Haryana Engineering College, Jagadhri

Lesson Plan of Civil Engineering Deptt. 6th Semester

Subject : Design of Steel Structure - II (CE-302A)

Objective of Course :

1. Students will be able to familiar with the Elementary Plastic Analysis and Design of steel structures.
2. Students will be able to design steel water tank and steel stacks and their stability checks.
3. Students will be able to design steel towers and Cold Formed Sections and their stability checks.
4. Students will be able to design steel industrial building and their stability checks.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Elementary Plastic Analysis and Design	Lecture	
Day 2	Introduction	Lecture	
Day 3	Scope of plastic analysis	Lecture	
Day 4	Ultimate load carrying capacity of tension members	Lecture	
Day 5	Compression members	Lecture	
Day 6	Flexural members	Lecture	
Day 7	Shape factor, mechanisms	Lecture	
Day 8	Plastic collapse, analysis	Lecture	Assignment 1
Day 9	Plastic analysis applied to steel beams	Lecture	
Day10	Simple portal frames and design.	Lecture	
Day11	Design of Water Tanks	Lecture	
Day12	Introduction	Lecture	
Day13	Permissible stresses	Lecture	
Day14	Design of circular	Lecture	
Day15	Rectangular and pressed steel tanks including staging.	Lecture	
Day16	Design of Steel Stacks	Lecture	
Day17	Introduction	Lecture	
Day18	Various loads to be considered for the design of steel stacks	Lecture	Assignment 2
Day19	Design of steel stacks including foundation.	Lecture	
Day20	Towers	Lecture	
Day21	T microwave towers	Lecture	
Day22	Design loads	Lecture	
Day23	Classification	Lecture	
Day24	Design procedure and specification.	Lecture	
Day25	Cold Formed Sections	Lecture	
Day26	Introduction and brief description of various types of cold formed sections	Lecture	
Day27	Local buckling	Lecture	Assignment 3

Day28	Concepts of effective width and effective sections	Lecture	
Day29	Elements with stiffeners	Lecture	
Day30	Design of compression and bending elements.	Lecture	
Day31	Industrial Buildings	Lecture	
Day32	Loads	Lecture	
Day33	General arrangement and stability	Lecture	
Day34	Design considerations	Lecture	
Day35	Design of purlins	Lecture	Assignment 4
Day36	Design of roof trusses	Lecture	
Day37	Industrial building frames	Lecture	
Day38	Bracings	Lecture	
Day39	Stepped columns	Lecture	

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Haryana Engineering College, Jagadhri

Lesson Plan of Civil Engineering Deptt. 6th Semester

Subject : Transportation Engineering (CE-304A)

Objective of Course :

1. Students will able to gain knowledge about the history review of roads and development of their concern authorities.
2. Students will be able to examine geometric design and their cross sectional elements of highways.
3. Students will gain knowledge about regulation and safe movements of the traffic.
4. Students will gain knowledge about different fundamental parameters of highway materials.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Introduction: Transportation and its importance	Lecture	
Day 2	Different modes of transportation	Lecture	
Day 3	Brief review of history of road development in India and abroad: Roman, Tresagne, Telford and Macadam constructions	Lecture	
Day 4	Road patterns. Classification of roads	Lecture	
Day 5	Objectives of highway planning	Lecture	
Day 6	Planning surveys. Saturation system of planning.	Lecture	
Day 7	Traffic Characteristics and Traffic Surveys: Road user and vehicular characteristics	Lecture	
Day 8	Traffic studies such as volume, speed and O & D study	Lecture	Assignment 1
Day 9	Parking and accident studies	Lecture	
Day10	Fundamental diagram of traffic flow. Level of service	Lecture	
Day11	PCU, Capacity for non-urban roads, Causes and preventive measures for road accidents	Lecture	
Day12	Traffic Control Devices: Traffic control devices: signs, signals, markings and islands	Lecture	
Day13	Types of signs, Types of signals	Lecture	
Day14	Design of an isolated fixed time signal by IRC method.	Lecture	
Day15	Design of Flexible Pavements: Types of pavements	Lecture	
Day16	Flexible and rigid pavements	Lecture	
Day17	Components of a pavement and their functions, Factors affecting design of pavements	Lecture	
Day18	Design of thickness of a flexible	Lecture	Assignment 2

	pavement by Group Index method		
Day19	CBR method (including latest IRC guidelines)	Lecture	
Day20	Riaxial method and Burmister's method.	Lecture	
Day21	Design Of Rigid Pavements: Westergaard's theory	Lecture	
Day22	Critical locations of loading, load and temperature stresses, Critical combination of stresses	Lecture	
Day23	IRC guidelines for determination of thickness of a rigid pavement	Lecture	
Day24	Joints: requirements, types, patterns, Spacing of expansion and contraction joints	Lecture	
Day25	Functions of dowel and tie bars.	Lecture	
Day26	Cross Section Elements and Sight Distance Considerations: Cross section elements	Lecture	
Day27	Friction, carriageway, formation width, land width, camber	Lecture	Assignment 3
Day28	IRC recommended values, Types of terrain Design speed	Lecture	
Day29	Sight distance, stopping sight distance	Lecture	
Day30	Overtaking sight distance, overtaking zones, Intermediate sight distance, sight distance at intersections	Lecture	
Day31	Head light sight distance, set back distance	Lecture	
Day32	Critical locations for sight distance	Lecture	
Day33	Design of Horizontal and Vertical Alignment: Effects of centrifugal force	Lecture	
Day34	Design of super-elevation. Providing super- elevation in the field	Lecture	
Day35	Radius of circular curves. Extra-widening, Type and length of transition curves	Lecture	Assignment 4
Day36	Gradient, types, values	Lecture	
Day37	Summit curves and valley curves, their design criterion, Grade compensation on curves.	Lecture	
Day38	Bituminous Materials and Bituminous Mixes: Types of bituminous materials: bitumen, tar, cutback and emulsions	Lecture	
Day39	Various tests, testing procedures and IRS/IS specifications for suitability of bituminous materials in road construction	Lecture	

Day40	Bituminous mix, desirable properties	Lecture	
Day41	Marshall' method of mix design	Lecture	
Day42	Basic concept of use of polymers and rubber modified bitumen in bituminous mixes	Lecture	
Day43	Construction of Bituminous Pavements: Various types of bituminous constructions	Lecture	Assignment 5
Day44	Prime coat, tack coat, seal coat and surface dressing	Lecture	
Day45	Construction of BUSG, Premix carpet, BM, DBM and AC	Lecture	
Day46	Brief coverage of machinery for costruction of bituminous roads	Lecture	
Day47	Bitumen boiler, sprayer, pressure distributer, hot-mix plant, cold-mix plant, tipper trucks, Mechanical paver or finisher, rollers	Lecture	
Day48	Mastic asphalt, Introduction to various IRC and MOST specifications	Lecture	

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Haryana Engineering College, Jagadhri

Lesson Plan of Civil Engineering Deptt. 6th Semester

Subject : Irrigation Engineering (CE-306A)

Objective of Course :

1. Students will be able to understand the methods and management of irrigation
2. Students will be able to gain knowledge on types of Impounding structures
3. Students will be able understand methods of irrigation including canal irrigation.
4. Students will be able understand water management on optimization of water use.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Crop Water Requirement	Lecture	
Day 2	Need and classification of irrigation	Lecture	
Day 3	Historical development and merits and demerits of irrigation	Lecture	
Day 4	Types of crops	Lecture	
Day 5	Crop season-duty	Lecture	
Day 6	Delta and base period	Lecture	
Day 7	Consumptive use of crops	Lecture	
Day 8	Estimation of Evapotranspiration using experimental and theoretical methods	Lecture	Assignment 1
Day 9	Irrigation Methods	Lecture	
Day10	Tank irrigation	Lecture	
Day11	Well irrigation	Lecture	
Day12	Irrigation methods	Lecture	
Day13	Surface and Sub-Surface	Lecture	
Day14	Micro Irrigation design of drip and sprinkler irrigation	Lecture	
Day15	Ridge and furrow irrigation	Lecture	
Day16	Irrigation scheduling	Lecture	
Day17	Water distribution system	Lecture	
Day18	Irrigation efficiencies.	Lecture	Assignment 2
Day19	Diversion And impounding structures	Lecture	
Day20	Types of Impounding structures	Lecture	
Day21	Gravity dam – Forces on a dam	Lecture	
Day22	Design of Gravity dams	Lecture	
Day23	Earth dams, Arch dams	Lecture	
Day24	Diversion Head works - Weirs and Barrages-	Lecture	
Day25	Canal Irrigation Canal regulations	Lecture	
Day26	Direct sluice - Canal drop	Lecture	
Day27	Cross drainage works-Canal outlets	Lecture	Assignment 3
Day28	Design of prismatic canal-canal alignments	Lecture	
Day29	Canal lining - Kennedy's and Lacey's Regime theory	Lecture	
Day30	Design of unlined canal	Lecture	
Day31	Water Management in Irrigation	Lecture	
Day32	Modernization techniques-	Lecture	

	Rehabilitation		
Day33	Optimization of water use-Minimizing water losses	Lecture	
Day34	On form development works	Lecture	
Day35	Participatory irrigation management	Lecture	Assignment 4
Day36	Water resources associations	Lecture	
Day37	Changing paradigms in water management	Lecture	
Day38	Performance evaluation	Lecture	
Day39	Economic aspects of irrigation	Lecture	

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Haryana Engineering College, Jagadhri

Lesson Plan of Civil Engineering Deptt. 6th Semester

Subject : Human Resource Development & Organizational Behavior (OE-312A)

Objective of Course :

1. To Develop basic understanding Human Resource Management
2. Understand the process of Human resource training and development
3. Develop the Leadership quality
4. Develop the concept of formal and informal organizational behaviour

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	HRD-Macro Perspective: HRD Concept Origin and Need	Lecture	
Day 2	HRD as a Total System; Approaches to HRD	Lecture	
Day 3	Human Development and HRD	Lecture	
Day 4	HRD at Macro and Micro Climate.	Lecture	
Day 5	HRD–Micro Perspective: Areas of HRD HRD Interventions Performance Appraisal, Potential Appraisal	Lecture	
Day 6	Feedback and Performance Coaching, Training	Lecture	
Day 7	Career Planning, OD or Systems Development	Lecture	
Day 8	Rewards, Employee Welfare and Quality of Work Life and Human Resource Information	Lecture	Assignment 1
Day 9	Staffing for HRD, Roles of HR Developer	Lecture	
Day10	Physical and Financial Resources for HRD	Lecture	
Day11	HR Accounting, HRD Audit Strategic HRD	Lecture	
Day12	Instructional Technology for HRD : Learning and HRD	Lecture	
Day13	Models and Curriculum, Principles of Learning	Lecture	
Day14	Group and Individual Learning	Lecture	
Day15	Transactional Analysis, Assessment Centre	Lecture	
Day16	Behaviour Modeling and Self Directed Learning	Lecture	
Day17	Evaluating the HRD	Lecture	
Day18	Human Resource Training and Development : Concept and Importance	Lecture	Assignment 2
Day19	Assessing Training Needs	Lecture	
Day20	Designing and Evaluating T&D Programmes	Lecture	

Day21	Role, Responsibilities and challenges to Training Managers.	Lecture	
Day22	Training Methods: Training with in Industry (TWI): On the Job & Off the Job Training	Lecture	
Day23	Management Development: Lecture Method	Lecture	
Day24	Role Play, Simulation	Lecture	
Day25	Globalization challenges and Strategies of Training Program	Lecture	
Day26	Review on T&D Programmes in India.	Lecture	
Day27	Motivation: Types of Motives	Lecture	Assignment 3
Day28	Theories of Maslow, Herzberg, McGregor, Alderfers, Porter and Lawler's Model	Lecture	
Day29	Job Enlargement, Job Enrichment, Behaviour Modification	Lecture	
Day30	Leadership : Concept, Leader Vs. Manager	Lecture	
Day31	Classical Studies on Leadership, Trait Theories Behavioral Theories	Lecture	
Day32	Group and Exchange Theories; Contingency Theory of Leadership	Lecture	
Day33	Leadership Styles.	Lecture	
Day34	Formal and Informal Organisations: Orgin of Formal and Informal Organisations	Lecture	
Day35	Problems Associated with Informal Organisations	Lecture	Assignment 4
Day36	Organisational Effectiveness (OE) : Concept	Lecture	
Day37	Approaches to O E, Adoptive Coping Cycle for Effectiveness	Lecture	
Day38	Achieving OE	Lecture	
Day39	Organisational Climate: Concept, Determinants of Organisational Climate	Lecture	
Day40	Physical Environment Values and Norms	Lecture	
Day41	Organization Theory: Classical Theory; Neo-Classical Theory	Lecture	
Day42	Modern Behavioural Theories, contingency theory, system theory	Lecture	
Day43	Modern structural models, Organizational Culture	Lecture	Assignment 5
Day44	Creating and Sustaining Culture, Work Culture	Lecture	

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Haryana Engineering College, Jagadhri

Lesson Plan of Civil Engineering Deptt. 6th Semester

Subject : Engineering Geology (EL-326A)

Objective of Course :

1. Will be able to understand the importance of geological knowledge such as earth, earthquake, volcanism and the action of various geological agencies.
2. Will get basics knowledge on properties of minerals.
3. Gain knowledge about types of rocks, their distribution and uses.
4. Will understand the methods of study on geological structure.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Introduction: Definition, object	Lecture	
Day 2	Scope and sub division of geology	Lecture	
Day 3	The interior of the earth, crust, mantle and core	Lecture	
Day 4	Importance of geology in Civil Engineering projects	Lecture	
Day 5	Different branches of geology.	Lecture	
Day 6		Lecture	
Day 7	Physical Geology: Origin of earth	Lecture	
Day 8	External and internal geological forces causing changes	Lecture	Assignment 1
Day 9	Erosion of the surface of the earth	Lecture	
Day10	Geological work of ice, water and wind	Lecture	
Day11	Soil profile and its importance	Lecture	
Day12	Earth movement, earthquakes and volcanoes.	Lecture	
Day13	Mineralogy and Petrology: Definition of mineral and rocks	Lecture	
Day14	Classification of minerals, physical and chemical properties of minerals	Lecture	
Day15	Classification of rocks	Lecture	
Day16	Mineral composition	Lecture	
Day17	Textures, structure and origin of Igneous	Lecture	
Day18	Sedimentary and Metamorphic rocks.	Lecture	Assignment 2
Day19	Structural Geology and general stratigraphy of India: Elementary idea about outcrop	Lecture	
Day20	Dip and strike, bedding plane	Lecture	
Day21	Fold, fault, joint and unconformity	Lecture	
Day22	General principles of stratigraphy of India and their characteristics	Lecture	
Day23	Geological Investigations: Preliminary geological investigations- Use of geological	Lecture	

	maps and interpretation of data		
Day24	Geological reports, hydrogeology	Lecture	
Day25	Water table, springs and artesian well	Lecture	
Day26	Ground water in engineering projects, artificial recharge of ground water	Lecture	
Day27	Elementary ideas of geological investigation	Lecture	Assignment 3
Day28	Remotesensing techniques for geological	Lecture	
Day29	Hydrological survey and investigation.	Lecture	
Day30	Geological conditions and stability of foundation sites and abutments: Geological condition and their influence on the selection, location	Lecture	
Day31	Type and design of dams, reservoirs, tunnels, highways, bridges	Lecture	
Day32	Geological definitions and aspects of landslides and Hill-slope stability.	Lecture	
Day33	Improvement of foundation rocks: Precaution and treatment against faults, joints and ground water (electrical and seismic methods)	Lecture	
Day34	Retaining walls and other treatments.	Lecture	
Day35	Geology and environment of earth: Engineering geology and its case study	Lecture	Assignment 4
Day36	Water table, geology as a subject	Lecture	
Day37	Flood plane deposits, deltas, waterfalls, lakes etc.	Lecture	
Day38	Earth environment, global warming and effect	Lecture	

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Haryana Engineering College, Jagadhri

Lesson Plan of Civil Engineering Deptt. 6th Semester

Subject : Construction Engineering & Management (EL-332A)

Objective of Course :

1. To Understand basic concepts of construction planning. Schedule the construction activities.
2. Forecast and control the cost in a construction.
3. Understand the quality control and safety during construction.
4. Organize information in Centralized database Management systems.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	CONSTRUCTION PLANNING: Basic concepts in the development of construction plans-Choice of Technology and Construction method	Lecture	
Day 2	Defining Work Tasks- Work breakdown structure- Definition	Lecture	
Day 3	Precedence relationships among activities-Estimating Activity Durations	Lecture	
Day 4	Estimating Resource Requirements for work activities-coding systems.	Lecture	
Day 5	SCHEDULING PROCEDURESAND TECHNIQUES: Relevance of construction schedules-Bar charts - The critical path method	Lecture	
Day 6	Calculations for critical path scheduling-Activity float and schedules	Lecture	
Day 7	Presenting project schedules-Critical path scheduling for Activity-on-node and with leads, Lags	Lecture	
Day 8	Windows-Calculations for scheduling with leads,lags	Lecture	Assignment 1
Day 9	Windows-Resource oriented scheduling	Lecture	
Day10	Scheduling with resource constraints and precedences	Lecture	
Day11	Use of Advanced Scheduling Techniques	Lecture	
Day12	Scheduling with uncertain durations- Crashing and time/cost tradeoffs	Lecture	
Day13	Improving the Scheduling process – Introduction to application software.	Lecture	
Day14	COST CONTROL	Lecture	

	MONITORINGANDACCOUNTING: The cost control problem		
Day15	The project budget	Lecture	
Day16	Forecasting for Activity cost control - financial accounting systems and cost accounts	Lecture	
Day17	Control of project cash flows	Lecture	
Day18	Schedule control-Schedule and Budget updates	Lecture	Assignment 2
Day19	Relating cost and schedule information.	Lecture	
Day20	QUALITY CONTROL AND SAFETYDURINGCONSTRUCTION: Quality and safety	Lecture	
Day21	Concerns in Construction-Organizing for Quality and Safety	Lecture	
Day22	Work and Material Specifications-Total Quality control	Lecture	
Day23	Quality control by statistical methods	Lecture	
Day24	Statistical Quality control with Sampling by Attributes	Lecture	
Day25	Statistical Quality control by Sampling and Variables-Safety.	Lecture	
Day26	ORGANIZATION AND USE OFPROJECTINFORMATION: Types of project information	Lecture	
Day27	Accuracy and Use of Information	Lecture	Assignment 3
Day28	Computerized organization and use of Information	Lecture	
Day29	Organizing information in databases-relational model of Data bases	Lecture	
Day30	Other conceptual Models of Databases	Lecture	
Day31	Centralized database Management systems	Lecture	
Day32	Databases and application programs-Information transfer and Flow.	Lecture	

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