Vidyavardhini College of Engineering and Technology

Department of Civil Engineering

2.6.1.:- Course Outcomes

At the end of the course student will be able to:

Course Number	Course Outcomes
	SECOND YEAR 2018 (ODD SEM)
	S.E./SEM-III/Applied Mathematics-III/CE-C301
CE-C301.1	Apply knowledge of Laplace transform and will able to solve ODEs using Laplace transform.
CE-C301.2	Express a given function in Fourier series.
CE-C301.3	Apply bilinear transformation and conformal mapping.
CE-C301.4	Solve Partial Differential equation numerically and analytically.
	S.E./SEM-III/SURVEYING-I/CE-C302
CE-C302.1	Understand the working principles of survey instruments and use OF EDM in the field of Civil Engineering and overcome the obstacles in chaining.
CE-C302.2	Calculate areas, volumes of irregular plots and use PTS in the field.
CE-C302.3	Take bearings using compass and select appropriate methods to eliminate local attractions.
CE-C302.4	Calculate the reduced levels and interpolate contours.
CE-C 302.5	Understand theodolite components & its working.
CE-C 302.6	Understand principle and uses of tacheometry
	S.E./SEM-III/STRENGTH OF MATERIALS/CE-C303
CE-C303.1	Study and understand the engineering properties of the materials and analyze the same to evaluate the stress strain behaviour, under axial and shear forces.
CE-C303.2	Understand the concept of shear force, bending moment and axial forces for the statistically determinate compound beams with different types of loading.
CE-C303.3	Understand the concept of Flexural stresses, and combined stresses (direct and bending).
CE-C303.4	Understand the concept of shear stresses in flexural member and in twisting moment (torsion)
CE-C 303.5	Understand the deformation and evaluate the strength of axially loaded columns having different end conditions and concept of strain energy for different types of loading.
CE-C 303.6	Understand the concept Principal stresses and thin shells.
	S.E./SEM-III/ENGINEERING GEOLOGY/CE-C304
CE-C304.1	Understand basic concepts of geology for various civil engineering projects and study the structure of the earth and agents modifying earths surface.
CE-C304.2	Identify rock minerals and rocks in detail to select suitable rock type for any civil engg. project.
CE-C304.3	Understanding structural geology, stratigraphy and geology of Indian subcontinent.
CE-C304.4	Describe about geological investigation, favorable and unfavorable geological conditions of dam and reservoir site.
CE-C 304.5	Study geological concepts for tunneling and concepts involved in ground water control.
CE-C 304.6	Discuss about the causes, forms, types and remedial measures of geological disasters like landslides, earthquakes and volcanoes.
	S.E./SEM-III/FLUID MECHANICS-I/CE-C305
CE-C305.1	Define various properties of fluids, state and explain different types of laws and principles of fluid mechanics.
CE-C305.2	Interpret different forms of pressure measurement and Calculate Hydrostatic Force and its Location for a given geometry and orientation of plane surface.
CE-C305.3	Compute force of buoyancy on a partially or fully submerged body and analyse the stability of a floating body.
CE-C305.4	Distinguish velocity potential function and stream function and solve for velocity and acceleration of a fluid at a given location in a fluid flow
CE-C 305.5	Derive Euler's Equation of motion and Deduce Bernoulli's equation
CE-C 305.6	Measure velocity and rate of flow using various devices

	SECOND YEAR 2018 (EVEN SEM)
	S.E./SEM-IV/AM-IV/CE-C401
CE-C401.1	Apply matrix theory to solve the system of linear equations and eigen values and eigen vactors and their applications.
CE-C401.2	Evaluate the contour integrals to identify and classify Zeros, Singular points ,Residues and their applications.
CE-C401.3	Apply principle of vector differentiation and integral calculus to the analysis of engineering problems.
CE-C401.4	Optimize various problems using various optimization techniques.
	S.E./SEM-IV/SURVEYING-II/CE-C402
CE-C402.1	Set out simple curves in the field
CE-C402.2	Set out any building using surveying
CE-C402.3	Do the road project and prepare contours
CE-C402.4	Understand the modern techniques used in surveying
CE-C 402.5	Use modern instruments in surveying
CE-C 402.6	Understand the cadastal Survey
	S.E./SEM-IV/STRUCTURAL ANALYSIS -I/CE-C403
CE-C403.1	Understand the behaviour of various statically determinate structures including compound structures having an internal hinge for various loadings
CE-C403.2	Analyze these structures to find out the internal forces such as axial force, shear force, bending moment, twisting moments, etc.
CE-C403.3	Evaluate the displacements / deflections in beams and frames under the action of loads. They will be able to obtain the response of the beams under the action of moving loads.
CE-C403.4	Analyze the structures such as arches and suspension bridges and study the behavior of eccentrically loaded columns.
CE-C 403.5	Analyze the section with respect to unsymmetrical bending and shear center.
CE-C 403.6	Demonstrate the ability to extend the knowledge gained in this subject
	S.E./SEM-IV/BUILDING DESIGN AND DRAWING/CE-C404
CE-C404.1	Employ principles of planning, building bye laws and D.C rules for design of residential buildings.
CE-C404.2	Employ principles of planning, building bye laws and D.C rules for design of public buildings.
CE-C404.3	Sketch Perspective drawings (One point and Two point) and describe the concept of Green Buildings.
CE-C404.4	Sketch the various components of a Building.
CE-C 404.5	Summarize the concept of town planning and uses of CAD in Civil Engineering.
	S.E./SEM-IV/BUILDING MATERIALS CONSTRUCTION & TECHNOLOGY/CE-C405
CE-C405.1	Identify and list the various building materials symbols, their properties and manufacturing process of basic construction materials.
CE-C405.2	Identify the properties of fresh and hardened concrete by practical/experimental procedures.
CE-C405.3	Analyze and interpret concrete mix design for various grades of concrete.
CE-C405.4	Explain and interpret manufacturing process of masonry construction and finishes.
CE-C 405.5	Recognize different types of formworks, floor & roof, their application and suitability.
	S.E./SEM-IV/FLUID MECHANICS-II/CE-C406
CE-C406.1	Interpret different pipe fittings and evaluate the fluid velocity considering major and minor losses.
CE-C406.2	Solve pipe network problems by Hardy cross method.
CE-C406.3	Distinguish the types of compressible flow and understand concept of boundary layer theory.
CE-C406.4	Evaluate pressure drop in pipe flow using Hagen-Poiseuille's equation for laminar flow in a pipe.
CE-C 406.5	Establish Prandtl's mixing theory and solve turbulent flow problems.

	THIRD YEAR 2018 (ODD SEM)
	T.E./SEM-V/STRUCTURAL ANALYSIS-II/CE-C501
CE-C501.1	Understand the behavior of various statically indeterminate structures subjected to static loads and variation in temperature.
CE-C501.2	Solve different problems on statically determinate structure by various methods.
CE-C501.3	Analyse indeterminate structure by various flexibility methods..
CE-C501.4	Analyse indeterminate structure by stiffness methods (Slope Deflection Method).
CE-C501.5	Analyse indeterminate structure by stiffness methods (Moment Distribution Method).
CE-C501.6	Understand the concept of plastic hinge, plastic moment carrying capacity, shape factor and collapse load for single and multiple span beams and study Approximate method for various loads for Analysisof Building Frames
	T.E./SEM-V/GEOTECHNICAL ENGINEERING-I/CE-C502
CE-C502.1	Analyze soil type, index properties, engineering properties and relationship between various unit weight and other parameters.
CE-C502.2	Classify soil according to various classification system.
CE-C502.3	Analyze flow of water, seepage through soil and effective stress principles.
CE-C502.4	Evaluate compaction characterstics of soil and interpret results
CE-C 502.5	Understand use of geosynthetics in soil to improve soil properties
	T.E./SEM-V/APPLIED HYDRAULICS/CE-C503
CE-C503.1	Apply the concepts of fluid dynamics to solve pipe bend and sprinkler problems
CE-C503.2	Analyze dimensional problems and explain model law
CE-C503.3	Explain the working and functions of Francis, Kaplan and Pelton wheel turbines
CE-C503.4	Explain the basic concepts of open channel hydraulics and measure discharge through open channels
CE-C 503.5	Identify the occurrence of hydraulic jump and its parameters
CE-C 503.6	Explain uniform flow, non-uniform flow and establish mathematical relationships
	T.E./SEM-V/ENVIRONMENTAL ENGINEERING-I/CE-C504
CE-C504.1	Explain the need of planned water supply system, discuss the different water demands and distribution systems, analyze the different characteristics of drinking water and list out the different treatment units of water treatment plant.
CE-C504.2	Recognize the different aeration system, describe sedimentation tank and tube settlers, understand the mechanism of coagulation and flocculation, classify the different filtration units and design the sedimentation tank, tube settlers and filtration units.
CE-C504.3	Recognize the different water softening methods and understand the kinetics of d isinfection and chemistry of chlorination and describe the different advanced miscellaneous treatment units of water.
CE-C504.4	Understand the building water supply system and identify the different sanitary accessories , fixtures and fittings.
CE-C 504.5	Describe the need of Rainwater Harvesting and design the same for a building.
CE-C 504.6	Explain the concept of air pollution, noise pollution and thermal pollution and discuss the control measures for the same and formulate the noise levels.
	T.E./SEM-V/TRANSPORTATION ENGINEERING-I/CE-C505
CE-C505.1	Plan highway networks
CE-C505.2	Design highway geometrics
CE-C505.3	Understand different traffic studies, signs and signals.
CE-C505.4	Investigate different materials required for highway construction
CE-C 505.5	Design pavements as per IRC
CE-C 505.6	Understand highway construction, maintenance and drainage

T.E./SEM-V/ Department Level Optional Course –I(Building Services & Repairs)/CE-C506	
CE-C506.1	Identify different utility services , their importance & installation.
CE-C506.2	Discuss the drawbacks if all the service lines are not installed properly or if materials used are faulty.
CE-C506.3	Choose appropriate systems & integrate the same into building construction projects.
CE-C506.4	Identify causes of deterioration of concrete structure and examine the damaged structure by assessing its structural health.
CE-C506.5	Choose the correct material and technique for repairing the concrete structures to decide the present condition of it.
CE-C506.6	Employ the methods of steel protection in the field.
T.E./SEM-V/ Department Level Optional Course –I (Advanced Concrete Technology) /CE-C506	
CE-C506.1	understand the various materials and properties in concrete.
CE-C506.2	Understand the various properties of special concrete
CE-C506.3	mix design of concrete by various methods
CE-C506.4	understand the concept of Fibre Reinforced Concrete.
CE-C506.5	understand and apply the different procedures for testing concrete.
CE-C506.6	Understand the concept of durability and cracking in concrete
T.E./SEM-V/ Business Communication & Ethics/CE-C507	
CE-C507.1	Design a technical document using precise language, suitable vocabulary and apt style.
CE-C507.2	Develop the life skills/interpersonal skills to progress professionally by building stronger relationships.
CE-C507.3	Demonstrate awareness of contemporary issues knowledge of professional and ethical responsibilities.
CE-C507.4	Apply the traits of a suitable candidate for a job/higher education, upon being trained in techniques of holding a group discussion, facing interviews and writing resume/SOP.
CE-C507.5	Deliver formal presentation effectively implementing the verbal and non-verbal skills.

	THIRD YEAR 2018 (EVEN SEM)
	T.E./SEM-VI/ GEOTECHNICAL ENGINEERING-II/CE-C601
CE-C601.1	Analyze Safety of Slopes pertaining to various soil conditions.
CE-C601.2	Evaluate earth pressure on walls and design parameters for earth retaining structures.
CE-C601.3	Evaluate bearing capacity for different type of soil using classical theories and pile capacity for different type of soil.
CE-C601.4	Evaluate load bearing capacity of conduits and open cuts.
CE-C601.5	Identify importance of reinforced soil and its application in the field.
T.E./SEM-VI/ DESIGN AND DRAWING OF STEEL STRUCTURES /CE-C602	
CE-C602.1	Understand behaviour and failure checks of tension and compression members
CE-C602.2	understand difference between laterally supported and unsupported beam and its design
CE-C602.3	design column and column base
CE-C602.4	design steel members like plates, girders, roof truss and floor system
T.E./SEM-VI/ Applied Hydraulics – II /CE-C603	
CE-C601.1	develop the understanding of flow, phenomena hydraulic jack, bacwater waves, critical depth
CE-C601.2	understand the different slope profiles and its effect on flow characteristics
CE-C601.3	develop understanding of design and measurement of flow, velocity in irrigation channel
CE-C601.4	understand impact of engineering solutions for boundary layer theory
CE-C601.5	understand concept of design of airplanes submarines, ships, bridges
T.E./SEM-VI/ Transportation Engineering. – II /CE-C604	
CE-C601.1	understand the basics of transportation engineering & able to design highway components (geometric design)
CE-C601.2	do highway repairs and maintenance & know the drainage system
CE-C601.3	understand the terminologies of bridge engineering and able to design economic span of bridges
CE-C601.4	Analyse the design offlexible and rigid pavement
CE-C601.5	Understand the types of pavements and design of overlay thickness for the pavement
CE-C601.6	Understand traffic volume studies
T.E./SEM-VI/ 5 Environmental Engg – I /CE-C605	
CE-C601.1	Explain the importance of Environmental Sanitation and evaluate the water demand using different population forecasting methods.
CE-C601.2	Discuss the requirement of good distribution system and identify the different layout and methods of distribution
CE-C601.3	Recognize the different water softening methods and understand the kinetics of disinfection and chemistry of chlorination and describe the different advanced miscellaneous treatment units of water.
CE-C601.4	Understand the different treatment methods like sedimentation, filtration and disinfection for drinking water and design its specific treatment units.
CE-C601.5	Describe the generation, storage, collection, treatment and disposal of municipal solid waste and hazardous waste.
CE-C601.6	Explain the building water supply system along with the classification of fixtures and fittings and also laying, testing and maintenance of pipe
T.E./SEM-VI/ 6 Theory of Reinforced Prestressed Concrete /CE C606	
CE-C601.1	Understand the concept of WSM, stress- strain curve, permissible stresses.
CE-C601.2	Analyse and design of beam by WSM method.
CE-C601.3	Design of shear reinforcement & slab by using WSM.
CE-C601.4	Analyse & design of column by using WSM and design of Footing by WSM
CE-C601.5	Understand the concept of prestress concrete, methods of prestressing, losses in prestressing. Design of prestress concrete member.
CE-C601.6	Design of prestress concrete member by using General design principles.

	FINAL YEAR (B.E) 2018 (ODD SEM)
B.E./SEM-VII/Limit State Method for Reinforced Concrete Structures /CE C701	
CE-C701.1	Understand the concepts of ULM & LSM and apply for the analysis and design of beams by ULM
CE-C701.2	Apply the concepts of LSM in the analysis and design of singly and doubly reinforced beams.
CE-C701.3	Analyse & design of one way and two way slab by using LSM
CE-C701.4	Analyse & design a column using LSM
CE-C701.5	Analyse & design of T , L beam ,shear, torsion.
CE-C701.6	Analyse & design of footing using LSM.
B.E./SEM-VII/ Quantity Survey Estimation and Valuation /CE C702	
CE-C702.1	Evaluate the detailed estimate of a construction project by using different methods.
CE-C702.2	Evaluate approximate estimates by using Plinth Area Method.
CE-C702.3	Appraise the Rate Analysis for the various materials required for construction activities according to Indian Standard specifications (IS 1200-1964) and the current market rates as per DSR.
CE-C702.4	Analyse the detailed drawings and specifications for the preparation of Bar Bending Schedule.
CE-C702.5	Illustrate the value of a property and Tender Notice for various civil engineering works.
B.E./SEM-VII/ Irrigation Engineering/CE C703	
CE-C703.1	Describe Irrigation and classify Irrigation systems.
CE-C703.2	Identify various technical terms related to water requirement of crops and illustrate the demand of water for agricultural land.
CE-C703.3	Solve problems on rainfall measurement, run-off, yield, flood discharge and preparing various hydrograph.
CE-C703.4	Identify various control levels of reservoir, reservoir planning, components of dams, spillway and energy dissipater devices and examine the failures of dams.
CE-C703.5	Identify canal distribution systems and estimate design discharge.
CE-C703.6	Discuss about ground water, well hydraulics, ground water potential and estimation of safe yield of well.
B.E./SEM-VII/ Environmental Engineering – II /CE C704	
CE-C704.1	analyze the characteristics of sewage, understand the different treatment units and design the primary treatment unit.
CE-C704.2	understand the sewage generation, collection and conveyance and define the different terms related to the same.
CE-C704.3	understand the secondary treatment methods, its design and sludge treatment and disposal and evaluate the numerical on self purification of natural water bodies.
CE-C704.4	understand the tertiary treatment of wastewater and reclamation and reuse of wastewater.
CE-C704.5	understand basic principles of house drainage, plumbing and environmental sanitation.
CE-C704.6	understand the basic concepts of air pollution and noise pollution.
B.E./SEM-VII/ Elective – I(Solid Waste Management)/CE E705	
CE-C705.1	Interpreting the implications of the production, resource management and environmental impact of solid waste management.
CE-C705.2	Carrying out the energy content of municipal solid waste.
CE-C705.3	Identify the different storage, collection method and different processing techniques for the solid waste management.
CE-C705.4	Classify the various waste disposal methods for municipal solid waste.
CE-C705.5	Classify the sources, hazardous characteristics, management, Treatment and disposal of Hazardous and Industrial solid waste.
CE-C705.6	Identify the different sources, classification, collection, segregation, treatment and disposal.
B.E./SEM-VII/ Elective – I(REINFORCED CONCRETE REPAIRS & MAINTENANCE)/CE E705	
CE-C705.1	Identify causes of deterioration of concrete structures and their causes.
CE-C705.2	Examine the damaged structure by assessing its structural health.
CE-C705.3	Choose the correct material and technique for repairing the concrete structures.
CE-C705.4	Identify the defect and employ the methods for protection of concrete structures.
CE-C705.5	Employ the methods of steel protection in the field.
CE-C705.6	Describe the maintenance procedure of concrete structures for it to be in safe and working condition.

	FINAL YEAR (B.E) 2018 (EVEN SEM)
B.E./SEM-VIII/ Design and Drawing of Reinforced Concrete Structures/CE C801	
CE-C801.1	Design of dog legged and open well type staircase using limit state method.
CE-C801.2	Design different types of cantilever and counter fort type retaining wall using limit state method.
CE-C801.3	Design different types of slabs using relevant IS codes.
CE-C801.4	Design different components of building such as beam, column and footing using relevant IS codes.
CE-C801.5	Design various types of water tank using working stress method.
CE-C801.6	Design of simple raft subjected to symmetrical loading using limit state method.
B.E./SEM-VIII/Construction Engineering /CE C802	
CE-C802.1	To know different types of standard/special equipment used in construction industry and select the appropriate equipment.
CE-C802.2	To determine the optimal use of the equipment, owning, operating and maintenance & repair costs of the equipment.
CE-C802.3	To select the alignment for tunnels, various methods of tunneling in soft soils as well as in hard rock.
CE-C802.4	To decide the ground improvement and soil stabilization methods such as sand drains and stone columns, use of geo synthetics and chemicals based on stability of site conditions.
CE-C802.5	To suggest mass concreting, vacuum concreting and modern slip forms techniques.
CE-C802.6	To understand the process involved in cladding types & its fixing & maintenance.
B.E./SEM-VIII/ Construction Management /CE C803	
CE-C803.1	Understand principals and functions of Construction Management
CE-C803.2	Develop a Work Break Down Structure and analyze CPM & PERT networks for scheduling of the project.
CE-C803.3	Analyze Material, Human Resource & Financial Management and various Resource allocation methods.
CE-C803.4	Analyze Time-Cost optimization method and project monitoring.
CE-C803.5	Understand Safety Measures, Quality aspects of construction work and legislation (Labour).
B.E./SEM-VIII/ Elective – II(INDUSTRIAL WASTE TREATMENT) /CE E804	
CE-C804.1	Describe the characteristics and effects of industrial wastes and discuss its sampling and analysis along with its regulatory standards.
CE-C804.2	Understand the concept of self purification , its mathematical representation in the form of Streeter Phelps Equation and evaluate the numericals based on oxygen sag curve.
CE-C804.3	Identify the different aerobic and anaerobic biological treatment methods and explain its modifications along with different methods of dewatering and disposal of sludge..
CE-C804.4	Identify the different aerobic and anaerobic biological treatment methods and explain its modifications along with different methods of dewatering and disposal of sludge.
CE-C804.5	Explain Environment Impact Assessment (EIA) and Environmental Audit and discuss various acts pertaining to industrial wastes/effluents.
CE-C804.6	Paraphrase the need, operation and maintenance problems and economical aspects of Common Effluent Treatment Plant (CETP.
B.E./SEM-VIII/ Elective – II(Appraisal & Implementation of Infrastructure Projects) /CE E804	
CE-C804.1	Discuss about infrastructure projects as well as construction projects.
CE-C804.2	Describe the importance of feasibility study required for a project and to prepare project report in detail.
CE-C804.3	Recognize about project appraisal meaning, need and steps.
CE-C804.4	Appraise and apply various appraisals for deciding the worthwhileness of the projects.
CE-C804.5	Appraise and judge with various methods, knowledge and analysis of financial/economical aspects.
CE-C804.6	Discuss and recognize the methods of project implementation, types and sources of finance.

COURSE NUMBER	COURSE OUTCOMES
	FIRST YEAR (2016-17)ONWARDS
FEC101	APPLIED MATHEMATICS -I(FEC101)
FEC101.1	Apply the knowledge of matrix theory to solve the problems.
FEC101.2	Solve and analyze the partial derivatives and its application in related field of engineering.
FEC101.3	Interpret the mathematical results in physical or practical terms of complex numbers.
FEC101.4	Inculcate the habit of mathematical thinking through indeterminate forms and Taylor series expansion.
FEC101.5	Find higher order derivatives using various results of successive differentiation.
FEC101.6	Solve system of linear equations, algebraic and transcendental equations.
FEC102	APPLIED PHYSICS -I(FEC102)
FEC102.1	Apply the concepts of crystallography and to use XRD techniques for analysis of crystal structure.
FEC102.2	Apply the knowledge of Quantum mechanics to uncertainty principle and motion of free particle.
FEC102.3	To comprehend the basic concepts of semiconductor physics and apply the same to electronic devices.
FEC102.4	Apply the knowledge of superconductivity to SQUID and Magnetic levitation.
FEC102.5	Apply the reasons for Acoustic defects and use this in the proper design of a Hall/Auditorium.
FEC102.6	Use the knowledge of Piezoelectric and Magnetostriction effect for production of ultrasonic waves and its application in various fields.
FEC103	APPLIED CHEMISTRY-I(FEC103)
FEC103-1	An ability to identify the future societal problem related to water treatment.
FEC103-2	Students have a basic knowledge of melting & glass transition temperature.
FEC103-3	Students have a basic knowledge of flash point, acid value & saponification value.
FEC103-4	To identify career paths & requisite knowledge & skills for career change towards nanomaterials.
FEC106	Environmental Studies (FEC106)
FEC 106.1	Students develop the ability to understand the importance of environmental fundamentals in societal context.
FE C 106.2	Students not only understand the enormity and intricacies of the technical perspectives but also develop an Engineer's /Scientist's perspective causing deep thinking for a solution orientation
FE C 106.3	Students acquire technical skills required for a solution ,pre-test technology solutions ,evaluate and using critical thinking and Lateral thinking evolve new solutions to problems for implementing SDG2030
FE C 106.4	Student now have internalized all the important aspects of Goals,Targets,regional local and National issues,IPCC perspectives, ,temperamental requirements,legislative framework and ready to demonstrate skills in any area of interest – Energy,Hydraulics,civic ameneties, smart solutions,transportation,etc.

COURSE NUMBER	COURSE OUTCOMES
	FIRST YEAR (2016-2017) ONWARDS
FEC201	**APPLIED MATHEMATICS -II(FEC201)**
FEC201.1	Solve and analyze the Differential Equations and its application in related field of engineering.
FEC201.2	Apply knowledge of Beta, Gamma functions to solve various types of problems.
FEC201.3	Find and analyze area, mass of lamina & volume of solid by using double and triple integration.
FEC201.4	Apply various types of numerical methods for solving differential equations and for numerical integration.
FEC201.5	Find length of arc of a given curve.
FEC202	**APPLIED PHYSICS -II(FEC202)**
FEC202.1	Comprehend principles of interference and diffraction.
FEC202.2	Illustrate the principle, construction and working of various LASERs and its applications.
FEC202.3	Identify various applications of optical fibres.
FEC202.4	Comprehend the concepts of electrodynamics and Maxwell's equations and their use in telecommunication systems.
FEC202.5	Apply the concepts of electromagnetism in focusing systems and CRO.
FEC202.6	Comprehend the significance of nano science and nanotechnology, its applications.
FEC203	**APPLIED CHEMISTRY-II(FEC203)**
FEC203-1	An ability to identify the future societal problem related to water treatment.
FEC203-2	Students have a basic knowledge of melting & glass transition temperature.
FEC203-3	Students have a basic knowledge of flash point, acid value & saponification value.
FEC203-4	To identify career paths & requisite knowledge & skills for career change towards nanomaterials.
FE C 206	**COMMUNICATION SKILLS(FEC206)**
FE C 206.1	Students develop the ability to understand the importance of communication fundamentals and its usage in social context i.e. every day and professional lives
FE C 206.2	Students not only understand the process of oral communication but also develop message generating and delivery skills, gain insight into their own speaking style
FE C 206.3	Students acquire the letter writing skills and produce the letters in any given situation, paying attention to the writers objective , the readers needs , the reader writer relationship and the context.
FE C 206.4	Student learn all the important aspects of reading including skimming ,scanning , note making and understand discourse coherence. And also study the intricacies of listening skills.

COURSE NUMBER	COURSE OUTCOMES
	FIRST YEAR (2015-2016)
FEC101	**APPLIED MATHEMATICS -I(FEC101)**
FEC101.1	find powers and roots of various functions and will demonstrate to separate real and imaginary part of all types of functions.
FEC101.2	solve system of linear algebraic equations (numerically) and system of homogeneous and non-homogeneous equations using matrices
FEC101.3	understand basics of differentiation of functions of two and three variables and will be able to find n^{th} order derivative.
FEC101.4	fit a curve to a given data and apply concepts of partial differentiation to optimize given function,
FEC102	**APPLIED PHYSICS -I(FEC102)**
FEC102.1	Apply the concepts of crystallography and to use XRD techniques for analysis of crystal structure.
FEC102.2	To comprehend the basic concepts of semiconductor physics and apply the same to electronic devices.
FEC102.3	Apply the reasons for Acoustic defects and use this in the proper design of a Hall/Auditorium.
FEC102.4	Use the knowledge of Piezoelectric and Magnetostriction effect for production of ultrasonic waves and its application in various fields.
FEC103	**APPLIED CHEMISTRY-I(FEC103)**
FEC103-1	An ability to identify the future societal problem related to water treatment.
FEC103-2	Students have a basic knowledge of melting & glass transition temperature.
FEC103-3	Students have a basic knowledge of flash point, acid value & saponification value.
FEC103-4	To identify career paths & requisite knowledge & skills for career change towards nanomaterials.
FEC106	**Environmental Studies (FEC106)**
FEC 106.1	Students develop the ability to understand the importance of environmental fundamentals in societal context.
FE C 106.2	Students not only understand the enormity and intricacies of the technical perspectives but also develop an Engineer's /Scientist's perspective causing deep thinking for a solution orientation
FE C 106.3	Students acquire technical skills required for a solution ,pre-test technology solutions ,evaluate and using critical thinking and Lateral thinking evolve new solutions to problems for implementing SDG2030
FE C 106.4	Student now have internalized all the important aspects of Goals,Targets,regional local and National issues,IPCC perspectives, ,temperamental requirements,legislative framework and ready to demonstrate skills in any area of interest – Energy,Hydraulics,civic ameneties, smart solutions,transportation,etc.

COURSE NUMBER	COURSE OUTCOMES
	FIRST YEAR (2015-2016)
FEC201	**APPLIED MATHEMATICS -II(FEC201)**
FEC201.1	find Numerical Solution of ODE and perform Numerical Integration and Differentiation.
FEC201.2	understand and apply Principles of Multiple Integration to solve engineering problems
FEC201.3	understand basic concepts of β and γ functions
FEC201.4	solve ODE and to apply these concepts to solve engineering problems
FEC202	**APPLIED PHYSICS -II(FEC202)**
FEC202.1	Comprehend principles of interference and diffraction.
FEC202.2	Illustrate the principle, construction and working of various LASERs and its applications. Identify various applications of optical fibres.
FEC202.3	Apply the knowledge of Quantum mechanics to uncertainty principle and motion of free particle.
FEC202.4	Apply the concepts of electromagnetism in focusing systems and CRO.
FEC202.5	Apply the knowledge of superconductivity to SQUID and Magnetic levitation.
FEC202.6	Comprehend the significance of nano science and nanotechnology, its applications.
FEC203	**APPLIED CHEMISTRY-II(FEC203)**
FEC203-1	An ability to identify the future societal problem related to water treatment.
FEC203-2	Students have a basic knowledge of melting & glass transition temperature.
FEC203-3	Students have a basic knowledge of flash point, acid value & saponification value.
FEC203-4	To identify career paths & requisite knowledge & skills for career change towards nanomaterials
FE C 206	**COMMUNICATION SKILLS(FEC206)**
FE C206.1	Students develop the ability to understand the importance of communication fundamentals and its usage in social context i.e. every day and professional lives
FE C206.2	Students not only understand the process of oral communication but also develop message generating and delivery skills, gain insight into their own speaking style
FE C206.3	Students acquire the letter writing skills and produce the letters in any given situation, paying attention to the writers objective , the readers needs , the reader writer relationship and the context.
FE C206.4	Student learn all the important aspects of reading including skimming ,scanning , note making and understand discourse coherence. And also study the intricacies of listening skills.