

AURORA'S TECHNOLOGICAL AND RESEARCH INSTITUTE

Parvathapur, uppal, Hyderabad.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year	Semester	Regulation	Course Code	Course Name	Course Outcomes
I	I	R16	MA101BS	Mathematics-I	<ol style="list-style-type: none">1. write the matrix representation of a set of linear equations and to analyze the solution of the system of equations2. find the Eigen values and Eigen vectors which come across under linear the system of equations3. solve higher order DE's and apply them for solving some real world problems4. identify whether the given first order DE is exact or not5. find the extreme values of functions of two variables with/ without constraints.
			CH102BS	Engineering Chemistry	<ol style="list-style-type: none">1. Students will gain the basic knowledge of electrochemical procedures related to corrosion and its control.2. They can understand the basic properties of water and its usage in domestic and industrial purposes.3. They learn the use of fundamental principles to make predictions about the general properties of materials.4. They can predict potential applications of chemistry and practical utility in order to become good engineers and entrepreneurs.
			PH103BS	Engineering Physics-I	<ol style="list-style-type: none">1. Learn principle, working of various laser systems and light propagation through optical fibers.2. Realize the importance of light phenomena in thin films and resolution.3. Know the various defects in crystals.4. Distinguish various crystal systems and understand atomic packing factor.
			EN104HS	Professional Communication in English	<p>Students will be able to:</p> <ol style="list-style-type: none">1. Use English Language effectively in spoken and written forms.2. Comprehend the given texts and respond appropriately.3. Communicate confidently in formal and informal contexts.

			ME105ES	Engineering Mechanics	<ol style="list-style-type: none"> 1. To understand the resolving forces and moments for a given force system 2. To determine the centroid and second moment of area 3. To analyze the types of friction for moving bodies and problems related to friction.
			EE106ES	Basic Electrical and Electronics Engineering	<p>After this course, the student will be able</p> <ol style="list-style-type: none"> 1. To identify and characterize diodes and various types of transistors. 2. To analyze and solve problems of electrical circuits using network laws and theorems.
			EN107HS	English Language Communication Skills Lab	<ol style="list-style-type: none"> 1. Better understanding of nuances of English language through audio- visual experience and group activities 2. Neutralization of accent for intelligibility 3. Speaking skills with clarity and confidence which in turn enhances their employability skills.
			ME108ES	Engineering Workshop	<ol style="list-style-type: none"> 1. Study and practice on machine tools and their operations 2. Practice on manufacturing of components using workshop trades including fitting, plumbing, carpentry, foundry, house wiring and welding. 3. Identify and apply suitable tools for different trades of Engineering processes including , drilling, material removing, measuring, chiseling. 4. Apply basic electrical engineering knowledge for house wiring practice.
			*EA109MC	NSS	

I	II	R16	PH201BS	Engineering Physics-II	<ol style="list-style-type: none"> 1. Realize the importance of behavior of a particle quantum mechanically. 2. Learn concentration estimation of charge carriers in semi conductors. 3. Learn various magnetic dielectric properties and apply them in engineering applications. 4. Know the basic principles and applications of super conductors.
			MA202BS	Mathematics-II	<ol style="list-style-type: none"> 1. use Laplace transform techniques for solving DE's 2. evaluate integrals using Beta and Gamma functions 3. evaluate the multiple integrals and can apply these concepts to find areas, volumes, moment of inertia etc of regions on a plane or in space 4. evaluate the line, surface and volume integrals and converting them from one to another.

			MA203BS	Mathematics-III	<ol style="list-style-type: none"> 1. differentiate among random variables involved in the probability models which are useful for all branches of engineering 2. calculate mean, proportions and variances of sampling distributions and to make important decisions for few samples which are taken from a large data 3. solve the tests of ANOVA for classified data 4. find the root of a given equation and solution of a system of equations 5. fit a curve for a given data 6. find the numerical solutions for a given first order initial value problem
			CS204ES	Computer Programming in C	<ol style="list-style-type: none"> 1. Demonstrate the basic knowledge of computer hardware and software. 2. Ability to write algorithms for solving problems. 3. Ability to draw flowcharts for solving problems. 4. Ability to code a given logic in C programming language. 5. Gain knowledge in using C language for solving problems.
			ME205ES	Engineering Graphics	<ol style="list-style-type: none"> 1. Ability to prepare working drawings to communicate the ideas and information. 2. Ability to read, understand and interpret engineering drawings.
			CH206BS	Engineering Chemistry Lab	<ol style="list-style-type: none"> 1. Estimation of HCl by Conductometry. 2. Estimation of Ferrous ion by Potentiometry. 3. Determination of Ferrous iron in cement by Colorimetric method. 4. Determination of viscosity of an oil by Redwood / Oswald's Viscometer. 5. Estimation of manganese in KMnO₄ by Colorimetric method. 6. Estimation of HCl and Acetic acid in a given mixture by Conductometry. 7. Estimation of HCl by Potentiometry.
			PH207BS	Engineering Physics Lab	<ul style="list-style-type: none"> • Understand clearly the interference principle in wave theory of light and able to relate it to the formation of Newton Rings and Obtain a pure spectrum when light passes through prism • Understand the formation and propagation of mechanical waves • Study simple oscillations of a load attached to a string and relate it to nature of material of string • Understand the physical significance of time constant and related uses

			CS208ES	Computer Programming in C Lab	<ol style="list-style-type: none"> 1. Ability to design and test programs to solve mathematical and scientific problems. 2. Ability to write structured programs using control structures and functions.
			*EA209MC	NCC/NSO	

II	I	R16	MA301BS	Mathamatics – IV	<p>After learning the contents of this paper the student must be able to</p> <ol style="list-style-type: none"> 1. analyze the complex functions with reference to their analyticity, integration using Cauchy’s integral theorem 2. find the Taylor’s and Laurent’s series expansion of complex functions 3. the bilinear transformation 4. express any periodic function in term of sines and cosines 5. express a non-periodic function as integral representation 6. analyze one dimensional wave and heat equation
			EE302ES	Electromagnetic Fields	<p>upon completion of course, student will be able to</p> <ol style="list-style-type: none"> 1. Apply vector calculus to static electric – magnetic fields. 2. Compute the force, fields & Energy for different charge & current configurations & evaluate capacitance and inductance 3. Analyze Maxwell’s equation in different forms (Differential and integral) in Electrostatic, Magnetic time varying fields
			EE303ES	Electrical Machines-I	<p>After this course, the student will be able to</p> <ol style="list-style-type: none"> 1. Identify different parts of a DC machine & understand its operation 2. Carry out different testing methods to predetermine the efficiency of DC machines 3. Understand different excitation and starting methods of DC machines 4. Control the voltage and speed of a DC machines

			EE304ES	Network Theory	<p>After this course, the student will be able to</p> <ol style="list-style-type: none"> 1. Analyze the Electrical Circuits with the concept of Network topology 2. Apply the concepts of Magnetic circuit & Analyze Magnetic circuits 3. Determine self and mutually induced EMF's for Magnetically coupled coils 4. Understand the importance of three phase circuits and Analyze the three phase circuits with Star & Delta connected balanced and unbalanced loads 5. Analyze the transient behavior of electrical networks for various excitations 6. Obtain the various network parameters for the given two port networks 7. Represent the transfer function for the given network 8. Determine the parameters for the design of various filters
			EE305ES	Electronic Circuits	<p>After completion of this course the student is able to</p> <ol style="list-style-type: none"> 1. Apply the knowledge of BJT to design practical amplifier circuits. 2. Design electronic sub systems such as feedback amplifiers, oscillators and power amplifiers to meet the required specifications. 3. Design linear and non linear wave shaping circuits with different inputs. 4. Analyze multi vibrators using transistors.
			EE306ES	Electrical Machines Lab - I	<p>After completion of this lab the student is able to</p> <ol style="list-style-type: none"> 1. Start and control the Different DC Machines. 2. Assess the performance of different machines using different testing methods 3. Identify different conditions required to be satisfied for self - excitation of DC Generators. 4. Separate iron losses of DC machines into different components
			EC306ES	Electronic Devices & Circuits Lab	<ol style="list-style-type: none"> 1. After Completion of the course the student is able to Apply various devices to real time problems. 2. Compute frequency response of various amplifiers.

			EE307ES	Networks Lab	<p>After Completion of this lab the student is able to</p> <ol style="list-style-type: none"> 1. Analyze complex DC and AC linear circuits 2. Apply concepts of electrical circuits across engineering 3. Evaluate response in a given network by using theorems
			*MC300ES	Environmental Science and Technology	<p>1. Based on this course, the Engineering graduate will understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development</p>

II	II	R16	EC401ES	Switching Theory & Logic Design	<p>Upon completion of the course, students should possess the following skills:</p> <ol style="list-style-type: none"> 1. Be able to manipulate numeric information in different forms, e.g. different bases, signed integers, various codes such as ASCII, Gray and BCD. 2. Be able to manipulate simple Boolean expressions using the theorems and postulates of Boolean algebra and to minimize combinational functions. 3. Be able to design and analyze small combinational circuits and to use standard combinational functions/building blocks to build larger more complex circuits. 4. Be able to design and analyze small sequential circuits and devices and to use standard sequential functions/building blocks to build larger more complex circuits.
			EE402ES	Power Systems - I	<p>After Completion of this course the student is able to</p> <ul style="list-style-type: none"> • Draw the layout of hydro power plant, thermal power station, Nuclear power plant and gas power plant and explain its operation • Describe A.C. and D.C. distribution systems and its voltage drop calculations • Illustrate various economic aspects of the power plant erection, operation and different tariff methods • Understand power factor improvement methods and determine economical power factor

			EE403ES	Electrical Machines – II	<p>After this course, the student</p> <ul style="list-style-type: none"> • Identify different parts of transformers and induction motors and specify their functions • Understand the operation of transformers and induction motors • Carry out different testing methods and assess the performance of transformers and induction motors • Start and control the induction motor
			EE404ES	Control Systems	<p>After completion of this course the student is able to</p> <ul style="list-style-type: none"> • Improve the system performance by selecting a suitable controller and/or a compensator for a specific application • Apply various time domain and frequency domain techniques to assess the system performance • Apply various control strategies to different applications (example: Power systems, electrical drives etc...) • Test system Controllability and Observability using state space representation and applications of state space representation to various systems.
			SM405MS	Business Economics and Financial Analysis	<p>The students will understand the various Forms of Business and the impact of economic variables on the Business. The Demand, Supply, Production, Cost, Market Structure, Pricing aspects are learnt. The Students can study the firm's financial position by analysing the Financial Statements of a Company.</p>
			EE406ES	Control Systems Lab	<p>After completion of this lab the student is able to</p> <ul style="list-style-type: none"> • How to improve the system performance by selecting a suitable controller and/or a compensator for a specific application • Apply various time domain and frequency domain techniques to assess the system performance • Apply various control strategies to different applications(example: Power systems, electrical drives etc) • Test system controllability and observability using state space representation and applications of state space representation to various systems

			EE407ES	Electrical Machines Lab - II	<p>After the completion of this laboratory course, the student will be able</p> <ul style="list-style-type: none"> • Assess the performance of different machines using different testing methods • To convert the Phase from three phase to two phase and vice versa • Compensate the changes in terminal voltages of synchronous generator after estimating the change by different methods • Control the active and reactive power flows in synchronous machines • Start different machines and control the speed and power factor
			EE408ES	Electronic Circuits Lab	<p>After completion of this lab the student is able to</p> <ul style="list-style-type: none"> • Apply the concepts of amplifiers in the design of Public Addressing System • Generate Sinusoidal wave forms • Design stable system using feedback concepts. • Design multi vibrator using transistor

			*MC400HS	Gender Sensitization Lab	<ul style="list-style-type: none"> • Students will have developed a better understanding of important issues related to gender in contemporary India. • Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature, and film. • Students will attain a finer grasp of how gender discrimination works in our society and how to counter it. • Students will acquire insight into the gendered division of labour and its relation to politics and economics. • Men and women students and professionals will be better equipped to work and live together as equals. • Students will develop a sense of appreciation of women in all walks of life. • Through providing accounts of studies and movements as well as the new laws that provide protection and relief to women, the textbook will empower students to understand and respond to gender violence.
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III	I	R13	A50423	IC Applications	<ul style="list-style-type: none"> • Design various applications of Op-Amps. • Design the circuits using special ICs like 555 timer, 723 voltage regulator and 565 PLL. • Design A/D and D/A Converters using ICs. • Design digital circuits using digital ICs.
			A50014	Management Science	<ul style="list-style-type: none"> • Function effectively in multidisciplinary teams to accomplish a common goal of organizations. • Apply theories to improve the practice of management. • Appreciate the management challenges associated with high levels of change in the organizations. • Develop global vision and management skills at both a strategic level and interpersonal level.

			A50221	Power Systems-II	<ul style="list-style-type: none"> • Derive L and C expressions for various configurations and analyze different types of Transmission lines • Describe Traveling wave theory and derive expressions for reflection and refraction coefficients with various terminations of the lines • Derive expressions for sag with equal and unequal height towers and describe various types of Insulators and also explain various string efficiency methods • Illustrate different types of cables and derive capacitance expressions and describe grading of cables
			A50211	Control Systems	<ul style="list-style-type: none"> • How to improve the system performance by selecting a suitable controller and/or a compensator for a specific application • Apply various time domain and frequency domain techniques to assess the system performance • Apply various control strategies to different applications (example: Power systems, electrical drives etc...) • Test system Controllability and Observability using state space representation and applications of state space representation to various systems.
			A50220	Power Electronics	<ul style="list-style-type: none"> • Differentiate the static and dynamic characteristics of SCR • Analyze operating principles of different converters • Choose the appropriate converter for various applications • Select the proper controller/converter for variable speed applications
			A50218	Electrical Machines – III	<ul style="list-style-type: none"> • To make different armature windings for synchronous machines • To control the both active and reactive powers generated by a synchronous generator • To operate single phase machines • To synchronize an alternator with supply lines.
			A50289	Electrical Machines –II Laboratory	<ul style="list-style-type: none"> • To perform the brake tests on three phase and single phase induction motors to obtain the performance curves • To convert the phase from 3 to 2 vice-versa using Scott connection • To test the transformers and induction motors • To start the induction motors by different

					methods and to synchronize the given alternator across the supply lines
			A50086	Advanced Communication skill lab	<ul style="list-style-type: none"> • summarize and synthesize information and produce technical writing that is required in academics as well as in the engineering profession • write Covering Letters, Resume, SOP, Project Proposals and Technical Reports • speak fluently and address a large group of audience and participate in debates and discussions • negotiate terms, manage complex situations through interpersonal skills, persuade people and make quick decisions

III	II	R13	A60223	Electrical and Electronics Instrumentation	<ul style="list-style-type: none"> • To apply the knowledge about the instruments to use them more effectively • Suggest the kind of instrument suitable for typical measurements • To apply the knowledge about transducers to use them effectively. • To apply the knowledge about instrument transformers to use them more effectively in distribution systems.
			A60225	Static Drives	<ul style="list-style-type: none"> • Identify the drawbacks of speed control of motor by conventional methods. • Differentiate Phase controlled and chopper controlled DC drives speedtorque characteristics merits and demerits • Understand Ac motor drive speed–torque characteristics using different control strategies its merits and demerits • Describe Slip power recovery schemes
			A60222	Computer Methods in Power systems	<ul style="list-style-type: none"> • Solve Load flow problems • Apply symmetrical components for symmetrical and unsymmetrical fault analysis Analyze the different load flow methods • Analyze the swing equation and stability • Analyze different types of stability.

			A60430	Microprocessors and Interfacing Devices	<ul style="list-style-type: none"> • Demonstrate the ability to design a system, component or a process as per needs and specifications • Select the proper architecture for the implementation of digital designs • Write various assembly language programs for a given task using 8086, 8051 and ARM processors. • Design and implement microprocessor and microcontroller based systems.
			A60009	Environmental Studies	<ul style="list-style-type: none"> • Acquire the knowledge on environment • Acquire the knowledge of various Natural Resources • Develop skills in understanding of various environmental problems • Develop skills to protect the Environment
			A60117	Disaster Management	<ul style="list-style-type: none"> • Acquire the knowledge disaster Management • Understand the vulnerability of ecosystem and infrastructure due to a disaster • Acquire the knowledge of Disaster Management Phases • Understand the hazard and vulnerability profile of India
			A60017	Intellectual Property Rights	<ul style="list-style-type: none"> • Define and identify various terms related to IPRs, obtain, use and protect the various IPRs in a business environment to form an appropriate IP strategy for the relevant market • To analyze the situation of IPR in the Indian context with that of global scenario and understand the patenting process through various case studies. • Identify and explain the tasks and significance of an IP manager and demonstrate competence in critical reasoning, problem solving and decision making • Demonstrate a deep understanding of the language of IP law and how to make the best use of legal professionals involved in IPRs • Demonstrate a critical understanding of the issues involved in and choose appropriate methods for extracting value from an organizations IPR (licensing, joint venture, borrowing, raising capital etc.)..

			A60018	Human Values and Professional Ethics	<ul style="list-style-type: none"> • Students learn the moral issues and problems in engineering ; find the solution to those problems . • Students learn the need for professional ethics, codes of ethics and roles, concept of safety, risk assessment. • Students gain exposure to Environment Ethics & computer ethics; know their responsibilities and rights
			A60290	Control Systems and Simulation Laboratory	<ul style="list-style-type: none"> • Solve electrical engineering problems using MATLAB Programming and SIMULINK Models • Design various controllers and compensators to improve system performance and test them in the laboratory • To choose various devices (Magnetic amplifiers, Servo motors and stepper motors etc.) for different applications in Electrical Systems • To design the state space model of DC motor.
			A60291	Power Electronics and Simulation Laboratory	<ul style="list-style-type: none"> • To analyze operating principles of different converters • To choose the appropriate converter for various applications • Use power electronics simulation packages for analyzing and designing power converters • To simulate different converters using PSPICE software.

IV	I	R13	A70231	SWITCH GEAR AND PROTECTION	<ul style="list-style-type: none"> • Students are knowledgeable in the field of power system protection and circuit breakers. • Students are knowledgeable in the field of relays • Students will demonstrate and ability to design the relevant protection systems for the main elements of power systems • Students are knowledgeable in the field of over voltage protection and the basics of data transmission.
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			A70232	UTILIZATION OF ELECTRICAL ENERGY	<ul style="list-style-type: none"> • Know types of electric drives, choice of motor, starting and running characteristics, speed control, temperature rise, particular applications of electric drives, types of industrial loads. • Describe advantages and methods of electric heating and Electric welding • Describe existing electric traction systems in India, special features of traction motor and various operating techniques, Speed-time curves for different services and various calculations regarding traction systems. • Applications of electric drives in traction systems.
			A70421	DIGITAL SIGNAL PROCESSING	<ul style="list-style-type: none"> • Analyze and process signals in the discrete domain • Design filters to suit specific requirements for specific applications • Perform statistical analysis and inferences on various types of signals • Design and control the electrical drive using different 24xx processors.
			A70230	POWER SYSTEM OPERATION AND CONTROL	<ul style="list-style-type: none"> • Analyze the optimal scheduling of power plants • Analyze the steady state behavior of the power system for voltage and frequency fluctuations • Describe reactive power control of a power system • Should be able to design suitable controller to dampen the frequency and voltage steady state oscillations.
			A70228	HIGH VOLTAGE ENGINEERING	<ul style="list-style-type: none"> • Know how conduction and breakdown will occur in gases, liquids and solids dielectrics and different applications of these insulating materials in electrical power apparatus. • Know the insulation testing of various components in power systems for different types of voltages, namely power frequency A.C, high frequency, switching or lightning impulses, for which generation of high voltages in laboratories is essential. • Appreciate the necessity to measure the voltages and currents accurately, ensuring perfect safety to the personnel and equipment.

					<ul style="list-style-type: none"> Analyze the necessary condition for all the electrical equipment which are capable of withstanding the over voltages which met in service like natural causes lightning or system originated ones switching or power frequency transient voltages.
			A70432	VLSI Design	<ul style="list-style-type: none"> Understand and design embedded systems and real-time systems Define the unique design problems and challenges of real-time systems Identify the unique characteristics of real-time operating systems and evaluate the need for real-time operating system Explain the general structure of a real-time system, to Understand and use RTOS to build an embedded real-time system Gain knowledge and skills necessary to design and develop embedded applications based on real-time operating systems.
			A70435	Digital Control systems	<ul style="list-style-type: none"> To expose the students to the concepts of Digital control systems. To provide adequate knowledge of discrete systems in state variable analysis. To teach about the concept of stability analysis and design of discrete time systems. To provide comprehensive knowledge of optimal control.
			A70229	Optimization Techniques	<ul style="list-style-type: none"> Formulate mathematical statement of optimization problem Understand various methods of optimization techniques Understand the concept of genetic algorithm

			A70226	ELECTRICAL DISTRIBUTION SYSTEMS	<ul style="list-style-type: none"> • Analyze the electrical distribution system for voltage drop and power loss calculations in lines. • Analyze optimal conductor selection for distribution systems. • Describe Distribution Automation objectives and SCADA • Analyze the effect of series capacitor for voltage control.
			A70227	Electrical Estimation and Costing	<ul style="list-style-type: none"> • To understand the necessity of conservation of Energy. • To Know the methods of Energy management . • To identify the factors to increase the efficiency of electrical equipment. • To know the benefits of carrying out energy Audits.
			A70498	MICROPROCESSORS AND INTERFACING DEVICES LAB	<ul style="list-style-type: none"> • Develop the basic skills on hardware and software/programming of microprocessor • Enhance assembly language programming skills for simple and complex calculations used in various engineering disciplines. • Capable to innovative and design intelligent systems, called embedded systems, using microprocessor for special purpose. • Involve in verification of functionality, speed and power of microprocessor based system
			A70293	ELECTRICAL MEASUREMENTS LAB	<ul style="list-style-type: none"> • get the ability to choose instruments • can test any instrument • can find the accuracy of any instrument by performing experiment • can calibrate PMMC instrument using D.C potentiometer

IV	II	R13	A80237	Fundamentals of HVDC and FACTS Devices	<ul style="list-style-type: none"> • Compare EHV AC and HVDC system and to describe various types of DC links • Analyze Graetz circuit and also explain 6 and 12 pulse converters • Describe various methods for the control of HVDC systems and to perform power flow analysis in AC/DC systems • Describe various protection methods for HVDC systems and classify Harmonics and design different types of filters
			A80238	Neural Networks and Fuzzy Logic	<ul style="list-style-type: none"> • The concepts of feed forward neural networks and learning and understanding of feedback neural networks. • Concept of fuzziness involved in various systems and fuzzy set theory. • Comprehensive knowledge of fuzzy logic control and adaptive fuzzy logic. • Adequate knowledge of application of fuzzy logic control to real time systems.
			A80324	Renewable Energy Sources	<ul style="list-style-type: none"> • To use different renewable energy sources to produce electrical power • To minimize the use of conventional energy sources to produce electrical energy • To identify the fact that the conventional energy resources are depleted • To store energy and to avoid the environmental pollution
			A80244	Principles of Reliability Engineering	<ul style="list-style-type: none"> • Define Reliability and unreliability and describe Rules for combining probabilities of events • Define Hazard rate function and derive the expressions for different reliability functions • Explain Discrete Markov chains and Continuous Markov process • Apply Reliability concepts for Generation, composite and Distribution systems
			A80234	Advanced Control Systems	<ul style="list-style-type: none"> • To expose the students to the concepts of Digital control systems. • To provide adequate knowledge of discrete systems in state variable analysis. • To teach about the concept of stability analysis and design of discrete time

				<p>systems.</p> <ul style="list-style-type: none"> • To provide comprehensive knowledge of optimal control.
			A80235	<p>EHVAC Transmission</p> <ul style="list-style-type: none"> • Choose proper controller for the specific application based on system requirements • Understand various systems thoroughly and their requirements • Understand the control circuits of Shunt Controllers SVC & STATCOM for various functions viz. Transient stability Enhancement, voltage instability prevention and power oscillation damping • Understand the Power and control circuits of Series Controllers GCSC, TSSC and TCSC
			A80909	<p>Nano Technology</p> <ul style="list-style-type: none"> • Appreciate the importance of nano dimensional materials and their applications. • Realize and explain that the properties of nano materials are size dependent and vary from corresponding bulk materials • Demonstrate the skills required to prepare some of the nano materials in the laboratory • Appreciate the applications of nano electronic devices and understand their basic principles.
			A80087	<p>Industry Oriented Mini Project</p> <ol style="list-style-type: none"> 1. To explore the scientific theories, ideas, methodologies and the new cutting edge technologies in renewable energy engineering, and use this erudition in their professional development and gain sufficient competence to solve the current and future energy problems universally. 2. To be able to utilize of technologies like PLC, PMC, process controllers, transducers and HMI and design, install, test , maintain power systems and industrial applications.

			A80089	Technical Seminar	<ol style="list-style-type: none"> 1. will have an ability to apply knowledge of mathematics and science in EEE systems. 2. will have an ability to provide solutions for EEE problems by designing and conducting experiments, interpreting and analysing data, and reporting the results.
			A80088	Project Work	<ol style="list-style-type: none"> 1. Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. 2. Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. 3. Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. 4. will have a good knowledge in microprocessors/microcontrollers, data structures, computer programming and simulation software. 5. will be able to develop mathematical modelling, analysis and design of control systems and associated instrumentation for EEE.
			A80090	Comprehensive Viva Voce	<ol style="list-style-type: none"> 1. will have comprehensive understanding of the entire range of electronic devices, analog and digital circuits with added state-of art knowledge on advanced electronic systems. 2. will have knowledge and exposure on different power electronic circuits and drives for industrial applications. 3. will have in-depth knowledge in transmission and distribution systems, power system analysis and protection systems to pursue a career in the power sector.