

Course Outcome for B.E. Civil Engineering

Class	Semester	Name of the Subject	CO	Course Outcome
FE	I	Chemistry	811101.1	Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
			811101.2	Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques
			811101.3	Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity.
			811101.4	Rationalise bulk properties & processes using thermodynamic considerations
			811101.5	List major chemical reactions that are used in the synthesis of molecules.
FE	I	Engineering Graphics	811104.1	Introduction to engineering design and its place in society
			811104.2	Exposure to the visual aspects of engineering design
			811104.3	Exposure to engineering graphics standards
			811104.4	Exposure to solid modeling.
FE	I	English	811103.1	To acquire basic proficiency in English including reading and listening
			811103.2	To demonstrate proficiency in the use of written English, including proper spelling, Grammar and punctuation.
			811103.3	To enhance their ability to use spoken words in interpersonal communication, small group interactions and public speaking Comprehension, writing and speaking skills.
			811103.4	Become accomplished technical communicators.
FE	I	Mathematics - I	811102.1	Apply differential and integral calculus. Apart from some other applications they will have a basic understanding of Beta and Gamma functions.
			811102.2	The fallouts of Rolle's Theorem that is fundamental to application of analysis to Engineering problems.
			811102.3	The tool of Fourier series for learning advanced Engineering Mathematics.
			811102.4	To deal with functions of several variables that are essential in most branches of Engineering. The essential tool of matrices and linear algebra in a comprehensive manner.

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FE	I	Chemistry Lab	811106.1	Upon successful completion of lab Course, student will be able to: The chemistry laboratory course will consist of experiments illustrating the principles of chemistry relevant to the study of science and engineering. The students will learn to:
			811106.2	Estimate rate constants of reactions from concentration of reactants/products as a function of time
			811106.3	Measure molecular/system properties such as surface tension, viscosity, conductance of solutions, redox potentials, chloride content of water, etc
			811106.4	Synthesize a small drug molecule and analyse a salt sample .
FE		Engineering Graphics Lab	811108.1	Introduction to engineering design and its place in society
			811108.2	Exposure to the visual aspects of engineering design
			811108.3	Exposure to engineering graphics standards
			811108.4	Exposure to solid modeling.
FE	I	English Lab	811107.1	Students will be sensitized towards recognition of English sound pattern.
			811107.2	The fluency in speech will be enhanced.
FE	I	Workshop Practices	811105.1	Students will be able to fabricate components with their own hands.
			811105.2	Get practical knowledge of the dimensional accuracies and dimensional tolerances possible
			811105.3	with different manufacturing processes.
			811105.4	Assemble different components, they will be able to produce small devices of their interest.
FE	II	Physics	811201.1	To study Bragg's Law and introduced to the principles of lasers, types of lasers and applications
			811201.2	Various terms related to properties of materials such as, permeability, polarization, etc.
			811201.3	Some of the basic laws related to quantum mechanics as well as magnetic and dielectric
			811201.4	properties of materials
			811201.5	Simple quantum mechanics calculations
			811201.6	Nanotechnology and their industrial applications.
FE	II	Mathematics-II	811202.1	Use mathematical tools needed in evaluating multiple integrals and their usage.

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			811202.2	Apply effective mathematical tools for the solutions of differential equations that model physical processes.
			811202.3	Use tools of differentiation and integration of functions of a complex variable that are used in various techniques dealing engineering problems.
FE	II	Basic Electrical & Electronics Engineering	811203.1	Students will be able to demonstrate knowledge of circuit analysis using various basic laws and theorems of electrical circuits
			811203.2	Students will be able to demonstrate and understand definition and relationship of various AC circuits.
			811203.3	Understand working principle of PN junction diode, Zener diode and their applications.
			811203.4	Describe different configuration of Bipolar Junction Transistor.
			811203.5	Describe different configurations of FET
			811203.6	Understand operating principle Power Electronics Devices
			811203.7	Describe use of the Basic gate and Universal gate
FE	II	Programming for Problem Solving	811204.1	To formulate simple algorithms for arithmetic and logical problems
			811204.2	Understand the fundamentals of C programming.
			811204.3	To test and execute the programs and correct syntax and logical errors
			811204.4	Choose the loops and decision making statements to solve the problem.
			811204.5	To decompose a problem into functions and synthesize a complete program using divide and conquer approach
			811204.6	To use arrays, pointers and structures to formulate algorithms and programs
FE	II	Physics Lab	811205.1	To study Bragg's Law and introduced to the principles of lasers, types of lasers and applications
			811205.2	Various terms related to properties of materials such as, permeability, polarization, etc.
			811205.3	Some of the basic laws related to quantum mechanics as well as magnetic and dielectric
			811205.4	properties of materials
			811205.5	Simple quantum mechanics calculations
			811205.6	Nanotechnology and their industrial applications.

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FE	II	Basic Electrical and Electronics Engineering Lab.	811206.1	Identify electrical and electronics components/equipments.
			811206.2	Simplify D.C. network using Superposition Theorem.
			811206.3	Simplify D.C. network using Thevenin's Theorem.
			811206.4	Learn diode V-I Characteristic
			811206.5	Understand BJT as a switch
			811206.6	Understand LED, JFET, SCR V-I characteristics
FE	II	Programming for Problem Solving Lab	811207.1	Understand the fundamentals of C programming.
			811207.2	Choose the loops and decision making statements to solve the problem.
			811207.3	Use functions to solve the given problem.
			811207.4	Implement different Operations on arrays.
			811207.5	Understand strings and structures.
			811207.6	Understand the usage of pointers.
SE	III	BIOLOGY	811301.1	Use current techniques and analysis methods in molecular biology and genetics.
			811301.2	Understand the current concepts in Cell Biology, Stem Cell Biology and Development.
			811301.3	Know the structure/function of the basic components of prokaryotic and eukaryotic cells including macromolecules and organelles.
			811301.4	Demonstrate proficiency with at least one instrument commonly used in biological research (microscope, etc).
			811301.5	Illustrate mechanism involved in rDNA technology and apply the different aspects of Biotechnology.
SE	III	MECHANICS	811302.1	To understand use of scalar and vector analytical techniques for analysis forces in statically determinate structures.
			811302.2	To apply fundamental concepts of kinematics and kinetics of particles to the analysis of simple practical problem and to apply basic knowledge of math and physics to solve real-world problem.
			811302.3	To understand measurement error and propagation of error in processed data.

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			811302.4	To understand Newton's law of motion and basic concept of – force, momentum, work and energy principle, Impulse – Momentum principle and coefficient of restitution.
			811302.5	To Uderstand Truss Analysis and It's Forces For Design Of Members
SE	III	ENERGY SCIENCE AND ENGINEERING	811303.1	To understand the importance of energy resources.
			811303.2	To understand global energy crises and its socio- economic impact.
			811303.3	To evaluate the role of engineers in energy management.
			811303.4	To analyze and apply the concept of energy efficiency in civil engineering projects.
			811303.5	To assess the importance of alternative energy sources in civil engineering perspective and energy efficient buildings
SE	III	SURVEYING AND GEOMATICS	811304.1	Understand the importance and scope of surveying in any engineering project.
			811304.2	To know the principles of surveying.
			811304.3	To know the types of surveying.
			811304.4	To be able to use the traditional and advanced instruments of surveing.
			811304.5	To execute a survey project.
SE	III	INTRODUCTION TO CIVIL ENGINEERING	811305.1	To understand what constitutes Civil Engineering and to identify the various areas available to pursue and specialize within the overall field of Civil Engineering
			811305.2	To Understanding the vast interfaces this field has with the society at large
			811305.3	To do creative and innovative work in civil engineering
			811305.4	Highlighting possibilities for taking up entrepreneurial activities in this field
			811305.5	Providing a foundation for the student to launch off upon an inspired academic pursuit into this branch of engineering
SE	III	MECHANICS LAB	811306.1	To experimentally verify basic principles of mechanics.
			811306.2	To solve problems of mechanics by graphical methods
			811306.3	To get an exposure to simple machine used in civil engineering.

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			811306.4	To determine simple mechanical properties of materials like coefficient of friction.
			811306.5	To be able to assess the efficiency, and velocity ratio of simple machines.
SE	III	SURVEYING AND GEOMATICS LAB	811307.1	Measurement of horizontal and vertical angle ,magnetic bearings, deflection angle by using theodolite.
			811307.2	Traverse computation- consecutive and independent coordinates.
			811307.3	Tachometric surveying- measurement of horizontal and vertical distances,
			811307.4	Tacheomatic contouring
			811307.5	Plane table survey
SE	III	MATERIAL TESTING AND EVALUATION-I LAB	811308.1	Know the relevant IS specifications for soils
			811308.2	Must be able to characterize variety of soils
			811308.3	Know the relevant IS specifications for flexible pavement materials.
			811308.4	Must be able to characterize variety of flexible pavement materials.
			811308.5	Must be able to do mix design
SE	IV	MATHEMATICS-III	811401.1	To solve field problems in engineering involving PDEs using Laplace Transform.
			811401.2	They will be able to formulate problems involving random variables.
			811401.3	They will be able to solve problems involving random variables.
			811401.4	They will be able to apply statistical methods for analysing experimental data.
			811401.5	To solve field problems in engineering involving ODEs using Laplace Transform.
SE	IV	COMPUTER AIDED CIVIL ENGINEERING DRAWING	811402.1	The student will be able to work with a graphic assisting software
			811402.2	student will also be able to develop a building plansoftware for a given set of specifications.
			811402.3	student will be able to develop elevation
			811402.4	Student will be able to develop a side view
			811402.5	student will be able to develop a site view and working drawing using

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SE	IV	INTRODUCTION TO FLUID MECHANICS	811403.1	Understand the broad principles of fluid statics
			811403.2	Understand the broad principles of fluid kinematics
			811403.3	Understand the broad principles of dynamics
			811403.4	Understand definitions of the basic terms used in fluid mechanic
			811403.5	Understand classifications of fluid flow
SE	IV	INTRODUCTION TO SOLID MECHANICS	811404.1	Describe the concepts and principles, understand the theory of elasticity including strain/displacement and Hooke's law relationships; and perform calculations, relative to the strength and stability of structures and mechanical components;
			811404.2	Define the characteristics and calculate the magnitude of combined stresses in individual members and complete structures; analyze solid mechanics problems using classical methods and energy methods;
			811404.3	Analyze various situations involving structural members subjected to combined stresses by application of Mohr's circle of stress; locate the shear center of thin wall beams;and
			811404.4	Calculate the deflection at any point on a beam subjected to a combination of loads
			811404.5	solve for stresses and deflections of beams under unsymmetrical loading; apply various failure criteria for general stress states at points; solve torsion problems in bars and thin walled members;
SE	IV	CIVIL ENGINEERING SOCIETAL AND GLOBAL IMPACT	811405.1	After successful completion of this course the student will be able to know The impact which Civil Engineering projects have on the Society at large and on the global arena and using resources efficiently and effectively.
			811405.2	The extent of Infrastructure, its requirements for energy and how they are met: past, present and future
			811405.3	The Sustainability of the Environment, including its Aesthetics,
			811405.4	The potentials of Civil Engineering for Employment creation and its Contribution to the GDP

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			811405.5	The Built Environment and factors impacting the Quality of Life, The precautions to be taken to ensure that the above-mentioned impacts are not adverse but beneficial, Applying professional and responsible judgment and take a leadership role
SE	IV	COMPUTER AIDED CIVIL ENGINEERING LAB	811406.1	To develop graphical skills for communicating concepts, ideas and designs of engineering products.
			811406.2	To have ability to understand another person's designs.
			811406.3	To get exposure to national standards relating to technical drawings.
			811406.4	To have practice of using Computer Aided Drafting
			811406.5	To be able of using popular software.
SE	IV	INTRODUCTION TO FLUID MECHANICS LAB	811407.1	Understand the basic instrumental techniques used in fluid mechanics.
			811407.2	Understand how to characterize fluids
			811407.3	Be able to determine basic engineering properties of fluids.
			811407.4	To know applications of fluid mechanics
			811407.5	To be able to solve numerical problems in basic fluid mechanics
SE	IV	MATERIAL TESTING AND EVALUATION-II	811408.1	Know the relevant IS specifications for soils
			811408.2	Must be able to characterize variety of soils
			811408.3	Know the relevant IS specifications for flexible pavement materials.
			811408.4	Must be able to characterize variety of flexible pavement materials.
			811408.5	Must be able to do mix design
SE	IV	ENGINEERING GEOLOGY LAB	811409.1	Site characterization and how to collect, analyze, and report geologic data using standards in engineering practice
			811409.2	The fundamentals of the engineering properties of Earth materials and fluids.
			811409.3	Rock mass characterization and the mechanics of planar rock slides and topples.

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			811409.4	Soil characterization and the Unified Soil Classification System.
			811409.5	The mechanics of soils and fluids and their influence on settlement, liquefaction, and soil slope stability.
TE	V	MECHANICS OF MATERIALS	811501.1	To know basic concepts and principles for analysis of indeterminate structures and to understand the principles of strain energy and deflection of structures.
			811501.2	To be able to analyse structures for moving loads; to be able to identify the most critical combination of load train.
			811501.3	To be able to analyze fixed and continuous beams.
			811501.4	To be able to analyze beams and frames using slope deflection method.
			811501.5	To be able to analyze beams, sway and non – sway frames with stiffness and flexibility method.
TE	V	HYDRAULIC ENGINEERING	811502.1	The student must have knowledge of laminar flow analysis.
			811502.2	The student must have knowledge of turbulent flow analysis.
			811502.3	The student must be able to analyze flow through pipes
			811502.4	Student must be able to design a pipe system and design a pipe system.
			811502.5	The student must be able to analyze and design channel flow system.
TE	V	Geotechnical Engineering	811503.1	To introduce the students with subjects of soil mechanics, basic terms, properties and relationship between them and methods of soil investigations.
			811503.2	To appraise the student with soil classification systems.
			811503.3	To appraise students about soil compaction and consolidation of soils and mathematical treatment.
			811503.4	To introduce the students with effective stress and describe shear strength of soil, types of shear tests, principal stresses and relation between them.
			811503.5	To analyze and design different types of foundations
TE	V	PEC I CONCRETE MATERIALS	511541.1	Know the commonly used materials in civil engineering materials and their general engineering properties.
			511541.2	Examine a material as per relevant codes of practice.
			511541.3	Select a suitable material for a specific civil engineering task.

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			511541.4	Design a concrete mix.
			511541.5	Know the advancements going on in material technology and concreting.
TE	V	OEC I PROJECT MANAGEMENT TECHNIQUES	811553.1	A graduate is expected to know the advanced techniques and methods in project management that are required in civil engineering work.
			811553.2	A graduate is able to schedule the time for project using the technique of project management.
			811553.3	A graduate is expected to demonstrate and practice the basics of project management.
			811553.4	A graduate should develop skills to implement and practice the use of project management techniques for civil engineering projects.
			811553.5	The graduates are expected to plan the project by CPM and PERT.
TE	V	Hydraulic Engineering Lab	811506.1	Measure drag and lift forces on airfoil and explain their variation with angle of attack.
			811506.2	Determine friction factor and hence to develop calibration equation for pipe.
			811506.3	Explain uniform flow formulae, specific energy, specific force and hydraulic jump.
			811506.4	Explain ventrifle and its calibration for discharge measurement in open channel.
			811506.5	Measure discharge, head, input and output power for different hydraulic turbines and centrifugal pump
TE	V	Geotechnical Engineering Lab	811507.1	Determine properties of soils.
			811507.2	Carryout soil investigation
			811507.3	To draft soil testing report
			811507.4	Design foundations for different conditions of bearing capacity and other design parameters.
			811507.5	To determine soil bearing capacity
TE	V	Disaster preparedness and planning management Lab	811508.1	Identify various types of disasters
			811508.2	Learn the disaster management techniques
			811508.3	To apply the disaster management techniques

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			811508.4	Implement safety management
			811508.5	Creat public awareness regarding disaster management
TE	V	Minor Project Stage I	811509.1	Undertake problem identification, formulation and solution
			811509.2	Demonstrate a sound technical knowledge of their selected project topic.
			811509.3	Design engineering solutions to complex problems utilizing a systems approach.
			811509.4	Demonstrate the knowledge, skills and attitudes of a professional engineer for problem solving.
			811509.5	Demonstrate ability to work in team
TE	VI	Structural Engineering	811601.1	Understand various design philosophies for reinforced concrete structures including limits states of collapse, serviceability, durability, characteristics strength, characteristics load, partial safety factors for material and loads. Concept of singly and doubly reinforced beams and flange sections.
			811601.2	To be able to design one way and two way slabs and beams.
			811601.3	To be able to design various components of structures such as columns, footings Staircase
			811601.4	To know about bolted and welded connections. Analysis and design of tension members.
			811601.5	To be able to analyze concept and design of compression members, column bases and built up columns.
TE	VI	Environmental Engineering	811602.1	Understand the importance of water quality, sanitation and health.
			811602.2	To know the water quality parameters of significance and parameters of water pollution assessment
			811602.3	To know the methods of water treatment process, their design, operation and maintenance.
			811602.4	To know the wastewater sources, mechanism of water pollution. and self purification capacity of environment.
			811602.5	To be able to design the wastewater treatment facilities and to do their operation and maintenance.
TE	VI	Transportation Engineering	811603.1	Understand the importance of transportation system in the development of a country, classification of roads and highway planning in India.
			811603.2	Demonstrate ability to carryout topographic survey required for the road laying.

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			811603.3	Demonstrate ability to decide a road geometry depending upon the anticipatory traffic and Structural design of pavement using IS codes.
			811603.4	Execution of a highway project.
			811603.5	Installation, commissioning and maintenance of a advanced signalling system and maintenance of road
TE	VI	PEC II Building Construction Practices	811641.1	Know about types of building structures.
			811641.2	Various materials used in building construction.
			811641.3	Constructional features of various components of buildings.
			811641.4	Finishing and decoration aspects of buildings.
			811641.5	Execution of a construction work at site.
TE	VI	OEC II Smart City Planning	611652.1	Know the importance and scope of smart city planning.
			611652.2	Know the principles of smart city planning.
			611652.3	Know the Apply his/her knowledge for planning and designing a smart city.
			611652.4	Demonstrate ability transform a given city into smart city.
			611652.5	Assess the parameters of a smart city.
TE	VI	Structural Engineering Lab	811606.1	Analyze various types of load acting on the building structure and internal forces developed thereof.
			811606.2	Design components of the RCC and Steel structures.
			811606.3	Demonstrate use of IS 456.
			811606.4	Demonstrate use of IS 800.
			811606.5	Demonstrate the details and drawings of the structure.
TE	VI	Environmental Engineering Lab	811607.1	Collect water and wastewater samples.
			811607.2	Preserve water and wastewater samples.
			811607.3	Examine water and wastewater samples for physical, chemical and biological parameters.
			811607.4	Interpret the results.

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			811607.5	Audit the treatment plants.
TE	VI	Transportation Engineering Lab	811608.1	Student will be aware of the IS codes prevailing in the testing of road construction materials
			811608.2	Apply knowledge to the testing of common road construction materials experimentally.
			811608.3	Apply knowledge to Student will be able to design flexible and rigid pavement.
			811608.4	Demonstrate ability handle site constraints.
			811608.5	Demonstrate ability to work in the working environment.
TE	VI	Minor Project II	811609.1	Undertake problem identification, formulation and solution
			811609.2	Demonstrate a sound technical knowledge of their selected project topic.
			811609.3	Design engineering solutions to complex problems utilizing a systems approach.
			811609.4	Demonstrate the knowledge, skills and attitudes of a professional engineer for problem solving.
			811609.5	Demonstrate ability to work in team
BE	VII	Hydrology and water resources engineering	711701.1	Demonstrate phenomena of hydrological cycles and precipitation.
			711701.2	Demonstrate soil moisture content, water requirements of crops, quality criterion, water logging etc.
			711701.3	Design hydraulic structures like different types of dams and spillways and canals.
			711701.4	Select site for construction of water retaining structure and plan a complete mega water resource development project.
			711701.5	Understand the socio – economic aspect of water resources projects, their environmental impacts and mitigation measures.
BE	VII	PEC-III ADVANCED STEEL STRUCTURAL ANALYSIS AND DESIGN	711724.1	Demonstrate ability to assess critical loads and its combinations for special RCC structures like flat slabs and combined footing and analyze and design them.
			711724.2	Demonstrate ability to assess critical loads and its combinations for special RCC structures like Cantilever Retaining wall and dome and to analyze and design them.

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			711724.3	Demonstrate ability to analyze and design water tanks.
			711724.4	Understand basic concepts and principles of pre-stressing and methods used for it.
			711724.5	Demonstrate ability to analyze and design pre-stressed concrete beam.
BE	VII	PEC-IV ADVANCED WATER TREATMENT TECHNOLOGY	711733.1	Plan and Design a water treatment plant with all accessories and Erect, maintain, commission, operate and trouble shoot a water treatment plant.
			711733.2	Demonstrate and ability to describe physic – chemical process of water treatment.
			711733.3	Augment a water treatment plant for growing needs.
			711733.4	Augment a water treatment plant for water with special needs.
			711733.5	Conduct pilot plant and bench scale research activities on water treatment process.
BE	VII	OEC III SOLID AND HAZARDOUS WASTE MANAGEMENT	711741.1	Have knowledge on the sources of Solid and Hazardous Waste along with its characteristics.
			711741.2	Design a sampling plan and characterize solid waste.
			711741.3	Design transportation network for the SWM, design disposal sites for the SWM.
			711741.4	Work out manpower requirements and economic aspects for SWM including recycling.
			711741.5	Aware about prevailing legislations in this regard.
BE	VII	HYDROLOGY AND WATER RESOURCES ENGINEERING LAB	711705.1	Solve analytical problems pertaining to hydrology, unit hydrographs and mass flow curves.
			711705.2	Asses run of a catchment area, given the topographic characteristics and rainfall data.
			711705.3	Design a complete crop and water management plan of a region.
			711705.4	Design simple gravity dams.
			711705.5	Design diversion works.

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BE	VII	CONSTRUCTION ENGINEERING AND MANAGEMENT LAB	711706.1	An idea of how mega construction projects are dealt with.
			711706.2	An understanding of modern construction practices.
			711706.3	A good idea of basic construction dynamics – various stake holders, project objectives, resources required & project economics
			711706.4	A basic ability to plan, control & monitor construction projects with respect to time cost
			711706.5	An idea of how to optimize construction projects based on costs
BE	VII	MAJOR PROJECT STAGE -I	711707.1	Undertake problem identification, formulation and solution
			711707.2	Demonstrate a sound technical knowledge of their selected project topic.
			711707.3	Design engineering solutions to complex problems utilizing a systems approach.
			711707.4	Demonstrate the knowledge, skills and attitudes of a professional engineer for problem solving.
			711707.5	Demonstrate ability to work in team
BE	VIII	Engineering economics, Estimation and Costing	811801.1	Will attain the level of proficiency to prepare approximate as well as detailed estimate of civil engineering projects.
			811801.2	Is competent enough to calculate the amount of material, labours & machinery required to execute any civil construction projects
			811801.3	Is expected to understand the terminologies associated with valuation, trained to make bills of venders of civil construction works
			811801.4	Have an idea of economics in general viz public sector and private business
			811801.5	Be able to perform and evaluate present worth, future worth & annual worth analyses on one of more economic alternatives, be able to understand how competitive bidding works & how to submit a competitive bid proposal.
BE	VIII	PECV Advanced Steel Strcutural Analysis and Design	811821.1	Analyze and design bolted and welded connections.

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			811821.2	Analyze and design beam, purlins, and castellated beams with different support conditions.
			811821.3	Analyze and design girder and trusses.
			811821.4	Analyze and design different types of steel chimneys.
			811821.5	Analyze and design different types of steel water tanks.
BE	VIII	PEC VI INDUSTRIAL WASTE WATER ENGINEERING	811834.1	A student will be able to understand the sources and amount of wastewater generated by major industries. .
			811834.2	A student will be able to assess the quality of wastewater generated by major industries.
			811834.3	A student will be able to design facilities for treatment of industrial wastewater.
			811834.4	A student will be able to commission and operated facilities for treatment of industrial wastewater.
			811834.5	A student will be aware about the prevailing environmental legislations and practices.
BE	VIII	OEC IV BIOTECHNOLOGY FOR WASTE TREATMENT	811842.1	Select the best treatment alternative for a given wastewater.
			811842.2	Demonstrate the microbiology and biochemistry of the waste treatment process.
			811842.3	Apply basic knowledge in research and development related to biological process.
			811842.4	Demonstrate current applications of biotechnology and advances in the different areas i.e. environmental, bioremediation, bioleaching and xenobiotics etc.
			811842.5	Apply the theoretical concepts for designing the experiments for studying the metabolism of various compounds present in waste water.
BE	VIII	ENGINEERING ECONOMY, ESTIMATION AND COSTING LAB	811805.1	Attain the level of proficiency to prepare approximate as well as detailed estimate of civil engineering projects.
			811805.2	Will be competent enough to calculate the amount of material, labor & machinery required to execute any civil construction projects
			811805.3	Will be well trained to make bills of venders of civil construction works
			811805.4	Will be able to perform and evaluate present worth of a property.

Class	Semester	Name of the Subject	CO	Course Outcome
			811805.5	Will be able to assess the future worth & annual worth analyses on one of more economic alternatives.
BE	VIII	ADVANCED SURVEYING LAB	811806.1	To be able to conduct Geodetic survey in remote areas.
			811806.2	To be able to determine probable error and its determination , distribution of error to the field measurements , adjustment of a geodetic triangle.
			811806.3	To be able to identify aerial photos with respect to overlap , air base distance , tone lithology.
			811806.4	To be able to carry hydrographic survey, soundings.
			811806.5	To be able to setting out curves on roads and railways.
BE	VIII	MAJOR PROJECT STAGE II	811807.1	Demonstrate a sound technical knowledge of their selected project topic.
			811807.2	Undertake problem identification, formulation and solution.
			811807.3	Design engineering solutions to complex problems utilizing a systems approach.
			811807.4	Conduct an engineering project
			811807.5	Demonstrate the knowledge, skills and attitudes of a professional engineer.