DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

2017 REGULATION

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PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO 1	Have successful technical and professional careers in their chosen fields such as circuit theory, Field theory, control theory and computational platforms.
PEO 2	Engross in life long process of learning to keep themselves abreast of new developments in the field of Electronics and their applications in power engineering.

PROGRAM OUTCOMES (POs)

PO1	Apply the Mathematical knowledge and the basics of Science and Engineering to solve the problems pertaining to Electronics and Instrumentation Engineering.
PO2	Identify and formulate Electrical and Electronics Engineering problems from research literature and be ability to analyze the problem using first principles of Mathematics and Engineering Sciences.
PO3	Come out with solutions for the complex problems and to design system components or process that fulfill the particular needs taking into account public health and safety and the social, cultural and environmental issues.
PO4	Draw well-founded conclusions applying the knowledge acquired from research and research methods including design of experiments, analysis and interpretation of data and synthesis of information and to arrive at significant conclusion.
PO5	Form, select and apply relevant techniques, resources and Engineering and IT tools for Engineering activities like electronic prototyping, modeling and control of systems and also being conscious of the limitations.
PO6	Understand the role and responsibility of the Professional Electrical and Electronics Engineer and to assess societal, health, safety issues based on the reasoning received from the contextual knowledge.
PO7	Be aware of the impact of professional Engineering solutions in societal and environmental contexts and exhibit the knowledge and the need for Sustainable Development.
PO8	Apply the principles of Professional Ethics to adhere to the norms of the engineering practice and to discharge ethical responsibilities.
PO9	Function actively and efficiently as an individual or a member/leader of different teams and multidisciplinary projects..
PO10	Communicate efficiently the engineering facts with a wide range of engineering community and others, to understand and prepare reports and design documents; to make effective presentations and to frame and follow instructions.
PO11	Demonstrate the acquisition of the body of engineering knowledge and insight and Management Principles and to apply them as member / leader in teams and multidisciplinary environments.
PO12	Recognize the need for self and life-long learning, keeping pace with technological

		challenges in the broadest sense.

LIST OF COURSES

REGULATION 2017

ELECTRICAL AND ELECTRONICS ENGINEERING		
SEMESTER I		
S. NO.	**COURSE CODE**	**COURSE TITLE**
THEORY		
1	HS8151	Communicative English
2	MA8151	Engineering Mathematics –I
3	PH8151	Engineering Physics
4	CY8151	Engineering Chemistry
5	GE8151	Problem Solving and Python Programming
6	GE8152	Engineering Graphics
PRACTICALS		
7	GE8161	Problem Solving and Python Programming Laboratory
8	BS8161	Physics and Chemistry Laboratory
SEMESTER II		
S. NO.	**COURSE CODE**	**COURSE TITLE**
THEORY		
1	HS8251	Technical English
2	MA8251	Engineering Mathematics - II
3	PH8253	Physics for Electronics Engineering
4	BE8252	Basic Civil and Mechanical Engineering
5	EE8251	Circuit Theory
6	GE8291	Environmental Science and Engineering
PRACTICALS		
7	GE8261	Engineering Practices Laboratory
8	EE8261	Electric Circuits Laboratory
SEMESTER III		
S. NO.	**COURSE CODE**	**COURSE TITLE**
THEORY		
1	MA8353	Transforms and Partial Differential Equations
2	EE8351	Digital Logic Circuits
3	EE8391	Electromagnetic Theory
4	EE8301	Electrical Machines - I
5	EC8353	Electron Devices and Circuits
6	ME8792	Power Plant Engineering

		PRACTICALS
7	EC8311	Electronics Laboratory
8	EE8311	Electrical Machines Laboratory – I

		SEMESTER IV
S. NO.	COURSE CODE	COURSE TITLE
		THEORY
1	MA8491	Numerical Methods
2	EE8401	Electrical Machines - II
3	EE8402	Transmission and Distribution
4	EE8403	Measurements and Instrumentation
5	EE8451	Linear Integrated Circuits and Applications
6	IC8451	Control Systems
		PRACTICALS
7	EE8411	Electrical Machines Laboratory - II
8	EE8461	Linear and Digital Integrated Circuits Laboratory
9	EE8412	Technical Seminar

		SEMESTER V
S. NO.	COURSE CODE	COURSE TITLE
		THEORY
1	EE8501	Power System Analysis
2	EE8551	Microprocessors and Microcontrollers
3	EE8552	Power Electronics
4	EE8591	Digital Signal Processing
5	CS8392	Object Oriented Programming
6	OMD551	Open Elective I-Basics of Biomedical Instrumentation
		PRACTICALS
7	EE8511	Control and Instrumentation Laboratory
8	HS8581	Professional Communication
9	CS8383	Object Oriented Programming Laboratory

		SEMESTER VI
S. NO.	COURSE CODE	COURSE TITLE
		THEORY
1	EE8601	Solid State Drives
2	EE8602	Protection and Switchgear
3	EE8691	Embedded Systems
4	EE8002	Professional Elective I- Design of Electrical Apparatus
5	EE8006	Professional Elective II- Power Quality
		PRACTICALS
7	EE8661	Power Electronics and Drives Laboratory
8	EE8681	Microprocessors and Microcontrollers Laboratory
9	EE8611	Mini Project

SEMESTER VII		
S. NO.	**COURSE CODE**	**COURSE TITLE**
THEORY		
1	EE8701	High Voltage Engineering
2	EE8702	Power System Operation and Control
3	EE8703	Renewable Energy Systems
4	GE8071	Disaster Management
5	EE8010	Power Systems Transients
PRACTICALS		
6	EE8711	Power System Simulation Laboratory
7	EE8712	Renewable Energy Systems Laboratory
SEMESTER VIII		
S. NO.	**COURSE CODE**	**COURSE TITLE**
1	GE8076	Professional Ethics in Engineering
2	EI8073	Biomedical Instrumentation
PRACTICALS		
3	EE8811	Project Work

COURSE OUTCOME FOR ELECTRICAL AND ELECTRONICS ENGINEERING

DEGREE	U.G
PROGRAMME	B.E – ELECTRICAL AND ELECTRONICS ENGINEERING
ACADEMIC YEAR	2022-23
REGULATION	2017

SEMESTER 01

1.Course Code and Name : HS8151 - COMMUNICATIVE ENGLISH

	CO Statements	Knowledge Level
At the end of the course, learners will be able to:		
1	Read articles of a general kind in magazines and newspapers.	K2
2	Participate effectively in informal conversations; introduce themselves and their friends and express opinions in English.	K2
3	Comprehend conversations and short talks delivered in English	K2
4	Write short essays of a general kind in English	K3

2.Course Code and Name : MA8151 ENGINEERING MATHEMATICS – I

	CO Statements	Knowledge Level
After completing this course, students should demonstrate competency in the following skills:		
1	Use both the limit definition and rules of differentiation to differentiate functions.	K2
2	Apply differentiation to solve maxima and minima problems.	K3
3	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.	K5
4	Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables.	K3
5	Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts.	K5
6	Determine convergence/divergence of improper integrals and evaluateconvergent improper integrals.	K2
7	Apply various techniques in solving differential equations.	K3

3.Course Code and Name : PH8151 ENGINEERING PHYSICS

	CO Statements	Knowledge Level
Upon completion of this course,		
1	The students will gain knowledge on the basics of properties of matter and its applications,	K3

	CO Statements	Knowledge Level
2	The students will acquire knowledge on the concepts of waves and optical devices and their applications in fibre optics,	K3
3	The students will have adequate knowledge on the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers,	K3
4	The students will get knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes, and	K3
5	The students will understand the basics of crystals, their structures and different crystal growth techniques.	K4

4.Course Code and Name : CY8151 ENGINEERING CHEMISTRY		
	CO Statements	**Knowledge Level**
The students should be able to		
1	The knowledge gained on engineering materials, fuels, energy sources and watertreatment techniques will facilitate better understanding of engineering processes and applications for further learning.	K3

5.Course Code and Name : GE8151 PROBLEM SOLVING AND PYTHON PROGRAMMING		
	CO Statements	**Knowledge Level**
Upon completion of the course, students will be able to		
1	Develop algorithmic solutions to simple computational problems	K3
2	Read, write, execute by hand simple Python programs.	K3
3	Structure simple Python programs for solving problems.	K4
4	Decompose a Python program into functions.	K4
5	Represent compound data using Python lists, tuples, dictionaries	K4
6	Read and write data from/to files in Python Programs	K4

6.Course Code and Name : GE8152 ENGINEERING GRAPHICS		
	CO Statements	**Knowledge Level**
On successful completion of this course, the student will be able to:		
1	Familiarize with the fundamentals and standards of Engineering graphics	K2
2	Perform freehand sketching of basic geometrical constructions and multiple views of objects	K3
3	Project orthographic projections of lines and plane surfaces.	K2
4	Draw projections and solids and development of surfaces.	K3
5	Visualize and to project isometric and perspective sections of simple solids.	K2

7.Course Code and Name : GE8161 PROBLEM SOLVING AND PYTHON PROGRAMMING

LABORATORY

	CO Statements	Knowledge Level
Upon completion of the course, students will be able to:		
1	Write, test, and debug simple Python programs.	K6
2	Implement Python programs with conditionals and loops.	K6
3	Develop Python programs step-wise by defining functions and calling them.	K6
4	Use Python lists, tuples, dictionaries for representing compound data.	K3
5	Read and write data from/to files in Python.	K2

8.Course Code and Name : BS8161 PHYSICS AND CHEMISTRY LABORATORY

	CO Statements	Knowledge Level
Upon completion of the course, the students will be able to		
1	Apply principles of elasticity, optics and thermal properties for engineering applications	K3
2	The students will be outfitted with hands-on knowledge in the quantitative chemical analysis of water quality related parameters.	K2

SEMESTER 02

1.Course Code and Name : HS8251 TECHNICAL ENGLISH

	CO Statements	Knowledge Level
At the end of the course learners will be able to:		
1	Read technical texts and write area- specific texts effortlessly.	K2
2	Listen and comprehend lectures and talks in their area of specialisation successfully.	K2
3	Speak appropriately and effectively in varied formal and informal contexts.	K2
4	Write reports Winning job applications.	K3

2.Course Code and Name : MA8251 ENGINEERING MATHEMATICS – II

	CO Statements	Knowledge Level
After successfully completing the course, the student will have a good understanding of the following topics and their applications:		
1	Eigen values and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices.	K3
2	Gradient, divergence and curl of a vector point function and related identities	K3
3	Evaluation of line, surface and volume integrals using Gauss, Stokes and Green'stheorems and their verification.	K3
4	Analytic functions, conformal mapping and complex integration.	K3

5	Laplace transform and inverse transform of simple functions, properties, variousrelated theorems and application to differential equations with constant coefficients.	K3

3.Course Code and Name : PH8253 PHYSICS FOR ELECTRONICS ENGINEERING		
	CO Statements	Knowledge Level
At the end of the course, the students will able to		
1	gain knowledge on classical and quantum electron theories, and energy band structures,	K2
2	acquire knowledge on basics of semiconductor physics and its applications in various devices,	K2
3	get knowledge on magnetic and dielectric properties of materials,	K2
4	have the necessary understanding on the functioning of optical materials foroptoelectronics,	K2
5	understand the basics of quantum structures and their applications in spintronics and carbon electronics.	K2

4.Course Code and Name : BE8252BASIC CIVIL AND MECHANICAL ENGINEERING		
	CO Statements	Knowledg eLevel
On successful completion of this course, the student will be able to		
1	Appreciate the Civil and Mechanical Engineering components of Projects.	K2
2	Explain the usage of construction material and proper selection of construction materials.	K3
3	measure distances and area by surveying	K2
4	Identify the components used in power plant cycle.	K2
5	Demonstrate working principles of petrol and diesel engine.	K2
6	Elaborate the components of refrigeration and Air conditioning cycle.	K2

5.Course Code and Name : EE8251CIRCUIT THEORY		
	CO Statements	Knowledg eLevel
1	Ability to analyse electrical circuits	K1
2	Ability to apply circuit theorems	K2
3	Ability to analyse transients	K2

6.Course Code and Name : GE8291ENVIRONMENTAL SCIENCE AND ENGINEERING		
	CO Statements	Knowledge Level

1	Environmental Pollution or problems cannot be solved by mere laws. Public participation is an important aspect which serves the environmental Protection.One will obtain knowledge on the following after completing the course.	K3
2	Public awareness of environmental is at infant stage.	K3
3	Ignorance and incomplete knowledge has lead to misconceptions	K3
4	Development and improvement in std. of living has lead to serious environmental disasters	K3

7.Course Code and Name : GE8261 ENGINEERING PRACTICES LABORATORY

	CO Statements	Knowledge Level
On successful completion of this course, the student will be able to		
1	Fabricate carpentry components and pipe connections including plumbing works.	K2
2	Use welding equipments to join the structures.	K2
3	Carry out the basic machining operations	K2
4	Make the models using sheet metal works	K6
5	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings	K2
6	Carry out basic electrical works and appliances	K2
7	Measure the electrical quantities	K2
8	Elaborate on the components, gates, soldering practices.	K2

8.Course Code and Name : EE8261ELECTRIC CIRCUITS LABORATORY

	CO Statements	Knowledge Level
1	Understand and apply circuit theorems and concepts in engineering applications.	K3
2	Simulate electric circuits.	K3

SEMESTER 03

1.Course Code and Name : MA8353 TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS

	CO Statements	Knowledge Level
Upon successful completion of the course, students should be able to:		
1	Understand how to solve the given standard partial differential equations	K2
2	Solve differential equations using Fourier series analysis which plays a vital role inengineering applications.	K2
3	Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave	K2

	equations	
4	Understand the mathematical principles on transforms and partial differentialequations would provide them the ability to formulate and solve some of the physical problems of engineering.	K2
5	Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems	K2

2.Course Code and Name : EE8351 DIGITAL LOGIC CIRCUITS		
	CO Statements	**Knowledge Level**
1	Ability to design combinational and sequential Circuits.	K2
2	Ability to simulate using software package.	K2
3	Ability to study various number systems and simplify the logical expressions using Boolean functions	K2
4	Ability to design various synchronous and asynchronous circuits.	K2
5	Ability to introduce asynchronous sequential circuits and PLDs	K2
6	Ability to introduce digital simulation for development of application oriented logic circuits.	K2

3.Course Code and Name : EE8391 ELECTROMAGNETIC THEORY		
	CO Statements	**Knowledge Level**
1	Ability to understand the basic mathematical concepts related to electromagnetic vector fields.	K2
2	Ability to understand the basic concepts about electrostatic fields, electricalpotential, energy density and their applications.	K2
3	Ability to acquire the knowledge in magneto static fields, magnetic flux density, vector potential and its applications.	K2
4	Ability to understand the different methods of emf generation and Maxwell'sequations	K2
5	Ability to understand the basic concepts electromagnetic waves and characterizing parameters	K2
6	Ability to understand and compute Electromagnetic fields and apply them for design and analysis of electrical equipment and systems	K3
4.Course Code and Name : EE8301 ELECTRICAL MACHINES – I		
	CO Statements	**Knowledge Level**
1	Ability to analyze the magnetic-circuits.	K2
2	Ability to acquire the knowledge in constructional details of transformers.	K3
3	Ability to understand the concepts of electromechanical energy conversion.	K2

4	Ability to acquire the knowledge in working principles of DC Generator.	K3
5	Ability to acquire the knowledge in working principles of DC Motor	K2
6	Ability to acquire the knowledge in various losses taking place in D.C. Machines	K3

5. Course Code and Name : EC8353 ELECTRON DEVICES AND CIRCUITS

	CO Statements	Knowledge Level
Upon Completion of the course, the students will be ability to:		
1	Explain the structure and working operation of basic electronic devices.	K2
2	Able to identify and differentiate both active and passive elements	K2
3	Analyze the characteristics of different electronic devices such as diodes and transistors	K3
4	Choose and adapt the required components to construct an amplifier circuit.	K2
5	Choose and adapt the required components to construct an amplifier circuit.	K3

6. Course Code and Name : ME8792 POWER PLANT ENGINEERING

	CO Statements	Knowledge Level
Upon the completion of this course the students will be able to		
1	Explain the layout, construction and working of the components inside a thermalpower plant.	K2
2	Explain the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants.	K3
3	Explain the layout, construction and working of the components inside nuclearpower plants.	K3
4	Explain the layout, construction and working of the components inside Renewable energy power plants.	K2
5	Explain the applications of power plants while extend their knowledge to power plant economics and environmental hazards and estimate the costs of electricalenergy production.	K2

7. Course Code and Name : EC8311 ELECTRONICS LABORATORY

	CO Statements	Knowledge Level
1	Ability to understand and analyse electronic circuits.	K3

8. Course Code and Name : EE8311 ELECTRICAL MACHINES LABORATORY - I

	CO Statements	Knowledge Level
1	Ability to understand and analyze DC Generator	K3

2	Ability to understand and analyze DC Motor	K3
3	Ability to understand and analyse Transformers.	K3

1.Course Code and Name : MA8491 NUMERICAL METHODS

	CO Statements	Knowledge Level
Upon successful completion of the course, students should be able to:		
1	Understand the basic concepts and techniques of solving algebraic and transcendental equations.	K2
2	Appreciate the numerical techniques of interpolation and error approximations in various intervals in real life situations.	K2
3	Apply the numerical techniques of differentiation and integration for engineering problems.	K3
4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.	K2
5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.	K2

2.Course Code and Name : EE8401 ELECTRICAL MACHINES - II

	CO Statements	Knowledge Level
1	Ability to understand the construction and working principle of Synchronous Generator	K3
2	Ability to understand MMF curves and armature windings.	K3
3	Ability to acquire knowledge on Synchronous motor.	K2
4	Ability to understand the construction and working principle of Three phase Induction Motor	K2
5	Ability to understand the construction and working principle of Special Machines	K3

3.Course Code and Name : EE8402 TRANSMISSION AND DISTRIBUTION

	CO Statements	Knowledge Level
1	To understand the importance and the functioning of transmission line parameters.	K2
2	To understand the concepts of Lines and Insulators.	K3
3	To acquire knowledge on the performance of Transmission lines.	K6
4	To understand the importance of distribution of the electric power in power system.	K3
5	To acquire knowledge on Underground Cabilitys	K3

	To become familiar with the function of different components used in Transmission and Distribution levels of power system and modelling of these components.	K4

4.Course Code and Name : EE8403 MEASUREMENTS AND INSTRUMENTATION		
	CO Statements	**Knowledge Level**
1	To acquire knowledge on Basic functional elements of instrumentation	K2
2	To understand the concepts of Fundamentals of electrical and electronic instruments	K3
3	Ability to compare between various measurement techniques	K2
4	To acquire knowledge on Various storage and display devices	K2
5	To understand the concepts Various transducers and the data acquisition systems	K2
6	Ability to model and analyze electrical and electronic Instruments and understand the operational features of display Devices and Data Acquisition System.	K3

5.Course Code and Name : EE8451 LINEAR INTEGRATED CIRCUITS AND APPLICATIONS		
	CO Statements	**Knowledge Level**
1	Ability to acquire knowledge in IC fabrication procedure	K2
2	Ability to analyze the characteristics of Op-Amp	K3
3	To understand the importance of Signal analysis using Op-amp based circuits.	K3
4	Functional blocks and the applications of special ICs like Timers, PLL circuits,regulator Circuits.	K3
5	To understand and acquire knowledge on the Applications of Op-amp	K2
6	Ability to understand and analyse, linear integrated circuits their Fabrication andApplication.	K2

6.Course Code and Name : IC8451 CONTROL SYSTEMS		
	CO Statements	**Knowledge Level**
At the end of the course, the student should have the :		
1	Ability to develop various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals.	K2
2	Ability to do time domain and frequency domain analysis of various models oflinear system.	K2
3	Ability to interpret characteristics of the system to develop mathematical model.	K2
4	Ability to design appropriate compensator for the given specifications.	K2

5	Ability to come out with solution for complex control problem.	K2
6	Ability to understand use of PID controller in closed loop system.	K3

7.Course Code and Name : EE8411 ELECTRICAL MACHINES LABORATORY - II

	CO Statements	Knowledge Level
At the end of the course, the student should have the :		
1	Ability to understand and analyze EMF and MMF methods	K3
2	Ability to analyze the characteristics of V and Inverted V curves	K2
3	Ability to understand the importance of Synchronous machines	K2
4	Ability to understand the importance of Induction Machines	K2
5	Ability to acquire knowledge on separation of losses	K2

8.Course Code and Name : EE8461 LINEAR AND DIGITAL INTEGRATED CIRCUITS LABORATORY

	CO Statements	Knowledge Level
At the end of the course, the student should have the :		
1	Ability to understand and implement Boolean Functions.	K3
2	Ability to understand the importance of code conversion	K2
3	Ability to Design and implement 4-bit shift registers	K2
4	Ability to acquire knowledge on Application of Op-Amp	K2
5	Ability to Design and implement counters using specific counter IC.	K2

9.Course Code and Name : EE8412 TECHNICAL SEMINAR

	CO Statements	Knowledge Level
1	Ability to review, prepare and present technological developments	K3
2	Ability to face the placement interviews	K2

SEMESTER 05

1.Course Code and Name : EE8501POWER SYSTEM ANALYSIS

	CO Statements	Knowledge Level
1	Ability to model the power system under steady state operating condition	K2

	CO Statements	Knowledge Level
2	Ability to understand and apply iterative techniques for power flow analysis	K3
3	Ability to model and carry out short circuit studies on power system	K3
4	Ability to model and analyze stability problems in power system	K3
5	Ability to acquire knowledge on Fault analysis	K3
6	Ability to model and understand various power system components and carryout power flow, short circuit and stability studies.	K3

2.Course Code and Name : EE8551 MICROPROCESSORS AND MICROCONTROLLERS		
	CO Statements	Knowledge Level
1	Ability to acquire knowledge in Addressing modes & instruction set of 8085 & 8051	K2
2	Ability to need & use of Interrupt structure 8085 & 8051.	K5
3	Ability to understand the importance of Interfacing	K2
4	Ability to explain the architecture of Microprocessor and Microcontroller	K4
5	Ability to write the assembly language programme.	K3
6	Ability to develop the Microprocessor and Microcontroller based applications.	K5

3.Course Code and Name : EE8552 POWER ELECTRONICS		
	CO Statements	Knowledge Level
1	Ability to analyse AC-AC and DC-DC and DC-AC converters	K2
2	Ability to choose the converters for real time applications.	K3

4.Course Code and Name : EE8591 DIGITAL SIGNAL PROCESSING		
	CO Statements	Knowledge Level
1	Ability to understand the importance of Fourier transform, digital filters and DS Processors..	K2
2	Ability to acquire knowledge on Signals and systems & their mathematical representation	K2
3	Ability to understand and analyze the discrete time systems	K3
4	Ability to analyze the transformation techniques & their computation	K2
5	Ability to understand the types of filters and their design for digital implementation	K5
6	Ability to acquire knowledge on programmability digital signal processor & quantization effects	K5

5.Course Code and Name : CS8392 OBJECT ORIENTED PROGRAMMING		
	CO Statements	**Knowledge Level**
Upon completion of the course, students will be able to:		
1	Develop Java programs using OOP principles	K2
2	Develop Java programs with the concepts inheritance and interfaces	K2
3	Build Java applications using exceptions and I/O streams	K2
4	Develop Java applications with threads and generics classes	K2
5	Develop interactive Java programs using swings	K2

6.Course Code and Name : EE8552 POWER ELECTRONICS		
	CO Statements	**Knowledge Level**
1	Ability to analyse AC-AC and DC-DC and DC-AC converters	K2
2	Ability to choose the converters for real time applications.	K2

7.Course Code and Name : OMD551 BASICS OF BIOMEDICAL INSTRUMENTATION		
	CO Statements	**Knowledge Level**
1	To Learn the different bio potential and its propagation	K2
2	To get Familiarize the different electrode placement for various physiological recording	K3
3	Students will be able design bio amplifier for various physiological recording	K4
4	Students will understand various technique non electrical physiological measurements	K3
5	Understand the different biochemical measurements	K4

8.Course Code and Name : EE8511 CONTROL AND INSTRUMENTATION LABORATORY		
	CO Statements	**Knowledge Level**
1	Ability to understand control theory and apply them to electrical engineering problems.	K2
2	Ability to analyze the various types of converters	K2
3	Ability to design compensators	K3
4	Ability to understand the basic concepts of bridge networks	K3
5	Ability to the basics of signal conditioning circuits	K3
6	Ability to study the simulation packages	K3

9.Course Code and Name : CS8383 OBJECT ORIENTED PROGRAMMING LABORATORY		
	CO Statements	**Knowledge Level**
1	Develop and implement Java programs for simple applications that make use of	K4

	classes, packages and interfaces	
2	Develop and implement Java programs with arraylist, exception handling and multithreading .	K2
3	Design applications using file processing, generic programming and event handling.	K3
		K4

10.Course code and course name:HS8581 PROFESSIONAL COMMUNICATION

	CO Statements	Knowledge Level
1	Make effective presentations	K2
2	Participate confidently in Group Discussions.	K3
3	Attend job interviews and be successful in them	K4
4	Develop adequate Soft Skills required for the workplace	K4

SEMESTER 06

1.Course Code and Name EE8601 SOLID STATE DRIVES

	CO Statements	Knowledge Level
1	Ability to understand and suggest a converter for solid state drive.	K3
2	Ability to select suitability drive for the given application.	K3
3	Ability to study about the steady state operation and transient dynamics of a motor load system.	K3
4	Ability to analyze the operation of the converter/chopper fed dc drive.	K3
5	Ability to analyze the operation and performance of AC motor drives.	K3
6	Ability to analyze and design the current and speed controllers for a closed loop solid state DC motor drive.	K3

2.Course Code and Name : EE8602 PROTECTION AND SWITCHGEAR

	CO Statements	Knowledge Level
1	Ability to understand and analyze Electromagnetic and Static Relays.	K2
2	Ability to suggest suitability circuit breaker.	K2
3	Ability to find the causes of abnormal operating conditions of the apparatus and system.	K2
4	Ability to analyze the characteristics and functions of relays and protection schemes.	K3
5	Ability to study about the apparatus protection, static and numerical relays.	K3
6	Ability to acquire knowledge on functioning of circuit breaker.	K3

	3.Course Code and Name : EE8691 EMBEDDED SYSTEMS	
	CO Statements	**Knowledge Level**
1	Ability to understand and analyze Embedded systems.	K2
2	Ability to suggest an embedded system for a given application.	K2
3	Ability to operate various Embedded Development Strategies	K2
4	Ability to study about the bus Communication in processors.	K2
5	Ability to acquire knowledge on various processor scheduling algorithms.	K3
6	Ability to understand basics of Real time operating system.	K3

	4.Course Code and Name : EE8002 DESIGN OF ELECTRICAL APPARATUS	
	CO Statements	**Knowledge Level**
1	Ability to understand basics of design considerations for rotating and static electrical Machines.	K2
2	Ability to design of field system for its application.	K3
3	Ability to design sing and three phase transformer.	K3
4	Ability to design armature and field of DC machines.	K2
5	Ability to design stator and rotor of induction motor.	K2
6	Ability to design and analyze synchronous machines.	K3

	5.Course Code and Name :EE8005 SPECIAL ELECTRICAL MACHINES	
	CO Statements	**Knowledge eLevel**
1	Ability to analyze and design controllers for special Electrical Machines.	K5
2	Ability to acquire the knowledge on construction and operation of stepper motor.	K2
3	Ability to acquire the knowledge on construction and operation of stepper switched Reluctance motors.	K2
4	Ability to construction, principle of operation, switched reluctance motors.	K2
5	Ability to acquire the knowledge on construction and operation of permanent magnet brushless D.C. motors.	K2
6	Ability to acquire the knowledge on construction and operation of permanent magnet synchronous motors.	K2
7	Ability to select a special Machine for a particular application.	K2

	6.Course Code and Name : EE8661 POWER ELECTRONICS AND DRIVES LABORATORY	
	CO Statements	**Knowledge Level**

	CO Statements	Knowledge Level
1	Ability to practice and understand converter and inverter circuits and apply software for engineering problems.	K2
2	Ability to experiment about switching characteristics various switches.	K2
3	Ability to analyze about AC to DC converter circuits.	K2
4	Ability to analyze about DC to AC circuits.	K2
5	Ability to acquire knowledge on AC to AC converters	K2
6	Ability to acquire knowledge on simulation software.	K2

7.Course Code and Name : EE8681 MICROPROCESSORS AND MICROCONTROLLERS LABORATORY

	CO Statements	Knowledge Level
1	Ability to understand and apply computing platform and software for engineering problems.	K2
2	Ability to programming logics for code conversion.	K2
3	Ability to acquire knowledge on A/D and D/A.	K2
4	Ability to understand basics of serial communication	K2
5	Ability to understand and impart knowledge in DC and AC motor interfacing	K2
6	Ability to understand basics of software simulators.	K2

8.Course Code and Name : EE8611 MINI PROJECT

	CO Statements	Knowledge Level
1	On Completion of the mini project work students will be in a position to take up their final year project work and find solution by formulating proper methodology.	K3

SEMESTER 07

1.Course Code and Name : EE8701 HIGH VOLTAGE ENGINEERING

	CO Statements	Knowledge Level
1	Ability to understand Transients in power system.	K2
2	Ability to understand Generation and measurement of high voltage.	K2
3	Ability to understand High voltage testing.	K2
4	Ability to understand various types of over voltages in power system.	K2
5	Ability to measure over voltages.	K2
6	Ability to test power apparatus and insulation coordination	K2

2.Course Code and Name : EE8702 POWER SYSTEM OPERATION AND CONTROL

	CO Statements	Knowledge Level

1	Ability to understand the day-to-day operation of electric power system.	K2
2	Ability to analyze the control actions to be implemented on the system to meet the minute-to-minute variation of system demand.	K3
3	Ability to understand the significance of power system operation and control.	K3
4	Ability to acquire knowledge on real power-frequency interaction.	K3
5	Ability to understand the reactive power-voltage interaction.	K2
6	Ability to design SCADA and its application for real time operation..	K3

3.Course Code and Name : EE8703 RENEWABLE ENERGY SYSTEMS		
	CO Statements	**Knowledge Level**
1	Ability to create awareness about renewable Energy Sources and technologies.	K2
2	Ability to get adequate inputs on a variety of issues in harnessing renewable Energy.	K1
3	Ability to recognize current and possible future role of renewable energy sources.	K3
4	Ability to explain the various renewable energy resources and technologies and their applications.	K2
5	Ability to understand basics about biomass energy.	K3
6	Ability to acquire knowledge about solar energy.	K3

4.Course Code and Name : GE8071 DISASTER MANAGEMENT		
	CO Statements	**Knowledge Level**
1	Differentiate the types of disasters, causes and their impact on environment and society.	K2
2	Assess vulnerability and various methods of risk reduction measures as well as mitigation.	K2
3	Draw the hazard and vulnerability profile of India, Scenarious in the Indian context, Disaster damage assessment and management.	K2

6.Course Code and Name : EE8010 POWER SYSTEMS TRANSIENTS		
	CO Statements	**Knowledge Level**
1	Ability to understand and analyze switching and lightning transients.	K2
2	Ability to acquire knowledge on generation of switching transients and their control.	K2
3	Ability to analyze the mechanism of lighting strokes.	K2
4	Ability to understand the importance of propagation, reflection and refraction of	K2

	travelling waves.	
5	Ability to find the voltage transients caused by faults.	K2
6	Ability to understand the concept of circuit breaker action, load rejection on integrated power system.	K2

7.Course Code and Name : EE8711 POWER SYSTEM SIMULATION LABORATORY

	CO Statements	Knowledge Level
1	Ability to understand power system planning and operational studies.	K3
2	Ability to acquire knowledge on Formation of Bus Admittance and Impedance Matrices and Solution of Networks.	K3
3	Ability to analyze the power flow using GS and NR method	K3
4	Ability to find Symmetric and Unsymmetrical fault	K3
5	Ability to understand the economic dispatch.	K3
6	Ability to analyze the electromagnetic transients	K3

8.Course Code and Name : EE8712 RENEWABLE ENERGY SYSTEMS LABORATORY

	CO Statements	Knowledge Level
1	Ability to understand and analyze Renewable energy systems.	K3
2	Ability to train the students in Renewable Energy Sources and technologies	K3
3	Ability to provide adequate inputs on a variety of issues in harnessing Renewable Energy.	K3
4	Ability to simulate the various Renewable energy sources	K3
5	Ability to recognize current and possible future role of Renewable energy sources.	K3
6	Ability to understand basics of Intelligent Controllers.	K3

SEMESTER 08

1.Course Code and Name : GE8076 PROFESSIONAL ETHICS IN ENGINEERING

	CO Statements	Knowledge Level
1	Upon completion of the course, the student should be ability to apply ethics in society, discuss the ethical issues related to engineering and realize the responsibilities and rights in the society.	K2

3.Course Code and Name : EI8073 BIOMEDICAL INSTRUMENTATION

	CO Statements	Knowledge Level
1	Ability to understand the philosophy of the heart, lung, blood circulation and respiration system.	K2
2	Ability to provide latest ideas on devices of non-electrical devices.	K2
3	Ability to gain knowledge on various sensing and measurement devices of	K2

	electrical origin.	
4	Ability to understand the analysis systems of various organ types.	K2
5	Ability to bring out the important and modern methods of imaging techniques and their analysis.	K2
6	Ability to explain the medical assistance/techniques, robotic and therapeutic equipments.	K2
3.Course Code and Name : EE8811 PROJECT WORK		
	CO Statements	**Knowledge Level**
1	On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology	K4