AALIM MUHAMMED SALEGH COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
R2017

Programme Outcomes

The graduates will have the ability to

a. Apply the Mathematical knowledge and the basics of Science and Engineering to solve the problems pertaining to Electronics and Instrumentation Engineering.

b. 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.

c. 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.

d. 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.

e. 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.

f. 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.

g. Be aware of the impact of professional Engineering solutions in societal and environmental contexts and exhibit the knowledge and the need for Sustainable Development.

h. Apply the principles of Professional Ethics to adhere to the norms of the engineering practice and to discharge ethical responsibilities.

i. Function actively and efficiently as an individual or a member/leader of different teams and multidisciplinary projects.

j. 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.

k. 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.

l. Recognize the need for self and life-long learning, keeping pace with technological challenges in the broadest sense

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING (Regulation 2017)

COURSE OUTCOMES

R2017	HS8151 COMMUNICATIVE ENGLISH	L	T	P	C
		4	0	0	4
CO 1	Read articles of a general kind in magazines and newspapers.				
CO 2	Participate effectively in informal conversations; introduce themselves and their friends and express opinions in English.				
CO3	Comprehend conversations and short talks delivered in English				
CO 4	Write short essays of a general kind and personal letters and emails in English.				

R2017	MA8151 ENGINEERING MATHEMATICS - I	L	T	P	C
		4	0	0	4
CO 1	Use both the limit definition and rules of differentiation to differentiate functions.				
CO 2	Apply differentiation to solve maxima and minima problems.				
CO 3	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.				
CO 4	Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables.				
CO 5	Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts				
CO 6	Determine convergence/divergence of improper integrals and evaluate convergent improper integrals.				
CO 7	Apply various techniques in solving differential equations.				

R2017	PH8151 ENGINEERING PHYSICS - I	L	T	P	C
		3	0	0	3
CO 1	The students will gain knowledge on the basics of properties of matter and its applications				
CO 2	The students will acquire knowledge on the concepts of waves and optical devices and their applications in fibre optics,				
CO 3	The students will have adequate knowledge on the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers				
CO 4	The students will get knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes,				
CO 5	The students will understand the basics of crystals, their structures and different crystal growth techniques.				

R2017	CY8151 ENGINEERING CHEMISTRY - I	L	T	P	C
		3	0	0	3
CO 1	The knowledge gained on engineering materials, fuels, energy sources and water treatment techniques will facilitate better understanding of engineering processes and applications for further learning.				

R2017	GE8151 PROBLEM SOLVING AND PYTHON PROGRAMMING	L	T	P	C
		3	0	0	3
CO 1	Develop algorithmic solutions to simple computational problems				
CO 2	Read, write, execute by hand simple Python programs.				
CO 3	Structure simple Python programs for solving problems.				
CO 4	Decompose a Python program into functions.				
CO 5	Represent compound data using Python lists, tuples, dictionaries.				
CO 6	Read and write data from/to files in Python Programs.				

R2017	GE8152 ENGINEERING GRAPHICS	L	T	P	C
		2	0	4	4
CO 1	familiarize with the fundamentals and standards of Engineering graphics				
CO 2	perform freehand sketching of basic geometrical constructions and multiple views of objects.				
CO 3	project orthographic projections of lines and plane surfaces				
CO 4	draw projections and solids and development of surfaces.				
CO 5	visualize and to project isometric and perspective sections of simple solids				

R2017	HS8251 TECHNICAL ENGLISH	L	T	P	C
		4	0	0	4
CO 1	Read technical texts and write area- specific texts effortlessly.				
CO 2	Listen and comprehend lectures and talks in their area of specialisation successfully.				
CO3	Speak appropriately and effectively in varied formal and informal contexts.				
CO 4	Write reports and winning job applications.				

R2017	MA8251 ENGINEERING MATHEMATICS – II	L	T	P	C
		4	0	0	4
CO 1	Eigenvalues and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices				
CO 2	Gradient, divergence and curl of a vector point function and related identities.				
CO 3	Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification.				
CO 4	Analytic functions, conformal mapping and complex integration				
CO 5	Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients.				

R2017	PH8253 PHYSICS FOR ELECTRONICS ENGINEERING	L	T	P	C
		3	0	0	3
CO 1	Gain knowledge on classical and quantum electron theories, and energy band structuues				
CO 2	Acquire knowledge on basics of semiconductor physics and its applications in various devices,				
CO 3	Get knowledge on magnetic and dielectric properties of materials,				
CO 4	Have the necessary understanding on the functioning of optical materials for optoelectronics,				
CO 5	Understand the basics of quantum structures and their applications in spintronics and carbon electronics.				

R2017	BE8252 BASIC CIVIL AND MECHANICAL ENGINEERING	L	T	P	C
		4	0	0	4
CO 1	Appreciate the Civil and Mechanical Engineering components of Projects.				
CO 2	Explain the usage of construction material and proper selection of construction materials.				
CO 3	Measure distances and area by surveying				
CO 4	identify the components used in power plant cycle.				
CO 5	Demonstrate working principles of petrol and diesel engine.				
CO 6	Elaborate the components of refrigeration and Air conditioning cycle.				

R2017	EE8251 CIRCUIT THEORY	L	T	P	C
		2	2	0	3
CO 1	Ability analyse electrical circuits				
CO 2	Ability to apply circuit theorems				
CO 3	Ability to analyse transients.				

R2017	GE8291 ENVIRONMENTAL SCIENCE AND ENGINEERING	L	T	P	C
		3	0	0	3
CO 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.				
CO 2	Public awareness of environmental is at infant stage.				
CO 3	Ignorance and incomplete knowledge has lead to misconceptions				
CO 4	Development and improvement in std. of living has lead to serious environmental disasters				

R2017	MA8353 TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS	L	T	P	C
		4	0	0	4
CO 1	Understand how to solve the given standard partial differential equations				
CO 2	Solve differential equations using Fourier series analysis which plays a vital role in engineering applications.				
CO 3	Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations.				
CO 4	Understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.				

CO 5	Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems.

R2017	**EE8351 DIGITAL LOGIC CIRCUITS**	**L**	**T**	**P**	**C**
		2	**2**	**0**	**3**
CO 1	Ability to design combinational and sequential Circuits.				
CO 2	Ability to simulate using software package.				
CO 3	Ability to study various number systems and simplify the logical expressions using Boolean functions				
CO 4	Ability to design various synchronous and asynchronous circuits.				
CO 5	Ability to introduce asynchronous sequential circuits and PLDs				
CO 6	Ability to introduce digital simulation for development of application oriented logic circuits.				

R2017	**EE8391 ELECTROMAGNETIC THEORY**	**L**	**T**	**P**	**C**
		2	**2**	**0**	**3**
CO 1	Ability to understand the basic mathematical concepts related to electromagnetic vector fields.				
CO 2	Ability to understand the basic concepts about electrostatic fields, electrical potential, energy density and their applications.				
CO 3	Ability to acquire the knowledge in magneto static fields, magnetic flux density, vector potential and its applications				
CO 4	Ability to understand the different methods of emf generation and Maxwell’s equations				
CO 5	Ability to understand the basic concepts electromagnetic waves and characterizing parameters				

CO 6	Ability to understand and compute Electromagnetic fields and apply them for design and analysis of electrical equipment and systems

R2017	**EE8301 ELECTRICAL MACHINES-I**	**L**	**T**	**P**	**C**
		2	**2**	**0**	**3**
CO 1	Ability to analyze the magnetic-circuits				
CO 2	Ability to acquire the knowledge in constructional details of transformers.				
CO 3	Ability to understand the concepts of electromechanical energy conversion.				
CO 4	Ability to acquire the knowledge in working principles of DC Generator.				
CO 5	Ability to acquire the knowledge in working principles of DC Motor				
CO 6	Ability to acquire the knowledge in various losses taking place in D.C. Machines				

R2017	**EC8353 ELECTRON DEVICES AND CIRCUITS**	**L**	**T**	**P**	**C**
		3	**0**	**0**	**3**
CO 1	Explain the structure and working operation of basic electronic devices.				
CO 2	Able to identify and differentiate both active and passive elements				
CO 3	Analyze the characteristics of different electronic devices such as diodes and transistors				
CO 4	Choose and adapt the required components to construct an amplifier circuit.				
CO 5	Employ the acquired knowledge in design and analysis of oscillators				

R2017	ME8792 POWER PLANT ENGINEERING	L	T	P	C
		3	0	0	3
CO 1	Explain the layout, construction and working of the components inside a thermal power plant.				
CO 2	Explain the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants.				
CO 3	and Combined cycle power plants. CO3 Explain the layout, construction and working of the components inside nuclear power plants				
CO 4	Explain the layout, construction and working of the components inside Renewable energy power plants.				
CO 5	Explain the applications of power plants while extend their knowledge to power plant economics and environmental hazards and estimate the costs of electrical energy production.				

R2017	MA 8491 NUMERICAL METHODS	L	T	P	C
		4	0	0	4
CO 1	Understand the basic concepts and techniques of solving algebraic and transcendental equations				
CO 2	Appreciate the numerical techniques of interpolation and error approximations in various intervals in real life situations.				
CO 3	Apply the numerical techniques of differentiation and integration for engineering problems				
CO 4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations				
CO 5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.				

R2017	EE8401 ELECTRICAL MACHINES -II	L	T	P	C
		2	2	0	3
CO 1	Ability to understand the construction and working principle of Synchronous Generator				
CO 2	Ability to understand MMF curves and armature windings.				
CO 3	Ability to acquire knowledge on Synchronous motor.				
CO 4	Ability to understand the construction and working principle of Three phase Induction Motor				
CO 5	Ability to understand the construction and working principle of Special Machines				
CO 6	Ability to predetermine the performance characteristics of Synchronous Machines.				

R2017	EE8402 TRANSMISSION AND DISTRIBUTION	L	T	P	C
		3	0	0	3
CO 1	To understand the importance and the functioning of transmission line parameters.				
CO 2	To understand the concepts of Lines and Insulators.				
CO 3	To acquire knowledge on the performance of Transmission lines				
CO 4	To understand the importance of distribution of the electric power in power system.				
CO 5	To acquire knowledge on Underground Cabilitys				
CO 6	To become familiar with the function of different components used in Transmission and Distribution levels of power system and modelling of these components.				

R2017	EE8403 MEASUREMENTS AND INSTRUMENTATION	L	T	P	C
		3	0	0	3
CO 1	To acquire knowledge on Basic functional elements of instrumentation				
CO 2	To understand the concepts of Fundamentals of electrical and electronic instruments				
CO 3	Ability to compare between various measurement techniques				
CO 4	To acquire knowledge on Various storage and display devices				
CO 5	To understand the concepts Various transducers and the data acquisition systems				
CO 6	Ability to model and analyze electrical and electronic Instruments and understand the operational features of display Devices and Data Acquisition System.				

R2017	EE8451 LINEAR INTEGRATED CIRCUITS AND APPLICATIONS	L	T	P	C
		3	0	0	3
CO 1	Ability to acquire knowledge in IC fabrication procedure				
CO 2	Ability to analyze the characteristics of Op-Amp				
CO 3	To understand the importance of Signal analysis using Op-amp based circuits.				
CO 4	Functional blocks and the applications of special ICs like Timers, PLL circuits, regulator Circuits				
CO 5	To understand and acquire knowledge on the Applications of Op-amp				
CO 6	Ability to understand and analyse, linear integrated circuits their Fabrication and Application.				

R2017	IC8451 CONTROL SYSTEMS	L	T	P	C
		3	2	0	4
CO 1	Ability to develop various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals.				
CO 2	Ability to do time domain and frequency domain analysis of various models of linear system				
CO 3	Ability to interpret characteristics of the system to develop mathematical model.				
CO 4	Ability to design appropriate compensator for the given specifications.				
CO 5	Ability to come out with solution for complex control problem.				
CO 6	Ability to understand use of PID controller in closed loop system.				

R2017	EE8412 TECHNICAL SEMINAR	L	T	P	C
		0	0	2	1
CO 1	Ability to review, prepare and present technological developments				
CO 2	Ability to face the placement interviews				

R2017	EE8501 POWER SYSTEM ANALYSIS	L	T	P	C
		3	0	0	3
CO 1	Ability to model the power system under steady state operating condition				
CO 2	Ability to understand and apply iterative techniques for power flow analysis				
CO 3	Ability to model and carry out short circuit studies on power system				
CO 4	Ability to model and analyze stability problems in power system				
CO 5	Ability to acquire knowledge on Fault analysis.				
CO 6	Ability to model and understand various power system components and carry out power flow, short circuit and stability studies.				

R2017	EE8551 MICROPROCESSORS AND MICROCONTROLLERS	L	T	P	C
		3	0	0	3
CO 1	Ability to acquire knowledge in Addressing modes & instruction set of 8085 & 8051.				
CO 2	Ability to need & use of Interrupt structure 8085 & 8051.				

CO 3	Ability to understand the importance of Interfacing
CO 4	Ability to explain the architecture of Microprocessor and Microcontroller.
CO 5	Ability to write the assembly language programme.
CO 6	Ability to develop the Microprocessor and Microcontroller based applications.

R2017	**EE8552 POWER ELECTRONICS**	**L**	**T**	**P**	**C**
		3	**0**	**0**	**3**
CO 1	Ability to analyse AC-AC and DC-DC and DC-AC converters.				
CO 2	Ability to choose the converters for real time applications.				

R2017	**EE8591 DIGITAL SIGNAL PROCESSING**	**L**	**T**	**P**	**C**
		2	**2**	**0**	**3**
CO 1	Ability to understand the importance of Fourier transform, digital filters and DS Processors				
CO 2	Ability to acquire knowledge on Signals and systems & their mathematical representation.				
CO 3	Ability to understand and analyze the discrete time systems				
CO 4	Ability to analyze the transformation techniques & their computation.				
CO 5	Ability to understand the types of filters and their design for digital implementation				
CO 6	Ability to acquire knowledge on programmability digital signal processor & quantization effects.				

R2017	CS8392 OBJECT ORIENTED PROGRAMMING	L	T	P	C
		3	0	0	3
CO 1	Develop Java programs using OOP principles				
CO 2	Develop Java programs with the concepts inheritance and interfaces				
CO 3	Build Java applications using exceptions and I/O streams				
CO 4	Develop interactive Java programs using swings				

R2017	OMD551 BASICS OF BIOMEDICAL INSTRUMENTATION	L	T	P	C
		3	0	0	3
CO 1	To Learn the different bio potential and its propagation.				
CO 2	To get Familiarize the different electrode placement for various physiological recording				
CO 3	Students will be able design bio amplifier for various physiological recording				
CO 4	Students will understand various technique non electrical physiological measurements				
CO 5	Understand the different biochemical measurements				

R2017	HS8581 PROFESSIONAL COMMUNICATION	L	T	P	C
		0	0	2	1
CO 1	Make effective presentations				
CO 2	Participate confidently in Group Discussions.				
CO 3	Attend job interviews and be successful in them.				
CO 4	Develop adequate Soft Skills required for the workplace				

R2017	EE8601 SOLID STATE DRIVES	L	T	P	C
		3	0	0	3
CO 1	Ability to understand and suggest a converter for solid state drive.				
CO 2	Ability to select suitability drive for the given application				
CO 3	Ability to study about the steady state operation and transient dynamics of a motor load system.				
CO 4	Ability to analyze the operation of the converter/chopper fed dc drive.				
CO 5	Ability to analyze the operation and performance of AC motor drives.				
CO 6	Ability to analyze and design the current and speed controllers for a closed loop solid state DC motor drive.				

R2017	EE8602 PROTECTION AND SWITCHGEAR	L	T	P	C
		3	0	0	3
CO 1	Ability to understand and analyze Electromagnetic and Static Relays.				
CO 2	Ability to suggest suitability circuit breaker.				
CO 3	Ability to find the causes of abnormal operating conditions of the apparatus and system				
CO 4	Ability to analyze the characteristics and functions of relays and protection schemes				
CO 5	Ability to study about the apparatus protection, static and numerical relays.				
CO 6	Ability to acquire knowledge on functioning of circuit breaker.				

R2017	EE8691 EMBEDDED SYSTEMS	L	T	P	C
		3	0	0	3
CO 1	Ability to understand and analyze Embedded systems				
CO 2	Ability to suggest an embedded system for a given application.				
CO 3	Ability to operate various Embedded Development Strategies				
CO 4	Ability to study about the bus Communication in processors.				
CO 5	Ability to acquire knowledge on various processor scheduling algorithms				
CO 6	Ability to understand basics of Real time operating system.				

R2017	EE8002 DESIGN OF ELECTRICAL APPARATUS	L	T	P	C
		3	0	0	3
CO 1	Ability to understand basics of design considerations for rotating and static electrical machines				
CO 2	Ability to design of field system for its application.				
CO 3	Ability to design sing and three phase transformer.				
CO 4	Ability to design armature and field of DC machines.				
CO 5	Ability to design stator and rotor of induction motor.				
CO 6	Ability to design and analyze synchronous machines				

R2017	EE8006 POWER QUALITY	L	T	P	C
		3	0	0	3
CO 1	Ability to understand and analyze Embedded systems				
CO 2	Ability to suggest an embedded system for a given application.				
CO 3	Ability to operate various Embedded Development Strategies				
CO 4	Ability to study about the bus Communication in processors.				
CO 5	Ability to acquire knowledge on various processor scheduling algorithms				
CO 6	Ability to understand basics of Real time operating system.				

R2017	EE8701 HIGH VOLTAGE ENGINEERING	L	T	P	C
		3	0	0	3
CO 1	Ability to understand various sources, causes and effects of power quality issues, electrical systems and their measures and mitigation.				
CO 2	Ability to analyze the causes & Mitigation techniques of various PQ events.				
CO 3	Ability to study about the various Active & Passive power filters				
CO 4	Ability to understand the concepts about Voltage and current distortions, harmonics.				
CO 5	Ability to analyze and design the passive filters.				
CO 6	Ability to acquire knowledge on compensation techniques.				
CO 7	Ability to acquire knowledge on DVR.				

R2017	EE8702 POWER SYSTEM OPERATION AND CONTROL	L	T	P	C
		3	0	0	3
CO 1	Ability to understand the day-to-day operation of electric power system.				
CO 2	Ability to analyze the control actions to be implemented on the system to meet the minute-to-minute variation of system demand.				
CO 3	Ability to understand the significance of power system operation and control.				
CO 4	Ability to acquire knowledge on real power-frequency interaction.				
CO 5	Ability to understand the reactive power-voltage interaction.				
CO 6	Ability to design SCADA and its application for real time operation.				

R2017	EE8703 RENEWABLE ENERGY SYSTEMS	L	T	P	C
		3	0	0	3
CO 1	Ability to create awareness about renewable Energy Sources and technologies				
CO 2	Ability to get adequate inputs on a variety of issues in harnessing renewable Energy.				
CO 3	Ability to recognize current and possible future role of renewable energy sources.				
CO 4	Ability to explain the various renewable energy resources and technologies and their applications.				
CO 5	Ability to understand basics about biomass energy				
CO 6	Ability to acquire knowledge about solar energy.				

R2017	EE8010 POWER SYSTEM TRANSIENTS	L	T	P	C
		3	0	0	3
CO 1	Ability to understand and analyze switching and lightning transients.				
CO 2	Ability to acquire knowledge on generation of switching transients and their control.				
CO 3	Ability to analyze the mechanism of lighting strokes.				
CO 4	Ability to understand the importance of propagation, reflection and refraction of travelling waves.				
CO 5	Ability to find the voltage transients caused by faults.				
CO 6	Ability to understand the concept of circuit breaker action, load rejection on integrated power system.				

R2017	MG8591 PRINCIPLES OF MANAGEMENT	L	T	P	C
		3	0	0	3
CO 1	Upon completion of the course, students will be ability to have clear understanding of managerial functions like planning, organizing, staffing, leading & controlling and have same basic knowledge on international aspect of management				

R2017	EE8017 HIGH VOLTAGE DIRECT CURRENT TRANSMISSION	L	T	P	C
		3	0	0	3
CO 1	Ability to understand the principles and types of HVDC system.				
CO 2	Ability to analyze and understand the concepts of HVDC converters.				
CO 3	Ability to acquire knowledge on DC link control.				
CO 4	Ability to understand the concepts of reactive power management, harmonics and power flow analysis.				
CO 5	Ability to get knowledge about Planning of DC power transmission and comparison with AC power transmission.				
CO 6	Ability to understand the importance of power flow in HVDC system under steady state.				