ADITYA ENGINEERING COLLEGE

An Autonomous Institutuion

Approved by AICTE • Permanently Affiliated to JNTUK • Accredited by NAAC with 'A' Grade

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Department of Electrical and Electronics Engineering

B.Tech - AR20 - Course Articulation Matrix

Note: Correlation Levels are 1 or 2 or 3. Where 1 Slight(Low), 2 Moderate(Medium), 3 Substantial (High).

	CO Statements	POs												PSOs	
I SEM															
Course Code	**201HS1T01 - COMMUNICATIVE ENGLISH**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Identify the ways to overcome fear and use of words paradoxically, interpret the developing conditions and the core competences of the state to prioritize education system.	-	-	-	-	-	-	**1**	-	-	**3**	-	-	-	-
CO2	Explain about world's most precious natural resources.	-	-	-	-	-	-	**1**	-	-	**3**	-	-	-	-
CO3	Explain about importance of unity to aboilish war.	-	-	-	-	-	-	-	-	-	**3**	-	-	-	-
CO4	Respond well to the changing situations in life with independent knowledge for better decision making.	-	-	-	-	-	-	-	-	**2**	**3**	-	**2**	-	-
CO5	Demonstrate writing and concepts of effective writing skills.	-	-	-	-	-	-	-	-	**1**	**3**	-	-	-	-
Course Code	**201BS1T01- DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Apply the concepts of Mean Value theorem, Partial Differentiation and identify the maxima and minima of a given function.	**3**	**2**	-	-	-	-	-	-	-	-	-	-	-	-
CO2	Solve the linear differential equations and model various situations involving differential equations of first order.	**3**	**2**	-	-	-	-	-	-	-	-	-	-	-	-
CO3	Solve linear differential equations of higher order and model various situations involving second order differential equations.	**3**	**2**	-	-	-	-	-	-	-	-	-	-	-	-
CO4	Calculate Rank of a matrix and solve the system of Linear equations and find the Eigen values and Eigen vectors.	**3**	**2**	-	-	-	-	-	-	-	-	-	-	-	-
CO5	Compute various powers of a matrix and identify the nature of the quadratic form.	**3**	**2**	-	-	-	-	-	-	-	-	-	-	-	-
Course Code	**201BS1T03 -APPLIED PHYSICS**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Apply the principles of interference and diffraction to design and enhance the resolving power of various optical instruments.	**3**	**2**	-	-	-	-	-	-	-	-	-	-	-	-
CO2	Explain the fundamental concepts of Quantum behavior of matter.	**2**	**1**	-	-	-	-	-	-	-	-	-	-	-	-
CO3	Classify the solids based on energy band structure.	**2**	**1**	-	-	-	-	-	-	-	-	-	-	-	-

	CO Statements	POs												PSOs	
CO4	Explain the basic concepts of Semi-Conductors and Identify the type ofsemiconductors using Hall Effect.	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO5	Explain about magnetic and dielectric properties of different materials.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Course Code	**201ES1T02 - PROGRAMMING FOR PROBLEM SOLVING USING C**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Develop the basic programs in C and draw the flowcharts using Raptor.	**2**	**3**	**2**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**	**-**
CO2	Make use of control structures and arrays in solving complex problems.	**3**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**	**-**
CO3	Apply the concept of modularity and strings to handle complex problems.	**2**	**2**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**
CO4	Apply the dynamic memory allocation functions using pointers.	**2**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**	**-**
CO5	Solve real world problems using the concept of structures, unions and File operations.	**3**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**	**-**
Course Code	**201ES1I01 - ENGINEERING GRAPHICS AND DESIGN**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Make use of fundamentals of Engineering Drawing to sketch basic curves, conic sections, cycloid and involute.	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**	**1**	**-**	**-**
CO2	Apply the principles of orthographic projections for points, lines and planes.	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**	**1**	**-**	**-**
CO3	Apply the principles of orthographic projections for solids.	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**	**1**	**-**	**-**
CO4	Explain the basic functions of drawing software.	**2**	**-**	**-**	**-**	**2**	**-**	**-**	**-**	**-**	**3**	**-**	**1**	**-**	**-**
CO5	Apply the software for the orthographic projection of the machine parts	**2**	**-**	**-**	**-**	**2**	**-**	**-**	**-**	**-**	**3**	**-**	**1**	**-**	**-**
Course Code	**201HS1L01 - COMMUNICATIVE ENGLISH LAB**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Make use of the concepts to communicate confidently and competently in English Language in all spheres.	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**3**	**-**	**1**	**-**	**-**
CO2	Express Creative skills to construct Dialogues / Conversations in Spoken and Written forms.	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**3**	**-**	**2**	**-**	**-**
CO3	Identify Accent for intelligibility.	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**3**	**-**	**2**	**1**	**1**
CO4	Demonstrate communicative ability in everyday Conversation, JAM Sessions and Public Speaking.	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**3**	**-**	**1**	**-**	**-**
CO5	Demonstrate nuances of Language through Audio – Visual Experience and group activities.	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**3**	**-**	**1**	**-**	**-**
Course Code	**201BS1L02-APPLIED PHYSICS LAB**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Use spectrometer, travelling microscope for making measurements.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**1**	**-**	**-**
CO2	Determine energy gap of a semiconductor, draw characteristic curvestoestimate thermal coefficient of a thermistor, Zener diode.	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**1**	**-**	**-**

	CO Statements	POs												PSOs	
CO3	Determine the dielectric constant and resistivity.	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**1**	**-**	**-**
CO4	Determine wavelength of source and width of the narrow slits.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**1**	**-**	**-**
CO5	Find the strength of magnetic field.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**1**	**-**	**-**
Course Code	**201ES1L02 - PROGRAMMING FOR PROBLEM SOLVING USING C LAB**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Develop the basic programs in C and draw the flowcharts using Raptor.	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**	**-**	**-**	**-**
CO2	Make use of control structures and arrays in solving complex problems.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**-**	**-**
CO3	Apply the concept of modularity and strings to handle complex problems.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**-**	**-**
CO4	Apply the dynamic memory allocation functions using pointers.	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**	**1**	**-**	**-**
CO5	Solve real world problems using the concept of structures, unions and File operations.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**2**	**-**	**-**
Course Code	**201MC1T01 - ENVIRONMENTAL SCIENCE**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Outline the natural resources and their importance for the sustenance of the life.	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO2	Explain about the biodiversity of India, threats and its conservation methods.	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO3	Illustrate various attributes of the pollution, impacts and measures to control the pollution along with waste management practices.	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO4	Describe social issues of both rural and urban environment to combat the challenges and the legislations of India in environmental protection.	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO5	Explain the population growth and its implications.	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
II SEM															
Course Code	**201BS2T05 -PARTIAL DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Solve improper integrals using beta and gamma functions.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO2	Solve partial differential equations of first order.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO3	Compute the double integral over a region and triple integral over a volume.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO4	Calculate the gradient of a scalar function, divergence and curl of a vector function.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO5	Calculate line, surface and volume integrals.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Course Code	**201BS2T06 -TRANSFORM TECHNIQUES**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Compute Laplace transform of standard functions and analyze theproperties of Laplace transform.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

	CO Statements	POs												PSOs	
CO2	Apply Laplace transform to solve Initial value problems.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO3	Compute the Fourier series of a given function and study the convergenceof the series.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO4	Compute the Fourier transforms for certain functions and apply theproperties of Fourier transforms.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO5	Compute the Z- transforms for certain functions and apply the properties ofZ- transforms to solve difference equations.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Course Code	**201ES2T07-DATA STRUCTURE THROUGH C**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Illustrate time and space complexities of an algorithm.	**-**	**3**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**-**
CO2	Apply various searching and sorting techniques to solve computing problems.	**-**	**2**	**2**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**3**	**-**
CO3	Make use of linear data structures to solve real time problems.	**-**	**3**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**3**	**-**
CO4	Develop applications using Tree Data Structures.	**-**	**2**	**2**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**3**	**-**
CO5	Solve problems using Graph Algorithms.	**-**	**3**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**3**	**-**
Course Code	**201ES2T09 -BASIC ELECTRICAL CIRCUITS**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Make use of network elements, types of sources, source transformation, mesh and nodal analysis for network analysis.	**1**	**-**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO2	Summarize the behavior of RLC networks.	**2**	**1**	**-**	**-**	**-**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO3	Solve Electrical networks with network topology concepts.	**3**	**2**	**2**	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO4	Explain electrical networks by using principles of network theorems.	**2**	**1**	**-**	**-**	**-**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO5	Determine resonant frequency and Q factor of an AC Circuit.	**2**	**1**		**-**	**-**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO6	Identify magnetic circuit with various dot conventions.	**3**	**2**	**2**	**-**	**-**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
Course Code	**201ES2T13-BASIC CIVIL AND MECHANICAL ENGINEERING**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Apply Shear force diagram & Bending moment diagram principles for Cantilever and Simply supported beams.	**2**	**2**	**-**	**-**	**-**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO2	Apply concepts of Rosette analysis for strain measurements.	**2**	**2**	**-**	**-**	**-**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**1**
CO3	Analyze the characteristics of common building materials.	**2**	**2**	**-**	**-**	**-**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**2**
CO4	Compare the working characteristics of Internal Combustion engines.	**2**	**2**	**-**	**-**	**-**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO5	Compare the differences between boiler mountings and accessories.	**2**	**2**	**-**	**-**	**-**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**2**
Course Code	**201ES2L06 - DATA STRUCTURE THROUGH C LAB**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Develop programs using recursive functions.	**-**	**3**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**-**
CO2	Apply various searching and sorting techniques to solve computing problems.	**-**	**2**	**2**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**-**
CO3	Developprograms for implementing various operations on linear data structures.	**-**	**3**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**-**

	CO Statements	POs												PSOs	
CO4	Analyze various basic operations of Binary tree and Binary search tree to improve the efficiency.	-	2	2	3	-	-	-	-	-	-	-	1	2	-
CO5	Develop solution for problems using Graph Algorithms.	-	3	2	2	-	-	-	-	-	-	-	1	2	-
Course Code	**201ES2L09 - ELECTRICAL ENGINEERING WORKSHOP**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Demonstrate knowledge on different tools, abbreviations and symbols used in Electrical Engineering.	2	-	1	-	-	-	-	-	-	-	-	-	-	-
CO2	Study of various wiring joints and measurement of gauge.	2	-	1	-	-	-	-	-	-	-	-	-	-	-
CO3	Perform wiring and earthing for residential houses.	2	1	1	-	-	-	-	-	-	-	-	-	-	-
CO4	Perform wiring for induction motor and UPS.	2	1	1	-	-	-	-	-	-	-	-	-	-	-
CO5	Demonstrate how to trouble shoot the electrical equipment (like fan, grinder, motor, etc.)	2	1	1	-	-	-	-	-	-	-	-	-	-	-
Course Code	**201ES2L11 -BASIC CIVIL AND MECHANICAL ENGINEERING LAB**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Solve to arrive at finding constant speed and variable speed on IC enginesand interpret their performance.	2	-	1	-	-	-	-	-	-	-	-	-	-	-
CO2	Estimate energy distribution by conducting heat balance test on IC engines.	2	-	3	-	-	-	-	-	-	-	-	-	-	-
CO3	Explain procedure for standardization of experiments	2	1	3	-	-	-	-	-	-	-	-	-	-	-
CO4	Determine flow discharge measuring device used in pipes channels and tanks	2	1	1	-	-	-	-	-	-	-	-	-	-	-
CO5	Determine fluid and flow properties.	2	1	1	-	-	-	-	-	-	-	-	-	-	-
CO6	Solve for drag coefficients.	2	1	1	-	-	-	-	-	-	-	-	-	-	-
Course Code	**201MC2L01 -PROFESSIONAL COMMUNICATION SKILLS LAB**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Make effective use of Body language in all situations and contexts to enhance effective communication in all aspects.	-	-	-	-	-	-	-	-	-	3	-	2	-	-
CO2	Identify communicative competency to respond to others in different situations.	-	-	-	-	-	-	-	-	-	3	-	2	-	-
CO3	Make use of effective delivery strategies to select, compile and synthesize information for oral presentation.	-	-	-	-	-	-	-	-	-	3	-	2	1	1
CO4	Demonstrate in mock interviews, group discussion and public speaking.	-	-	-	-	-	-	-	-		3	-	2	-	-
CO5	Illustrate interpersonal skills using English language confidently and effectively for personal and professional growth.	-	-	-	-	-	-	-	-	-	3	-	2	-	-
Course Code	**201MC2T02 -CONSTITUTION OF INDIA**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Explain historical background of the constitution making and its importance for building a democratic India.	-	-	-	-	-	-	-	-	2	-	-	-	-	-

	CO Statements	POs												PSOs	
CO2	Compare the functioning of three wings of the government i.e.., executive, legislative and judiciary	-	-	-	-	-	-	-	-	**3**	-	-	-	-	-
CO3	Interpret the value of the fundamental rights and duties for becoming good citizen of India.	-	-	-	-	-	-	-	-	**3**	-	-	-	-	-
CO4	compare the decentralization of power between central, state and local self-government.	-	-	-	-	-	-	-	**3**	-	-	-	-	-	-
CO5	Extend the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy	-	-	-	-	-	-	-	-	**2**	-	-	-	-	-
III SEM															
Course code	**201BS3T11 NUMARICAL METHODS AND COMPLEX VARIABLES**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Apply numerical methods to compute approximate solution of equations and to interpolate polynomials.	**3**	**2**	-	-	-	-	-	-	-	-	-	-	-	-
CO2	Apply numerical methods to initial value problems and problems involving integration.	**3**	**2**	-	-	-	-	-	-	-	-	-	-	-	-
CO3	Examine the analyticity of functions of complex variables.	**3**	**2**	-	-	-	-	-	-	-	-	-	-	-	-
CO4	Compute different types of complex integrals and expand complex functions into Taylor's series.	**3**	**2**	-	-	-	-	-	-	-	-	-	-	-	-
CO5	Identify various singular points and compute improper integrals using Cauchy residue theorem	**3**	**2**	-	-	-	-	-	-	-	-	-	-	-	-
Course code	**201EE3T01 -ANALOG ELECTRONIC CIRCUITS**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Interpret the characteristics of semiconductor diodes.	**3**	**2**	**1**	**1**	-	-	-	-	-	-	-	-	**1**	-
CO2	Compare the characteristics of rectifiers with and without filters.	**3**	**1**	**2**	**1**	-	-	-	-	-	-	-	-	**1**	-
CO3	Summarize the characteristics of BJT and FET in different configurations	**3**	**1**	**2**	**1**	-	-	-	-	-	-	-	-	**1**	-
CO4	Apply biasing methods for stabilization of BJT and FET amplifiers.	**3**	**2**	**1**	**1**	-	-	-	-	-	-	-	-	**2**	-
CO5	Interpret small signal low frequency equivalent models of BJT and FET.	**3**	**1**	**2**	**1**	-	-	-	-	-	-	-	-	**2**	-
Course code	**201EE3T02 ELECTRICAL CIRCUIT ANALYSIS**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Explain the importance of three phase circuits with Star& Delta connected balanced and unbalanced loads.	**2**	**3**	**1**	**1**	-	-	-	-	-	-	-	-	**3**	-
CO2	Analyze the transient behaviour of electrical networks for DC excitation.	**3**	**2**	**1**	**1**	-	-	-	-	-	-	-	-	**2**	-
CO3	Analyze the transient behaviour of electrical networks for AC excitation.	**2**	**1**	**3**	**1**	-	-	-	-	-	-	-	-	**2**	-
CO4	Determine the various network parameters for the given two port networks.	**2**	**2**	**1**	**3**	-	-	-	-	-	-	-	-	**1**	-

	CO Statements	POs												PSOs	
CO5	Organize electrical networks into different forms.	**1**	**3**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
Course code	**201EE3T03 -DC MACHINES AND TRANSFORMERS**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Apply the concepts of electromechanical energy conversion to find thecharacteristics of DC machines.	**3**	**2**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO2	Analyze the ill-effects of armature reaction in dc machines.	**3**	**1**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO3	Determine the torque production mechanism and control the speed of DC motors	**3**	**1**	**2**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO4	Analyze the performance of single phase transformers by regulation,losses and efficiency.	**3**	**2**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO5	Analyze the performance of the parallel operation of transformers, control voltages with tap changing methods and Scott connection.	**3**	**1**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
Course code	**201EE3T04 ELECTROMAGNETIC FIELDS**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Apply the laws of Electrostatics to calculate electric field intensity.	**3**	**2**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO2	Analyze the behavior of conductors, dielectrics and capacitors.	**1**	**3**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO3	Apply the laws of Magneto-statics to calculate field intensity.	**3**	**1**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO4	Determine the magnetic forces, Self and Mutual inductances and energy stored in the magnetic field using laws of magneto-statics.	**2**	**2**	**1**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO5	Analyze the concepts of Faraday's laws, displacement current and poynting vector.	**3**	**2**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
Course code	**201EE3L01 DC MACHINES AND TRANSFORMERS LAB**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Interpret the constructional details of the DC machines and Transformers	**1**	**3**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO2	Determine and predetermine the performance of DC machines.	**3**	**1**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO3	Analyze the various speed control techniques of DC motor	**2**	**2**	**1**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO4	Estimate the performance of transformers	**3**	**1**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO5	Determine the efficiency and regulation of transformers	**1**	**1**	**1**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
Course code	**201EE3L02 ELECTRICAL CIRCUITS LAB**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Analyze complex DC and AC linear circuits to find the behavior of electrical circuits.	**1**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO2	Apply concepts of electrical circuits to analyze the performance of electrical circuits.	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO3	Evaluate response in a given network by using theorems	**1**	**-**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO4	Determine self and mutual inductance of a magnetic circuit.	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO5	Determine the Active and Reactive power three phase system	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
Course code	**201EE3L03 ANALOG ELECTRONIC CIRCUITS LAB**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Examine the functional characteristics of semiconductor devices.	**2**	**3**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**

	CO Statements	POs												PSOs	
CO2	Design rectifier and regulator circuits using basic semiconductor devices.	**3**	**2**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO3	Examine the characteristics of transistor in different configurations.	**2**	**1**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO4	Analyze the frequency response of small signal low frequency amplifiers.	**2**	**2**	**1**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO5	Determine the ripple factor and percentage regulation of half wave and full wave rectifier	**3**	**2**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
Course code	**201SC3L02 DESIGN OF ELECTRICAL CIRCUITS USING ENGINEERING SOFTWARE TOOLS**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Write the MATLAB programs to simulate the electrical circuit problems	**3**	**3**	**1**	**1**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO2	Simulate various circuits for electrical parameters.	**3**	**1**	**-**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO3	Simulate various wave forms for determination of wave form parameters.	**3**	**1**	**1**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO4	Simulate RLC series and parallel resonance circuits for resonant parameters.	**3**	**1**	**1**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO5	Simulate magnetic circuits for determination of self and mutual inductances.	**3**	**1**	**1**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
Course code	**201MC3T03 BIOLOGY FOR ENGINEERS**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Apply biological engineering principles, procedures needed to solve real-world problems.	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO2	Demonstrate the fundamentals of living things, their classification, cell structure and biochemical constituents.	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO3	Apply the concept of plant, animal and microbial systems and growth in real life Situations.	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO4	Explain genetics and the immune system to know the cause, symptoms, diagnosis and treatment of common diseases.	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO5	Demonstrate basic knowledge of the applicationsof biological systems in relevant industries.	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
IV SEM															
Course code	**201EE4T05 ELECTRIC POWER GENERATION AND DISTRIBUTION SYSTEMS**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Identify the different components of thermal power plant & hydro power plant	**1**	**-**	**2**	**-**	**1**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO2	Identify the different components of nuclear Power plants.	**1**	**-**	**2**	**-**	**1**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO3	Distinguish between AC/ DC distribution systems and also estimate voltage drops of distribution systems.	**3**	**2**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**

	CO Statements	POs												PSOs	
CO4	Classify the different components of air and gas insulated substations.	-	-	-	1	2	3	2	-	-	-	-	-	2	-
CO5	Categorize single core and multi core cables with different insulating materials.	2	2	3	1	-	-	-	-	-	-	-	-	3	-
CO6	Analyze the different economic factors of power generation and tariffs.	2	3	1	2	-	-	-	-	-	-	-	-	2	-
Course code	**201EE4T06 DIGITAL ELECTRONICS**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Interpret numeric information in different code formats.	3	2	1	-	-	-	-	-	-	-	-	1	1	-
CO2	Develop optimized logic by using various techniques.	2	3	2	1	-	-	-	-	-	-	-	-	1	-
CO3	Design various combinational logic circuits for required specifications.	2	3	2	1	-	-	-	-	-	-	-	-	1	-
CO4	Build different Programmable Logic Device for required specifications.	-	3	2	2	-	-	-	-	-	-	-	-	1	-
CO5	Build different sequential logic circuits for required specifications.	-	2	3	2	1	-	-	-	-	-	-	-	1	-
Course code	**201EE4T07 INDUCTION AND SYNCHRONOUS MACHINES**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Explain the operation and performance of single phase and three phase induction motor.	3	-	-	-	-	-	-	-	-	-	-	-	2	-
CO2	Analyze the torque-speed relation, performance of induction motor and inductiongenerator.	1	1	-	3	-	-	-	-	-	-	-	-	2	-
CO3	Explain armature reaction effect in synchronous generators and its operation.	3	-	-		-	-	-	-	-	-	-	-	2	-
CO4	Analyze the performance of the Parallel operation and regulation of synchronousgenerators.	1	1	-	3	-	-	-	-	-	-	-	-	3	-
CO5	Apply methods of staring and correction of power factor with synchronous motor.	1	3	-		-	-	-	-	-	-	-	-	2	-
Course code	**201HS4T03 MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Explain the Managerial Economic concepts for decision making and forward planning	-	-	-	-	-	-	-	-	1	-	-	-	-	-
CO2	Illustrate the law of demand and its exceptions by using different forecasting methods.	-	-	-	-	-	-	-	-	-	2	-	-	-	-
CO3	Identify the cost behavior for managerial decision making and Break EvenPoint (BEP) of an enterprise.	-	-	-	-	-	-	-	-	-	-	3	-	-	1
CO4	Classify the different types of business organizations along with basic knowledge on business cycle.	-	-	-	-	-	-	-	-	-	-	1	-	-	-
CO5	Make use of the process & principles of accounting for the preparation of final accounts.	-	-	-	-	-	-	-	-	-	3	-	-	-	-

	CO Statements	POs												PSOs	
CO6	Utilize various techniques on investment project proposals with the help of capital budgeting techniques for decision making.	-	-	-	-	-	-	-	-	-	-	2	-	-	1
Course code	**201ES4T18 PYTHON PROGRAMMING**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Develop programs using fundamental concepts and control statements in python.	1	1	3	2	-	-	-	-	-	-	-	-	-	1
CO2	Utilize data structures in Python to solve variousproblems.	1	1	3	2	-	-	-	-	-	-	-	-	-	1
CO3	Develop programs using functions and Standard libraries like math, datetime, random etc. in building real timeapplications.	1	1	3	2	-	-	-	-	-	-	-	-	-	1
CO4	Apply Object Oriented Programming concepts.	1	1	3	2	-	-	-	-	-	-	-	-	-	2
CO5	Apply concept of exception handling in solving runtime	1	1	3	2	-	-	-	-	-	-	-	-	-	2
CO6	Build various GUI and file based applications.	3	2	1	1	-	-	-	-	-	-	-	-	-	2
Course code	**201ES4L15 PYTHON PROGRAMMING LAB**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Develop programs using conditional and iterative statements.	1	2	3	1	-	-	-	-	-	-	-	-	-	2
CO2	Make use of different data structures in solving complex problems.	1	3	2	1	-	-	-	-	-	-	-	-	-	2
CO3	Apply the concepts of functions and files in solving real time applications.	1	3	2	1	-	-	-	-	-	-	-	-	-	2
CO4	Build applications for handling exceptions.	1	2	3	1	-	-	-	-	-	-	-	-	-	2
CO5	Develop GUI applications.	1	1	3	1	-	-	-	-	-	-	-	-	-	2
Course code	**201EE4L04 INDUCTION AND SYNCHRONOUS MACHINES LAB**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Assess the performance of single phase and three phase induction motors.	1	3	-	-	-	-	-	-	-	-	-	-	2	-
CO2	Control the speed of three phase induction motor.	1	-	3	-	-	-	-	-	-	-	-	-	2	-
CO3	Predetermine the regulation of three–phase alternator by various methods.	1	3	-	-	-	-	-	-	-	-	-	-	2	-
CO4	Find the Xd/Xq ratio of alternator and asses the performance of three–phase synchronous motor	1	-	3	-	-	-	-	-	-	-	-	-	2	-
CO5	Synchronization to Grid	1	-	3	-	-	-	-	-	-	-	-	-	2	-
Course code	**201EE4L05 DIGITAL ELECTRONICS LAB**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Choose an appropriate logic gate for the design of digital circuits.	3	2	1	1	-	-	-	-	-	-	-	-	1	-
CO2	Build optimized logic circuits	1	3	2	1	-	-	-	-	-	-	-	-	1	-
CO3	Construct combinational logic circuits.	3	1	2	1	-	-	-	-	-	-	-	-	1	-
CO4	Interpret the behavior of flip-flops for different combination of inputs	2	2	1	3	-	-	-	-	-	-	-	-	2	-
CO5	Build registers and counters using flip flops.	3	1	2	1	-	-	-	-	-	-	-	-	2	-
Course code	**201SC4L14 IOT APPLICATIONS OF ELECTRICAL ENGINEERING**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Explain the sensors and actuators for an IoT application.	1	3	2	1	-	-	-	-	-	-	-	-	-	2
CO2	Compare Arduino and Raspberry boards	1	2	3	1	-	-	-	-	-	-	-	-	-	2

	CO Statements	POs												PSOs	
CO3	Utilize the cloud platform and APIs for IoT application	**1**	**2**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**
CO4	Experiment with embedded boards for creating IoT prototypes.	**1**	**3**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**
CO5	Design a solution for a given IoT application.	**1**	**2**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**
Course code	**201MC4T04 ESSENCE OF INDIAN TRADITIONALKNOWLEDGE**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Identify the concept of Traditional knowledge and its importance.	**-**	**-**	**-**	**-**	**-**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO2	Explain the need and importance of protecting traditional knowledge.	**-**	**-**	**-**	**-**	**-**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO3	Illustrate the various enactments related to the protection of traditional knowledge.	**-**	**-**	**-**	**-**	**-**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO4	Interpret the concepts of Intellectual property to protect the traditional knowledge.	**-**	**-**	**-**	**-**	**-**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO5	Explain the importance of Traditional knowledge in Agriculture and Medicine.	**-**	**-**	**-**	**-**	**-**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Course code	**201EE4M01 Network Analysis (Minor Program)**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Analyze circuits using direct application of Kirchhoff's Current and Voltage laws along with Ohms Law.	**3**	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**3**
CO2	Apply phasor analysis to AC circuits in sinusoidal steady state.	**3**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2**
CO3	Interpret the significance of resonant and non resonant circuits.	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CO4	Analyze circuits using network theorems.	**3**	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**
CO5	Explain parameters of two port networks.	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**1**
CO6	Apply transient conditions for any first order and second order systems.	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Course code	**201EE4M02 Electronic Devices And Circuits (Minor Program)**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Interpret the characteristics of semiconductor diodes.	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO2	Compare the characteristics of rectifiers with and without filters.	**3**	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO3	Summarize the characteristics of BJT and FET in different configurations.	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO4	Apply biasing methods for stabilization of BJT and FET amplifiers.	**3**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO5	Interpret small signal low frequency equivalent models of BJT and FET.	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
Course code	**201EE4H01 Distributed Generation (Honors Program)**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Review the conventional power generation.	**3**	**1**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO2	Analyze the concept of distributed generation and installation.	**2**	**1**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO3	Design the grid integration system with conventional and non-conventional energy sources.	**2**	**1**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO4	Design the DC and AC micro grid.	**2**	**1**	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**

	CO Statements	POs												PSOs	
CO5	Analyze power quality issues and control operation of micro grid.	**2**	**2**	**2**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
Course code	**201EE4H02 Electric Machine Design (Honors Program)**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Illustrate the fundamental concepts of electrical machine design.	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO2	Design the armature, field winding and main dimensions of DC Machine.	**3**	**3**	**3**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO3	Design of the single phase and three phase transformer dimensions and windings.	**3**	**3**	**3**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO4	Design number of turns, phase, air gap length and conductor size etc. for given synchronous machine	**3**	**3**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO5	Find number of slots / pole and develop various winding diagrams for a given AC Machines.	**3**	**3**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
Course code	**201EE4H03 System Identification And Parameter Estimation (Honors Program)**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Explain various models for different responses	**3**	**2**	**1**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO2	Explain the identification of transfer function analysis	**3**	**3**	**1**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO3	Acquire knowledge about various recursive algorithms	**3**	**2**	**1**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO4	Discuss the identification of continuous and closed loop systems	**3**	**3**	**2**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
CO5	Explain the identification criteria of different systems	**3**	**3**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
Course code	**201EE4H04 Condition Monitoring Of Power Equipment (Honors Program)**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	Identify various modes of failures of power equipment is located in electric power sub stations networks.	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
CO2	Describe various diagnostic tests related with condition assessment of power apparatus.	**3**	**2**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO3	Apply principles and tools to carry out condition assessment studies related with power transformers.	**3**	**2**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO4	Develop skill to assess and interpret the diagnostic test results for health assessment concerning residual life enhancement and reliable operation before any catastrophic failure of power equipment occur.	**3**	**2**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**
CO5	Explain the temperature monitoring system	**3**	**1**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**