

Course Name: MATHEMATICS-1

Course Code: MA101BS

Course Outcomes	
1	Write the matrix representation of a set of linear equations and to analyse the solution of the system of equations
2	Reduce the quadratic form to canonical form using orthogonal transformations.
3	Find the extreme values of functions of two variables with/ without constraints.
4	Solve the applications on the mean value theorems.
5	Evaluate the improper integrals using Beta and Gamma functions

Course Name: Engineering Physics

Course Code: PH102BS

Course Outcomes	
1	The knowledge of Physics relevant to engineering is critical for converting ideas into Technology.
2	An understanding of Physics also helps engineers understand the working and limitations of existing devices and techniques, which eventually leads to new innovations and improvements.
3	In the present course, the students can gain knowledge on the mechanism of physical bodies upon the action of forces on them, the generation, transmission and the detection of the waves, Optical Phenomena like Interference, diffraction, the principles of lasers and Fibre Optics.
4	Various chapters establish a strong foundation on the different kinds of characters of several materials and pave a way for them to use in at various technical and engineering applications.
5	To study various crystal imperfections and probing methods like X-RD.

Course Name: Programming For Problem Solving

Course Code: CS103ES

Course Outcomes	
1	To write algorithms and to draw flowcharts for solving problems.
2	To convert the algorithms/flowcharts to C programs.
3	To code and test a given logic in C programming language.
4	To decompose a problem into functions and to develop modular reusable code.
5	To use arrays, pointers, strings and structures to write C programs.

Course Name: Engineering Graphics

Course Code: ME104ES

Course Outcomes	
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1	Preparing working drawings to communicate the ideas and information.
2	Read, understand and interpret engineering drawings.
3	To provide basic concepts in engineering drawing.
4	To impart knowledge about standard principles of orthographic projection of objects.
5	To draw sectional views and pictorial views of solids.

Course Name: Engineering Physics Lab

Course Code: PH105BS

Course Outcomes	
1	Analyze the electric properties of semiconductor materials by determining energy gap of semiconductors, threshold voltage of LEDs and efficiency issues of solar cell with careful experimental and draw conclusions from such data
2	Evaluate the mechanical properties of a given material using dynamic method in torsional pendulum and analyze how stationary waves are produced to determine A.C frequency using Melde's experiment
3	Estimate the optical properties of light such as interference and polarization by using Newton's rings, calculation of the wavelength of Laser using diffraction phenomenon and to determine acceptance angle, NA of optical fiber
4	Analyze the electromagnetic properties in a current carrying conductor using Stewart Gee's experiment
5	Various chapters establish a strong foundation on the different kinds of characters of several materials and pave a way for them to use in at various technical and engineering applications.

Course Name: Programming For Problem Solving Lab

Course Code: CS106ES

Course Outcomes	
1	Formulate the algorithms for simple problems
2	Translate given algorithms to a working and correct program
3	Correct syntax errors as reported by the compilers
4	Identify and correct logical errors encountered during execution
5	Represent and manipulate data with arrays, strings and structures

Course Name: Environmental Science

Course Code: MC109ES

Course Outcomes

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
2	Understanding the importance of ecological balance for sustainable development.
3	Understanding the impacts of developmental activities and mitigation measures.
4	Understanding the environmental policies and regulations
5	Concept of Sustainable Development Goals, Population and its explosion

Course Name: Mathematics - II

Course Code: MA201BS

Course Outcomes	
1	Identify whether the given differential equation of first order is exact or not
2	Solve higher differential equation and apply the concept of differential equation to real world problems
3	Evaluate the multiple integrals and apply the concept to find areas, volumes, centre of mass and Gravity for cubes, sphere and rectangular parallel piped
4	Evaluate the line, surface and volume integrals and converting them from one to another
5	The basic properties of vector valued functions and their applications to line, surface and volume integrals

Course Name: CHEMISTRY

Course Code: CH102BS

Course Outcomes	
1	The knowledge of atomic, molecular and electronic changes, band theory related to conductivity.
2	The required principles and concepts of electrochemistry, corrosion and in understanding the problem of water and its treatments.
3	The required skills to get clear concepts on basic spectroscopy and application to medical and other fields.
4	The knowledge of configurational and conformational analysis of molecules and reaction mechanisms.
5	Knowledge of stereochemistry and synthetic aspects useful for understanding reaction pathways

Course Name: Engineering Mechanics

Course Code: ME203ES

Course Outcomes	
1	Determine resultant of forces acting on a body and analyse equilibrium of a body subjected to a system of forces.
2	Solve problem of bodies subjected to friction.
3	Find the location of centroid and calculate moment of inertia of a given section.
4	Understand the kinetics and kinematics of a body undergoing rectilinear, curvilinear, rotator motion and rigid body motion.
5	Solve problems using work energy equations for translation, fixed axis rotation and plane motion and solve problems of vibration.

Course Name: Engineering Workshop

Course Code: ME105ES

Course Outcomes	
1	Study and practice on machine tools and their operations
2	Practice on manufacturing of components using workshop trades including plumbing, fitting, 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.
5	Identify and use marking out tools, hand tools, measuring equipment and to work to prescribed tolerances.

Course Name: ENGLISH

Course Code: EN105HS

Course Outcomes	
1	Use English Language effectively in spoken and written forms.
2	Comprehend the given texts and respond appropriately.
3	Communicate confidently in various contexts and different cultures.
4	Acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.
5	Develop study skills and communication skills in formal and informal situations.

Course Name: Engineering Chemistry Lab

Course Code: CH106BS

Course Outcomes	
1	Determination of parameters like hardness and chloride content in water.
2	Estimation of rate constant of a reaction from concentration – time relationships.
3	Determination of physical properties like adsorption and viscosity.
4	Calculation of R _f values of some organic molecules by TLC technique.
5	Estimation of hardness and chloride content in water to check its suitability for drinking purpose.

Course Name: English Language & Communication Skills Lab

Course Code: EN107HS

Course Outcomes	
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
4	To enable students develop their listening skills so that they may appreciate its role in the LSRW skills approach to language and improve their pronunciation
5	To equip students with necessary training in listening so that they can comprehend the speech of people of different backgrounds and regions

Course Name: Surveying And Geomatics

Course Code: CE301PC

Course Outcomes	
1	Apply the knowledge to calculate angles, distances and levels
2	Identify data collection methods and prepare field notes
3	Understand the working principles of survey instruments, measurement errors and corrective measures
4	Interpret survey data and compute areas and volumes, levels by different type of equipment and relate the knowledge to the modern equipment and methodologies
5	Identification of source of errors and rectification methods

Course Name: Engineering Geology

Course Code: CE302PC

Course Outcomes	
1	Site characterization and how to collect, analyze, and report geologic data using standards in engineering practice
2	The fundamentals of the engineering properties of Earth materials and fluids.
3	Rock mass characterization and the mechanics of planar rock slides and topples
4	To give the basics knowledge of Geology that is required for constructing various Civil Engineering Structures, basic Geology, Geological Hazardous and Environmental Geology
5	To focus on the core activities of engineering geologists – site characterization and geologic hazard identification and mitigation. Planning and construction of major Civil Engineering projects

Course Name: Strength of Materials – I

Course Code: CE303PC

Course Outcomes	
1	Describe the concepts and principles, understand the theory of elasticity including strain/displacement and Hooke's law relationships; and perform calculations, related to the strength of structured and mechanical components.
2	Recognize various types loads applied on structural components of simple framing geometries and understand the nature of internal stresses that will develop within the components.
3	To evaluate the strains and deformation that will result due to the elastic stresses developed within the materials for simple types of loading
4	Analyze various situations involving structural members subjected to plane stresses by application of Mohr's circle of stress
5	Frame an idea to design a system, component, or process

Course Name: Probability And Statistics

Course Code: MA304BS

Course Outcomes	
1	Formulate and solve problems involving random variables and apply statistical methods for analyzing experimental data.
2	The ideas of probability and random variables
3	The basic ideas of statistics including measures of central tendency, correlation and regression.
4	The statistical methods of studying data samples.
5	The various discrete and continuous probability distributions and their properties.

Course Name: Fluid Mechanics

Course Code: CE305PC

Course Outcomes	
1	Understand the broad principles of fluid statics, kinematics and dynamics
2	Understand definitions of the basic terms used in fluid mechanics and characteristics of fluids and its flow
3	Understand classifications of fluid flow
4	Be able to apply the continuity, momentum and energy principles
5	To understand the functioning and characteristic curves of pumps

Course Name: SURVEYING LAB

Course Code: CE306PC

Course Outcomes	
1	Apply the principle of surveying for civil Engineering Applications
2	Calculation of areas, Drawing plans and contour maps using different measuring equipment at field level
3	Write a technical laboratory report
4	To impart the practical knowledge in the field- measuring distances, directions, angles,
5	To determining R.L.'s areas and volumes

Course Name: Strength Of Materials Lab

Course Code: CE307PC

Course Outcomes	
1	Configure & Operate a data acquisition system using various testing machines of solid materials
2	Compute and Analyze engineering values (e.g. stress or strain) from laboratory

	measurements.
3	Write a technical laboratory report
4	Introduce experimental procedures and common measurement instruments, equipment, devices.
5	Exposure to a variety of established material testing procedures and techniques

Course Name: ENGINEERING GEOLOGY LAB

Course Code: CE308PC

Course Outcomes	
1	Understands the method and ways of investigations required for Civil Engg projects
2	Identify the various rocks, minerals depending on geological classifications
3	Will able to learn to couple geologic expertise with the engineering properties of rock and unconsolidated materials in the characterization of geologic sites for civil work projects and the quantification of processes such as rock slides and settlement.
4	Write a technical laboratory report
5	Understands the method and ways of investigations required for Civil Engg projects

Course Name: Constitution of India

Course Code: MC309

Course Outcomes	
1	Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics
2	Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India
3	Discuss the circumstances surrounding the foundation of the congress socialist party (CSP) under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
4	Discuss the passage of the Hindu Code of 1956
5	Scheme of the Fundamental Right to Equality

Course Name: Basic Electrical & Electronics Engineering

Course Code: EE401ES

Course Outcomes	
1	To analyze and solve electrical circuits using network laws and theorems.
2	To understand and analyze basic Electric and Magnetic circuits
3	To study the working principles of Electrical Machines
4	To introduce components of Low Voltage Electrical Installations
5	To identify and characterize diodes and various types of transistors.

Course Name: Basic Mechanical Engineering For Civil Engineers

Course Code: CE402ES

Course Outcomes	
1	To understand the mechanical equipment for the usage at civil engineering systems,
2	To familiarize with the general principles and requirement for refrigeration, manufacturing,
3	To realize the techniques employed to construct civil engineering systems.
4	To understand the Sources of Energy and Power Generation
5	To familiarize Power transmission elements, material handling equipment.

Course Name: Building Materials, Construction And Planning

Course Code: CE403PC

Course Outcomes	
1	Define the Basic terminology that is used in the industry
2	Categorize different building materials, properties and their uses
3	Understand the Prevention of damage measures and good workmanship
4	Explain different building services
5	Understand the Highlight the smart building materials

Course Name: STRENGTH OF MATERIALS – II

Course Code: CE404PC

Course Outcomes	
1	Describe the concepts and principles, understand the theory of elasticity, and perform

	calculations, relative to the strength of structures and mechanical components in particular to torsion and direct compression;
2	To evaluate the strains and deformation that will result due to the elastic stresses developed within the materials for simple types of loading
3	Analyze strength and stability of structural members subjected to Direct, and Direct and Bending stresses;
4	Understand and evaluate the shear center and unsymmetrical bending.
5	Frame an idea to design a system, component, or process

Course Name: Hydraulics And Hydraulic Machinery

Course Code: CE405PC

Course Outcomes	
1	Apply their knowledge of fluid mechanics in addressing problems in open channels and hydraulic machinery.
2	Understand and solve problems in uniform, gradually and rapidly varied flows in open channel in steady state conditions.
3	Apply dimensional analysis and to differentiate the model, prototype and similitude conditions for practical problems.
4	Get the knowledge on different hydraulic machinery devices and its principles that will be utilized in hydropower development and for other practical usages
5	To Study the characteristics of hydroelectric power plant and its components.

Course Name: STRUCTURAL ANALYSIS – I

Course Code: CE406PC

Course Outcomes	
1	An ability to apply knowledge of mathematics, science, and engineering
2	Analyse the statically indeterminate bars and continuous beams
3	Draw strength behaviour of members for static and dynamic loading.
4	Calculate the stiffness parameters in beams and pin jointed trusses.
5	Understand the indeterminacy aspects to consider for a total structural system.

Course Name: Computer Aided Civil Engineering Drawing

Course Code: CE407PC

Course Outcomes

1	Use the Autocad commands for drawing 2D & 3D building drawings required for different civil engg applications.
2	Plan and draw Civil Engineering Buildings as per aspect and orientation.
3	Presenting drawings as per user requirements and preparation of technical report
4	Detailing of building components like doors, windows roof trusses
5	Develop section and elevation for single and multi-storeyed buildings using CAD software.

Course Name: Basic Electrical & Electronics Engineering Lab

Course Code: EE409ES

Course Outcomes	
1	To analyze and solve electrical circuits using network laws and theorems.
2	To understand and analyze basic Electric and Magnetic circuits
3	To study the working principles of Electrical Machines
4	To introduce components of Low Voltage Electrical Installations
5	To identify and characterize diodes and various types of transistors.

Course Name: Hydraulics & Hydraulic Machinery Lab

Course Code: CE409PC

Course Outcomes	
1	Describe the basic measurement techniques of fluid mechanics and its appropriate application.
2	Interpret the results obtained in the laboratory for various experiments.
3	Discover the practical working of Hydraulic machines- different types of Turbines, Pumps, and other miscellaneous hydraulics machines.
4	Compare the results of analytical models introduced in lecture to the actual behavior of real fluid flows and draw correct and sustainable conclusions.
5	Write a technical laboratory report

Course Name: GENDER SENSITIZATION LAB

Course Code: MC409

Course Outcomes	
1	Students will have developed a better understanding of important issues related to gender in contemporary India.
2	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.
3	Students will attain a finer grasp of how gender discrimination works in our society and how to counter it.
4	Students will acquire insight into the gendered division of labour and its relation to politics and economics.
5	Men and women students and professionals will be better equipped to work and live together as equals.

Course Name: STRUCTURAL ANALYSIS – II

Course Code: CE501PC

Course Outcomes	
1	Analyze the two hinged arches.
2	Solve statically indeterminate beams and portal frames using classical methods
3	Sketch the shear force and bending moment diagrams for indeterminate structures.
4	Formulate the stiffness matrix and analyze the beams by matrix methods
5	To understand analysis of indeterminate structures and adopt an appropriate structural analysis technique

Course Name: GEOTECHNICAL ENGINEERING

Course Code: CE505PC

Course Outcomes	
1	Characterize and classify the soils
2	Able to estimate seepage, stresses under various loading conditions and compaction characteristics
3	Able to analyse the compressibility of the soils
4	Able to understand the strength of soils under various drainage conditions
5	Identify, formulate, and solve engineering problems with real time loading

Course Name: STRUCTURAL ENGINEERING – I (RCC)

Course Code: CE503PC

Course Outcomes	
1	Compare and Design the singly reinforced, doubly reinforced and flanged sections.
2	Design the axially loaded, uniaxial and biaxial bending columns.
3	Classify the footings and Design the isolated square, rectangular and circular footings
4	Distinguish and Design the one-way and two-way slabs.
5	Evaluate the behaviour of RC member under flexure, shear and compression, torsion and bond.

Course Name: TRANSPORTATION ENGINEERING

Course Code: CE504PC

Course Outcomes	
1	An ability to apply the knowledge of mathematics, science and engineering in the areas of traffic engineering, highway development and maintenance
2	An ability to design, conduct experiments to assess the suitability of the highway materials like soil, bitumen, aggregates and a variety of bituminous mixtures. Also the students will develop the ability to interpret the results and assess the suitability of these materials for construction of highways.
3	An ability to design flexible and rigid highway pavements for varying traffic compositions as well as soil subgrade and environmental conditions using the standards stipulated by Indian Roads Congress.
4	An ability to evaluate the structural and functional conditions of in-service highway

	pavements and provide solution in the form of routine maintenance measures or designed overlays using Indian Roads congress guidelines.
5	An ability to assess the issues related to road traffic and provide engineering solutions supported with an understanding of road user psychological and behavioral patterns.

Course Name: CONCRETE TECHNOLOGY

Course Code: CE511PE

Course Outcomes	
1	Determine the properties of concrete ingredients i.e. cement, sand, coarse aggregate by conducting different tests. Recognize the effects of the rheology and early age properties of concrete on its long-term behavior.
2	Apply the use of various chemical admixtures and mineral additives to design cement-based materials with tailor-made properties
3	Use advanced laboratory techniques to characterize cement-based materials.
4	Perform mix design and engineering properties of special concretes such as high-performance concrete, self-compacting concrete, and fibre reinforced concrete.
5	Understand Design economic concrete mix proportion for different exposure conditions and intended purposes.

Course Name: THEORY OF ELASTICITY

Course Code: CE512PE

Course Outcomes	
1	The more fundamental elasticity model of deformation should replace elementary strength of material analysis.
2	Able to understand theory, formulate and to present solutions to a wide class of problems in 2D and 3D
3	Acquire the foundation for advanced study in areas of solid mechanics
4	Understand and evaluate the shear center and unsymmetrical bending
5	Frame an idea to design a system, component, or process

Course Name: ROCK MECHANICS

Course Code: CE513PE

Course Outcomes	
1	Able to determine the required rock properties and classify rock mass
2	Determination of bearing capacity of rocks,
3	Checking the stability of slopes, and design underground and open excavation.
4	The students will be able to predict strength of rock mass with respect to various Civil Engineering applications
5	To study the various of methods to determine the properties of rocks.

Course Name: Engineering Economics And Accountancy

Course Code: SM505MS

Course Outcomes	
1	To perform and evaluate present and future worth of the alternate projects and to appraise projects by using traditional and DCF Methods.
2	To carry out cost benefit analysis of projects and to calculate BEP of different alternative projects.
3	Identify the best source of mobilising capital, select most profitable investment opportunity, carry out & evaluate benefit/cost, life cycle and Break-even analysis on one or more economic alternatives
4	Select suitable form of business organization which meets the requirements of business
5	Analyze overall position of the business enterprise, therefore, take appropriate measures to improve the situation

Course Name: Highway Engineering & Concrete Technology Lab

Course Code: CE506PC

Course Outcomes	
1	Categorize the test on materials used Civil Engineering Building & Pavement constructions
2	To perform the tests on concrete for its characterization.
3	To Design Concrete Mix Proportioning by Using Indian Standard Method.
4	Examine the tests performed for Bitumen mixes.
5	To prepare a laboratory report

Course Name: Geotechnical Engineering Lab

Course Code: CE507PC

Course Outcomes	
1	Evaluate different properties of soil.
2	Evaluate different field methods in lab.
3	Analyze the water-soil interaction and properties associated with it
4	Analyze the porosity of soil and its impact on soil properties
5	Analyze the behaviour of soil subjected to direct and shear stresses.

Course Name: Advance Communication Skills Lab

Course Code: EN508HS

Course Outcomes	
1	The nuances of English language through audio- visual experience and group

	activities
2	The Neutralization of mother tongue impact through his/her hand-on experience
3	The usage of LSRW skills with clarity and confidence which in turn enhances their employability skills
4	To impart consistent accent and intelligibility in students' pronunciation of English by providing an opportunity for practice in speaking.
5	To facilitate the fluency in spoken English among student community and to neutralize their mother -tongue impact.

Course Name: Intellectual Property Rights

Course Code: MC509

Course Outcomes	
1	Understand the importance, federal registration and types of intellectual property rights. Awareness of principles and governing the settlement of trade dispute at the world trade organization.
2	Understand and explain about different international organization and their duties.
3	Analyze the functions of international organization and agencies.
4	Identify the purpose in category of marks under which the trademark registration is made internationally.
5	Explain the trademark evaluation and registration process

Course Name: Hydrology & Water Resources Engineering

Course Code: CE601PC

Course Outcomes	
1	Understand the different concepts and terms used in engineering hydrology
2	To identify and explain various formulae used in estimation of surface and Ground water hydrology components
3	Demonstrate their knowledge to connect hydrology to the field requirement
4	To introduce to the students, the concepts of hydrological processes, hydrological extremes and groundwater
5	To prepare the students to quantify, regulate and manage water resources

Course Name: Environmental Engineering

Course Code: CE602PC

Course Outcomes	
1	Assess characteristics of water and wastewater and their impacts
2	Estimate quantities of water and waste water and plan conveyance components
3	Design components of water and waste water treatment plants
4	Be conversant with issues of air pollution and control
5	Explain about Air Pollution.

Course Name: Foundation Engineering

Course Code: CE603PC

Course Outcomes	
1	understand the principles and methods of Geotechnical Exploration
2	decide the suitability of soils and check the stability of slopes
3	calculate lateral earth pressures and check the stability of retaining walls
4	analyse and design the shallow and deep foundations
5	Determine stress distribution in soil and illustrate compaction.

Course Name: Structural Engineering – II (Steel)

Course Code: CE604PC

Course Outcomes	
1	Analyze the tension members, compression members.
2	Design the tension members, compression members and column bases and joints and connections
3	Analyze and Design the beams including built-up sections and beam and connections
4	Identify and Design the various components of welded plate girder including stiffeners
5	Analyze and Design the beams including built-up sections and beam and connections

Course Name: PRESTRESSED CONCRETE

Course Code: CE611PE

Course Outcomes	
1	Acquire the knowledge of evolution of process of prestressing.
2	Acquire the knowledge of various prestressing techniques.
3	Develop skills in analysis design of prestressed structural elements as per the IS codal provisions
4	Get the students exposed to the analysis and design of Prestressed concrete structures
5	Comprehend various methods of failures such as shear and flexure

Course Name: Elements Of Earthquake Engineering

Course Code: CE612PE

Course Outcomes	
1	Explain and derive fundamental equations in structural dynamics
2	Discuss and explain causes and Theories on earthquake, seismic waves, measurement of earthquakes
3	Evaluate base shear using IS methods
4	Design and Detail the reinforcement for earthquake forces
5	understand importance of ductile detailing of RC structures

Course Name: Advanced Structural Analysis

Course Code: CE613PE

Course Outcomes	
1	Analyze the multistory building frames by various approximate methods.
2	Solve the continuous beams, portal frames by matrix methods of analysis.
3	Analyze and design of large frames with or without shear walls
4	Understand classical methods of analysis for statically indeterminate structures.
5	Identify the various actions in arches.

Course Name: Environmental Engineering Lab

Course Code: CE605PC

Course Outcomes	
1	Understand about the equipment used to conduct the test procedures
2	Perform the experiments in the lab
3	Examine and Estimate water, waste water, air and soil Quality
4	Compare the water, air quality standards with prescribed standards set by the local governments
5	Develop a report on the quality aspect of the environment

Course Name: Computer Aided Design Lab

Course Code: CE606PC

Course Outcomes	
1	Model the geometry of real-world structure Represent the physical model of structural element/structure
2	Perform analysis
3	Interpret from the Post processing results
4	Design the structural elements and a system as per IS Codes
5	Use the AutoCAD commands for drawing 2D & 3D building drawings required for different civil engineering applications.

Course Name: Environmental Science

Course Code: MC609

Course Outcomes	
1	understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development
2	Understanding the importance of ecological balance for sustainable development.
3	Understanding the impacts of developmental activities and mitigation measures.
4	Understanding the environmental policies and regulations
5	Evaluate technologies on the basis of ecological principles which in turn helps in sustainable development

Course Name: Estimation, Costing And Project Management

Course Code: CE701PC

Course Outcomes	
1	Understand The Technical Specifications For Various Works To Be Performed For A Project And How They Impact The Cost Of A Structure.
2	Quantify The Worth Of A Structure By Evaluating Quantities Of Constituents, Derive Their Cost Rates And Build Up The Overall Cost Of The Structure.
3	Understand How Competitive Bidding Works And How To Submit A Competitive Bid Proposal.
4	An Idea Of How To Optimize Construction Projects Based On Costs
5	An Idea How Construction Projects Are Administered With Respect To Contract Structures And Issues.

Course Name: Remote Sensing & GIS

Course Code: CE711PE

Course Outcomes	
1	Describe different concepts and terms used in Remote Sensing and its data
2	Understand the Data conversion and Process in different coordinate systems of GIS interface
3	Evaluate the accuracy of Data and implementing a GIS
4	Understand the applicability of RS and GIS for various applications.
5	Understand Implementation of GIS interface for practical usage.

Course Name: Ground Improvement Techniques

Course Code: CE712PE

Course Outcomes	
1	Know the necessity of ground improvement
2	Understand the various ground improvement techniques available
3	Select & design suitable ground improvement technique for existing soil conditions in the field
4	To acquire the knowledge on the various ground improvement techniques available and their applications for different types of soils
5	To understand suitable ground improvement technique for given soil conditions.

Course Name: Advanced Structural Design

Course Code: CE713PE

Course Outcomes	
1	Enhance the capabilities to design the special structural elements as per Indian standard code of practice.
2	Analyze, design, draw and detailing of critical structural components with a level of accuracy
3	classify pre-engineered building components

4	solve one dimensional wave equation and one dimensional heat conduction problems
5	Design considerations for structural health monitoring of bridges.

Course Name: Irrigation And Hydraulic Structures

Course Code: CE721PE

Course Outcomes	
1	Know types of water retaining structures for multiple purposes and its key parameters considered for planning and designing
2	Understand details in any Irrigation System and its requirements
3	Know, Analyze and Design of a irrigation system components
4	To study various types of storage works and, diversion headwork
5	Understand components and design principles for their construction.

Course Name: Pipeline Engineering

Course Code: CE722PE

Course Outcomes	
1	Get an understanding of the key steps in a pipeline's lifecycle: design, construction, installation, asset management and maintenance.
2	Solve Numerical Integration and Differentiation.
3	Determine Ordinary Differential Equations and Partial Differential Equations
4	The determine general solution to Finite element method and Application of Statistical Methods
5	Calculate total derivative, Taylor's and Euler's Methods, Runge -Kutta Methods, Systems of Equations, Adaptive Runge- Kutta Methods, Stiffness of ODEs & Multi step methods

Course Name: Ground Water Hydrology

Course Code: CE723PE

Course Outcomes	
1	Identify different fundamental equations and concepts as applied in the Groundwater studies
2	Discuss and derive differential equation governing groundwater flow in three dimensions
3	To solve groundwater mathematical equations and analyze pumping tests in steady and nonsteady flow cases
4	Distinguish and understand the saline water intrusion problem in costal aquifers
5	Explain the water requirement for irrigation and connectivity of hydrology to the field requirement.

Course Name: Professional Practice, Law & Ethics

Course Code: SM702MS

Course Outcomes	
1	Understand the importance of professional practice, Law and Ethics in their personal lives and professional careers.
2	The students will learn the rights and responsibilities as an employee, team member and a global citizen
3	To make the students understand the types of roles they are expected to play in the society as practitioners of the civil engineering profession
4	To develop some ideas of the legal and practical aspects of their profession.
5	Learn the rights and responsibilities as an employee, team member and a global citizen.

Course Name: Solid Waste Management

Course Code: CE811PE

Course Outcomes	
1	Identify the physical and chemical composition of solid wastes
2	Analyze the functional elements for solid waste management.
3	Understand the techniques and methods used in transformation, conservation, and recovery of materials from solid wastes.
4	Identify and design waste disposal systems
5	Understanding the environmental policies and regulations

Course Name: Environmental Impact Assessment

Course Code: CE812PE

Course Outcomes	
1	Identify the environmental attributes to be considered for the EIA study
2	Formulate objectives of the EIA studies
3	Identify the methodology to prepare rapid EIA
4	Prepare EIA reports and environmental management plans
5	List and describe environmental audits



TEEGALA KRISHNA REDDY ENGINEERING COLLEGE

(UGC-Autonomous)

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Department of civil engineering

Course Name: Air Pollution

College Code: R9

Course Code: CE813PE

Course Outcomes	
1	Identify sampling and analysis techniques for air quality assessment
2	Describe the plume behaviour for atmospheric stability conditions
3	Apply plume dispersion modelling and assess the concentrations
4	Design air pollution controlling devices
5	Understanding the environmental policies and regulations

Course Name: Airport, Railways, And Waterways

Course Code: CE821PE

Course Outcomes	
1	An ability to design of run ways and taxiways.
2	An ability to design the infrastructure for large and small airports
3	An ability to design various crossings and signals in Railway Projects.
4	An ability plan the harbours and ports projects including the infrastructure required for new ports and harbours
5	Explain the classes of harbors, features, planning and design of port facilities

Course Name: Urban Transportation Planning

Course Code: CE822PE

Course Outcomes	
1	Apply up-to-date information for planning and operation of urban transport.
2	Execute various transportation related surveys.
3	Evaluate relative importance of various modes and their capacities.
4	Solve travel demand forecasting problems. 5. Recommend most appropriate transport modes based on performance evaluation.
5	Recommend most appropriate transport modes based on performance evaluation.

Course Name: Finite Element Methods For Civil Engineering

Course Code: CE823PE

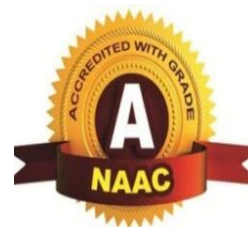
Course Outcomes	
1	Ability to analyze, design and develop Mechanical systems to solve the Engineering problems by integrating thermal, design and manufacturing Domains.
2	Ability to succeed in competitive examinations or to pursue higher studies or research.
3	Ability to apply the learned Mechanical Engineering knowledge for the Development of society and self
4	Identify mathematical model for solution of common engineering problems.



TEEGALA KRISHNA REDDY ENGINEERING COLLEGE

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Department of civil engineering

College Code: R9

5	Understand the background of mathematical equations used for development of modelling software modules to develop the various structural related applications
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