

COURSE OUTCOMES

Course	Course Outcomes
Engg. Mathematics – I (AS-101 / EAS-103)	<ol style="list-style-type: none"> 1. Students should be proficient in the application of the laws of logic to mathematical statements. 2. Students encounter this rigorous mathematical thinking in the pre-requisite linear algebra course, and expand and sharpen those skills in the required courses in analysis.
Engg. Physics – I (AS-102 / EAS-101)	The study of Physics provides us the scientific ground for the research regarding the growth of information and technology for the use of human beings, thereby it will be possible to understand the principles of natural and live sciences.
Engineering Mechanics ME-101 / EME-102	<p>The student will demonstrate ability to</p> <ol style="list-style-type: none"> 1. The students should be able to define and describe the basic concepts in mechanics, components of Newton's Laws. 2. To appreciate any system of units and its working. 3. To perform the basic vector calculations. 4. This is to be treated as foundation course for further study.
Computer Concept & Programming CS-101 / ECS-101	<ol style="list-style-type: none"> 1. Introduce the key components of a computer system. 2. Acquaint readers with how computers work understanding the capacity of computers. 3. Present the basic concepts of various computing environments. 4. Give a broad view of how technology is improving communications through the use of electronic mail and the Internet.
Professional Communication AS-105 / EAS-104	<ol style="list-style-type: none"> 1. Survey and synthesize theoretical concepts and principles about major issues in technical and professional communication. 2. Select and apply theoretical concepts and principles to the interpretation of technical and professional communication phenomenon. 3. Evaluate relevant means of informing inquiry in technical and professional communication. 4. Select, clearly design and conduct research, using proper methods and methodology, making sound recommendations and drawing logical conclusions.
Environment & Ecology CE-101 / EAS-105	<ol style="list-style-type: none"> 1. Broad knowledge of ecology and the environment. 2. Special emphasis on the Indian natural environment and major issues facing the world. 3. Overview of changing dynamics of environment globally. 4. Different environmental laws and protection of these laws.
Remedial English Language -- / EAS-109	<ol style="list-style-type: none"> 1. Aimed at providing complementary and supplementary language learning support to learners with poor and low language competence.

	<ol style="list-style-type: none"> The program is focused at helping these learners bridge the language gap vital to their success. Should be able to communicate effectively.
Professional Communication Lab AS-105 / EAS-154	<ol style="list-style-type: none"> To improve upon the phonetical pronunciation and actual feeling of the subject. To prepare them to face the challenges of corporate world. To improve upon their language skills, oral communication skills, group discussion, global world culture, personal development and confidence level.
Computer Programming Lab CS-101/ ECS-151	<ol style="list-style-type: none"> To learn operational skills and applications for specific purpose. To learn software program for basic application.
Computer Aided Engg. Graphics CE-102 / ECE-151	<ol style="list-style-type: none"> Provides the undergraduate engineering student with a background in descriptive geometry, orthographic & isometric projection, engineering drawing techniques, and computer-aided engineering graphics. Point line and plane relationships in projection; multi-view engineering drawings; auxiliary and section views; basic dimensioning; engineering applications.
Mechanics Lab ME-101 / EME-152	Verification of principles of machines through model studies.
Physics – II AS-202 EAS-201	Exhibit strong skills in problem solving, leadership, teamwork, and understanding of fundamentals of nature.
Engg. Chemistry AS-203 / EAS-202	<ol style="list-style-type: none"> To provide students with relevant experience using laboratory experiments and expertise using statistical tools for analyzing process data and designing experiments aimed at improving process operation and product quality. To provide students with a solid foundation in basic scientific and engineering principles, while allowing specialization in applied chemistry, environment.
Engg. Mathematics – II AS-201 / EAS-203	<ol style="list-style-type: none"> Application of the laws of mathematical statements, relevant to engineering problems. Students develop mathematical thinking in the conduct of different experiments and presentation of results precisely.
Electrical Engg. EE-201 / EEE-201	Application of different laws of motion in the running of different type of machinery power requirement and safety against electrical hazards, computer based system, control systems.
Electronics Engg. EC-201 / EEC-201	<ol style="list-style-type: none"> Exposure to electronics engg. allows to train students with good scientific and engineering breadth so as to comprehend, analyze, design, and create novel products and solutions for the real life problems. Should be in position to apply this knowledge under supervision to solve engineering problem with core field.
Manufacturing Process ME-202 / EME-201	<ol style="list-style-type: none"> Understand modern manufacturing operations, including their capabilities, limitations, and how to

	<p>design economically.</p> <ol style="list-style-type: none"> Gain insight into how designers influence manufacturing schedule and cost, and cost of different components. Learn how to analyze products and be able to improve their manufacturability and make the cost effectively.
Physics Lab AS-202 / EAS-251	<ol style="list-style-type: none"> To enable the students to compare the theoretical principles with real life solutions. To learn the real life science application.
Engg. Chemistry Lab AS-203 / EAS-252	This allows to have direct exposure to field situations and changes in chemical environment.
Electrical Engg Lab EE-201 / EEE-251	The monitor characteristics of motors/ machines running at different speeds and role of other control devices.
Workshop Practice -- / EWS-251	<ol style="list-style-type: none"> To acquire skills in basic engineering practice. To identify the hand tools and instruments. To acquire measuring skills. To acquire practical skills in the trades
Strength of Material EME-302	<ol style="list-style-type: none"> To determine the stresses, strains, and displacements in structures and their components due to the loads acting on them. Study the fundamental issues of elasto-mechanics, i. e. the mechanics of solids, and deformable bodies. Learn about the stress. distributions inside simple structural elements such as bars, beams, shafts under their specific external load, axial load, bending and shear force as well as torsion.
Fluid Mechanics ECE-301	<ol style="list-style-type: none"> Define the nature of a fluid. Show where fluid mechanics concepts are common with those of solid mechanics and indicate some fundamental areas of difference. Introduce viscosity effects on flow and characteristics of Newtonian and non-Newtonian fluids. Define the appropriate physical properties and show how these allow differentiation between solids and fluids as well as between liquids and gases.
Building Material & Cons. ECE-302	<ol style="list-style-type: none"> To promote development, production, standardisation and large-scale application of cost- effective innovative building materials and construction technologies in housing and building sector. To promote new waste-based building materials and components through technical support and encouraging entrepreneurs to set up production units in urban and rural regions. To develop and promote methodologies and technologies for natural disaster mitigation & management and retrofitting.

	<ol style="list-style-type: none"> To provide S & T services to professionals, construction agencies and entrepreneurs in selection, evaluation, design engineering.
<p>Surveying ECE-303</p>	<ol style="list-style-type: none"> To learn principal of working from whole to part. To learn to decide the position of any point, its reference relative to least two permanent objects or stations whose position have already been well defined. To localize the errors. To control the accumulation of errors.
<p>Laser System & Application EOE-033</p>	To introduce the student to pulsed lasers, nonlinear optics, laser design, specific laser systems, the general properties of laser light and applications.
<p>Industrial Sociology EHU-302</p>	<ol style="list-style-type: none"> To safeguard the interest of labor and management by securing the highest level of mutual understanding and goodwill among all those sections in the industry which participate in the process of production. To avoid industrial conflict or strife and develop harmonious relations, which are an essential factor in the productivity of workers and the industrial progress of a country.
<p>Fluid Mechanics Lab ECE-351</p>	To know the behaviour of water current in rivers, canal and drains etc.
<p>Building Material Lab ECE-352</p>	<ol style="list-style-type: none"> To learn about the properties, e.g. strength, texture, availability of materials and their selection. Selection of new building materials. Property assessment and use in design.
<p>Surveying Lab ECE-353</p>	<ol style="list-style-type: none"> This allows the application of theoretical considerations in field and other engineering projects. Actual geographical location. Alignment and nodal information. Drainage of water and water structures.
<p>Building Planning & Drawing ECE-354</p>	In engineering it is important to present the ideas, actual planning and construction details, to prepare easily understandable and aesthetic designs.
<p>Structural Analysis – 1 ECE-401</p>	<ol style="list-style-type: none"> To calculate loads for structural analysis. To identify determinate, indeterminate, stable and unstable structures. To determine forces and deflections in determinate trusses, beams and frames. To determine forces in indeterminate trusses, beams and frames by the force method.
<p>Geoinformatics ECE-402</p>	<ol style="list-style-type: none"> To maximize the efficiency of decision making and planning, based on geographical information and aerial photography.

	<ol style="list-style-type: none"> 2. Provide efficient means for data distribution and handling, eradication of the duplicated data, integration of information from many sources.
Hydraulics & Hydraulic Machines ECE-403	<ol style="list-style-type: none"> 1. The basic aim of hydraulics is to understand, and control for the benefit of society, the occurrence, movement and use of water, whether it is in lakes, rivers, pipes, drains, percolating through soils or pounding the coastline as destructive waves. 2. To modify the behaviour of water calls inevitably for a large investment of time, resources and effort. Thus hydraulic engineering has only appeared once a society is centralized under an organized government.
Engineering Geology ECE-404	<ol style="list-style-type: none"> 1. Serves as a descriptive tool to convey design intent information to construction engineering staff and the contractor. 2. The selection of the most effective approach, or approaches, usually depends on site geology and the amount of available geologic and geotechnical data developed by the site investigation.
Mathematics – III EAS-401	<ol style="list-style-type: none"> 1. Students should be proficient in the application of the laws of logic to mathematical statements e.g. Integral transformations, use of complex variables. 2. Students should be competent enough to analyze the data based on statistics and probability, this also enables students to make use of data through curve fitting and differential equations.
Industrial Psychology EHU-401	<ol style="list-style-type: none"> 1. To improve the harmony with the co-workers. 2. To strengthen morale and enthusiasm at work. 3. To restore the mental health of upset and confused individuals. 4. To remove risks to healths or threats to safety. 5. To increase efficiency of people at work.
Structural Analysis Lab ECE-451	Validity of theoretical formulations and experimental verification.
Geoinformatics Lab ECE-452	Use of total station and its applications in traversing the fields/aerial photographs and stereoscopic analysis.
Hydraulic & Machine Lab ECE-453	Determinations of different data and verification of theorem pertaining to flow of water through different setups.
Computer Based Statistical and Numerical techniques Lab ECE-454	Programming in 'C' language and computer programming, and data handling.
Geotechnical Engg. ECE-501	<ol style="list-style-type: none"> 1. To develop analytical skills in dealing with soil as a medium of water flow, a medium for structural support and a primary building material. 2. Provide the description and classification of soil and analysis of stresses in soils under different loading conditions. 3. It provides the technical specifications for compaction, flow of water, uplift pressure determination.

	4. It also provides the necessary data for design of retaining walls. Design of shallow foundations.
Transportation Engg. – 1 ECE-502	<ol style="list-style-type: none"> 1. To introduce students to transportation engineering principles for streets and highways with emphasis on the safe and efficient operation of roadways. 2. Obtain an understanding of the basic elements of the transportation delivery system 3. Learn both quantitative and computerized techniques for planning, designing, and operating transportation systems.
Environmental Engg. – 1 ECE-503	<ol style="list-style-type: none"> 1. Broad knowledge of ecology and the environment. 2. Special emphasis on the Indian natural environment and major issues facing the world. 3. Overview of changing dynamics of environment globally. 4. Different environmental laws and protection of these laws.
Structural Analysis – 2 ECE-504	<ol style="list-style-type: none"> 1. To calculate loads for structural analysis. 2. To identify determinate, indeterminate, stable and unstable structures. 3. To determine forces and deflections in determinate trusses, beams and frames. 4. To determine forces in indeterminate trusses, beams and frames by the force method.
Design of Concrete Structure – 1 ECE-505	<ol style="list-style-type: none"> 1. To learn the fundamentals of design, analysis, and proportioning of reinforced concrete members and structures. 2. To accomplish this objective, the following topics will be covered: behavior of beams, one-way slabs, and columns. 3. Methods for analysis and design of these elements under flexure, shear, and axial loads will be examined.
Engineering & Managerial Economics EHU-501	<ol style="list-style-type: none"> 1. It bridges economic theory and economics in practice. 2. It draws heavily from quantitative techniques such as regression analysis and correlation, Lagrangian calculus (linear). 3. To optimize business decisions given the firm's objectives and given constraints imposed by scarcity.
Geotechnical Engg. Lab ECE-551	It provides ability to determine different soil properties and classification of soil.
Transportation Lab ECE-552	To learn to determine different indices e.g. penetration value, softening point, classification of Bituman, aggregate.
Cad Lab – 1 ECE-553	Allows the use of software for the preparation of drawings for different engineering works and their design.
Estimation Lab ECE-554	Quantity estimation, determination of cost estimate, flow diagram and bar chart for the control of construction.
Concrete Structures – 2	<ol style="list-style-type: none"> 1. To learn the fundamentals of design, analysis, and proportioning of reinforced concrete members

ECE-601	<p>and structures.</p> <ol style="list-style-type: none"> To accomplish this objective, the following topics will be covered: behavior of beams, one-way slabs, and columns. Methods for analysis and design of these elements under flexure, shear, and axial loads will be examined.
Environmental Engg – 2 ECE-602	<ol style="list-style-type: none"> Broad knowledge of ecology and the environment Special emphasis on the Indian natural environment and major issues facing the world. Overview of changing dynamics of environment globally. Different environmental laws and protection of these laws.
Transportation Engg – 2 ECE-603	<ol style="list-style-type: none"> To introduce students to transportation engineering principles for streets and highways with emphasis on the safe and efficient operation of roadways. Obtain an understanding of the basic elements of the transportation delivery system Learn both quantitative and computerized techniques for planning, designing, and operating transportation systems.
Advanced Foundation Design ECE-011	<ol style="list-style-type: none"> This module will build on the knowledge and understanding of soil behaviour, pertaining to different types of foundations. It will introduce you to detailed design issues related to both deep and shallow foundations. Develop the understanding of the role of modern soil mechanics and numerical modeling. Helps in the design of machine foundations, and deep and shallow foundations.
Advanced Concrete Design ECE-021	<ol style="list-style-type: none"> To introduce engineering students to the advanced methods used for concrete structural design. Understand the concepts of upper bound and lower bound theories of plasticity Identify underlying plastic concepts in modern concrete design methods. Design and analyse prestressed concrete slabs.
Industrial Management EHU-601	<ol style="list-style-type: none"> Obtain the skills to adapt to the changing needs of the society and provide solutions to better society. Be able to apply their well-balanced knowledge in the theory and practice within the areas of technology. Perform in an ethical society, and thus, provide effective, responsible, and articulate leadership in our complex society. Understand the need for obtaining new knowledge, including technological advances, and be able to continue to learn and be capable of self-renewal.
Structural Detailing Lab ECE-651	Design of different component of various structures and representation in different drawings for carrying out

	construction activity.
Environmental Engg Lab ECE-652	This provides opportunity to students to determine different parameters of waste water and sewage disposal.
Cad Lab – 2 ECE-653	This enables the students to learn the use of software pertaining to civil engg. design and construction.
Survey Camp ECE-654	A field activity which provide real application of theoretical principles of surveying, and use of different devices and preparation of map.
Design of Steel Structure ECE-701	<ol style="list-style-type: none"> 1. Analyse indeterminate frames and trusses using approximate methods of analysis 2. Define and contrast the material properties of steel 3. Determine the ultimate tensile capacity of steel members considering both yielding and tensile fracture 4. Determine the ultimate bending moment capacity of steel members considering both yielding and lateral buckling.
Enterpenurship Development EOE-071	<ol style="list-style-type: none"> 1. To identify and train potential entrepreneurs. 2. To motivate the entrepreneurial instinct. 3. To develop necessary knowledge and skills among the participants. 4. To help in analysing the various options to select the most appropriate product suitable to the entrepreneur and the market.
Seminar ECE-751	This helps and grooms students to prepare a report based on review of literature.
Industrial Training ECE-752	This provides the experience of activities associated with field construction and appreciation of field constraints and field practices.
Project ECE-753	This provides essence of learning and planning of different activities associated with civil engg. projects for its successful completion.
Construction Technology & Management ECE-801	<ol style="list-style-type: none"> 1. Increase relevance of undergraduate program to the construction work. 2. Diversify the undergraduate programs in the areas related to construction management Engineering. 3. Introduce a full-fledged undergraduate program in management
Analysis & Design of Hydraulic Structures ECE-052	<ol style="list-style-type: none"> 1. The basic aim of hydraulics is to understand, and control for the benefit of society, the occurrence, movement and use of water, whether it is in lakes, rivers, pipes, drains, percolating through soils or pounding the coastline as destructive waves. 2. To modify the behaviour of water calls inevitably for a large investment of time, resources and effort. Thus hydraulic engineering has only appeared once a society is centralized under an organized

	government.
Earthquake Resistant Design ECE-064	<ol style="list-style-type: none"> 1. To assists analysing the interaction between civil infrastructure and the ground, including the consequences of earthquakes on structures. 2. The proper design and construction of buildings in accordance with building codes, so as to minimize damage due to earthquakes. 3. Ensures proper design of buildings so they will resist damage due to earthquakes, but at the same time not be unnecessarily expensive.
Non-conventional Energy Resources EOE-081	<ol style="list-style-type: none"> 1. To develop an integrated Non-conventional Energy plan to efficiently utilize the non-conventional energy resources. 2. To identify potential renewable energy generation sources and application to service. 3. Utilization of renewable energies and incorporating energy efficiency in the system reduce energy demand. 4. Adopt energy conservation measures for reduced demand of energy.
Project ECE-851	This in general consists of preparing of design of a complete structure and associated components and preparing detailed quantity, estimating and costing.