CE 801 – Geo. Technical Engg. II

Branch: Civil Engineering-VIII Semester
Course: CE801 Geo Tech. Engg. - II

Unit - I

Unit - II

Unit - III

Unit - IV

Unit - V

LABORATORY WORK: Laboratory work will be based on the course of Geotech. Engg. I & II as required for soil investigations of engineering projects and not covered in the lab. Work of Geotech. Engg. I.

LIST OF EXPERIMENTS
1. Indian Standard Light Compaction Test/Std. Proctor Test
2. Indian Standard Heavy Compaction Test/Modified Proctor Test
3. Determination of field density by Core Cutter Method
4. Determination of field density by Sand Replacement Method
5. Determination of field density by Water Displacement Method
6. The corifiled Compression Test
7. Triaxial compression test
8. Lab. Vane Shear test
9. CBR Test
10. Demonstration of
Plate Load Test
SPT & DCPT

Reference Books :-

1. Soil Mechanics & Foundation Engg. by Dr. K.R. Arora - Std. Publishers Delhi
2. Soil Mechanics & Foundation Engg. by B.C. Punmia - Laxmi Publicscations Delhi
6. Relevant IS Code
CE 802 – Construction Planning & Management

Branch: Civil Engineering-VIII Semester
Course: CE802 Construction Planning & Management

Unit -I
Preliminary and detailed investigation methods: Methods of construction, form work and centering.
Schedule of construction, job layout, principles of construction management, modern management techniques like CPM/PERT with network analysis.

Unit -II
Construction equipments: Factors affecting selection, investment and operating cost, output of various equipments, brief study of equipments required for various jobs such as earth work, dredging, conveyance, concreting, hoisting, pile driving, compaction and grouting.

Unit -III
Tenders & Contracts: Different types of Tenders & Contracts, notice inviting tenders, contract document, departmental method of construction, rate list, security deposit and earnest money, conditions of contract, arbitration, administrative approval, technical sanction.

Unit -IV
Specifications & Public Works Accounts: Importance, types of specifications, specifications for various trades of engineering works.
Various forms used in construction works, measurement book, cash book, materials at site account, imprest account, tools and plants, various types of running bills, secured advance, final bill.

Unit-V
Site Organization & Systems Approach to Planning: Accommodation of site staff, contractor’s staff, various organization charts and manuals, personnel in construction, welfare facilities, labour laws and human relations, safety engineering.
Problem of equipment management, assignment model, transportation model and waiting line modals with their applications, shovel truck performance with waiting line method.

Reference Books :-
1. Construction Equipment by Peurify
2. CPM by L.S. Srinath
3. Construction Management by S. Seetharaman
4. CPM & PERT by Weist & Levy
5. Construction, Management & Accounts by Harpal Singh
6. Tendering & Contracts by T.A. Talpasai
CE 803 – Advanced Structural Design II (Steel)

Branch: Civil Engineering-VIII Semester
Course: CE803 Advanced Structural Design- II (Steel)

Unit – I
Plate girder bridges (Riveted and welded)

Unit – II
Trussed girder bridges for railways and highways (IRC & IRS holding). Bearings for bridges.

Unit – III
**Water Tanks:** Pressed steel tanks, tanks with ordinary plates, square, rectangular, circular with hemispherical bottom and conical bottom.

Unit - IV
**Chimneys:** Guyed and self supporting steel stacks.

Unit – V
Bunkers, Silos & Towers

Reference Books :-
1. Design of Steel Structures – Ramammutham
2. Design of Steel Structures – Punia
3. Steel Str. by Ramchandra Vol II
4. Steel Str. by Arya & Ajmani
5. Design of steel structures – L.S. Negi
CE -8041 Structural Dynamics & Earthquake Engineering

Unit - I.
Single DOF systems - Undamped and Damped, Response to Harmonic and periodic excitations, Response to Arbitrary, Step, Ramp and Pulse Excitations.

Unit - II.

Unit - III.
Elements of seismology - Definitions of the basic terms related to earthquake (magnitude, intensity, epicenter, focus etc.), seismographs Earthquake Response of structures - Nature of dynamic loading resulting from earthquake, construction of Response spectrum for Elastic and Inelastic systems.

Unit - IV.
Multiple DOF systems : Stiffness and Flexibility matrices for shear buildings, free and forced vibrations - undamped and damped, Modal and Response History Analysis, Systems with distributed mass & elasticity.

Unit - V.

Reference Books :-
3. Paz Mario, Structural Dynamics, CBS Publishers, Delhi
CE-8042 Pavement Design

Unit -I.
Equivalent Single Wheels Load concepts and applications, Relationship between wheel arrangements and loading effects, tyre contact area, Effect of load repetition, Effect of transient loads, Impact of moving loading, Factors to be considered in Design of pavements, Design wheel load, soil, climatic factors, pavement component materials, Environmental factors, Special factors such as frost, Freezing and thawing.

Unit II.
Flexible Pavements: Component parts of the pavement structures and their functions, stresses in flexible pavements, Stress distribution through various layers, Boussinesque’s theory, Burmister’s two layered theory, methods of design, group index method, CBR method, Burmister’s method and North Dakota cone method.

Unit -III.
Rigid Pavements: Evaluation of subgrade, Modulus-K by plate bearing test and the test details, Westergaard’s stress theory stresses in rigid pavements, Temperature stresses, warping stresses, frictional stresses, critical combination of stresses, critical loading positions.

Unit -IV.
Rigid pavement design: IRC method, Fatigue analysis, PCA chart method. AASHTO Method, Reliability analysis.
PAVEMENT JOINTS: Types of joints, contraction and warping joints, dowel bars and tie bars, Temperature reinforcements, filling and sealing of joints.

Unit -V.
Evaluation and Strengthening of Existing Pavements: Benkleman beam method, Serviceability Index Method.
Rigid and flexible overlays and their design procedures.

Reference Books:
1. Principles of pavement design by E.J.Yoder & M.W. Witczak
4. DSIR, Conc. Roads Design & Construction
5. Srinivasan M. "Modern Permanent Way"
CE- 8043 Air Quality Monitoring & Control

Unit - I
Air pollution problem: Economics and social aspects, historical episodes of air pollution. Sources of Air pollution, effects of air pollution on health, animal, plants and materials

Unit - II
Role of meteorological condition, properties of typical air pollutants, air diffusion and concentration pollutants. general diseases caused by air pollutants. toxicity of various pollutants. Plums patterns and height of chimneys.

Unit - III
Atmospheric chemistry, formation of secondary pollutants – PNN, PBN, Photolytic cycles, general diseases and toxicity of pollutants

Unit - IV
Sampling and Analyzing of Air Pollutants: Instruments pollution survey, standards of air pollution. Principle of air pollution control, site selection and zoning, various control methods, process and equipment changes, design and operation of various air pollution control equipments.

Unit - V
Air pollution control legislation, public education pollution standards, status of air pollution control in various countries.

Industrial Hygiene: Concept and importance, factory Involved in environmental hazards, industrial ventilation occupational diseases, control methods.

Reference Books :--
1. "Air Pollution" - Faith W.L, John Wiley & Sons
6. Air Pollution – Wark and Warner
CE- 8044 Energy Efficient & Green Building

UNIT-I

UNIT-II

Codes: National Building Code, Energy Conservation Building Codes, Key barriers to building green in India, Overcoming the barriers, implementation approach, etc.

UNIT-III

UNIT -IV

DESIGN GUIDELINES: Description of Buildings, Methodology, General Recommendations, Specific Guidelines.
UNIT-V

CE 8045 : DESIGN OF PRESTRESSED CONCRETE STRUCTURES

Unit – 1.
Introduction, Principles of prestressing, Different methods of prestressing – post tensioning and pre-tensioning.

Unit – 2.
Shear strength and torsional strength of prestressed concretes section. Principle stresses and principal shear stresses, Ultimate shear resistance.

Unit – 3.

Unit – 4.

Unit – 5.
Design of tension and compression members, Design for combined bending and compressive, Different approaches for design, Introduction to design of transmission poles, roof truss members, purlin, railway sleepers.

Books & References Recommended:
1. Lin T.Y., *Design of Prestressed Concrete Structures*.
2. Varatnam P., *Prestressed Concrete Structures*.
5. Krishna Raju, *Prestressed Concrete*.
7. *IS-1343*.
CE-8047 Advance Water Resources Engg

**Unit - 1**

Optimal Raingauge Network Design, Adjustment of Precipitation Data, Depth Area-Duration Analysis, Design Storm, Probable Maximum Precipitation, Probable Maximum Flood, Flood Frequency Analysis, Risk Analysis,

**Unit - 2**

Flood Management, Flood Routing through Reservoirs, Channels Routing Muskingum Method, Introduction to Stochastic Models in Hydrology like AR, ARMA, ARIMA etc. Concept of Correlogram.

**Unit - 3**


**Unit - 4**


**Unit-5**


**Book Recommended:**

**Test Books**
2. Philiphs & Ravindran: *Operations Research*
3. Hire D.S. & Gupta: *Operation Research*

**Reference Books**
3. Singh V.P. : *Elementary Hydrology*
CE 804 – Major Project

Branch: Civil Engineering-VIII Semester
Course: CE805 Major Project - I

Each candidate shall work on an approved Civil Engg. Project and shall submit design and a set of drawings on the project.