

EEE (SEMESTER-I & SEMESTER-II)

Course	Outcome
AS-101 Engg. Mathematics – I	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to develop proficiency in the application of the laws of logic to mathematical statements. 2. Able to encounter rigorous mathematical thinking in the pre-requisite linear algebra, expand and sharpen those skills in the required courses in analysis
AS-102/ AS 102P Engg. Physics – I/ Physics Lab – I	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to provide us the scientific ground for the research regarding the growth of information and technology for the use of human beings. 2. Able to understand the principles of natural and live sciences.
CS-101 Computer Concept & Programming	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to introduce the key components of a computer system (hardware, software, data). 2. Able to understand computer working and the capacity of computers. 3. Able to present the basic concepts of various computing environments 4. Able to give a broad view of how technology is improving communications through the use of electronic mail and the Internet. 5. Able to discuss the various kinds of storage media and recording formats and methods commonly associated with a computer
EE-101/ EE-101P Electrical Engineering/ Electrical Engineering Lab	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to get the basic knowledge about the Electric and Magnetic circuits. 2. Able to understand the AC fundamentals. 3. Able to understand the working of various Electrical Machines. 4. Able to get the knowledge about various measuring instruments and house wiring.
AS-103/ AS 103 P	<p>Students will be:</p>

<p>Engineering Chemistry/ Engineering Chemistry Lab</p>	<ol style="list-style-type: none"> 1. Able to understand statistical tools for analyzing process data and designing experiments aimed at improving process operation and product quality. 2. Able to generate a solid foundation in basic scientific and engineering principles, while allowing specialization in applied chemistry, environmental and biomedical engineering.
<p>AS 104 Introduction to Bio- Science</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to improve written communication skills, including scientific writing. 2. Able to enhance teamwork skills, including the ability to work with diverse project groups. 3. Able to modify critical appraisal skills, including the ability to read and interpret scientific literature. 4. Able to improve knowledge of science as a process rather than facts. 5. Able to improve knowledge of biological organization. 6. Able to enhance analytical skills, including skills in quantitative data analysis.
<p>AS-105 Professional Communication</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to survey and synthesize theoretical concepts and principles about major issues in technical and professional communication. 2. Able to select and apply theoretical concepts and principles to the interpretation of technical and professional communication phenomenon. 3. Able to evaluate relevant means of informing inquiry in technical and professional communication. 4. Able to select, clearly design and conduct research, using proper methods and methodology, making sound recommendations and drawing logical conclusions.

<p>AS-201</p> <p>Engg. Mathematics – II</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to apply the laws of mathematical statements, relevant to engineering problems. 2. Able to develop mathematical thinking in the conduct of different experiments and presentation of results precisely.
<p>AS-202/ AS-202P</p> <p>Physics – II/ Physics Lab – II</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to provide us the scientific ground for the research regarding the growth of information and technology for the use of human beings. 2. Able to understand the principles of natural and live sciences.
<p>ME-201/ ME-201P</p> <p>Engineering Mechanics/ Mechanics Lab</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to define and describe the basic concepts in mechanics, components of Newton’s Laws. 2. Able to appreciate any system of units and its working. 3. Able to perform the basic vector calculations.
<p>EC-201/ EC 201P</p> <p>Electronics Engineering/ Electronics Engineering Lab</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to get the exposure of electronics engineering which allows training students with good scientific and engineering breadth so as to comprehend, analyze, design, and create novel products and solutions for the real life problems. 2. Able to apply this knowledge under supervision to solve engineering problem with core field. 3. Able to get the knowledge of foundation course for further study.
<p>ME-202/ ME-202P</p> <p>Manufacturing Practices/ Manufacturing Practices Lab</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to understand modern manufacturing operations, including their capabilities, limitations, and how to design economically. 2. Able to gain insight into how designers influence manufacturing schedule and cost, and cost of different components. 3. Able to learn how to analyze products and be able to improve their manufacturability and make the cost effectively.
<p>CE-201</p>	<p>Students will be:</p>

Environment & Ecology	<ol style="list-style-type: none"> 1. Able to collect broad knowledge of ecology and the environment 2. Able to emphasis on the Indian natural environment and major issues facing the world 3. Able to get overview of changing dynamics of environment globally 4. Able to understand different environmental laws and protection of these laws. 5. Able to utilize general engineering and daily life.
CE-202 Computer Aided Engg. Graphics Lab	Students will be: <ol style="list-style-type: none"> 1. Able to acquire a background in descriptive geometry, orthographic & isometric projection, engineering drawing techniques, and computer-aided engineering graphics. 2. Able to understand point line and plane relationships in projection; multi-view engineering drawings; auxiliary and section views; basic dimensioning; engineering applications.

EEE (SEMESTER-III)

EME-309 Thermal & Hydraulic Machines	Students will be: <ol style="list-style-type: none"> 1. Able to analyze the constructive aspects, the operation principles and the performance of fluid-flow machines, turbo-machinery and volumetric machinery, with the evaluation of performance and off-design operations of both the single fluid-flow machine and the energy system in which it is inserted. 2. Able to gain information about steam and gas power plants, combined-cycle power plants, hydraulic machinery, hydraulic power transmissions and internal combustion engines.
EOE-033 Laser Systems and Applications	Students will be: <ol style="list-style-type: none"> 1. Able to describe quantitatively the characteristics of light from pulsed and c.w lasers. 2. Able to explain quantitatively how such characteristics are produced, measured and controlled by laser engineering. 3. Able to demonstrate an appreciation of the current state of the art in laser physics and applications.

	<p>4. Able to synthesize a variety of relevant theoretical elements in order to solve practical problems in laser system design.</p>
<p>EHU-301</p> <p>Industrial Psychology</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to perform a thorough and systematic competency model (job analysis), develop and validate a job specific selection design, design, develop, and evaluate a job specific training program ;define a performance appraisal process and form; identify research methods for conducting experiments; explain organizational recruitment, selection, and retainment; 2. Able to evaluate the work performance of employees; describe the motivating factors of employees, identify teamwork problems and issues; compare and contrast models of motivation and leadership. 3. Able to understand organizational issues including: teams, attitudes, and occupational health and define work-life balance and its impact on organizations and employees.
<p>EEE-301</p> <p>Basic system analysis</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to understand standard test signals and its effect on a particular system. 2. Able to understand the Transient & Steady State Performance of a system. 3. Able to improve concepts regarding continuous system and discrete system should be clear. 4. Able to understand Time response of a Physical System. 5. Able to acquire knowledge of Laplace Transform will be enhanced.
<p>EEE-302/ EEE-352</p> <p>Electrical measurement & measuring instruments/ Measurement Lab</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to aware of various types of measurements, requirement of calibrations, instruments used errors in measurement etc. 2. Able to perform accurate measurements and measuring instrument for any engineering system.

<p>EEC-309/ EEC-359</p> <p>Analog & Digital Electronics/ Electronics Lab</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to use basic circuit building blocks to create more advanced circuits within the scope and to the extent of the information presented. 2. Ability to demonstrate an understanding of operational amplifiers and their internal devices, including BJT and CMOS transistors, DC biasing techniques and small signal modelling. 3. Ability to determine the stability of feedback amplifiers and their steady state performance. 4. Able to analyze and design basic electronic circuits, particularly with application to diodes, MOS field-effect transistors, bipolar junction transistors, operational amplifiers.
<p>EEE-351</p> <p>Numerical Technique Lab</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to use Matlab for interactive computations. 2. Familiar with memory and file management in Matlab. 3. Able to generate plots and export this for use in reports and presentations. 4. Able to program scripts and functions using the Matlab development environment. 5. Able to use basic flow controls (if-else, for, while). 6. Familiar with strings and matrices and their use.

EEE (SEMESTER-IV)

<p>EHU-402</p> <p>Industrial Sociology</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to apply historical events and cultural changes to the industrialization process, apply changes in industrial production to cultural changes. 2. Able to analyze production styles for efficiency and quality of work life, evaluate the national position in the global economy and synthesize the condition of the working and middle classes in our nation with the results of globalization.
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<p>EAS-401</p> <p>Mathematics III</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to develop mathematical thinking in the conduct of different experiments and presentation of results precisely. 2. Able to enhance those mathematical skills required for further studies in, the technological sciences.
<p>EEE-401/ EEE-451</p> <p>Electromechanical Energy Conversion – I/ EMEC-I Lab</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to analyze the performance of the DC machines and transformers. 2. Able to calculate the losses, efficiency and parameters of the machines. Verify the theoretical results with analytical solution. 3. Able to generate concepts regarding basics of Electrical Engineering such as Active power, Reactive Power, Power Factor will be enhanced.
<p>EEE-402/ EEE-452</p> <p>Network Analysis & Synthesis/ Networks Lab</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to apply the nodal and mesh methods of circuit analysis. 2. Able to express complex circuits in their simpler Thévenin and Norton equivalent forms. 3. Able to apply linearity and superposition concepts to analyze RL, RC, and RLC circuits in time and frequency domains. 4. Able to analyze resonant circuits both in time and frequency domains. 5. Able to construct and make time and frequency domain measurements on elementary RL, RC, and RLC circuits.
<p>EEE-403</p> <p>Electrical & Electronics Engg. Materials</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to procure, inspect and test electrical and electronic engineering materials. 2. Able to acquire the knowledge of various types of materials. 3. Able to decide for an alternative when a particular material is either not readily available in the market or its cost becomes prohibitive.
<p>EEE-404/ EEE-454</p>	<p>Students will be:</p>

<p>Microprocessors/ Microprocessor Lab</p>	<ol style="list-style-type: none"> 1. Able to understand assembly-language instructions. 2. The internals of a pipelined microprocessor, cache memories, and parallel execution. 3. To explain the parts of a computer and the workings of each part buses and memories. <ol style="list-style-type: none"> 1. To explain the internals of the microprocessor, especially for pipelined processors. 2. To explain how the operation of one or several processors can be shared, among several programs or among parts of one program.
<p>EEE-453 Electrical Simulation Lab</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to convey the analytical and practical details of a range of modeling techniques. 2. Able to provide an understanding of finite difference approximation and numerical integration, in the context of state-space representations of linear systems. 3. Able to familiarize with the modeling of dynamical systems, including the choice of model, choice of model order, parameter estimation and goodness of fit. 4. Able to give practical experience with simulating physical systems and modeling typical experimental data, for example second-order circuits, non-linear circuits, electrical machines and power systems, control systems, biomedical systems, and introductory network simulation.

EEE (SEMESTER-V)

<p>EHU-501 Engineering & Managerial Economics</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to explain succinctly the meaning and definition of managerial economics; elucidate on the characteristics and scope of managerial economics. 2. Able to describe the techniques of managerial economics. 3. Able to explain the applications of managerial economics in
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	various aspects.
EEC-508 Fundamentals of E.M. Theory	Students will be: <ol style="list-style-type: none"> 1. Able to apply vector calculus to understand the behavior of static electric fields in standard configurations. 2. Able to apply vector calculus to understand the behavior of static magnetic fields in standard configurations. 3. Able to describe and analyze electromagnetic wave propagation in free-space. 4. Able to work in a small team using cooperative learning rules. 5. Able to communicate electromagnetic concepts both orally and in writing.
EEE-501/ EEE-551 Electromechanical Energy Conversion-II/ EMEC-II Lab	Students will be: <ol style="list-style-type: none"> 1. Able to analyze the performance of the AC machines. 2. Able to design and calculate the losses, efficiency and parameters of the machines. 3. Able to verify the theoretical results with analytical solution. 4. Able to generate the concepts regarding basics of Electrical Engineering such as Active power, Reactive Power, Power Factor will be enhanced.
EEE-502/ EEE-552 Control System/ Control System Lab	Students will be: <ol style="list-style-type: none"> 1. Able to analyze the words Transient & Steady State Performance of a system. 2. Able to understand the stability of an Electrical, Electronics and other physical systems. 3. Able to develop their concepts regarding basics of Inductor and Capacitor will be enhanced, as the response of R-L circuit, R-L-C circuit is a part of this subject. 4. Able to design the control system which is required in the process.
EEE-503 Elements of Power	Students will be: <ol style="list-style-type: none"> 1. Able to analyze the Performance of Transmission Lines, Efficiency in Transmission Lines.

System	<ol style="list-style-type: none"> 2. Able to understand basics of Corona, Sag and other problems arise in Transmission Lines. 3. Able to understand Power Factor improvement, Capacitor bank installation in distribution system, metering system in Industries and Residential area. 4. Able to produce concepts regarding basics of Electrical Engineering such as Active power, Reactive Power, KW, KVAR, KVA, Power Factor will be enhanced.
EEC-509/ EEC-559 Analog Integrated Electronics/ Analog IC Lab	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to understand the basic physics of carrier transport in bulk semiconductors and real device structures. 2. Able to understand the fundamentals of operation of the main semiconductor electronic devices. 3. Able to understand the basic parameters of electronic devices, their performance, and limiting factors. 4. Able to understand the basic principles of electronic device operation with emphasis on bipolar transistors, and unipolar microwave devices.

EEE (SEMESTER-VI)

EHU-601 Industrial Management	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to perform the Management Functions; compare selected Theories of Management; perform the functions in the Marketing Mix; and assess ethical issues in Business situations. 2. Able to apply management skills and concepts to specific situations; plan and implement a project; analyze and develop a human relations strategy. 3. Able to communicate effectively, and apply the basic concepts of an Industrial Economy and adapt technical expertise to a given process or product.
EEC-028 Wireless	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to Formulate and interpret the presentation and processing of signals in communication systems.

Communication	<ol style="list-style-type: none"> 2. Able to understand the basic concepts of AM, FM, and PM transmission and reception. 3. Able to assess and evaluate different modulation and demodulation techniques. 4. Able to evaluate the influence of noise on communications signals.
<p>EEE-012</p> <p>Special Electrical Machine</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to understand construction, principle of operation and performance of synchronous reluctance motors. 2. Able to understand construction, principle of operation, control and performance of stepping motors. 3. Able to understand construction, principle of operation, control and performance of switched reluctance motors. 4. Able to understand construction, principle of operation, control and performance of permanent magnet brushless D.C. motors. 5. Able to understand construction, principle of operation and performance of permanent magnet synchronous motors.
<p>EEE-601</p> <p>Power System Analysis</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to understand per unit system. 2. Able to understand Positive Sequence, Negative & zero sequence system and fault analysis. 3. Able to design Power System. 4. Able to understand that in real world, How to control the Power system. How much power should be allowed in Transmission lines, so that system should not be out of synchronism? In real world, How the Reactive Power and voltage can be controlled?
<p>EEE-602/ EEE-651</p> <p>Power Electronics/ Power Electronics Lab</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to understand various Power Electronics devices such as SCR, TRIAC, DIAC, IGBT, GTO etc. 2. Able to understand application of aforesaid Power Electronics devices in Choppers, Inverters and Converters etc. 3. Able to understand control of Electrical Motors through DC-DC converters, AC Converters etc.

	4. Able to understand the use of Inductors and Capacitors in Choppers, Inverters and Converters.
EEC-609/ EEC-659 Analog & Digital Communication/ Analog & Digital Communication Lab	Students will be: 1. To compute the bandwidth and transmission power by analyzing time and frequency domain spectra of signal required under various modulation schemes. 2. Able to apply suitable modulation schemes and coding for various applications. 1. Able to identify and describe different techniques in modern digital communications, in particular in source coding, modulation and detection, carrier modulation, and channel coding. 2. Able to analyze digital modulation techniques by using signal processing tools.
EEE-652 Seminar	Students will be: 1. Able to prepare and deliver a seminar to improve the confidence level. 2. Able to come across various researches going in Electrical Engineering. 3. Able to improve the knowledge of internet, power point presentation.

EEE (SEMESTER-VII)

EEE-033 Electric Drives	Students will be: 1. Able to describe the structure of Electric Drive systems and their role in various applications such as flexible production systems, energy conservation, renewable energy, transportation etc., making Electric Drives an enabling technology. 2. Able to understand basic requirements placed by mechanical
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	<p>systems on electric drives.</p> <ol style="list-style-type: none"> 3. Able to review phasors and three-phase electric circuits. 4. Able to understand the basic principles of power electronics in drives using switch-mode converters and pulse width modulation to synthesize the voltages in dc and ac motor drives. 5. Able to understand the basic concepts of magnetic circuits as applied to electric machines. 6. Able to understand the two basic principles (generation of force and EMF) that govern electromechanical energy conversion. 7. Able to describe the operation of dc motor drives to satisfy four-quadrant operation to meet mechanical load requirements. 8. Able to design torque, speed and position controller of motor drives. 9. Able to learn the use of space vectors presented on a physical basis to describe the operation of an ac machine. 10. Able to understand the basic principles of Permanent Magnet AC (Self-Synchronous AC) drives. 11. Able to describe the operation of induction machines in steady state that allows them to be controlled in induction-motor drives. 12. Able to learn speed control of induction motor drives in an energy efficient manner using power electronics. <ol style="list-style-type: none"> 1. Able to learn the basic operation of stepper motors and switched-reluctance motor drives. 2. Able to learn about the energy efficiency of electric drives and inverter-motor interactions.
<p>EEN-701/ EEN-751</p> <p>Electrical Instrumentation & Process control/ Electrical Instrumentation Lab</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to provide the big picture for persons needing to understand or troubleshoot the full control loop (including the sensor, controller, and the process). 2. Able to setup, calibrate, configure, and tune various real-world instrumentation and control loops on our pressure, temperature, and level training stations. 3. Able to understand the operation of the entire control loop, and

	<p>understanding how the control loop is affected by the instrumentation and control components, and by the process.</p>
<p>EEEC-046</p> <p>Telemetry & Data Transmission</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to describe communication protocols and layered network architectures. 2. Able to explain conventional computer system interfacing standards and peer to peer data link communication protocols. 3. Able to design basic network systems. 4. Able to identify various components in a data communication system. 5. Able to describe how the physical, data link, and network layers operate in a typical data communication system. 6. Able to understand the system design principles of data communication systems. 7. Able to understand, define, and explain data communications networks concepts and applications to non-technical personnel.
<p>EEE-701/ EEE-751</p> <p>Switch Gear & Protection/ Power System Lab</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to understand the principle of protective schemes and various faults in the Power System Scenario. 2. Able to examine protection of power system with various protection relays. 3. Able to study the various types of the circuit breakers, the arc quenching phenomena and the protection against over voltages.
<p>EEN-753</p> <p>Project</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to acquire System integration skills, Documentation skills, Project management skills, Problem solving skills. 2. Able to identify problems and solutions and also solve real-life problems. 3. Able to develop professionalism. 4. Able to develop oral as well as written presentation skills.
EEN-754	<p>Students will be:</p>

Industrial Training	<ol style="list-style-type: none"> 1. Able to adapt readily to real life working environment and practice the right work attitude. 2. Able to apply knowledge learnt, gain new skills and be aware of current technologies. 3. Able to understand industrial problems and suggest possible solutions.
EOE-071 Entrepreneurship Development	Students will be: <ol style="list-style-type: none"> 1. Able to exhibit entrepreneurial behavior for business success. 2. Able to perceive and act on business opportunities. 3. Able to set challenging and attainable business goals. 4. Able to start and run new businesses and improve on existing ones. 5. Able to source and use information for market development. 6. Able to develop business plans for application to banks. 7. Able to apply reasonable standards of excellence in their performance. 8. Able to build up confidence to make effective presentations. 9. Able to improve interpersonal competence.

EEE (Semester –VIII)

EOE-081 Non conventional energy resources	Students will be: <ol style="list-style-type: none"> 1. Able to understand the need for hybrid energy system. 2. Able to build hybrid energy systems for a given application.
EEE-054 Energy Efficiency and Conversion	Students will be: <ol style="list-style-type: none"> 1. Able to understand energy conservation techniques in Transmission lines, Motors and generators etc. 2. Able to understand power distribution management, Reactive Power Control and Power factor improvement are the part of

	<p>this subject, so that concepts of students regarding Electrical Machines and Transmission Lines will further enhanced.</p>
<p>EEC-069</p> <p>Satellite Communication</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to understand the new trends in mobile/wireless communications networks. 2. Able to understand the characteristics of mobile/wireless communication channels. 3. Able to apply statistical models of multipath fading. 4. Able to apply analytical and empirical models in the design of wireless links. 5. Able to understand the multiple radio access techniques. Understand the multiple division and modulation techniques. 6. Able to understand the need of coding, diversity, interleaving and link techniques for mobile/wireless communications networks. 7. Able to understand the multiuser detection techniques. 8. Able to understand the information and coding theory for wireless/mobile networks.
<p>EEC-809</p> <p>Data communication network</p>	<p>Students will be:</p> <ol style="list-style-type: none"> 1. Able to describe communication protocols and layered network architectures. 2. Able to explain conventional computer system interfacing standards and peer to peer data link communication protocols. 3. Able to design basic network systems. 4. Able to identify various components in a data communication system. 5. Able to describe how the physical, data link, and network layers operate in a typical data communication system. 6. Able to understand the system design principles of data

	<p>communication systems.</p> <p>7. Able to understand, define, and explain data communications networks concepts and applications to non-technical personnel.</p>
<p>EEN-801</p> <p>Project</p>	<p>Students will be:</p> <ol style="list-style-type: none">1. Able to make comprehensive use of the technical knowledge gained from previous courses.2. Able to function as a mock laboratory technician in the electronics industry who is expected to design, build, and test electronic circuitry.3. Able to apply project management skills (scheduling work, procuring parts, and documenting expenditures and working within the confines of a deadline).4. Able to develop and demonstrate troubleshooting ability in electronic technology.5. Able to communicate technical information by means of written and oral reports