

**JMIETI, Radaur**

Lesson Planning of Civil Engg. Deptt. 7<sup>th</sup> Semester

Name of Teacher : RITU KAUSHIK  
Designation : Assistant Professor  
Subject with code : Design of concrete structure -II

(CE-401A)

S.No.	Topic / chapter	MONTH
1	Basic assumptions, Moment of inertia	AUGUST
2	Settlements in continous beam, Modification of moments	AUGUST
3	Maximum moments and shear in continous beam	AUGUST
4	Beams curved in plan analysis for torsion,	AUGUST
5	Redistribution of moments for single span beam	AUGUST
6	Redistribution of moments for multspan beam	AUGUST
7	Basic principles, classification of prestressed members	AUGUST
8	Prestressing systems	AUGUST
9	Losses in prestress	AUGUST
10	Initial and final stress conditions	SEPTEMBER
11	design of sections for flexure	SEPTEMBER

12	Magnel's method, Guyon's method, Bursting and spelling stresses	SEPTEMBER
13	Numerical on losses	SEPTEMBER
14	Advantages of flat slabs	SEPTEMBER
15	General design considerations	SEPTEMBER
16	Design of flat slabs (Num.)	SEPTEMBER
17	Design of flat slabs (Num.)	SEPTEMBER
18	Openings in flat slab	SEPTEMBER
19	Types of staircases	SEPTEMBER
20	Design of Combined footings	SEPTEMBER
21	Raft foundation	SEPTEMBER
22	Design of pile cap	SEPTEMBER
23	Design of pile	SEPTEMBER
24	Estimation of Wind and earthquake forces	SEPTEMBER
25	Design requirements for tank	SEPTEMBER
26	Design of rectangular underground tank	OCTOBER
27	Design of cylindrical underground tank	OCTOBER
28	Design of rectangular overhead tank	OCTOBER
29	Design of cylindrical overhead tank	OCTOBER
30	Design of Intze tanks	OCTOBER
31	Design of Silos	OCTOBER
32	Design of Silos (Num.)	OCTOBER
33	Various theories of bunker and silos	OCTOBER
34	Design of Bunkers	OCTOBER
35	Design of Bunkers with sloping bottoms	OCTOBER

36	battery of bunkers	OCTOBER
37	Building Frames: Introduction, Member stiffness's	OCTOBER
38	Analysis for vertical loads	OCTOBER
39	Analysis for lateral loads	OCTOBER
40	Torsion in buildings	NOVEMBER
41	Ductility of beams	NOVEMBER
42	design and detailing for ductility	NOVEMBER
43	Basic assumptions of yield line theory, Methods of analysis	NOVEMBER
44	Yield line patterns and failure mechanisms	NOVEMBER
45	Aanalysis of one way slab	NOVEMBER
46	Analysis of two way rectangular slab	NOVEMBER
47	Analysis of one way nonrectangular slabs	NOVEMBER
48	Analysis of two way nonrectangular slabs	NOVEMBER

# **JMIETI RADAUR**

## **Lesson Planning of Civil Engg.Deptt. 7<sup>th</sup> Semester**

**Name of Teacher : Er. Pankaj Goyal**  
**Designation : Assistant Professor**  
**Subject with code : Energy Science and Engineering (ES-212A)**

<b>S.No.</b>	<b>Description</b>	<b>Month</b>
1.	Introduction to Energy, sustainability & the environment	AUGUST
2.	, Energy systems and resources	AUGUST
3.	Scientific principles,	AUGUST
4	And historical interpretation of energy use in critical societal,	AUGUST
5	environmental and climate issues.	AUGUST
6	Assignment work	AUGUST
7	Fossil fuels (coal, oil, oil-bearing shale and sands, coal gasification)	AUGUST
8	past, present & future,	AUGUST
9	Remedies & alternatives for fossil fuels	SEPTEMBER
10	Revision	SEPTEMBER
11	Biomass,	SEPTEMBER
12	Wind, solar,	SEPTEMBER
13	Nuclear	SEPTEMBER
14	wave, tidal	SEPTEMBER
15	And hydrogen	SEPTEMBER

16	Sustainability and environmental tradeoffs of different energy systems;	SEPTEMBER
17	Assignment Work	SEPTEMBER
18	possibilities for energy storage or regeneration	SEPTEMBER
19	Energy efficiency,	OCTOBER
20	And conservation;	OCTOBER
21	introduction to clean energy technologies and	OCTOBER
22	Its importance in sustainable development;	OCTOBER
23	Carbon footprint, energy consumption and sustainability;	OCTOBER
24	Class Test	OCTOBER
25	Energy consumption and sustainability;	OCTOBER
26	economics of energy	OCTOBER
27	Coal mining technologies, Oil exploration off shore platforms,	OCTOBER
28	Underground and undersea oil pipelines,	NOVEMBER
29	Solar chimney projects,	NOVEMBER
30	wave energy caissons, coastal installations for tidal power,	NOVEMBER
31	Coastal installations for tidal power,	NOVEMBER
32	wind mill towers; tunnels, penstocks, etc.	NOVEMBER
33	hydro power stations aboveground and	NOVEMBER
34	underground along with associated dams	NOVEMBER
35	Revision	NOVEMBER
36	Class test	NOVEMBER

## JMIETI, Radaur

### Lesson Planning of Civil Engg.Deptt. 7<sup>th</sup> Semester

Name of Teacher : Gaurav Vats  
 Designation : Assistant Professor  
 Subject with code : Environmental Impact Assessment (EL-419A)

Total no. of Lectures available for the course: 34 Session

<b>S.No</b>	<b>Description</b>	<b>Month</b>
1	Environment	August
2	Resources,	August
3	Pollution,	August
4	Pollution	August
5	Reuse	August
6	Environmental management	August
7	Management of aquatic environment	August
8	Water quality controls	August
9	Drainage basin activities and	September
10	Water Pollution	September
11	The impact of human activity on aquatic resources	September
12	Air quality management	September
13	Atmosphere	September
14	Class test	September
15	Effect of human activity on air quality	September
16	Waste disposal alternative	September
17	Optimization	September
18	Planning of waste disposal	September
19	Waste management	September
20	Waste disposal methods	September
21	Impact of waste disposal on human activity	October
22	Land Use Management	October
23	Impact of land use on human life.	October
24	Control, of hazards in landuse	October
25	Class test	October

26	Management of land use	October
27	Environment assessment:	November
28	National environmental policy	November
29	Implication of environment assessment	November
30	Preparation of assessment,	November
31	Quantification.	November
32	General requirements of environmental standards	November
33	Techniques of setting standard	November
34	Revision	November

## JMIETI, Radaur

### Lesson Planning of Civil Engg.Deptt. 7<sup>th</sup> Semester

Name of Teacher : Dr. Ankit Sharma  
 Designation : Assistant Professor  
 Subject with code : Metro Systems and Engineering (OE-407A)

Total no. of Lectures available for the course: 38 Session

S.No	Description	Month
1	General: Overview of Metro Systems	August
2	Need for Metros	August
3	routing studies	August
4	Basic Planning and Financials	August
5	Financials	August
6	Civil Engineering Overview	August
7	construction methods for: Elevated and underground Stations	August
8	Viaduct spans and bridges	August
9	Underground tunnels	September
10	Depots	September
11	Commercial and Service buildings	September
12	Initial Surveys & Investigations	September
13	Basics of Construction Planning & Management	September
14	Construction Quality & Safety Systems	September
15	Traffic integration	September
16	multimodal transfers	September
17	and pedestrian facilities	September
18	Environmental and social safeguards	September
19	Track systems permanent way	September
20	Track systems permanent way	September
21	Facilities Management	October
22	Facilities Management	October
23	Electronics And Communication Engineering	October
24	Signaling systems	October
25	Automatic fare collection	October
26	Operation Control Centre (OCC and BCC)	October
27	SCADA and other control systems	November

28	Platform Screen Doors	November
29	Mechanical &TV"S	November
30	Rolling stock	November
31	vehicle dynamics and structure	November
32	Tunnel Ventilation systems	November
33	Air conditioning for stations and buildings	November
34	Fire control systems	November
35	Lifts and Escalators	November
36	ELECTRICAL: OHE	November
37	Traction Power	November
38	Substations TSS and ASS	November

## JMIETI, Radaur

### Lesson Planning of Civil Engg.Deptt. 7<sup>th</sup> Semester

Name of Teacher : Karan Vadhera  
 Designation : Assistant Professor  
 Subject with code : Railway Engineering (EL-427A)

Total no. of Lectures available for the course: 45 Sessions

S.No.	Description	Month
1	Rail transportation and its importance in India.	August
2	Permanent way: requirements and components..	August
3	Gauges in India and abroad. Selection of gauge	August
4	Coning of wheels.	August
5	Adzing of sleepers.	August
6	Rails: functions, composition of rail steel,	August
7	types of rail sections, requirements of an ideal rail section, length of rails.	August
8	Defects in rails. Creep of rails. Long welded rails and continuously welded rails	August
9	Sleepers: functions, requirements of an ideal sleeper.	August
10	Types of sleepers: wooden, cast iron, steel and concrete sleepers,	August
11	advantages, disadvantages and suitability of each type. Sleeper density.	August
12	Class test	August
13	Fastenings for various types of sleepers: fish plates,	September
14	spikes, bolts, bearing plates	September
15	keys, chairs, jaws, tie bars.	September
16	Elastic fastenings.	September
17	Ballast: functions, requirements, types of ballast and their suitability	September
18	Points and Crossings: Necessity.	September
19	Turnout: various components,	September
20	working principle	September
21	Switch: components, types..	September
22	Crossing: components and types	September
23	Design elements of a turnout, design of a simple turnout.	September
24	Layout plan of track junctions: crossovers,	September
25	diamond crossing,	

26	Single double slips, throw switch, turn table, triangle.	September
27	Signals: objects, types and classification. Semaphore signal: components, working principle.	September
28	Class test	September
29	Requirements / principles of a good interlocking system. Brief introduction to devices used in interlocking.	September
30	Methods of control of train movements: absolute block system, automatic block system,	October
31	centralized train control and automatic train control systems.	October
32	Geometric Design of the Track Gradients	October
33	grade compensation	October
34	cant deficiency, negative super elevation.	October
35	Maximum permissible speed on curves .	October
36	Tractive resistances, types.	October
37	Hauling capacity of a locomotive.	October
38	Stations, Yards and Track Maintenance Stations: functions and classification.	November
39	Super Junction, nonjunction and terminal stations.	November
40	Yards: functions, types.	November
41	Marshalling yard: functions, types.	November
42	Maintenance of railway track: necessity, types of maintenance.	November
43	Brief introduction to mechanized maintenance,	November
44	M.S.P and D.T.M.	November
45	Revision	November



## JMIETI, Radaur

Lesson Planning Civil Engg.Deptt. 7th Semester

Name of Teacher : Dr. Komal  
Designation : Assistant Professor  
Subject with code : Water Resources Engineering (CE-405 A)  
(B24-CVE-209)

Serial No.	Topic	Month
1	Introduction – Role of water in national development; significance in socio-economic growth	August
2	Assessment of water resources – surface water, groundwater, and data requirements	August
3	Water resources planning process – stages and key principles	August
4	Environmental considerations in water resources planning; EIA in water projects	August
5	Systems analysis in water planning – need, approaches, and benefits	August
6	Common problems in project planning – data gaps, conflicts, and uncertainties	August
7	Functional requirements in multipurpose projects – irrigation, power, flood control, etc.	August
8	Multipurpose and basin-wise planning – advantages and challenges	August
9	Long-term water resources planning – sustainability and climate change considerations	August
10	Reservoir planning – dependable yield and its estimation	September
11	Reservoir sedimentation and its effects; methods of estimation	September
12	Empirical area-reduction method for reservoir capacity determination	September
13	Introduction to economic theory – meaning, scope, micro vs. macroeconomics	September
14	Concept of equilibrium; equivalence of kind, time, and value	September
15	Principles of cost–benefit analysis – discounting factors and techniques	September
16	Conditions for project optimality – economic efficiency and constraints	September
17	Cost allocation – separable and non-separable costs	September
18	Alternate justifiable and remaining benefit methods – concepts and applications	September

19	Profitability analysis – NPV, IRR, B/C ratio in water resources projects	September
20	Economic vs. financial analysis – differences and significance	September
21	Case study / numerical examples of cost–benefit and allocation methods	September
22	Concept of systems engineering – definition and relevance to water resources	September
23	Optimal policy analysis – principles and stages	September
24	Simulation and simulation modeling – analog vs. digital simulation	October
25	Nature of water resources systems – interdependencies and complexity	October
26	Objective function, production function, and optimality conditions	October
27	Introduction to linear programming – formulation for water allocation	October
28	Nonlinear and dynamic programming – overview and applications	October
29	Real-time operations of existing systems – practical challenges	October
30	Hydrologic modeling – basic concepts and applications	October
31	Applications of systems engineering in hydrology – rainfall–runoff modeling	October
32	Systems approach in irrigation engineering – canal distribution networks	October
33	Systems approach in drainage engineering – optimization of drains	October
34	Mathematical models for forecasting in water resources	October
35	Network optimization problems – case studies	October
36	Application of linear programming in water distribution	November
37	Simulation models for reservoir operation – examples	November
38	Systems approach to groundwater management	November
39	Multi-objective optimization in water resources planning	November
40	Practical application: Flood management and forecasting	November
41	Review of real-world applications of system approach – Indian & global examples	November
42	Final discussion, tutorials, and case studies – integration of all topics	November