

PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Civil Engineering

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Subject Name: - Civil Engg.SGI

Year/Semester: - 2021/2nd /4th

Subject Code: - HM-252A

LESSON PLAN

Sr. No.	Lecture No.	Topics To Be Covered
1	L-1	UNIT-I, Basic Understanding: Introduction to Course and Overview
2	L-2	Understanding the past to look into the future: Pre-industrial revolution days.
3	L-3	Agricultural revolution, first and second industrial revolutions, IT revolution;
4	L-4	Recent major Civil Engineering breakthroughs and innovations.
5	L-5	Present day world and future projections,
6	L-6	Ecosystems in Society and in Nature; the steady erosion in Sustainability
7	L-7	Global warming, its impact and possible causes.
8	L-8	Evaluating future requirements for various resources;
9	L-9	GIS and applications for monitoring systems.
10	L-10	Human Development Index
11	L-11	Ecological Footprint of India Vs other countries and analysis.
12	L-12	Revision
13	L-13	UNIT-II Understanding the importance of Civil Engineering in shaping and impacting the world
14	L-14	The ancient and modern Marvels and Wonders in the field of Civil Engineering;
15	L-15	Future Vision for Civil Engineering
16	L-16	Infrastructure:- Habitats, Megacities;
17	L-17	Smart Cities, futuristic visions
18	L-18	Transportation: Roads, Railways & Metros, Airports, Seaports,
19	L-19	River ways, Sea canals, Tunnels (below ground, under water.
20	L-20	Futuristic systems (ex, Hyper Loop));
21	L-21	Energy generation (Hydro, Solar (Photovoltaic,
22	L-22	Solar Chimney), Wind, Wave, Tidal, Geothermal, Thermal energy).
23	L-23	Water provisioning; Telecommunication needs (towers, above-ground and underground cabling).
24	L-24	Awareness of various Codes & Standards governing Infrastructure development.
25	L-25	Innovations and methodologies for ensuring Sustainability.
26	L-26	Environment, Traditional & futuristic methods:- Solid waste management,
27	L-27	Water purification, Wastewater treatment & Recycling,
28	L-28	Hazardous waste treatment.
29	L-29	UNIT-III Flood control (Dams, Canals, River interlinking),
30	L-30	Multi-purpose water projects, Atmospheric pollution; Global warming phenomena and Pollution Mitigation measures, Stationarity and nonstationarity
31	L-31	Environmental Metrics & Monitoring; Other Sustainability measures; Innovations and methodologies for ensuring Sustainability.
32	L-32	Built environment: – Facilities management, Climate control; Energy efficient built environments and LEED ratings, Recycling,

33	L-33	Temperature/ Sound control in built environment, Security systems; Intelligent/ Smart Buildings
34	L-34	Aesthetics of built environment, Role of Urban Arts Commissions;
35	L-35	Conservation, Repairs & Rehabilitation of Structures & Heritage structures;
36	L-36	Innovations and methodologies for ensuring Sustainability
37	L-37	UNIT-IV Civil Engineering Projects – Environmental Impact Analysis procedures;
38	L-38	Waste (materials, manpower, and equipment) avoidance/ Efficiency increase.
39	L-39	Advanced construction techniques for better sustainability;
40	L-40	Techniques for reduction of Green House Gas emissions in various aspects of Civil Engineering Projects.
41	L-41	New Project Management paradigms & Systems (Ex. Lean Construction), contribution of Civil Engineering to GDP,
42	L-42	Contribution to employment (projects, facilities management).
43	L-43	Quality of products, Health & Safety aspects for stakeholders.
44	L-44	Innovations and methodologies for ensuring Sustainability during Project developmen.
45	L-45	Revision

RAVINDER KUMAR
(COURSE INCHARGE)