

R.M.K. ENGINEERING COLLEGE
RSM Nagar, Kavaraipettai – 601 206

Department of Civil Engineering

Course Outcomes – ODD Semester 2018-19

Sl. No.	Semester	Theory/Practical	Course Code / Course Name
1	3	Theory	MA8353-Transforms and Partial Differential Equations
2	3	Theory	CE8301-Strength of Materials I
3	3	Theory	CE8302-Fluid Mechanics
4	3	Theory	CE8351-Surveying
5	3	Theory	CE8391-Construction Materials
6	3	Theory	CE8392-Engineering Geology
7	3	Practical	CE8311-Construction Materials Laboratory
8	3	Practical	CE8361-SurveyingLaboratory
9	3	Practical	HS8381-Interpersonal Skills/ Listening and Speaking
10	5	Theory	CE6501-Structural Analysis I
11	5	Theory	CE6502-Foundation Engineering
12	5	Theory	CE6503- Environmental Engineering I
13	5	Theory	CE6504- Highway Engineering
14	5	Theory	CE6505-Design of Reinforced Concrete Elements
15	5	Theory	CE6506-Construction Techniques, Equipment and Practice
16	5	Practical	GE6563- Communication Skills – Laboratory Based
17	5	Practical	CE6511-Soil Mechanics Laboratory
18	5	Practical	CE6512-Survey Camp
19	7	Theory	CE6701-Structural Dynamics and Earthquake Engineering
20	7	Theory	CE6702-Prestressed Concrete Structures
21	7	Theory	CE6703-Water Resources and Irrigation Engineering
22	7	Theory	CE6704-Estimation and Quantity Surveying
23	7	Theory	CE6010-Pavement Engineering (Elective)
24	7	Theory	EN6501-Municipal Solid Waste Management (Elective)
25	7	Practical	CE6711-Computer Aided Design and Drafting Laboratory
26	7	Practical	CE6712-Design Project

Third Semester B.E.

MA8353-TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Understand how to solve the given standard partial differential equations.
CO2	Solve differential equations using Fourier series analysis which plays a vital role in engineering applications.
CO3	Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations.
CO4	Understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.
CO5	Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems.

CE8301 - STRENGTH OF MATERIALS I

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Understand the concepts of stress and strain, principal stresses and principal planes.
CO2	Determine Shear force and bending moment in beams and understand concept of theory of simple bending.
CO3	Calculate the deflection of beams by different methods and selection of method for determining slope or deflection.
CO4	Apply basic equation of torsion in design of circular shafts and helical springs,
CO5	Analyze the pin jointed plane and space trusses

CE8302-Fluid Mechanics

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Get a basic knowledge of fluids in static, kinematic and dynamic equilibrium.
CO2	Understand and solve the problems related to equation of motion.
CO3	Gain knowledge about dimensional and model analysis.
CO4	Learn types of flow and losses of flow in pipes.
CO5	Understand and solve the boundary layer problems.

CE8351-Surveying

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	The use of various surveying instruments and mapping
CO2	Measuring Horizontal angle and vertical angle using different instruments
CO3	Methods of Leveling and setting Levels with different instruments
CO4	Concepts of astronomical surveying and methods to determine time, longitude, latitude and azimuth
CO5	Concept and principle of modern surveying.

CE8391-Construction Materials

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Compare the properties of most common and advanced building materials.
CO2	understand the typical and potential applications of lime, cement and aggregates
CO3	know the production of concrete and also the method of placing and making of concrete elements.
CO4	understand the applications of timbers and other materials
CO5	Understand the importance of modern material for construction.

CE8392-Engineering Geology

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Will be able to understand the importance of geological knowledge such as earth, earthquake, volcanism and the action of various geological agencies.
CO2	Will get basics knowledge on properties of minerals.
CO3	Gain knowledge about types of rocks, their distribution and uses.
CO4	Will understand the methods of study on geological structure.
CO5	Will understand the application of geological investigation in projects such as dams, tunnels, bridges, roads, airport and harbor

Laboratory

CE8311-Construction Materials Laboratory

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	have the required knowledge in the area of testing of construction materials and components of construction elements experimentally.

CE8361-SurveyingLaboratory

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	have acquired practical knowledge on handling basic survey instruments including Theodolite, Tacheometry, Total Station and GPS
CO2	have adequate knowledge to carryout Triangulation and Astronomical surveying including general field marking for various engineering projects and Location of site etc.

HS8381 - Interpersonal Skills / Listening & Speaking

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Listen and respond appropriately.
CO2	Participate in group discussions
CO3	Make effective presentations
CO4	Participate confidently and appropriately in conversations both formal and informal

Fifth Semester B.E

CE6501-Structural Analysis I

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Differentiate determinate and indeterminate structures and analyze them using conventional energy methods
CO2	Analyze determinate and indeterminate beams for moving loads
CO3	Compute the member forces on indeterminate trusses by energy methods and draw influence lines for moving loads.
CO4	Determine the forces and moments on two hinged and three hinged arches
CO5	Estimate the bending moments and shear forces on continuous beams by slope deflection method and moment distribution methods.
CO6	Perform analysis of sway and non sway portal frames by classical methods.

CE6502- Foundation Engineering

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Summarize the methods of soil exploration and outline preparation of bore log and soil investigation report
CO2	Illustrate the methods to evaluate the bearing capacity of shallow foundations under homogeneous deposits.
CO3	Analyze and compute the magnitude of settlement of foundations on granular and clay deposits.
CO4	Apply the basic principles and solve the problems related to geotechnical design of combined footing, strap footing and rafts.
CO5	Evaluate single and pile group capacity using static and dynamic analysis; Interpretation of pile load test
CO6	Apply the fundamental principles and procedures in checking the stability of retaining wall

CE6503- Environmental Engineering I

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Illustrate the importance of various components of public water supply system.
CO2	Explain the various sources and characteristics of water for public use.
CO3	Describe the functions of pipe materials and appurtenances used for transmission of water.
CO4	Design the various unit operations used in water treatment plants.
CO5	Explain the principle of membrane systems used for water softening in advanced treatment of water.
CO6	Analyze a complex network system for water distribution and supply to buildings.

CE6504- Highway Engineering

Cos	Course Outcome: The students, after the completion of the course, are expected to
CO1	Summarize the significances of highway planning and alignment.
CO2	Interpret geometric design fundamentals, in relation to safety and driver comfort, focusing on horizontal and vertical alignment.
CO3	Classify the pavement components; analyze the stresses and design of flexible and rigid pavements (IRC Standards).
CO4	Explain the quality tests of highway construction materials and contrast conventional and modern construction practices
CO5	Deduct the distress in flexible and rigid pavements and identify appropriate strengthening methods
CO6	Outline the maintenance strategies of highways. (IRC Standards)

CE6505- Design of Reinforced Concrete Elements

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Explain elastic method, ultimate load method and limit state method
CO2	Analyse and apply the design concepts of Working stress method to flexural members and sketch the detailing
CO3	Design flexural members using concepts of limit state of design.
CO4	Illustrate the behaviour of RC members in bond, anchorage, shear and torsion.
CO5	Design compression members subjected to axial, uniaxial and biaxial members using limit state method.
CO6	Design various footing and sketch the detailing using limit state method of design.

CE6506- Construction Techniques, Equipment and Practice

Cos	Course Outcome: The students, after the completion of the course, are expected to
CO1	Explain the manufacturing process and various testing methods of concrete
CO2	Identify various construction practices involved in a project.
CO3	Describe modern construction techniques for substructure and superstructure.
CO4	Identify boring techniques and equipments for underground open excavation.
CO5	Demonstrate various heavy equipment tools used in superstructure construction.
CO6	Interpret the suitability of different types of concrete and admixtures for various applications.

Laboratory

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Develop students' communicative competence in English with specific reference to their speaking and listening.
CO2	Develop their ability to communicate effectively in interviews.
CO3	Build up their prospects of success in competitive examinations.
CO4	Make them become proficient users of English.
CO5	Make use of their linguistic skills (LSRW) with the help of technology to communicate globally.
CO6	Build up the performance of learners at placement interviews and group discussions and other recruitment procedures.

CE6511- Soil Mechanics Laboratory

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Evaluate Index properties of soils and classify the soils
CO2	Experiment with in-situ density of fine and coarse grained soils
CO3	Examine the relationship between optimum moisture content and dry density of soils
CO4	Determine coefficient of permeability of coarse and fine grained soils
CO5	Demonstrate the laboratory methods for the assessment of compressibility characteristics of soils.
CO6	Determine shear strength parameters of soils
CO1	Evaluate Index properties of soils and classify the soils

CE6512-Survey Camp

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Determine the area of given irregular plot by performing triangulation.
CO2	Perform trilateration to measure the area of the given land.
CO3	Plot contours and the undulating ground surface.
CO4	Perform highway alignment and set out curves for new roads.
CO5	Handle total station and do field observation using it.
CO6	Participate as a team and work with fellow mates in carrying out the surveying and Prepare detailed report of the survey carried.

Seventh Semester B.E.

CE6701-Structural Dynamics and Earthquake Engineering

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Implement the theory of vibration, and analyse a single degree of freedom system with and without damping
CO2	Analyze multi degree of freedom system and draw the mode shapes
CO3	Explain the theory of seismology
CO4	Demonstrate the response of RC, Steel and prestressed concrete structures to earthquakes
CO5	Explain the methods of introducing ductility in structures using codal provisions
CO6	Perform dynamic analysis and formulate the design methodology in aseismic design

CE6702-Prestressed Concrete Structures

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Describe the fundamental principles of pre and post tensioned concrete and compute loss of stresses and deflection of prestressed members
CO2	Design pre and post tensioned concrete Sections for flexure and shear as per codal provisions
CO3	Design pre and post tensioned water tank and pipes
CO4	Calculate the flexural and shear strength of composite sections
CO5	Design pre and post tensioned Bridges
CO6	Explain the various methods of design of anchorage zones

CE6703-Water Resources and Irrigation Engineering

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Illustrate the water resource potential in India and Tamil Nadu & explain the Importance of National water policy
CO2	Analyze the hydrologic data to design the hydrologic station network using various statistical techniques.
CO3	Distinguish between consumptive and non – consumptive use of water and estimate water requirement for various purposes
CO4	Compare the different types reservoir with their functions and explain the reservoir operation and storage fixation
CO5	Apply various discounting techniques and factors to do economic analysis of water resource projects
CO6	To combine the collection of relevant data & sources for water resources development and management

CE6704-Estimation and Quantity Surveying

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Outline the principles of Estimation, illustrating the various types and methods.
CO2	Estimate the quantities of various items of a work in residential and other major structures.
CO3	Classify the various types of specification relevant to each item of work in a various class of buildings.
CO4	Illustrate the different types of contracts, Tender documents for preparing a new project proposal.
CO5	Examine the capital value and standard rent of a residential and government building.
CO6	Outline the principles of report preparation and summarize a report for various structures.

CE6010-Pavement Engineering (Elective)

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Differentiate between flexible and rigid pavements and its stress distribution characteristics
CO2	Design flexible pavements as per codal provisions
CO3	Design rigid pavements as per codal provisions
CO4	Deduct the distress in flexible and rigid pavements and identify appropriate strengthening methods
CO5	Outline the maintenance strategies of highways. (IRC Standards)
CO6	Classify the choice of stabilizers for improving the performance of pavements.

EN6501-Municipal Solid Waste Management (Elective)

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Classify the sources and characteristics of municipal solid wastes and summarize the regulatory requirements regarding waste management.
CO2	Compare the on-site storage & processing methods and model source reduction & segregation of wastes assessing economic aspects.
CO3	Analyze waste collection systems & collection routes and select transport method suiting source nature.
CO4	Outline off-site waste processing techniques and plan sustainable technique for Indian conditions.
CO5	Design sanitary landfills along with leachate and landfill gas collection systems.
CO6	Summarize all aspects & elements of integrated municipal solid waste management, planning sustainable waste minimization techniques.

Laboratory

CE6711-Computer Aided Design and Drafting Laboratory

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Design and draft the reinforcement details of Cantilever and counterfort retaining wall using IS codes.
CO2	Design and draw reinforcement details of solid slabs and T-beam bridge for IRC loading class.
CO3	Design Intze type water tank and draw the sectional details.
CO4	Design and draw reinforcement details of rectangular and circular water tanks using IS codes
CO5	Design plate girder and truss girder bridges and draw the sectional details as per codal provisions
CO6	Present the drawings both in conventional method and using modern software tool

CE6712-Design Project

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Work as a team and select a design problem for project work
CO2	Review the available literature and formulate the methodology for the chosen design
CO3	Analyse the structure using modern tools applying the theoretical principles.
CO4	Design the structural elements pertaining to the design problem as per the codal provisions.
CO5	Conclude with a optimum design for the structure as a whole.
CO6	Prepare a detailed report and make presentation on the same.

Course Outcomes – EVEN Semester 2018-19

Sl. No.	Semester	Theory/Practical	Course Code / Course Name
1	4	Theory	MA 8491-Numerical Methods
2	4	Theory	CE 8401-Construction Techniques & Practices
3	4	Theory	CE 8402-Strength of Materials II
4	4	Theory	CE 8403-Applied Hydraulic Engineering
5	4	Theory	CE 8404-Concrete Technology
6	4	Theory	CE 8491-Soil Mechanics
7	4	Practical	CE 8481-Strength of Materials Laboratory
8	4	Practical	CE 8461-Hydraulic Engineering Laboratory
9	4	Practical	HS 8461-Advance Reading and Writing
10	6	Theory	CE 6601-Design of RC and Brick Masonry Structures
11	6	Theory	CE 6602-Structural Analysis – II
12	6	Theory	CE 6603-Design of Steel Structures
13	6	Theory	CE 6604-Railways , Airports and Harbor Engineering
14	6	Theory	CE 6605-Environmental Engineering II
15	6	Theory	CE 6002-Concrete Technology (Elective 1)
16	6	Practical	CE 6611-Environmental Engineering Laboratory
17	6	Practical	CE 6612-Concrete and Highway Lab
18	8	Theory	MG 6851-Principles of Management
19	8	Theory	CE 6016-Prefabricated Structures
20	8	Theory	CE 6021-Repair and Rehabilitation of Structures
21	8	Practical	CE 6811-Project Work

**Fourth Semester B.E.
MA 8491-Numerical Methods**

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Understand the basic concepts and techniques of solving algebraic and transcendental equations.
CO2	Appreciate the numerical techniques of interpolation and error approximations in various intervals in real life situations
CO3	Apply the numerical techniques of differentiation and integration for engineering problems.
CO4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.
CO5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications

CE 8401-Construction Techniques & Practices

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	know the different construction techniques and structural systems
CO2	Understand various techniques and practices on masonry construction, flooring, and roofing.
CO3	Plan the requirements for substructure construction.
CO4	Know the methods and techniques involved in the construction of various types of super structures Select, maintain and operate hand and power tools and equipment used in the building construction sites.
CO5	know the different construction techniques and structural systems

CE 8402-Strength of Materials II

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Determine the strain energy and compute the deflection of determinate beams, frames and trusses using energy principles.
CO2	Analyze propped cantilever, fixed beams and continuous beams using theorem of three moment equation for external loadings and support settlements.
CO3	find the load carrying capacity of columns and stresses induced in columns and cylinders
CO4	Determine principal stresses and planes for an element in three dimensional state of stress and study various theories of failure
CO5	Determine the stresses due to Unsymmetrical bending of beams, locate the shear center, and find the stresses in curved beams.

CE 8403-Applied Hydraulic Engineering

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Apply their knowledge of fluid mechanics in addressing problems in open channels
CO2	Able to identify a effective section for flow in different cross sections
CO3	To solve problems in uniform, gradually and rapidly varied flows in steady state conditions
CO4	Understand the principles, working and application of turbines
CO5	Understand the principles, working and application of pumps

CE 8404-Concrete Technology

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	The various requirements of cement, aggregates and water for making concrete
CO2	The effect of admixtures on properties of concrete
CO3	The concept and procedure of mix design as per IS method
CO4	The properties of concrete at fresh and hardened state
CO5	The importance and application of special concretes.

CE 8491-Soil Mechanics

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	classify the soil and assess the engineering properties, based on index properties.
CO2	Understand the stress concepts in soils
CO3	Understand and identify the settlement in soils.
CO4	Determine the shear strength of soil
CO5	Analyze both finite and infinite slopes.

CE 8481-Strength of Materials Laboratory

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	The students will have the required knowledge in the area of testing of materials and components of structural elements experimentally.

CE 8461-Hydraulic Engineering Laboratory

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	The students will be able to measure flow in pipes and determine frictional losses
CO2	The students will be able to develop characteristics of pumps and turbines

HS 8461-Advance Reading and Writing

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Write different types of essays
CO2	Write winning job applications
CO3	Read and evaluate texts critically
CO4	Display critical thinking in various professional contexts

Sixth Semester B.E.

CE 6601-Design of RC and Brick Masonry Structures

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Design and detailing of Cantilever and Counterfort Retaining wall
CO2	Design and detailing of underground and elevated liquid retaining structures
CO3	Design and detailing of flat slab and Stair cases
CO4	Develop and demonstrate the yield line theory on various slabs
CO5	Explain the design concepts and knowledge related to brick masonry structures
CO6	Apply the IS code of practice for the design of concrete structural elements

CE 6602-Structural Analysis – II

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Identify statically determinate and indeterminate structures and analyze the beams, pin jointed and rigid jointed frames by flexibility method
CO2	Determine kinematic indeterminacy of the structures and analyze the structures including trusses, beams and frames by stiffness method
CO3	Illustrate the concepts of Finite element to structural, thermal, fluid flow problems.
CO4	Calculate the shape factor and plastic moment capacity
CO5	Analysis the cable stayed bridge of two hinged and three hinged stiffening girder
CO6	Calculate forces on the various members of space truss

CE 6603-Design of Steel Structures

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Explain the properties of steel and steel sections, and the concept of limit state method for designing connection using bolting and welding
CO2	Analyze and design various sections of tension members using the concept of limit state method.
CO3	Recognize the type of compression members and perform analysis and design for single section or built up section
CO4	Analyze and design beams as laterally supported and unsupported members
CO5	Compute the forces on roof trusses for wind loads and design purlin section
CO6	Determine forces developed on plate girders and gantry girders and design the same using codal provisions

CE 6604-Railways, Airports and Harbor Engineering

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Differentiate the elements of permanent way and design various components of railway track
CO2	Identify the methods of construction and maintenance of railway track
CO3	Classify the types of airport and plan an airport layout with all the necessary components
CO4	Design of runways and taxiways with markings and lightings
CO5	Examine harbour layout with terminal facilities and suggest suitable coastal protection works
CO6	Discriminate the various coastal structures like pier, breakwater, wharves, jetties, quays, etc

CE 6605-Environmental Engineering II

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Identify the various sources and characteristics of sewage generated in a society and its impact on the environment and public health.
CO2	Estimate the quantity of sewage generated in an area and plan suitable sewerage system based on the societal needs and legislative requirements.
CO3	Design the sanitary and storm water sewers.
CO4	Design the primary and secondary treatment units that are used in sewage treatment process.
CO5	Explain the self purification phenomenon of water bodies.
CO6	Propose innovative and sustainable treatment solutions to meet the effluent quality standards and to achieve zero discharge.

CE 6002-Concrete Technology (Elective 1)

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Analyze the properties of Cement, manufacturing process and its testing methods
CO2	Analyze the properties of Aggregates, types of aggregate and its testing methods
CO3	Evaluate the effects of adding Chemical and Mineral admixtures in concrete
CO4	Design the concrete mix as per IS specifications
CO5	Analyze the fresh and hardened properties of concrete by various test methods
CO6	Understand the various types of concretes and its practical applications

Laboratory

CE 6611-Environmental Engineering Laboratory

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Explain the importance of water and waste water sampling and preservation methods.
CO2	Explain the significance of waste water characteristic studies.
CO3	Identify appropriate testing methods for the given waste water sample.
CO4	Conduct the water and waste water characteristics study.
CO5	Compare the laboratory results with the legislative standards and interpret the results.
CO6	Propose appropriate solutions to environmental problems.

CE 6612-Concrete and Highway Lab

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Assess the workability property of a concrete by testing its fresh characteristics.
CO2	Evaluate the hardened properties of the concrete by compare its compressive, tensile and flexural strength.
CO3	Analyze the characteristics of coarse aggregates by inspecting its gradation and hardness value.
CO4	Determine the quality of bitumen by evaluate its ductility, penetration viscosity value at a higher degree of temperature.
CO5	Compare the marshall stability flow value and density value to determine the binder content present in the mix.
CO6	Design the CBR value of subgrade soil by assessing its load penetration value.

Eight Semester B.E.

MG 6851-Principles of Management

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Specify how the managerial tasks of planning, organizing, and controlling can be executed in a variety of circumstances for engineering students
CO2	Understand the managerial practices and choices, the roles and functions of managers both in traditional structures and evolving contemporary organizations.
CO3	Assess the situation, including opportunities and threats that will impact management of an organization.
CO4	Critically analyze the principles and theories to be applied in work environment.
CO5	Integrate management principles into management practices to take the most effective decisions / actions in specific situations.
CO6	Evaluate the work environment for taking managerial actions of planning, organizing, and controlling and address the issues of diversity.

CE 6016-Prefabricated Structures

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Describe the principle of prefabrication, along with production and erection techniques.
CO2	Explain the construction of prefabricated structural components.
CO3	Design prefabricated cross sections based on efficiency of members used.
CO4	Identify problems in design and provide allowance for deformation
CO5	Classify joints for different structural connection in prefabricated system
CO6	Illustrate the importance of avoidance of progressive collapse and using Indian codal provisions for prefabricated concrete.

CE 6021-Repair and Rehabilitation of Structures

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Explain the causes of deterioration in concrete structures & the assessment procedures for evaluating damages in concrete structures
CO2	Identify the construction errors and suggest suitable methods for rectification
CO3	Outline the durability properties of concrete and report on quality of materials for construction
CO4	Suggest materials used in repairing / strengthening existing concrete structures
CO5	Construe the methods of corrosion protection in concrete structures
CO6	Develop cost effective rehabilitation and retrofitting strategies for repairs in buildings

Laboratory
CE 6811-Project Work

COs	Course Outcome: The students, after the completion of the course, are expected to
C01	Work as a team and select a problem for project work
C02	Review and evaluate the available literature on the chosen problem
C03	Formulate the methodology to solve the identified problem
C04	Apply the principles, tools and techniques to solve the problem
C05	Conclude with a feasible solution which address environment and society
C06	Prepare a detailed report and make presentation on the same.