	0.64					
0.64	0.64					
0.64	0.64					
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
0.61	0.61					

0.61	0.61					
	0.61					
	0.61					
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
0.62	0.62	0.62				
0.62		0.62				
0.62		0.62				
0.57					0.57	
0.57					0.57	
0.57					0.57	0.76
						0.76
0.57						0.76
0.57					0.57	0.76
					0.61	
					0.61	
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					0.95	
					0.95	
0.95						
0.95					0.95	

NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
	0.76	0.76				
0.76	0.76	0.76			0.76	
0.76	0.76	0.76			0.76	
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0.76	0.76	0.76				
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NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA

NA	NA	NA	NA	NA	NA	NA
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NA	NA	NA	NA	NA	NA	NA
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0.63						
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	0.63					
NA	NA	NA	NA	NA	NA	NA
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NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
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						0.94
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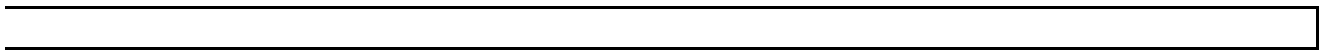
			0.94		0.94	
0.94						
		0.94				
						0.94
0.731506849	0.728064516	0.774166667	0.736969697	0.797777778	0.737	0.766315789

PO7	PO8	PO9	PO10	PO11	PO12
0.731506849	0.728064516	0.774166667	0.736969697	0.797777778	0.737
73	**72**	**77**	**73**	**79**	**73**



CALCUTTA INSTITUTE OF ENGINEERING AND MANAGEMENT
DEPARTMENT OF INFORMATION TECHNOLOGY
ACADEMIC YEAR 2021-2022

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 life-long learning in the broadest context of technological change.

COURSE DETAILS

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	√	√		√								
CO6	√		√									

COURSE DETAILS

COURSE NAME	Mathematics I(A)
COURSE CODE	**BS-M(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	√	√										

COURSE DETAILS

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	√				√							
CO3	√						√					

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	√	√	√	√								
CO2	√	√		√								
CO3	√			√								
CO4	√	√		√								
CO5	√	√		√								

COURSE DETAILS

COURSE NAME	Basic Electrical Engineering Laboratory
COURSE CODE	**ES-EE191**
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	√				√							

COURSE DETAILS

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	√				√							
CO2	√											
CO3	√		√		√							
CO4	√				√							

COURSE DETAILS

COURSE NAME	Analog & Digital Electronics
COURSE CODE	**ESC301**
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	√		√									

COURSE DETAILS

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

CO-PO MAPPING

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

COURSE DETAILS

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		√			√							

COURSE DETAILS

COURSE NAME	Economics for Engineers (Humanities – II)
COURSE CODE	**HSMC 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							√					

COURSE DETAILS

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			√									
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

CO-PO MAPPING

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

COURSE DETAILS

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		√	√						√			
CO3	√		√		√							
CO4	√	√	√	√								

COURSE DETAILS

COURSE NAME	Economics for Engineers
COURSE CODE	**HU 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		√									√	√
CO3							√					

COURSE NAME	Design & Analysis of Algorithm
COURSE CODE	**IT 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		√									√	
CO3			√		√							

CO4			√	√							√	
CO5		√	√									

COURSE NAME	Computer Arcghitecture
COURSE CODE	**IT 502**
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	√	√	√		√							
CO3	√	√	√	√	√						√	

COURSE NAME	Operating System
COURSE CODE	**IT 503**
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		√	√	√								
CO3	√		√									√
CO4		√		√								
CO5	√	√	√	√								√

COURSE NAME	Programing Practices using C++
COURSE CODE	**IT504F**
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	√	√	√									
CO3	√	√	√	√								
CO4	√	√	√	√								

COURSE NAME	Algorithm Lab
COURSE CODE	**IT591**

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		√									√	
CO3			√		√							
CO4			√	√							√	
CO5		√	√									

COURSE DETAILS

COURSE NAME	Computer Architecture
COURSE CODE	**IT592**
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		√	√									

COURSE DETAILS

COURSE NAME	Operating System Lab
COURSE CODE	**IT593**
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	√		√									
CO3	√		√									
CO4	√		√									

COURSE DETAILS

COURSE NAME	Programming Practices Using C++
COURSE CODE	**IT594F**
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		√	√									
CO3	√	√										
CO4	√	√	√									

COURSE DETAILS

COURSE NAME	Internet Technology
COURSE CODE	**IT701**
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	√	√			√							
CO4	√	√	√	√	√							

COURSE DETAILS

COURSE NAME	Multimedia
COURSE CODE	**IT702**
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					√							
CO4			√		√						√	

COURSE DETAILS

COURSE NAME	E-Commerce
COURSE CODE	**IT703A**
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					√							√
CO4			√	√								

COURSE DETAILS

COURSE NAME	Cloud Computing
COURSE CODE	**IT704B**
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	√						√					
CO4												√

COURSE DETAILS

COURSE NAME	Advanced Data Communication & Coding
COURSE CODE	**IT705E**
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		√	√	√								
CO4		√	√	√	√							

COURSE DETAILS

COURSE NAME	Group Discussion
COURSE CODE	**HU781**
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		√		√					√	√		√
CO4		√	√	√					√			√

COURSE DETAILS

COURSE NAME	Internet Technology
COURSE CODE	**IT791**
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	√	√	√	√	√							
CO4	√	√	√	√	√							

COURSE DETAILS

COURSE NAME	Multimedia
COURSE CODE	**IT792**
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		√	√	√	√						√	
CO4			√	√							√	
CO5		√	√		√						√	
CO6		√	√		√						√	

COURSE DETAILS

COURSE NAME	E-Commerce
COURSE CODE	**IT793A**
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		√	√	√								
CO4	√	√	√	√				√		√		

COURSE DETAILS

COURSE NAME	Industrial Training
COURSE CODE	**IT794**
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		√	√			√				√		
CO4		√	√	√	√					√	√	

COURSE DETAILS

COURSE NAME	Project-1
COURSE CODE	**IT795**
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		√	√									
CO4			√	√								
CO5							√				√	
CO6									√	√	√	

Paper Name	**COs**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
BS PH-101	**CO1**	**0.81**											
	CO2		**0.72**	**0.72**									
	CO3	**0.75**			**0.75**								
	CO4					**0.83**							
	CO5		**0.69**		**0.69**								
	CO6			**0.79**	**0.79**								
BS-M(101)	**CO1**	**0.75**	**0.75**										
	CO2	**0.9**		**0.9**									
	CO3	**0.72**	**0.72**										
ES-EE101	**CO1**	**0.7**	**0.7**										
	CO2	**0.75**											

	CO3	0.7						0.7					
BS PH-191	CO1			0.72	0.72								
	CO2			0.8	0.8								
	CO3			0.78	0.78								
	CO4		0.85	0.85	0.85								
	CO5		0.75	0.75									
ES-EE191	CO1	0.75											
	CO2		0.65	0.65									
	CO3		0.7	0.7				0.7					
ES - ME 192	CO1			0.7									
	CO2	0.7		0.7									
	CO3			0.65									
	CO4	0.7	0.7										
BS CH-201	CO1		0.69	0.69									
	CO2	0.72											
	CO3	0.78											
	CO4	0.81											
	CO5			0.82	0.82	0.82							
BS-M201	CO1	0.9											
	CO2	0.75	0.75	0.75									
	CO3					0.7							
	CO4										0.85		
ES-CS201	CO1		0.7	0.7									
	CO2	0.6	0.6	0.6									
	CO3	0.7	0.7	0.7	0.7	0.7							
	CO4		0.65		0.65								
HM-HU201	CO1	0.62									0.62		
	CO2	0.58											
	CO3	0.75	0.75										
	CO4	0.64	0.64										
BS CH-291	CO1		0.72	0.72									
	CO2			0.78	0.78			0.78					
	CO3		0.83	0.83									
	CO4		0.76	0.76									
	CO5		0.84	0.84									
ES-CS291	CO1		0.9										
	CO2			0.9									
	CO3			0.8									
	CO4		0.85	0.85									
	CO5			0.9									
	CO6			0.8									
	CO7		0.75	0.75									
	CO8			0.8									
ES-ME291	CO1	0.75											
	CO2	0.7		0.7									

	CO3	0.65											
	CO4	0.65	0.65										
HM-HU291	CO1	0.55											
	CO2										0.54		
	CO3		0.77	0.77									
	CO4	0.67	0.67										
ESC301	CO1	0.6		0.6									
	CO2	0.62	0.62	0.62									
	CO3		0.55	0.55									
PCC-CS301	CO1	0.79	0.79										
	CO2		0.83	0.83									
	CO3			0.8	0.8								
	CO4		0.82		0.82								
	CO5		0.71	0.71									
PCC-CS302	CO1	0.7	0.7										
	CO2			0.75									
	CO3		0.7		0.7								
	CO4			0.65	0.65	0.65							
BSC-301	CO1	0.7	0.7										
	CO2	0.72	0.72	0.72									
	CO3			0.75	0.75								
	CO4			0.7	0.7								
	CO5		0.74			0.74							
HSMC 301	CO1		0.58	0.58									
	CO2		0.59									0.59	0.59
	CO3							0.61					
ESC391	CO1			0.7									
	CO2			0.65	0.65								
	CO3			0.7									
PCC-CS391	CO1	0.85		0.85		0.85							
	CO2	0.8		0.8		0.8							
	CO3				0.82	0.82							0.82
PCC CS-392	CO1		0.8										
	CO2			0.8									
	CO3			0.8		0.8							
	CO4			0.8		0.8							
PCC-CS393	CO1	0.83				0.83							
	CO2		0.85	0.85						0.85			
	CO3	0.82		0.82		0.82							
	CO4	0.74	0.74	0.74	0.74								
PCC-CS401	CO1	0.75											
	CO2	0.8	0.8										
	CO3	0.75	0.75										
	CO4	0.8	0.8										
	CO5			0.75		0.75							

PCC-CS402	CO1	0.75	0.75	0.75		0.75							
	CO2	0.85	0.85	0.85		0.85							
	CO3	0.8	0.8	0.8	0.8	0.8						0.8	
PCC-CS403	CO1	0.7											
	CO2		0.65	0.65									
	CO3			0.75									
	CO4				0.65								0.65
PCC-CS404	CO1	0.85	0.85										
	CO2		0.75	0.75									
	CO3		0.7	0.7									
	CO4		0.8	0.8									
	CO5		0.85	0.85									
	CO6		0.7	0.7									
	CO7		0.7			0.7							
	CO8		0.65			0.65							
BSC 401	CO1	0.82	0.82		0.82								
	CO2	0.81	0.81										
	CO3		0.78		0.78								
	CO4		0.83		0.83								
	CO5		0.75	0.75				0.75					
	CO6	0.79	0.79										
MC 401	CO1			0.8			0.8	0.8					
	CO2			0.82			0.82	0.82					
	CO3			0.84		0.84	0.84	0.84					
	CO4			0.8	0.8			0.8					
	CO5		0.88	0.88				0.88	0.88		0.88		
	CO6						0.89	0.89	0.89		0.89		
PCC-CS 492	CO1		0.95	0.95		0.95							
	CO2		0.85	0.85									
PCC-CS494	CO1			0.85	0.85								
	CO2		0.7									0.7	
	CO3			0.7		0.7							
	CO4			0.75	0.75							0.75	
	CO5		0.6	0.6									
ESC-501	CO1	0.85	0.85	0.85									
	CO2	0.8	0.8										
	CO3			0.9		0.9							
	CO4	0.7											
	CO5			0.65	0.65	0.65						0.65	
PCC-CS501	CO1	0.9	0.9	0.9									
	CO2			0.85		0.85							
	CO3			0.8							0.8		
	CO4			0.75	0.75								
PCC-CS502	CO1	0.6	0.6										

	CO2		0.7	0.7	0.7								
	CO3	0.65		0.65									0.65
	CO4		0.6		0.6								
PCC-CS503	CO1	0.7	0.7										
	CO2			0.8	0.8								
	CO3		0.65	0.65	0.65								
	CO4			0.8		0.8							
HSMC 501	CO1	0.59	0.59					0.59					
	CO2		0.61	0.61									
	CO3		0.62								0.62		
PEC-IT501B	CO1	0.6				0.6	0.6						
	CO2			0.7	0.7						0.7		
	CO3							0.75					
	CO4		0.7					0.7					
	CO5			0.6	0.6						0.6		
PEC-IT501C	CO1	0.7		0.7								0.7	
	CO2	0.85	0.85										
	CO3	0.75	0.75										
	CO4		0.7	0.7	0.7								
	CO5		0.65	0.65		0.65							
MC-CS501	CO1								0.72	0.72	0.72		0.72
ESC-591	CO1	0.85	0.85										
	CO2	0.9		0.9		0.9							
	CO3			0.6	0.6								
	CO4	0.75	0.75										
PCC-CS592	CO1	0.6		0.6									
	CO2	0.7		0.7									
	CO3	0.65		0.65									
PCC-CS593	CO1	0.93				0.93							
	CO2	0.92		0.92		0.92							
	CO3			0.95	0.95	0.95							0.95
PCC-CS601	CO1	0.8	0.8			0.8							
	CO2		0.75	0.75	0.75								
	CO3		0.7		0.7								
	CO4		0.75	0.75									
	CO5	0.7		0.7									
	CO6		0.65				0.65						0.65
PCC-CS602	CO1	0.7	0.7	0.7	0.7								
	CO2		0.7	0.7	0.7								
	CO3		0.75		0.75	0.75							0.75
PEC-IT601D	CO1		0.7		0.7								
	CO2									0.72			
	CO3												0.8
	CO4		0.6					0.6					

	CO5		0.75					0.75					
PEC-IT602D	CO1							0.6					
	CO2		0.7		0.7								
	CO3	0.75				0.75	0.75					0.75	
	CO4	0.7				0.7	0.7						
	CO5				0.6								
OEC-IT601B	CO1				0.75								
	CO2				0.6								
	CO3	0.7				0.7	0.7					0.7	
	CO4								0.75				
	CO5		0.6										
	CO6			0.6	0.6								
PROJ-CS601	CO1		0.78										
	CO2				0.82	0.82							
	CO3								0.67				
	CO4						0.79						
	CO5						0.75						
	CO6							0.85					
PCC-CS691	CO1	0.8		0.8		0.8							
	CO2			0.75		0.75							
	CO3			0.7		0.7							
	CO4			0.75		0.75							
	CO5	0.7				0.7							0.7
PCC-CS692	CO1		0.9										
	CO2	0.9	0.9										
	CO3			0.9									
	CO4			0.8	0.8								
PEC-IT701C	CO1		0.85										
	CO2	0.75	0.75										
	CO3	0.65						0.65					
	CO4												0.7
PEC-IT702A	CO1	0.77	0.77	0.77									
	CO2			0.76	0.76	0.76							
	CO3					0.73							
	CO4			0.72		0.72						0.72	
OEC-IT701C	CO1						0.83						
	CO2									0.81			0.81
	CO3								0.74	0.74			
	CO4						0.68				0.68		
HSMC 701	CO1						0.58	0.58					
	CO2										0.59	0.59	0.59
	CO3		0.6									0.6	0.6
PROJ-IT 781	CO1				0.77					0.77			
	CO2		0.78							0.78	0.78		

	CO3		**0.8**	**0.8**									
	CO4			**0.81**	**0.81**								
	CO5							**0.82**				**0.82**	
	CO6									**0.82**	**0.82**	**0.82**	
PEC-IT801B	**CO1**		**0.8**										
	CO2		**0.8**	**0.8**									
	CO3		**0.81**										
	CO4			**0.85**	**0.85**								
OEC-IT801A	**CO1**							**0.55**					
	CO2		**0.5**					**0.5**					
	CO3				**0.6**								
	CO4				**0.55**								
	CO5				**0.5**								
OEC-IT802A	**CO1**		**0.84**										
	CO2		**0.65**	**0.65**		**0.65**							
	CO3					**0.75**							**0.75**
	CO4			**0.72**	**0.72**								
PROJ CS 881	**CO1**			**0.78**		**0.78**						**0.78**	
	CO2					**0.82**				**0.82**			
	CO3					**0.81**		**0.81**		**0.81**			
	CO4								**0.8**			**0.8**	**0.8**
	CO5									**0.82**	**0.82**		
	CO6						**0.85**	**0.85**	**0.85**			**0.85**	**0.85**
Average PO Attainment		**0.74**	**0.74**	**0.75**	**0.73**	**0.78**	**0.75**	**0.73**	**0.79**	**0.79**	**0.73**	**0.73**	**0.73**
		74%	**74%**	**75%**	**73%**	**78%**	**75%**	**73%**	**79%**	**79%**	**73%**	**73%**	**73%**

Department: Computer Science & Engineering
PO Attainment of 2022-23

		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Data structure and algorithm PCC-CS301	CO1		0.84	0.84									
	CO2		0.85	0.85									
	CO3			0.88		0.88							
	CO4			0.95		0.95							
Data structure and algorithm Lab PCC- CS391	CO1	0.86	0.86	0.86									
	CO2	0.87	0.87										
	CO3		0.88			0.88							
	CO4		0.92			0.92							
Computer Organization PCC-CS302	CO1					0.84		0.84					
	CO2					0.86		0.86					
	CO3									0.87			
	CO4					0.93		0.93					
Computer Organization Lab PCC-CS392													
	CO1					0.84		0.84					
	CO2					0.85		0.85					
	CO3									0.87			
	CO4					0.94		0.94					
Compiler Design PCC-CS501													
	CO1	0.84				0.84	0.84						
	CO2					0.85		0.85				0.85	
	CO3		0.86	0.86	0.86						0.86		
	CO4	0.87	0.87			0.87	0.87	0.87				0.87	
	CO5	0.92	0.92			0.92	0.92	0.92				0.92	
Operating Systems PCC-CS502													
	CO1					0.84		0.84					
	CO2			0.85	0.85						0.85		
	CO3			0.88	0.88			0.88			0.88		
Operating Systems Lab PCC-CS592													
	CO1		0.85										
	CO2			0.86	0.86						0.86		
	CO3			0.87	0.87						0.87		

	CO4				**0.90**								
Object Oriented Programming **PCC-CS503**													
	CO1		**0.81**	**0.81**									
	CO2		**0.84**	**0.84**									
	CO3			**0.88**		**0.88**							
	CO4			**0.93**		**0.93**							
Object Oriented Programming Lab **PCC-CS593**													
	CO1	**0.84**	**0.84**	**0.84**									
	CO2	**0.87**	**0.87**										
	CO3		**0.90**			**0.90**							
	CO4		**0.95**			**0.95**							
Software Engineering ESC 501													
	CO1	**0.81**				**0.81**	**0.81**					**0.81**	
	CO2			**0.83**	**0.83**						**0.83**		
	CO3					**0.86**		**0.86**					
	CO4					**0.87**		**0.87**					
HSMC301 Economics for Engineers													
	CO1		**0.83**		**0.83**								
	CO2		**0.86**		**0.86**								
	CO3							**0.89**					**0.89**
Artificial Intelligence PEC-IT501B													
	CO1	**0.84**				**0.84**						**0.84**	
	CO2			**0.86**	**0.86**						**0.86**		
	CO3					**0.94**		**0.94**					
Industrial Management HSMC501,													
	CO1		**0.77**		**0.77**								

	CO2		**0.87**		**0.87**								
	CO3		**0.91**					**0.91**					
Introduction to Philosophical Thoughts **PEC-IT501B**													
	CO1		**0.77**										
	CO2		**0.86**										
	CO3		**0.87**		**0.87**								
Cloud Computing **PEC-CS701B**													
	CO1							**0.87**					
	CO2							**0.88**					
	CO3		**0.91**										
Cyber Security **PEC-CS 702E**													
	CO1		**0.88**		**0.88**								**0.88**
	CO2			**0.89**	**0.89**								
	CO3				**0.91**								
Project Management and Interpreneurship (HSMC701)													
	CO1		**0.77**		**0.77**								
	CO2		**0.86**		**0.86**								
	CO3		**0.89**										**0.89**
Design and Analysis of Algorithms **PCC-CS404**													
	CO1		**0.83**										
	CO2		**0.84**	**0.84**	**0.84**						**0.84**		

	CO3					**0.85**		**0.85**					
	CO4			**0.86**	**0.86**						**0.86**		**0.86**
	CO5					**0.93**		**0.93**					
Design and Analysis of Algorithm Lab PCC-CS494													
	CO1			**0.86**	**0.86**						**0.86**		
	CO2			**0.87**	**0.87**						**0.87**		
	CO3			**0.88**	**0.88**						**0.88**		
	CO4			**0.90**	**0.90**						**0.90**		
	CO5			**0.91**	**0.91**						**0.91**		
	CO6			**0.93**	**0.93**						**0.93**		
Computer Architecture PCC-CS402													
	CO1			**0.83**	**0.83**						**0.83**		
	CO2			**0.85**	**0.85**						**0.85**		
	CO3					**0.93**		**0.93**					
Computer Architecture Lab PCC-CS492													
	CO1			**0.85**	**0.85**						**0.85**		
	CO2			**0.90**	**0.90**						**0.90**		
	CO3					**0.93**		**0.93**					
Formal Language & Automata PCC-CS403													
	CO1		**0.82**										
	CO2			**0.85**	**0.85**						**0.85**		
	CO3					**0.85**		**0.85**					
	CO4			**0.86**	**0.86**						**0.86**		
	CO5					**0.86**		**0.86**					
	CO6		**0.88**										
	CO7												**0.88**

DBMS PCC-CS601													
	CO1		**0.85**										
	CO2			**0.86**	**0.86**						**0.86**		
	CO3		**0.94**										
	CO4				**0.96**								
DBMS LAB													
	CO1					**0.83**		**0.83**					
	CO2		**0.86**								**0.86**		
	CO3	**0.91**				**0.91**	**0.91**					**0.91**	
	CO4							**0.95**					
Computer Networks PCC-CS602													
	CO1			**0.83**		**0.83**							
	CO2	**0.86**	**0.86**			**0.86**							
	CO3				**0.88**	**0.88**							
	CO4				**0.93**	**0.93**							
ComputerNetworks Lab PCC-CS692	**CO1**		**0.81**					**0.81**					
	CO2		**0.85**		**0.85**								
	CO3							**0.88**					
	CO4				**0.93**								
PROJ-CS601	**CO1**		**0.81**										
	CO2		**0.92**		**0.92**								
	CO3							**0.93**					
Image Processing PEC-IT601D	**CO1**			**0.83**		**0.83**							
	CO2	**0.85**	**0.85**			**0.85**							
	CO3				**0.93**	**0.93**							
	CO4				**0.94**	**0.94**							

Pattern Recognition	**CO1**					**0.81**		**0.81**					
	CO2		**0.83**		**0.83**								
	CO3	**0.84**				**0.84**	**0.84**					**0.84**	
	CO4	**0.85**				**0.85**	**0.85**					**0.85**	
	CO5				**0.86**								
OEC-IT601B													
	CO1		**0.83**		**0.83**			**0.83**					
	CO2		**0.85**		**0.85**			**0.85**					
	CO3							**0.89**					**0.89**
Cryptography & Network Security CS801D	**CO1**		**0.81**										
	CO2		**0.82**		**0.82**								
	CO3	**0.84**	**0.84**				**0.84**	**0.84**					
	CO4		**0.91**		**0.91**								
	CO5		**0.93**										
E-Commerce & ERP OEC-CS802A													
	CO1				**0.80**								
	CO2					**0.83**		**0.83**					
	CO3	**0.86**				**0.86**	**0.86**					**0.86**	
	CO4					**0.87**		**0.87**					
	CO5	**0.88**				**0.88**	**0.88**					**0.88**	
Soft Skill &Interpersonal Communication													
	CO1							**0.80**					
OEC-CS801E,	**CO2**												**0.83**
	CO3							**0.87**					
BIOLOGY (BSC-401)													
	CO1					**0.83**		**0.83**					
	CO2				**0.85**			**0.85**					**0.85**
	CO3			**0.87**									**0.87**

	CO4											**0.88**
	CO5		**0.89**									
Average PO attainment		**0.85**	**0.85**	**0.86**	**0.86**	**0.87**	**0.86**	**0.87**	**0**	**0.87**	**0.86**	**0.86**	**0.87**
% Po attainment		**85%**	**85%**	**86 %**	**86%**	**87%**	**86%**	**87%**	**0%**	**87%**	**86%**	**86%**	**87%**

MBA CO PO Mapping

2022 Odd and 2023 Even Semester

Paper Name	COs	PO1	PO2	PO3	PO4	PO5
	CO1	0.75	0.75			0.75
MB 101	CO2		0.66			
	CO1	0.71	0.71		0.71	
MB 102	CO2		0.55		0.55	
	CO1	0.78				
MB 103	CO2	0.71	0.71			0.71
MB 104	CO1		0.61		0.61	
	CO2		0.56		0.56	
	CO1				0.71	0.71
MB 105	CO2	0.71			0.71	
	CO1	0.47				
MB 106	CO2	0.56				
	CO1	0.61				
MB 201	CO2	0.56	0.56			
	CO1	0.6				
MB 202	CO2	0.56	0.56			
	CO1	0.66				
MB 203	CO2		0.58			
	CO1	0.62				
MB 204	CO2	0.54	0.54			
	CO1			0.68		
MB 205	CO2			0.57		
	CO1	0.74	0.74			
MB 206	CO2		0.66		0.66	
	CO1		0.65			0.65
MB 301	CO2					0.67
	CO1	0.69	0.69			
MB 302	CO2					0.71
	CO1	0.71	0.71			0.71
MB303	CO2	0.72	0.72			0.72
	CO1	0.87				
HR301	CO2		0.6		0.6	
	CO1	0.72	0.72			
HR304	CO2		0.48			
	CO1	0.72		0.72	0.72	
MM302	CO2				0.74	
	CO1	0.7	0.7			
MM303	CO2		0.75	0.75		
	CO1	0.61				
FM302	CO2		0.64			
	CO1	0.53				
FM304	CO2		0.55			
	CO1	0.82				

HR 401	CO2		0.55			
	CO1	0.83				
HR 402	CO2		0.56			
	CO1	0.89				
HR 404	CO2	0.58	0.58			
	CO1	0.66				
HR 406	CO2	0.48	0.48			
	CO1	0.62				
MM401	CO2	0.65	0.65			
	CO1		0.52			
MM403	CO2		0.65		0.65	
	CO1	0.59				
MM404	Co2		0.61			
	CO1	0.51				
MM406	Co2		0.62			
	CO1	0.63	0.63			
OM401	Co2	0.7				
	CO1	0.55				
OM402	Co2	0.6	0.6			
	CO1	0.59				
FM401	CO2	0.62	0.62			
	CO1	0.64	0.64			
FM402	CO2		0.72			
	CO1	0.55				
FM405	CO2		0.59			
	CO1	0.62	0.62		0.62	
FM406	CO2	0.63	0.63			
Average Attainment		**0.65**	**0.63**	**0.68**	**0.65**	0.70
% of Attainment		**65%**	**63%**	**68%**	**65%**	**70%**