CE 10101A ELEMENTS OF CIVIL ENGINEERING

(Common for First Year students of all branches)

Course Outcomes (CO):

After completion of this course, students should be able

1. To understand the importance and basics of Civil Engineering, Architecture and Town-planning.
2. To understand the application of Building materials and analysis of Structures.
3. Students will be able to understand the fundamentals of Geotechnical Engineering and Earthquake Engineering and its effect on structures.
4. To understand the importance of Hydrology, Water resource and Environment Engineering.
5. To understand the fundamentals and importance of Surveying, Transportation Engineering and Civil Engineering Projects.

GN 10401A Experiential Learning Lab (1st year)
List of exercises offered by Civil Engineering Department

CE10102A STRENGTH OF MATERIAL

Course Outcomes (CO):

After completion of this course, students should be able to

1. To determine the resultants of coplanar Concurrent and Non-concurrent force system.
2. To find the SFD and BMD of determinate beams.
3. To solve the problems related to simple stresses and strains.
4. To evaluate bending stress and shear stress distribution in beams.
5. To analyse the problems related to torsion and compression members.

CE10103A FLUID MECHANICS & HYDRAULICS [3 1 0 4]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Understand the significance of fluid properties and explain its effects in a flow system.
2. Describe the motion of fluid particles and use Euler's and Bernoulli's equations to solve fluid flow problems.
3. Determine the losses in flow through pipes and calculate hydraulic coefficients.
4. Solve non-uniform flow problems in open channels and calculate the discharge in free surface flows.
5. Design models and prototypes using similitude concept and understand the theory of boundary layer and flow separation.

CE10104A ENGINEERING GEOLOGY [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Remembering the properties of minerals and rocks, processes of their formation, and their relevance in Civil Engineering.
2. Interpretation of various geological structures, their roles and influences on Civil Engineering planning and construction.
3. Applying the concept of hydrogeology for assessment and management of water resources
4. Analysing the geological set-up to evaluate suitability of sites and stability of Civil Engineering structures.
5. Understanding the working principles and applications of various geophysical techniques for interpretation of the subsurface geology.

CE10105A SURVEYING –I [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Remembering the basics principles of different methods of plane surveying.
2. Understand the idea and concept of various methods of surveying.
3. Applying the techniques of modern tools to find the measurements in horizontal and vertical plane
4. Understanding the various way to collect data from field in plane table surveying
5. Analysing the field data to calculate the Reduced level of any point on ground.

MA 10105A.10 ENGINEERING MATHEMATICS – III [2 1 0 3]

Course Outcomes (CO):

On successful completion of this course, students will be able to

1. Apply Fourier Analysis in real life problems
2. Understand and solve partial differential equations.
3. Apply Vector calculus in hydraulic analysis.
4. Implement probability to make improvements in infrastructure projects.
5. Understand the probability distribution which the structures follow.

CE10106A BUILDING MATERIALS AND CONCRETE TECHNOLOGY

Course Outcomes (CO):

After completion of this course, students should be able to

1. Understand and describe need for modern techniques and new materials in construction industry and to select materials for engineering purpose is very much crucial activity based its properties, suitability, strength and durability. Component in building,
2. Illustrate and explain the main process of building construction to enrich civil engineering technicians in performing their jobs with ease and confidence and will be able to select appropriate material for the given item of work on site. Identify the various building components in detail and interpret drawing and give layout on the field of given structure construction for any building.
3. Identify and analyse the properties and role of ingredients like cement, aggregate, admixtures etc. to produce better quality concrete, admixtures and its types, workability of concrete.
4. Apply and design concrete mix, hardened concrete, and special concrete and apply design mix concepts to produce concrete with adequate strength and durability. Properties of materials, Supervise the construction work of buildings,
5. Ability to identify the current codes related to green building and green rating systems. Understand behavior and characteristics of perform destructive, semi-destructive and non-destructive tests for concrete.

CE10107A NUMERICAL METHODS & STATISTICS [2 1 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Understanding and remembering the important formulae and equations for numerical analysis.
2. Executing various numerical techniques and methods for problem solving.
3. Applying the differential techniques, interpolation and integration for determining response of beams.
4. Evaluating the various solution of non-linear and differential equations.
5. Analysing and justifying solutions based on curve fittings techniques.

CE10108A GEOTECHNICAL ENGINEERING – I [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To remember and understand the various physical properties of soil like void ratio, dry density etc.
2. To apply the physical properties in order to calculate effective stresses.
3. To evaluate the permeability, seepage and distribution of stresses with help of the basic soil properties and effective stresses.
4. The student will be able to analyze the risk involved in construction due to excessive settlement with help of the physical properties
5. The student will be able to evaluate the shear strength of soil.

CE10109A Structural Analysis I [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To understand the concept of indeterminacy and stability of structures.
2. Analysis of determinate beams and trusses.
3. Evaluation of shear stresses, bending stresses and combined stresses developed in structures.
4. To determine the slope and deflection of beam.
5. To understand the concept of Torsion and axially loaded Compression member and its application in real life structures.

CE10110A DESIGN OF RC STRUCTURES – I [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Apply the direct design method to design the Flat Slab
2. Understanding the basic concepts of design for slender column.
3. Description of various methods of R.C.Design.
4. Applying the different methods to design the different kind of beams and slabs.
5. Design of compression member

CE10111A TRANSPORTATION ENGINEERING [3 1 0 4]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To understand the interactions between transportation planning and land use planning, economics, social planning and master plans.
2. To understand the principles and practices of transportation engineering and urban transportation planning.
3. Application of the basics of the geometric design of highways.
4. To develop knowledge about the different concepts of traffic engineering including traffic control, highway capacity, level of service etc.
5. To undertake various Traffic studies and apply the knowledge in planning and design of pavement and geometrics.

CE10112 A IRRIGATION ENGINEERING [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To remember various aspects of distribution of water in a irrigation system
2. To understand the governing factors for water requirements of crops.
3. To apply different theorems to find out sediment transport.
4. To analyze different factors for reservoir site selection without affecting the surrounding environment.
5. To understand the basic components of river training works.

CE10113A STRUCTURAL ANALYSIS-II [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To apply the concept of strain energy to find the slope and deflection of beams and trusses.
2. To understand the mechanism of arches, cables and suspension bridges and analysis of these type of structures.
3. Description of various analysis approaches available for the analysis of Indeterminate structures and its application.
4. Analysis of Indeterminate beams.
5. Analysis of Indeterminate frames.

CE10114A ENGINEERING HYDROLOGY [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To understand the concepts related to precipitation, it's data collection and analysis.
2. Utilize infiltration equations to compute infiltration rate, depth of infiltration and indices associated.
3. To identify factors affecting evaporation/transpiration and estimate the losses due to evaporation
4. To understand the processes associated with surface runoff to estimate runoff volume
5. To develop runoff hydrographs and recognize its significance in engineering practices

CE10115A ENVIRONMENTAL ENGINEERING [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Design Water and Waste Water Treatment Units with Different Flow Conditions
2. Apply concept of physical and chemical characteristics of water and waste water.
3. Understand the safe disposal of waste water.
4. Compute the quantity of storm and sanitary sewage.
5. Analyse the solid waste disposal and Industrial waste management.

CE10116A DESIGN OF RC STRUCTURES– II
[3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Apply the direct design method to design the Flat Slab.
2. Understanding the basic concepts of design for slender column.
3. Apply the concept of limit state method to analyze and design of various types of stair case.
4. Analyze and design of footings using the concept of limit state method.
5. Utilize the concept of limit state method to analyze and design of retaining wall and water tank.

CE10117A CONSTRUCTION PLANNING, ORGANIZATION & EQUIPMENTS [2 0 0 2]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Understand various stages of construction planning and scheduling
2. Apply the network analysis in a project plan
3. Analyse a project plan using PERT and CPM.
4. Evaluate the relationship of project cost with the scheduling and updating.
5. Identify the advancements in concreting equipment and techniques.

CE10118A GEOTECHNICAL ENGINEERING – II [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To understand and apply the concept of Stability of slopes and forces acting on the retaining wall.
2. To apply the shear strength parameters and finally find the bearing capacity of a soil in order to do foundation design.
3. To evaluate the load carrying capacity of a particular footing or foundation.
4. To apply ground improvement techniques in order to improve the strength and bearing capacity.
5. The students will be able to investigate the soil and identify its properties for evaluation of its load carrying capacity.

CE10119A REMOTE SENSING AND GIS [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Remembering the basic principles of Aerial Photography, satellite Remote Sensing, and Geographic Information Sc
2. Understanding the fundamental concepts of Remote Sensing and Geographic Information Science.
3. Applying the techniques of digital image processing and GIS for feature extraction and mapping
4. Analysing and interpreting satellite images for identification of features and events
5. Evaluating and modelling scenarios for decision making on resource assessment and planning

CE10120A DESIGN OF STEEL STRUCTURES [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Interpret the various properties of the structural steel and classification of the steel.
2. Explain the Concept of limit state method and working stress method for design of steel structures.
3. Apply the concept of limit state method to analyze and design of tension members in real time problems.
4. Analyze and design of compression members using the concept of limit state method.
5. Utilize the concept of limit state method to analyze and design of flexural members (Beams and plate girders)

CE10121A ESTIMATING, COSTING AND VALUATION [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Determine the earthwork calculation for roads and canals.
2. Understand preparation of Notice inviting tender document for bidding, tendering process and examining rate analysis of civil works.
3. Evaluate the valuation of building for different specifications and create new technologies to develop concrete estimating methods.
4. Analyze the rates of various civil engineering items used in construction.
5. Prepare the estimate of various kinds of buildings with skill lasting for entire professional life.

CE10201A FUNDAMENTALS OF REMOTE SENSING AND GIS [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Remembering the basic principles of Aerial Photography, satellite Remote Sensing, and Geographic Information Sc.
2. Understanding the fundamental concepts of Remote Sensing and Geographic Information Science
3. Applying the techniques of digital image processing and GIS for feature extraction and mapping
4. Analysing and interpreting satellite images for identification of features and events
5. Evaluating and modelling scenarios for decision making on resource assessment and planning

CE10202A OPTIMISATION TECHNIQUES [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To understand the concept of classical optimization techniques.
2. Determine the optimum solution using simplex and dual simplex methods.
3. Applying dynamic programming in different optimization problems.
4. Analysis of reseveroir operation policies.
5. To understand the concept of stochastic optimization techniques.

CE10203A DISASTER MANAGEMENT [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Understanding of Disaster management and Risk and Vulnerability Analysis of Disaster.
2. Establishment of Disaster Preparedness and Response.
3. Categorize Rehabilitation, Reconstruction and Recovery.
4. Understand Disaster Response Plan

CE10301A GROUND WATER ENGINEERING
[3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Interpret the various characteristics of aquifers and their significance.
2. Explain the Concept of confined and unconfined aquifers related to groundwater flow problems.
3. Apply the concept of Darcy law to compute the yield from different aquifers.
4. Analyze and design of confined and unconfined wells using well hydraulics.
5. Description of various methods on the process and techniques of natural and artificial recharge of groundwater.

CE10302A ENVIRONMENTAL IMPACT ASSESSMENT
[3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To make the students understand and remember the basic concept of planning and management of impact studies
2. Ability to remember indices and indicator for describing environment
3. Ability to predict the environmental impact on air, surface, soil and ground water.
4. Evaluate the decision method of alternatives and environmental monitoring
5. Understand the public participation in environmental decision making, government standard in Environmental Impact Assessment.

CE10303A SOLID WASTE MANAGEMENT [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To apply the concept of effective disposal to reduce the risk of pollution from hazardous material.
2. To analyse the best suited technique for effective disposal of solid waste.
3. To evaluate the cost involved in transporting the waste from one location to another and thus find the most economical way.
4. Students will learn to do the analysis for route optimization, municipal solid waste characteristics and quantities.
5. To apply the knowledge of Composting, Incineration, Recycle and Reuse Sanitary Land Filling in real World and thus reduce environmental hazards

CE10304A TRANSPORT PLANNING [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Understand the concept of traffic control aids, traffic management and regulations
2. To Understand and remember the concept of traffic flow and different traffic flow theory.
3. To evaluate the study area and to analyze the different types of Surveys.
4. Students will learn to do the analysis for accident studies, growth of vehicular traffic, passenger trips.
5. To apply the knowledge of transportation planning for urban public transportation systems.

CE10305A DESIGN OF HYDRAULIC STRUCTURES
[3 0 0 3]

Course Outcomes (CO):
After completion of this course, students should be able to

1. To make the students understand and remember the design concept of dams,
2. Ability to solve problems related to spillway and weirs
3. Ability to design both lined and unlined canal section.
4. Evaluate the design concept of canal fall and trapezoidal notch fall
5. Understand the design details of cross regulator and distributary head regulator

CE10306A FINITE ELEMENT METHOD OF ANALYSIS
[3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Remembering the basic principles of finite element method, theory of elasticity and the relationship between simple stress and strain
2. Understanding the fundamental concepts of Element.
3. To evaluate the cost involved in transporting the waste from one location to another and thus find the most economical way.
4. Students will learn to do the analysis for route optimization, municipal solid waste characteristics and quantities.
5. To apply the knowledge of Composting, Incineration, Recycle and Reuse Sanitary Land Filling in real World and thus reduce environmental hazards

CE10307A GROUND IMPROVEMENT TECHNIQUES [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To make the students understand and remember the various ground improvement techniques available.
2. The students will be able to analyze the quality of the ground, the possibility of failure in excessive settlement or bearing capacity and the need of ground improvement for a particular site.
3. Depending on the properties of the soil and their inspection, the students will be able to evaluate the cost involvement in improving a particular type of soil with each of the techniques.
4. The students will be able to compare the cost involved in improving a particular type of soil by different techniques.
5. The students will be able to apply his engineering knowledge, based on which they will be able to find the best suited, cost effective and easiest technique to improve the quality of a particular type of soil.

CE10308A STRUCTURAL DYNAMICS AND EARTHQUAKE ENGINEERING [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Understand the concept of earthquake, its cause and terminology related to earthquakes.
2. Apply knowledge of dynamic forces to form and solve equations of motion.
3. Evaluate Single degree and multi degree freedom systems using various methods
4. Compute and evaluate the earthquake forces using equivalent static force method
5. Understand seismic design philosophy, and provisions of ductile code.

CE10309A ADVANCED FOUNDATION ENGINEERING [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To evaluate the bearing capacity with different method.
2. To design pile and pile cap.
3. To analyze and design foundation on expansive soil.
4. To understand the concept of machine foundation
5. To apply ground improvement techniques in order to improve the strength and bearing capacity.

CE10310A ADVANCED STRUCTURAL DESIGN [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Understanding the Airy's theory to design bunkers and silos.
2. Apply the concept of working stress method to analyze and design of water tank.
3. Solve the problem related to Design of Box Culvert
4. Analyze and Design of Grid Floors and Portal Frames
5. Utilize the concept of limit state method to analyze and design of Beams Curved in Plan.

CE10311A ADVANCED STRUCTURAL ANALYSIS [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To understand the concept of indeterminacy and analysis of indeterminate structures.
2. Evaluation of shape factor, collapse load, and plastic moment carrying capacity of structures using the concept of plastic analysis.
3. Analysis of indeterminate beams, trusses and frames by matrix method.
4. Ability to solve problems related to influence lines.
5. Ability to analyze the problems of beams and frames by Column Analogy method.

CE10312A BRIDGE ENGINEERING [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Remembering the basic principle to investigate bridge.
2. Understanding the standard specification of road bridges as per IS Codes.
3. Analysis of culverts.
4. Ability to design the concrete bridges.
5. Interpret the various properties of substructures and super structures of bridges.

CE10313A REPAIR AND REHABILITATION OF STRUCTURES [3 0 0 3]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Acquiring practical knowledge and hands-on experience in Non Destructive Testing Techniques.
2. Identify the causes of deterioration of concrete, effect of earthquake.
3. Identifying the suitable method for repairs of structural components.
4. Analyse and identify the proper method of repairs on steel structures.
5. Interpret various rehabilitation methods for under water structures.

CE10401A PLANNING AND COMPUTER AIDED DRAWING OF BUILDINGS [0 0 2 1]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Remembering the basics of Auto Cad- Command and purpose
2. Understand the idea and concept of Page layout and settings, Format, Units, Dimensions, engineering drawing.
3. Applying the different commands to draw foundations, doors and windows.
4. Understanding the concept of engineering drawing, plan, elevation and section.
5. Preparing complete set of drawings and reports.

CE10402A GEOLOGY LAB [0 0 2 1]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Learn identification of different rock-forming and ore minerals in hand specimens.
2. Learn identification and differentiation of important rocks in hand specimens
3. Compute true thickness of beds using dip, width and vertical thickness.
4. Draw profile view of a geological map based on the plan view.
5. Interpret geological maps to identify geological structures and sequence of geological events.

CE10403A SURVEYING LAB [0 0 2 1]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Understanding the practical use of different kind of surveying instruments.
2. Explaining the methods and techniques of experiments with detailed concept.
3. By Conducting the experiments, collect data from the field to perform required calculations to achieve the objective for different types of surveying experiments.
4. Able to control the accumulation of errors in experiments.
5. Preparing Laboratory reports.

CE10404A FLUID MECHANICS LAB [0 0 2 1]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To understand the principles of fluid flow and conduct experiments to determine the associated parameters.
2. To assess the energy losses in fluid flowing through pipes
3. To impart training to use various flow measuring devices for making engineering judgments in real time flow scenarios.
4. To gain knowledge on performance and testing of hydraulic turbines and pumps.
5. Prepare reports based on interpretation of experimental results.

CE10405A MATERIAL TESTING LAB [0 0 2 1]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Understanding the theoretical concept of various properties of construction materials.
2. Interpreting the concept of different kinds of experiments for different materials.
3. Conducting the experiments to validate the theoretical knowledge on the properties of construction materials.
4. Analyzing the results obtained from experiments and interpret the result and its deviation from normal standard if any.
5. Preparing Laboratory reports.

CE10407A COMPUTER AIDED STRUCTURAL ANALYSIS AND DESIGN [0 0 2 1]

CE10408A ENVIRONMENTAL ENGINEERING LAB [0 0 2 1]

Course Outcomes (CO):
After completion of this course, students should be able to

1. To compute total solids, suspended solids, dissolved solids, volatile and fixed solids both water and waste water
2. To understand concept of physical characteristics of water and waste water.
3. To understand the safe disposal of waste water.
4. To compute chemical characteristics of water and waste water.
5. To evaluate physical properties of filter sand.

CE10409A GEOTECHNICAL ENGG. LAB [0 0 2 1]

Course Outcomes (CO):

After completion of this course, students should be able to

1. To understand and apply the concept of soil mechanics to find the basic soil parameter like unit weight, water content, Atterberg's limit etc.
2. To identify the type of soil
3. To identify the and analyze the seepage characteristics
4. To evaluate the strength of the soil by finding cohesion and angle of internal friction
5. To evaluate the bearing capacity of the soil.

CE10410A Geoinformatics Lab [0 0 2 1]

Course Outcomes (CO):

After completion of this course, students should be able to

1. Acquiring practical knowledge and hands-on experience in remote sensing technique.
2. Learning various GIS operations for creation, analysis and interpretation of thematic maps
3. Applying various digital image processing techniques to extract hidden features and information
4. Classifying digital satellite images using supervised and unsupervised classification techniques
5. Performing analysis and modelling through integration of remote sensing and GIS

Sub Code: BA 10146A **Credit: 2 (L-2, T-0, P-0)**

Subject Name: INDUSTRIAL MANAGEMENT

Course Outcomes (CO):

CO1: To provide basic knowledge and application of functions of management
CO2: To help students to understand and apply principles of management evolved by pioneers of management.
CO3: To enable students to apply basic quantitative techniques for making decisions related to operations management
CO4: To help student apply various techniques for optimal production management
CO5: To apply concepts of materials management for maintaining optimal inventory

Behavior Management and Leadership (Capsule Course/Certificate course)
Sub. Code: GN10102A

Course Outcomes (CO):

CO1: Evaluate self-awareness, self-management concepts to help others understand themselves better
CO2: Judge ethical issues and values in professional/personal situations and decision making
CO3: Demonstrate enhanced ability to think and reason creatively while solving problems
CO4: Estimate Stress levels and causes and develop strategies for managing stress
CO5: Acquire better capabilities to communicate and forge interpersonal relationships
CO6: Develop abilities to build teams and lead them

Sub Code: **GN11001A** **Credit: 0 (L-3, T-0, P-0)**

QUANTITATIVE APTITUDE AND LOGICAL REASONING
(Optional Audit Course)

Course Outcomes (CO): On successful completion of the course

CO1 Student will be able to solve variety of problems in the space of quantitative domain.
CO2 Students will be able to use data to determine or to deduce other facts from a set of given data.
CO3 Students will be able to use shortcuts, tricks and techniques to solve the problems with accuracy.
CO4 Students will be able to demonstrate essential skills pertaining to business communications.

Sub Code: GN10103A **Credit: 1 (L-1, T-0, P-0)**

PROFESSIONAL COMMUNICATION & TECHNICAL WRITING

Course Outcomes:

On successful completion of this course, students will be able to:

1. Develop skills required for effective communication of scientific knowledge in terms of oral presentation
2. Enhance skills required for effective communication of scientific knowledge in terms of technical writing
3. Analyze the importance of peer review and criticisms on Technical papers and proposals
4. Understand the importance of Ethics in research

Sub Code: GN10101A **[2-1-0-3]**

UNIVERSAL HUMANVALUES-II: UNDERSTANDING

HARMONY and ETHICAL HUMAN CONDUCT

Course Outcome (CO):

1. Students are expected to understand self-exploration and Basic Human Aspirations.
2. To understand harmony in themselves (Human being).
3. To become more aware of their surroundings (family, society, nature); they would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.
4. They would have better critical ability. They would also become sensitive to their commitment towards what they have understood (human values, human relationship and human society). It is hopedthattheywouldbeabletoapplywhattheyhavelearnttotheirownselfindifferentday-to-day settings in real life, at least a beginning would be made in this direction.

PS3 Exploring NaturalAcceptance

CE10504A MINOR PROJECT [0 0 4 2]

CE10601A RESEARCH PROJECT/ INDUSTRIAL PROJECT - I [0 0 14 7]

CE10602A MAJOR PROJECT / INDUSTRIAL PROJECT - II [0 0 24 12]

CE10901A INDUSTRIAL TRAINING I [0 0 2 1]

CE10902A INDUSTRIAL TRAINING II [0 0 2 1]

HONORS
IN
EARTHQUAKE-RESISTANT STRUCTURES

Outcome of the course:

- Students who take this course will gain a thorough, critical understanding of advanced seismology and earthquakes.
- Students will gain an understanding of advanced concrete technology.
- Students who take this course will gain a basic knowledge of structural dynamics.
- Students will gain a detailed understanding of Seismic Design Philosophy construction technique of structures.

ENGINEERING SEISMOLOGY [3 0 0 3]

Subject code: CE10314A

Course Outcomes:

CO1: Critical understanding of advanced seismology and causes of earthquakes.
CO2: Remembering the seismic hazard and a detailed understanding of wave equations and their solutions.
CO3: Assess the design basis ground motion parameters and its application in earthquake engineering for disaster mitigation.
CO4: Processing, analysis and interpretation of earthquake data, determination of magnitude, epicentral distance, focal depth, focal mechanism, seismic hazard and risk, seismic zoning.
CO5: Prediction of earthquake – a brief idea.

ADVANCED CONCRETE TECHNOLOGY [3 0 0 3]

Subject code: CE10315A

Course Outcomes:

CO1: Remembering advanced concrete terminology.
CO2: Understanding mixed design of concrete, high strength of concrete requirements for advanced concrete.
CO3: Remembering and understanding to use plasticizers, effect of water cement ratio and super plasticizers used in the construction works.
CO4: Analyzing the various Non Destruct Test (NDT)
CO5: Analyzing and evaluating the durability and fire hazards in concrete.

INTRODUCTION TO STRUCTURAL DYNAMICS [3 0 0 3]

Subject code: CE10316A

Course Outcomes:
CO1: Understanding the basic knowledge of structural dynamics.
CO2: Remembering and understanding the Single degree of freedom system.
CO3: Application of Multi degree of freedom system in earthquake engineering.
CO4: Analysis of the analysis of multi-degree of freedom un-damped systems – Raleigh method, Power Method
CO5: Analysis of Static and dynamic structures.

EARTHQUAKE DESIGN AND CONSTRUCTION [3 0 0 3]

Subject code: CE10317A

Course Outcomes:
CO1: Critical understanding of advanced seismology and causes of earthquakes.
CO2: Understanding and remembering the Seismic Design Philosophy and geometric configuration of buildings.
CO3: Distinguish Masonry Buildings and Reinforced Concrete Buildings.
CO4: Categorize the importance of Open Ground Storey, Short Columns, Shear walls.
CO5: Evaluate Load Paths, Non-structural Elements, Confined Masonry Construction, Sinking of Buildings, Quality control during Earthquakes.

SEMINAR [0 0 1 1]
Subject code: CE10701A

PROJECT [0 0 14 7]
Subject code: CE10603A

NATURAL HAZARDS AND DISASTERMANAGEMENT

Outcome of the course:

- Students who take this course will gain a thorough, critical understanding of advanced seismology and earthquakes.
- Students will gain an understanding of flood and drought.
- Students who take this course will gain a basic knowledge of Landslide Hazard Assessment and Mitigation.
- Students will gain a detailed understanding of Disaster Management.

Minor specialization (Semester: IV)

ENGINEERING SEISMOLOGY (3 003]
Subject code: CE10801A

Course Outcomes:

CO1: Students who take this course will gain a thorough, critical understanding of seismology and causes of earthquakes.

CO2: Understanding of seismic hazard and a detailed understanding of wave equations and their solutions. Students will be able to use, interpret and evaluate.

CO3: Assess the design basis ground motion parameters and its application in earthquake engineering for disaster mitigation.

CO4: Processing, analysis and interpretation of earthquake data, determination of magnitude, epicentral distance, focal depth, focal mechanism.

Minor specialization (Semester: V)

FLOOD AND DROUGHT [3003]

Subject code: CE10802A

Course Outcomes:

CO1: An understanding of flood and flood routing.

CO2: An understanding of the Drought and Drought management system.

CO3: To know the water resources scenario in India.

Minor specialization (Semester: VI)

LANDSLIDE HAZARD ASSESSMENT AND MITIGATION [3 0 0 31]

Subject code: CE10803A

Course Outcomes:

CO1: Students who take this course will gain a basic knowledge of landslides and factors Landslides.

CO2: Students will gain a detailed knowledge of classification and mapping of landslides.

CO3: Students will gain a detailed understanding of landslides hazard and effect of stability of Slopes.

CO4: Students will gain a detailed understanding of landslides control measures and case studies of landslides.

Minor specialization (Semester: VII)

DISASTER MANAGEMENT [3003]

Subject code: CE10804A

Course Outcomes:

CO1: Students who take this course will gain a thorough, critical understanding of Disaster management and Risk and Vulnerability Analysis of Disaster.

CO2: Students will gain a detailed understanding of Disaster Preparedness and Response.

CO3: Students will gain a detailed understanding of Rehabilitation, Reconstruction and

SEMINAR [0 0 1 1]

Subject code: CE10702A

PROJECT [0 0 14 7]

Subject code: CE10604A