

Haryana Engineering College, Jagadhri
Lesson Plan of Civil Engineering Deptt. 8th Semester

Subject : Bridge Engineering (CE-402N)

Objective of Course :

Students will acquire the knowledge about the design of Railway, R.C.C and Steel Bridge and its foundation.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Introduction	Lecture	
Day 2	Definition, components of bridge,	Lecture	
Day 3	classification of bridge	Lecture	
Day 4	selection of site	Lecture	
Day 5	economical span	Lecture	
Day 6	aesthetics consideration	Lecture	
Day 7	Necessary investigations and essential design data.	Lecture	
Day 8	Standard Specifications for Roads and Railways Bridges	Lecture	Assignment 1
Day 9	General, Indian Road Congress Bridge Code	Lecture	
Day10	width of carriage way, clearance	Lecture	
Day11	various loads to be considered for the design of roads and railway bridges	Lecture	
Day12	detailed explanation of IRC standard live loads	Lecture	
Day13	Design Consideration for R. C. C. Bridges	Lecture	
Day14	Various types of R.C.C. bridge	Lecture	
Day15	Design of R.C.C. culvert and T-beam bridges.	Lecture	
Day16	T-beam bridges	Lecture	
Day17	Design Consideration for Steel Bridges	Lecture	
Day18	Various types of steel bridges	Lecture	Assignment 2
Day19	design of truss	Lecture	
Day20	Plate girder bridges	Lecture	
Day21	Numerical	Lecture	
Day22	Hydraulic & Structural Design	Lecture	
Day23	Piers	Lecture	
Day24	Abutment	Lecture	
Day25	wing-wall	Lecture	
Day26	approaches	Lecture	
Day27	Numerical	Lecture	Assignment 3
Day28	Bearings	Lecture	
Day29	Joints, articulation and other details.	Lecture	
Day30	Bridge Foundation	Lecture	
Day31	Articulation and other details.	Lecture	
Day32	Various types of foundation	Lecture	

Day33	Necessary investigations	Lecture	
Day34	Numerical	Lecture	
Day35	Design criteria of well foundation.	Lecture	Assignment 4
Day36	Numerical	Lecture	
Day37	Detail of well foundation	Lecture	
Day38	Test	Lecture	
Day39	Detail of bridge foundation	Lecture	

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Haryana Engineering College, Jagadhri
Lesson Plan of Civil Engineering Deptt. 8th Semester

Subject : Railway & Airport Engineering (CE-404N)

Objective of Course :

Students will acquire the knowledge about the design of Railways and Airport

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Permanent Way And Rails Rail transportation and its importance in	Lecture	
Day 2	Permanent way: requirements and components.	Lecture	
Day 3	Gauges in India and abroad Selection of gauge Coning of wheels Adzing of sleepers	Lecture	
Day 4	Rails: functions composition of rail steel types of rail sections	Lecture	
Day 5	Requirements of an ideal rail section	Lecture	
Day 6	Defects in rails. Creep of rails. Long welded rails and continuously welded rails.	Lecture	
Day 7	Sleepers, Fastenings And Ballast	Lecture	
Day 8	functions, requirements of an ideal sleeper	Lecture	Assignment 1
Day 9	Types of sleepers wooden, cast iron, steel and concrete sleepers advantages, disadvantages and suitability of each type.	Lecture	
Day10	Sleeper density. Fastenings for various types of sleepers: fish plates, spikes, bolts, bearing plates, keys, chairs, jaws, tie bars Elastic fastenings. Ballast: functions, requirements, types of ballast and their suitability.	Lecture	
Day11	Points And Crossings, Necessity. Turnout: various components, working principle. Switch: components, types. Crossing: components and types	Lecture	
Day12	Design elements of a turnout, Design of a simple turnout.	Lecture	
Day13	Layout plan of track junctions: crossovers, diamond crossing, single-Double slips, throw switch, turn table, triangle.	Lecture	
Day14	Signaling, Interlocking And Train	Lecture	

	Control Signals		
Day15	Signals Semaphore signal: components, working principle.	Lecture	
Day16	Requirements / principles of a good interlocking system. Brief introduction to devices used in interlocking	Lecture	
Day17	centralized train control and automatic train control systems.	Lecture	
Day18	Geometric Design Of The Track Gradients, grade compensation. Super elevation, cant deficiency	Lecture	Assignment 2
Day19	negative super elevation. Maximum permissible speed on curves. Tractive resistances, types. Hauling capacity of a locomotive.	Lecture	
Day20	Stations, Yards And Track Maintenance Stations: functions and classification. Junction, non-junction and terminal stations.	Lecture	
Day21	Types of maintenance. Brief introduction to mechanized maintenance, M.S.P and D. T.M Yards: functions, types. Marshalling yard: functions, types. Maintenance of railway track: necessity.	Lecture	
Day22	Introduction And Airport Planning Air transportation, its importance and characteristics, status in India	Lecture	
Day23	Layout plan of an airport and its basic elements: terminal area, apron, taxiway, runway, hanger	Lecture	
Day24	Aircraft Characteristics	Lecture	
Day25	Their effect on elements of an airport. Site selection of an airport. classification of airports.	Lecture	
Day26	Runway Layout And Pavement Design	Lecture	
Day27	Runway orientation	Lecture	Assignment 3
Day28	Wind Rose diagram	Lecture	
Day29	Basic runway length.	Lecture	
Day30	Corrections to basic runway length	Lecture	
Day31	Runway patterns	Lecture	
Day32	Difference between highway and runway pavement.	Lecture	

Day33	Test	Lecture	
Day34	Types of runway pavements	Lecture	
Day35	Design factors for runway pavement.	Lecture	Assignment 4
Day36	Detail	Lecture	
Day37	Brief introduction to design of thickness of a runway pavement	Lecture	
Day38	terminal area, apron, taxiway, runway, hanger	Lecture	
Day39	Detail	Lecture	

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Subject : Industrial Waste Water Treatment (CE-406N)

Objective of Course :

The aim of study is to understand the effect of Industrial waste water on environment and its treatment.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Introduction on Effects of industrial wastes	Lecture	
Day 2	Effects of industrial wastes on streams	Lecture	
Day 3	Effects of industrial wastes sewerage system	Lecture	
Day 4	Treatment of industrial waste by various method	Lecture	
Day 5	Minimizing the effects of industrial effluents on waste water treatment plants	Lecture	
Day 6	Numerical and test	Lecture	
Day 7	Receiving streams-conservation of water	Lecture	
Day 8	Process change waste	Lecture	Assignment 1
Day 9	reuse of waste water	Lecture	
Day10	volume reduction	Lecture	
Day11	Strength reduction of waste	Lecture	
Day12	Neutralization of wastes	Lecture	
Day13	Neutralization of wastes	Lecture	
Day14	Equalization and proportioning of waste	Lecture	
Day15	Numerical problems	Lecture	
Day16	Population equivalent	Lecture	
Day17	Industrial effluent standards for disposal into inland surface	Lecture	
Day18	Industrial effluent standards for disposal into water sources	Lecture	Assignment 2
Day19	Industrial effluent standards for disposal on land for irrigation.	Lecture	
Day20	Numerical problems	Lecture	
Day21	Raw material, Process, waste material treatment for Textile	Lecture	
Day22	Raw material, Process of manufacture, waste material treatment for Tannery	Lecture	
Day23	Raw material, Process of manufacture, waste material treatment for Sugar mill	Lecture	
Day24	Raw material, Process of manufacture, waste material treatment for Dairy	Lecture	

Day25	Raw material, Process of manufacture, waste material treatment for Pulp & paper	Lecture	
Day26	Numerical problems & Test on various topics	Lecture	
Day27	Raw material, Process of manufacture, waste material treatment for Pulp & paper	Lecture	Assignment 3
Day28	Raw material, Process of manufacture, waste material treatment for Fertilizers	Lecture	
Day29	Raw material, Process of manufacture, waste material treatment for Oil refinery	Lecture	
Day30	Numerical problems	Lecture	
Day31	Raw material, Process of manufacture, waste material treatment for Radio active wastes.	Lecture	
Day32	Raw material, Process of manufacture, waste material treatment for thermal power plants	Lecture	
Day33	Numerical problems	Lecture	
Day34	Study of the following Industries from waste generation	Lecture	
Day35	quality and its treatment including brief overview of manufacturing process.	Lecture	Assignment 4

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Subject : Geosynthetics Engineering (CE-414N)

Objective of Course :

The aim of study is to understand the application of Geosynthetic material, types of material.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Basic Description of Geosynthetics	Lecture	
Day 2	Historical Development	Lecture	
Day 3	The Nomenclature, Function	Lecture	
Day 4	Use around the World, Applications	Lecture	
Day 5	Applications, Development in India	Lecture	
Day 6	Raw Materials – Their Durability and Ageing	Lecture	
Day 7	Raw Materials – Their Durability and Ageing	Lecture	
Day 8	Polymers, Biological Resistance	Lecture	Assignment 1
Day 9	Chemical Resistance, Weathering Resistance	Lecture	
Day10	Manufacturing Methods	Lecture	
Day11	Fibres	Lecture	
Day12	Yarn, Nonwoven Geotextiles	Lecture	
Day13	Woven Geotextiles	Lecture	
Day14	D.S.F. Fabrics	Lecture	
Day15	Geogrids- Testing and Evaluation	Lecture	
Day16	Factors influencing Testing	Lecture	
Day17	Sampling	Lecture	
Day18	Physical Properties, and Mechanical Properties under Uniaxial loading	Lecture	Assignment 2
Day19	Physical Properties, and Mechanical Properties under Uniaxial loading	Lecture	
Day20	Creep Testing	Lecture	
Day21	Erosion Control with Geogrids	Lecture	
Day22	Wind Erosion	Lecture	

Day23	Rain Water Erosion	Lecture	
Day24	Erosion Control Measures	Lecture	
Day25	Placement of Geogrid	Lecture	
Day26	Bearing Capacity Improvement with Geogrid	Lecture	
Day27	Advantages of Geogrid	Lecture	Assignment 3
Day28	Mechanism	Lecture	
Day29	Modes of Failure	Lecture	
Day30	Modes of Failure	Lecture	
Day31	Friction Coefficient	Lecture	
Day32	Experimental Studies	Lecture	
Day33	Application of Geosynthetics in Water Resource Projects	Lecture	
Day34	Application of Geosynthetics in Water Resource Projects	Lecture	
Day35	Dharoidam,Hiran II Dam	Lecture	Assignment 4
Day36	Meda Creek Irrigation Scheme	Lecture	

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Subject : Environmental Impact Assessment (CE-422N)

Objective of Course :

The aim of study is to understand the environment and impact on environment due to activities in surrounding and its assessment.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Introduction of Environment	Lecture	
Day 2	Human activity	Lecture	
Day 3	Resources of Environment	Lecture	
Day 4	Pollution of Environment	Lecture	
Day 5	Reuse and Environmental Management	Lecture	
Day 6	Introduction of Management of aquatic environment	Lecture	
Day 7	Water quality control	Lecture	
Day 8	Drainage basic activities	Lecture	Assignment 1
Day 9	Water pollution	Lecture	
Day10	Impact of human activities on aquatic resources	Lecture	
Day11	Control method	Lecture	
Day12	Regional planning	Lecture	
Day13	Introduction of air quality management	Lecture	
Day14	Meaning of atmosphere	Lecture	
Day15	Effect of human activity on air quality	Lecture	
Day16	Different method of waste disposal	Lecture	
Day17	Meaning of optimization	Lecture	
Day18	Planning of waste disposal	Lecture	Assignment 2
Day19	Introduction of waste management	Lecture	
Day20	Impact of waste disposal of human activities	Lecture	
Day21	Introduction of Land use management	Lecture	
Day22	Impact of land use on human life	Lecture	
Day23	Control of Hazard in land use	Lecture	
Day24	Management of land use	Lecture	
Day25	Introduction of Environment Assessment	Lecture	
Day26	National Environmental policy	Lecture	
Day27	Implication of Environment Assessment	Lecture	Assignment 3
Day28	Design process of Environment Assessment	Lecture	
Day29	Preparation of Assessment	Lecture	
Day30	Quantification of Assessment	Lecture	
Day31	General Requirement of	Lecture	

	Environment standard		
Day32	Technique of setting standard	Lecture	
Day33	Case study of EIA	Lecture	
Day34	Case study of EIA of River Valley	Lecture	
Day35	Case study of EIA project	Lecture	Assignment 4
Day36	Case study of Thermal power project	Lecture	

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