



**TENTATIVE LESSON PLAN: CIVIL R1941012**

<b>Course Title: GEOTECHNICAL ENGINEERING- II (CIVIL)</b>		
<b>Section : Sec A</b>	<b>Date : 04-07-2022</b>	<b>Page No : 01 of 03</b>
<b>Revision No : 00</b>	<b>Prepared By : A.KRISHNA PRIYA</b>	<b>Approved By : HOD</b>

**Tools: Black board, PPTs**

No. of Periods	TOPIC	Date	Mode of Delivery
<b>UNIT –I Soil Exploration</b>			
<b>CO1: The student must be able to use the field test data and arrive at the bearing capacity.</b>			
<b>TB: Soil mechanics and foundation engineering, Dr. K. R. ARORA</b>			
1.	Geotechnical engineering I (recall)	04-07-2022	Lecture interspersed with discussions
2.	Geotechnical engineering II introduction	05-07-2022	
3.	Need of soil exploration	06-07-2022	
4.	Methods of soil exploration	07-07-2022	
5.	Boring and sampling methods	08-07-2022	
6.	Boring and sampling methods	10-07-2022	
7.	Field tests	11-07-2022	
8.	Field tests	12-07-2022	
9.	Penetration tests	13-07-2022	
10.	Pressure meter	14-07-2022	
11.	Planning of programme and preparation of soil investigation report	15-07-2022	
12.	Planning of programme and preparation of soil investigation report	17-07-2022	
13.	Tutorial	18-07-2022	
<b>UNIT –II Earth And Earth-Retaining Structures</b>			
<b>CO 2: The student must be able to understand stability of slopes and earth pressure theories.</b>			
<b>TB: soil mechanics and foundation engineering, Dr. K.R.ARORA</b>			
14.	Stability of slopes introduction	19-07-2022	Lecture interspersed with discussions
15.	Infinite slopes	20-07-2022	
16.	Infinite slopes	21-07-2022	
17.	Finite slopes	22-07-2022	
18.	Finite slopes	24-07-2022	
19.	Types of failures	25-07-2022	
20.	Factor of safety of infinite slopes	26-07-2022	
21.	Stability analysis by Swedish arc method	27-07-2022	
22.	Method of slices	28-07-2022	
23.	Taylor stability number	31-07-2022	
24.	Stability of slopes of dams	01-08-2022	
25.	Stability of slopes of embankments and different conditions, Rankines theory of earth pressure	02-08-2022	
26.	Rankines theory of earth pressure	03-08-2022	





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27.	Coulombs theory of earth pressure	04-08-2022	
28.	Coulombs theory of earth pressure	05-08-2022	
29.	Culmanns graphical method	07-08-2022	
30.	Problems	08-08-2022	
31.	Tutorial	09-08-2022	

**UNIT –III Shallow Foundations – Bearing Capacity Criteria**

CO 3: The student must be able to understand the various types of shallow foundations and decide on their location based on soil characteristics.

**TB: soil mechanics and foundation engineering, Dr. K.R.ARORA**

32.	Types of foundations and factors to be considered in their location	10-08-2022	Lecture interspersed with discussions
33.	Bearing capacity	11-08-2022	
34.	Criteria for determination of bearing capacity, Factors influencing bearing capacity	14-08-2022	
35.	Analytical methods to determine bearing capacity	17-08-2022	
36.	Terzaghis theory	18-08-2022	
37.	IS methods	19-08-2022	
38.	Problems	21-08-2022	
39.	Tutorial	22-08-2022	

**UNIT –IV Shallow Foundations – Settlement Criteria**

CO4: The student must be able to compute the magnitude of foundation settlement and decide on the size of the foundation accordingly.

**TB: soil mechanics and foundation engineering, Dr. K.R.ARORA**

40.	Safe bearing pressure based on N value	13-09-2022	Lecture interspersed with discussions
41.	Allowable bearing pressure	14-09-2022	
42.	Safe bearing capacity and settlement from plate load test, Problems	15-09-2022	
43.	Types of foundation settlements and their determination, Allowable settlements of structures	16-09-2022	
44.	Problems	17-09-2022	
45.	Tutorial	19-09-2022	

**UNIT –V Deep Foundations**

CO 5: The student must be able to apply the principles of bearing capacity of piles and design them accordingly.

**TB: soil mechanics and foundation engineering, Dr. K.R.ARORA**

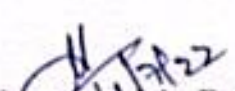
46.	Types of piles	20-09-2022	
47.	Load carrying capacity of piles based on static pile formulae	21-09-2022	
48.	Load carrying capacity of piles based on static pile formulae	22-09-2022	
49.	Dynamic pile formulae	23-09-2022	
50.	Dynamic pile formulae	24-09-2022	

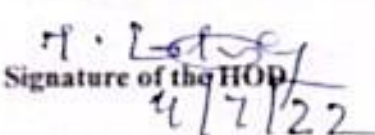


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51.	Pile load tests	26-09-2022	Lecture interspersed with discussions
52.	Pile load tests	27-09-2022	
53.	Load carrying capacity of pile group in sands	28-09-2022	
54.	Load carrying capacity of pile group in sands	29-09-2022	
55.	Load carrying capacity of pile group in clays	30-09-2022	
56.	Load carrying capacity of pile group in clays	01-10-2022	
57.	Types of well foundation	10-10-2022	
58.	Different shapes of well	11-10-2022	
59.	Components of well	12-10-2022	
60.	Functions of well foundation	13-10-2022	
61.	Forces acting on well foundations	14-10-2022	
62.	Forces acting on well foundations	15-10-2022	
63.	Design criteria	17-10-2022	
64.	Determination of steining thickness and plug	18-10-2022	
65.	Construction and sinking of wells	19-10-2022	
66.	Tilt and shift	20-10-2022	
67.	Tilt and shift	21-10-2022	
68.	Tutorial	22-10-2022	

  
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**TENTATIVE LESSON PLAN: R1941015F**

**Course Title: DISASTER MANAGEMENT (R1941015F)**

**Section: Sec A**      **Date: 04-07-2022**      **Page No: 01 of 03**

**Revision No: 00**      **Prepared By: G.Sahithi**      **Approved By: HOD**

**Tools: Black board, PPTs, Model**

No. of Periods	TOPIC	Date	Mode of Delivery
<b>UNIT –I NATURAL HAZARDS AND DISASTER MANAGEMENT</b>			
CO1: The student will be able to Affirm the usefulness of integrating management principles in disaster mitigation work.			
T1: An Introduction of Disaster Management- Natural Disasters & Vulnerable Hazards– S.Vaidyanathan: CBS Punblishers & Distributors Pvt. Ltd			
T2: Natural Hazards & Disaster Management, Vulnerability and Mitigation by RB Singh- Rawat Publications			
1	Introduction of DM	04-07-2022	Lecture interspersed with discussions
2	Inter disciplinary nature of the subject	05-07-2022	
3	Disaster Management cycle	06-07-2022	
4	Five priorities for action	08-07-2022	
5	Case study methods-Introduction	08-07-2022	
6	Case study on Vegetal Cover floods	11-07-2022	
7	Case study on Droughts	12-07-2022	
8	Case study on earthquakes	13-07-2022	
9	Case study on Landslides	14-07-2022	
10	Case study on Global warming	15-07-2022	
11	Case study on Cyclones	15-07-2022	
12	Case study on Tsunamis	16-07-2022	
13	Post Tsunami hazards along the Indian coast	20-07-2022	
14	Hazards along Indian coast	21-07-2022	
15	Tutorial on disaster management cycle	22-07-2022	
<b>UNIT –II MAN MADE DISASTER AND THEIR MANAGEMENT ALONG WITH CASE STUDY METHODS OF THE FOLLOWING</b>			
CO2: The student will be able Distinguish between the different approaches needed to manage pre- during and post- disaster periods			
T1: An Introduction of Disaster Management- Natural Disasters & Vulnerable Hazards– S.Vaidyanathan: CBS Punblishers & Distributors Pvt. Ltd			
T2: Natural Hazards & Disaster Management, Vulnerability and Mitigation by RB Singh- Rawat Publications			
16	Man Made Disaster	23-07-2022	Lecture interspersed with discussion
17	Fire hazards	23-07-2022	
18	Transport hazard dynamics	25-07-2022	
19	Solid waste management	27-07-2022	
20	Management- post disaster	29-07-2022	
21	Bio terrorism	01-08-2022	
22	Threat in mega cities	02-08-2022	
23	Rail accidents	03-08-2022	
24	Aircraft accidents	04-08-2022	
25	Ground water in industries	05-08-2022	
26	Emerging infectious diseases	06-08-2022	



27	Aids and their management	08-08-2022	Lecture interspersed with discussions
28	Management of diseases	10-08-2022	
29	Case studies	11-08-2022	
30	Tutorial on bio terrorism	11-08-2022	
<b>UNIT –III RISK AND VULNERABILITY</b>			
<b>CO3:</b> The student will be able to explain the process of risk management			
<b>T1: An Introduction of Disaster Management- Natural Disasters &amp; Vulnerable Hazards– S.Vaidyanathan: CBS Punblishers &amp; Distributors Pvt. Ltd</b>			
<b>T2: Natural Hazards &amp; Disaster Management, Vulnerability and Mitigation by RB Singh- Rawat Publications</b>			
31	Risk	16-08-2022	
32	Vulnerability	16-08-2022	
33	Building codes	18-08-2022	
34	Land use planning	20-08-2022	
35	Types of Vulnerability	22-08-2022	
36	Social Vulnerability	23-08-2022	
37	Environmental vulnerability	24-08-2022	
38	Risk-types	25-08-2022	
39	Elements of risk	26-08-2022	
40	Factors affecting vulnerability	27-08-2022	
41	Elements of vulnerability	28-08-2022	
42	Tutorial on types of vulnerability	01-09-2022	
43	Macro-economic management & Sustainable development	02-09-2022	
44	Climate change risk rendition	02-09-2022	
45	Financial management of disaster& related losses of disaster-Tutorial.	03-09-2022	
<b>UNIT – IV ROLE OF TECHNOLOGY IN DISASTER MANAGERMENTS</b>			
<b>CO4:</b> The student will be able to learn the role of technology in disaster management.			
<b>T1: An Introduction of Disaster Management- Natural Disasters &amp; Vulnerable Hazards– S.Vaidyanathan: CBS Punblishers &amp; Distributors Pvt. Ltd</b>			
<b>T2: Natural Hazards &amp; Disaster Management, Vulnerability and Mitigation by RB Singh- Rawat Publications</b>			
46	Disaster management for infra structures	13-09-2022	Lecture interspersed with discussions
47	Taxonomy of infra structure	14-09-2022	
48	Treatment plants and process facilities	15-09-2022	
49	Electrical substations Roads and bridges	16-09-2022	
50	Mitigation programme for earth quakes	17-09-2022	
51	Flowchart, geospatial information in agriculture drought assessment	19-09-2022	
52	Multimedia Technology in disaster risk management training	21-09-2022	
53	Training	22-09-2022	
54	Transformable Indigenous Knowledge	23-09-2022	
55	Disaster risk reduction	24-09-2022	
56	Role of RS	26-09-2022	
57	Role of GIS	27-09-2022	
58	Tutorial on Role of RS& GIS	28-09-2022	



**UNIT -V MULTI-SECTIONAL ISSUES, EDUCATION AND COMMUNITY PREPAREDNESS**

**CO5:** The student will be able to relate to risk transfer

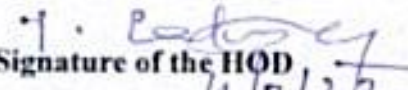
**T1: An Introduction of Disaster Management- Natural Disasters & Vulnerable Hazards- S.Vaidyanathan: CBS Publishers & Distributors Pvt. Ltd**

**T2: Natural Hazards & Disaster Management, Vulnerability and Mitigation by RB Singh- Rawat Publications**

59	Multi-sectional Issues, Education and Community Preparedness- Impact of disaster on poverty and deprivation	30-09-2022
60	Climate change adaptation and human health	01-10-2022
61	Exposure Health hazards and environmental risk	10-10-2022
62	Forest management and disaster risk reduction	11-10-2022
63	The Red cross and red crescent movement	12-10-2022
64	Corporate sector and disaster risk reduction	13-10-2022
65	Education in disaster risk reduction	14-10-2022
66	Essentials of school disaster education	15-10-2022
67	Community capacity and disaster resilience	17-10-2022
68	Community based disaster recovery	18-10-2022
69	Community based disaster management	19-10-2022
70	social capital	20-10-2022
71	Designing resilience	21-10-2022
72	Building community capacity for action Tutorial	26-10-2022

Lecture interspersed with discussions

  
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**TENTATIVE LESSON PLAN: R194101B**

<b>Course Title: Industrial Waste Water Management</b>			
<b>Section : Sec A</b>	<b>Date : 04/07/2022</b>	<b>Page No : 01 of 03</b>	
<b>Revision No : 00</b>	<b>Prepared By : E.Usha Sree</b>	<b>Approved By : HOD</b>	
<b>Tools: Black board, PPTs, Model</b>			
<b>No. of Periods</b>	<b>TOPIC</b>	<b>Implemented Date</b>	<b>Mode of Delivery</b>
<b>UNIT -I</b>			
<b>CO1 : Know the quality and quantity of water for various industries and Advanced water treatment methods.</b>			
<b>TB:Industrial Waste water Treatment by KVSG Murali Krishna, Paramount Publishers, Visakhapatnam, 2019.</b>			
1.	Industrial water quantity and quality requirements:	From 04/07/2022  To 19/07/2022	Lecture interspersed with discussions
2.	Boiler, Cooling, Domestic / Canteen and process		
3.	Waters for Textiles, Dairy industry		
4.	Food processing,		
5.	Aqua industry,		
6.	sugar mills,		
7.	Brewery and distillery,		
8.	Fertilizer industry, Power plants		
9.	Advanced water treatment		
10.	Reverse Osmosis, Adsorption		
11.	Ultra filtration, Ion Exchange		
12.	Elutriation, Freezing		
13.	Tutorial - Removal of Iron and manganese,		
<b>UNIT -II</b>			
<b>CO2 : Learn the common methods of treatment of wastewaters and Biological treatment methods</b>			
<b>TB:Industrial Waste water Treatment by KVSG Murali Krishna, Paramount Publishers, Visakhapatnam, 2019.</b>			
14.	Removal of colour and Odour,	From 20/07/2022  To 12/08/2022	Lecture interspersed with discussions
15.	Use of Municipal waste water in Industries		
16.	Basic theories of Industrial Waste water management		
17.	Industrial waste survey		
18.	Measurement of industrial waste water		
19.	Flow – generation rates		
20.	Industrial waste water sampling and preservation		
21.	Of samples for analysis		
22.	Waste water characterization , Toxicity of industrial effluents		
23.	Common methods of treatment of waste waters		
24.	Unit operation and processes, Volume and		
25.	Strength reduction, Neutralization, Equalization and proportioning		
26.	Recycling, reuse and resources recovery		
27.	Miscellaneous Treatment: Biological treatment of sewage		
28.	Tutorial -- Primary, Secondary and Tertiary		
<b>UNIT -III</b>			
<b>CO3 : Study of methods to reduce impacts of disposal of wasters into environment and CETPs.</b>			
<b>TB:Industrial Waste water Treatment by KVSG Murali Krishna, Paramount Publishers, Visakhapatnam, 2019.</b>			
28.	Introduction		
29.	Treatment of sewage		
30.	Industrial wastewater disposal management:		



31.	Discharges into Sewers, Streams- Oxygen sag curve,	From	Lecture interspersed with discussions
32.	Lakes-eutrophication and oceans and associated problems, Land treatment –		
33.	sewage sickness, Common Effluent Treatment Plants:	16/08/2022	
34.	advantages and suitability,	To	
35.	Limitations and challenges		
36.	Recirculation of Industrial Wastewaters-	27/08/2022	
37.	Effluent Disposal Method.		

#### UNIT –IV

**CO4 :** Study of methods of treatment of wastewaters from specific industries like steel plants, refineries, and power plants, that imply biological treatment methods

TB:Industrial Waste water Treatment by KVSG Murali Krishna, Paramount Publishers, Visakhapatnam, 2019.

38.	Process and Treatment of specific Industries-1:	From	Lecture interspersed with discussions
39.	Manufacturing Process and origin,		
40.	characteristics,	13/09/2022	
41.	effects and		
42.	treatment methods of liquid waste from Steel plants,	To	
43.	Fertilizers,		
44.	Textiles,	19/09/2022	
45.	Pulp industries,		
46.	Oil Refineries,		
47.	Paper and Coal and Gas based Power Plants. Case studies		

#### UNIT – V

**CO5 :** Study of methods of treatment of wastewaters from industries like Aqua, dairy, sugar plants, and distilleries that imply biological treatment method


TB:Industrial Waste water Treatment by KVSG Murali Krishna, Paramount Publishers, Visakhapatnam, 2019.

48.	Process and Treatment of specific Industries-2:	From	Lecture interspersed with discussions
49.	Manufacturing Process and origin,		
50.	characteristics,	20/09/2022	
51.	effects and treatment methods of liquid waste from Tanneries,		
52.	Sugar Mills,	To	
53.	Distillers,		
54.	Dairy Processing industries,	11/10/2022	
55.	Food Processing industries,		
56.	Aqua industry,		
57.	Pharmaceutical Plants. Case studies.		
58.	Old question papers		
59.	Old question papers		
60.	Old question papers		

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### TENTATIVE LESSON PLAN: CE

<b>Course Title: DESIGN AND DRAWING OF STEEL STRUCTURES(R1941011)</b>		
<b>Section : Sec A</b>	<b>Date : 5/7/2022</b>	<b>Page No : 01 of 04</b>
<b>Revision No : 00</b>	<b>Prepared By : K.KIRAN</b>	<b>Approved By : HOD</b>

**Tools : Black board, PPTs, Model**

No. of Periods	TOPIC	Tentative Date	Implemented Date
<b>UNIT-I Basic concepts of Prestressing</b> <b>CO1: Understand the concepts of prestressing</b> <b>TB1::Prestressed Concrete, N. Krishna Raju, Tata McGraw hill</b> <b>TB2::Prestressed Concrete, S. Ramamrutham</b>			
1	UNIT – I Types of structural steel	<b>From:</b> <b>5/7/2022</b> <b>To :</b> <b>25/7/2022</b>	Lecture interspersed with discussions
2	Mechanical properties of steel		
3	Concepts of plasticity – yield strength		
4	Loads and Stresses		
5	Local buckling behavior of steel.		
6	Concepts of limit State Design		
7	Different Limit States -Load combinations for different Limit states		
8	Design Strengths- deflection limits – serviceability – stability check.		
9	<b>Connections:</b> Design of Connections		
10	Different types of connections – Bolted connections		
11	Design strength– efficiency of joint		
12	<b>Welded connections:</b> Advantages and disadvantages		
13	Strength of welds		
14	Butt and fillet welds : Permissible stresses		
15	ICS ode requirements.		
16	Design of fillet weld subjected to in-plane moment		




	acting in the plane and		
17	Design of fillet weld subjected at right angles to the plane of the joints		
18	Tutorial		
<b>UNIT-II Prestressing Systems</b>			
<b>CO2: Understand the different methods of prestressing</b>			
<b>TB1::Prestressed Concrete, N. Krishna Raju, Tata McGraw hill</b>			
<b>TB2::Prestressed Concrete, S. Ramamrutham</b>			
20	<b>UNIT – II: Plastic Analysis;</b> Plastic moment	<b>From:</b> <b>26/7/2022</b> <b>To :</b> <b>10/8/2022</b>	Lecture interspersed with discussions
21	Plastic section modulus - Plastic analysis of continuous beams		
22	<b>Beams:</b> Allowable stresses, design requirements as per IS Code		
23	Design of simple beams		
24	Design of compound beams		
25	Curtailement of flange plates		
26	Beam to beam connection		
27	check for deflection, shear, buckling, check for bearing.		
28	Laterally unsupported beams.		
29	Tutorial		
<b>UNIT-III Losses of Pre-stressing</b>			
<b>CO3: Estimate effective prestress including the short and long term losses</b>			
<b>TB1::Prestressed Concrete, N. Krishna Raju, Tata McGraw hill</b>			
<b>TB2::Prestressed Concrete, S. Ramamrutham</b>			
30	<b>UNIT –III Compression and Tension Members:</b> Effective length	<b>From:</b> <b>11/8/2022</b> <b>To :</b> <b>16/9/2022</b>	Lecture interspersed with discussions
31	Slenderness ratio – permissible stresses.		
32	Design of compression members		
33	Design of struts.		
34	Built up compression members		
35	Design of lacings		
36	Design of battens.		



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37	Design Principles of Eccentrically loaded columns		
38	Splicing of columns		
39	<b>Roof Truss Element:</b> Different types of trusses		
40	Design loads – Load combinations as per IS Codes –Design of simple roof trusses involving design of purlins		
41	Design of rafters and joints – tubular trusses		
42	Tutorial		
<b>UNIT-IV Design for Flexural resistance</b> <b>CO4: Analyze and design prestressed concrete beams under flexure</b> <b>TB1::Prestressed Concrete, N. Krishna Raju, Tata McGraw hill</b> <b>TB2::Prestressed Concrete, S. Ramamrutham</b>			
43	<b>UNIT – IV:Design of Column Foundations:</b> Design of slab base	<b>From:</b> 17/9/2022 <b>To :</b> 24/9/2022	Lecture interspersed with discussions
44	Design of gusseted base.		
45	Column bases subjected moment.		
46	Tutorial		
47	<b>UNIT – V: Design of Plate Girder:</b> Design consideration	<b>From:</b> 25/9/2022 <b>To :</b> 10/10/2022	Lecture interspersed with discussions
48	IS Code recommendations		
49	Design of plate girder -Welded		
50	Curtailment of flange plates		
51	Stiffeners		
52	Splicing and connections.		
53	<b>Design of Gantry Girder</b>		
54	impact factors		
55	longitudinal forces		
56	Design of Gantry girders.		
57	Tutorial		

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### TENTATIVE LESSON PLAN: CIVIL R203101A

<b>Course Title: CONSTRUCTION TECHNOLOGY &amp; MANAGEMENT(CIVIL)</b>		
<b>Section : Sec A</b>	<b>Date : 01-08-2022</b>	<b>Page No : 01 of 02</b>
<b>Revision No : 00</b>	<b>Prepared By :A.KRISHNA PRIYA</b>	<b>Approved By : HOD</b>

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
<b>UNIT –I</b>			
CO1: To Introduce students about construction project management including network drawing and monitoring.			
TB: Project planning and control with PERT and CTM			
TB: Construction engineering and management			
1.	Construction project management and its relevance	01-08-2022	Lecture interspersed with discussions
2.	Qualities of a project manager	02-08-2022	
3.	Project planning	03-08-2022	
4.	Coordination	04-08-2022	
5.	Scheduling	05-08-2022	
6.	Monitoring	06-08-2022	
7.	Bar charts	08-08-2022	
8.	Milestone charts	10-08-2022	
9.	Critical path method--applications	11-08-2022	
10.	Tutorial	12-08-2022	
<b>UNIT –II</b>			
CO2: To Introduce students about project evaluation, project structure.			
TB: Project planning and control with PERT and CTM			
TB: Construction engineering and management			
11.	Project evaluation& review technique	17-08-2022	Lecture interspersed with discussions
12.	Cost analysis.	18-08-2022	
13.	Updating	20-08-2022	
14.	Crashing for optimum cost	22-08-2022	
15.	Crashing for optimum resources	23-08-2022	
16.	Allocation of resources	24-08-2022	
17.	Introduction to software's for construction management,	25-08-2022	
18.	Project management using PRIMAVERA (or) equivalent.	26-08-2022	
19.	Tutorial	27-08-2022	
<b>UNIT –III</b>			
CO3: To Introduce students about various construction equipment, earthwork equipment.			
TB: Project planning and control with PERT and CTM			
TB: Construction engineering and management			
20.	Construction equipment	29-09-2022	
21.	Economical considerations	30-09-2022	





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22.	Earthwork equipment	01-09-2022	Lecture interspersed with discussions
23.	Trucks	02-09-2022	
24.	Handling equipment	03-09-2022	
25.	Rear dump trucks.	05-09-2022	
26.	Capacities of trucks	06-09-2022	
27.	Handling equipment	07-09-2022	
28.	Calculation of truck production	08-09-2022	
29.	Compaction equipment.	09-09-2022	
30.	Types of compaction rollers	12-09-2022	
31.	Hoisting and earthwork equipment	13-09-2022	
32.	Hoists	14-09-2022	
33.	Cranes	15-09-2022	
34.	Tractors	16-09-2022	
35.	Bulldozers	17-09-2022	
36.	Graders	19-09-2022	
37.	Scrapers	20-09-2022	
38.	Draglines	21-09-2022	
39.	Clamshell buckets	22-09-2022	
40.	Tutorial	23-10-2022	

**UNIT –IV**

CO4: To Introduce students about concrete equipment, crushing of aggregates, mixing and placing of concrete, consolidating and finishing.

TB: Project planning and control with PERT and CTM

TB: Construction engineering and management

41.	Concreting equipment	10-10-2022	Lecture interspersed with discussions
42.	Crushers – jaw crushers	11-10-2022	
43.	Gyratory crushers – impact crushers	12-10-2022	
44.	Selection of crushing equipment	13-10-2022	
45.	Screening of aggregate.	14-10-2022	
46.	Concrete mixers	15-10-2022	
47.	Mixing and placing of concrete	17-10-2022	
48.	Consolidating and finishing	18-10-2022	
49.	Tutorial	19-10-2022	

**UNIT –V**

CO5: To Introduce students about how to do earthwork, piling work and importance of safety measures.

TB: Project planning and control with PERT and CTM

TB: Construction engineering and management

50.	Construction methods	20-10-2022	
51.	Earthwork	21-10-2022	
52.	Piling	22-10-2022	
53.	Placing of concrete	25-10-2022	



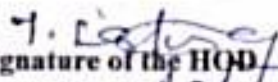


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54.	Form work	26-10-2022	Lecture interspersed with discussions
55.	Fabrication and erection	27-10-2022	
56.	Quality control	28-10-2022	
57.	Safety engineering.	29-10-2022	
58.	BIM for Civil Engineers (Building Information Modelling)	31-10-2022	
59.	Tutorial	01-11-2022	

  
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**DEPARTMENT OF CIVIL ENGINEERING**

**TENTATIVE LESSON PLAN: R203103G**  
**SUSTAINABLE ENERGY TECHNOLOGIES**

<b>Course Title: SUSTAINABLE ENERGY TECHNOLOGIES</b>		<b>Course Code: R20</b>
<b>Section : CE</b>	<b>Date : 01-08-2022</b>	<b>Page No : 01 of 02</b>
<b>Revision No : 00</b>	<b>Prepared By: R. KIRAN KUMAR</b>	<b>Approved By : HOD</b>

**Tools: Black board, PPTs**

S.NO	TOPIC	Date	Mode of Delivery
<b>UNIT-I SOLAR RADIATION, COLLECTION &amp; STORAGE</b>			
<b>CO1: Identify the importance of solar energy collection and storage.</b>			
<b>TB: "Solar Energy - Principles of Thermal Collection and Storage", by S. P. Sukhatme, J. K. Nayak, 3rd Edition, MC Graw Hill Education Privated Limited.</b>			
1	Introduction	From 01-08- 2022 To 03-09- 2022	Lecture interspersed with discussions & PPTs
2	Role and potential of new and renewable sources		
3	The solar energy option		
4	Environmental impact of solar power		
5	Structure of the sun		
6	The solar constant		
7	Sun-earth relationships		
8	Coordinate systems and coordinates of the sun		
9	Extraterrestrial and terrestrial solar radiation		
10	Solar radiation on titled surface		
11	Instruments for measuring solar radiation and sun shine		
12	solar radiation data		
13	Problems		
14	Photo voltaic energy conversion		
15	Types of PV cells.		
16	Flat plate and concentrating collectors		
17	Classification of concentrating collectors & orientation		
18	Different methods of solar energy storage		
19	Sensible, latent heat and stratified storage		
20	Solar ponds		
21	Solar applications		
22	Solar heating/cooling technique		
23	Solar distillation and drying		
24	Solar cookers		
25	Central power tower concept and solar chimney		
<b>UNIT-II WIND ENERGY &amp; BIO-MASS</b>			
<b>CO2: Applying the principles of wind energy and biomass energy.</b>			





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<b>TB: "Non-Conventional Energy Resources", by S. Hasan Saeed &amp; D. K. Sharma A.S offset, New Delhi.</b>			
26	<b>WIND ENERGY:</b> Sources and potentials of wind energy	<b>From 05-09- 2022 To 17-09- 2022</b>	Lecture interspersed with discussions & PPTs
27	Horizontal and vertical axis windmills		
28	Performance characteristics		
29	Betz criteria		
30	Types of winds		
31	Wind data measurement		
32	<b>BIO-MASS:</b> Principles of bio-conversion		
33	Anaerobic/aerobic digestion		
34	Types of bio-gas digesters		
35	Gas yield		
36	Utilization for cooking		
37	Bio fuels		
38	I.C. engine operation and economic aspects		
<b>UNIT-III GEO THERMAL ENERGY &amp; OCEAN ENERGY</b>			
<b>CO3: Applying knowledge on geothermal and ocean energy.</b>			
<b>TB: "Non-Conventional Energy Resources", by S. Hasan Saeed &amp; D. K. Sharma A.S offset, New Delhi.</b>			
39	Resources of Geo thermal energy	<b>From 19-09- 2022 To 15-10- 2022</b>	Lecture interspersed with discussions & PPTs
40	Types of wells		
41	Methods of harnessing the Geo thermal energy		
42	<b>OCEAN ENERGY: OTEC</b>		
43	Principles of utilization		
44	Setting of OTEC plants		
45	Thermodynamic cycles		
46	Tidal and wave energy: Potential and conversion techniques.		
<b>UNIT-IV ENERGY EFFICIENT SYSTEMS</b>			
<b>CO4: Applying knowledge about energy efficient systems.</b>			
<b>TB: "Non-Conventional Energy Resources", by Khan B.H, Tata McGraw Hill, New Delhi, 2006.</b>			
47	<b>ELECTRICAL SYSTEMS:</b> Energy efficient motors	<b>From 17-10-</b>	Lecture interspersed
48	Energy efficient lighting and control		





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49	Selection of luminaries	2022 To 05-11- 2022	with discussions & PPTs
50	Variable voltage variable frequency drives		
51	Controls for HVAC		
52	Demand site management		
53	<b>MECHANICAL SYSTEMS:</b> Fuel cells- principle		
54	Thermodynamic aspects		
55	Selection of fuels & working of various types of fuel cells		
56	Environmental friendly and Energy efficient compressors and pumps		
<b>UNIT-V GREEN MANUFACTURING SYSTEMS</b>			
<b>CO5: Applying the concepts of green manufacturing systems.</b>			
<b>TB: "Green Manufacturing Processes and Systems", J. Paulo Davim Springer 2013.</b>			
57	Environmental impact of the current manufacturing practices and systems	From 07-11- 2022  To 26-11- 2022	Lecture interspersed with discussions & PPTs
58	Benefits of green manufacturing systems		
59	Selection of recyclable and environment friendly materials in manufacturing		
60	Design and implementation of efficient and sustainable green production systems with examples like environmental friendly machining		
61	Vegetable based cutting fluids		
62	Alternate casting and joining techniques		
63	Zero waste manufacturing		

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**TENTATIVE LESSON PLAN: R2031013**

**Geotechnical engineering -I**

<b>Course Title: Geotechnical engineering -I(R2031013)</b>		
<b>Section : Sec A</b>	<b>Date :1-08-2022</b>	<b>Page No : 01 of 03</b>
<b>Revision No : 00</b>	<b>Prepared By :B.SAIKUMAR REDDY</b>	<b>Approved By : HOD</b>

**Tools : Black board, PPTs, Model**

No. of Periods	TOPIC	Date	Mode of delivery
<b>UNIT -I INTRODUCTION-SOIL FORMATION</b>			
CO1: The Student Will Be Able To Determine The Index Properties Of The Soil			
T1: Gopal Ranjan and A.S.R.Rao, "Basic and Applied Soil Mechanics", New Age International Publishers			
T2: V.N.S.Murthy, "Soil Mechanics and Foundation Engineering", CBS publishers 3. M.Palani Kumar, "Soil Mechanics", PHI Learning			
1	Soil structure and formation	From: 1-08-2022 To: 10-09-2022	Lecture interspersed with discussions ppt
2	Weathering action of rocks		
3	Mechanical and chemical weathering		
4	Single honey comb structure		
5	Clay mineral, adsorbed water		
6	2 and 3 phase systems and definitions		
7	Relation between e, S,G		
8	Derivations		
9	Relation between dry mass and percentage air voids		
10	Relative density		
11	Derivations		
12	Factors effecting compaction		
13	Compaction effect on soil		
14	Problems		
15	<b>Tutorial</b>		
16	Index properties of soil		
17	Grain size analysis and sieve analysis		
18	Hydrometer analysis		
19	Consistency limits		
20	Determination of liquid limit		
21	Determination of plastic and shrinkage limit		
22	Definition of plasticity index, etc		
23	Classification of soil		



24	Unified soil classification	
25	Unified soil classification	
26	IS classification	
27	IS classification	
28	Problems on LL, PL	
29	Problems on sieve analysis	
30	<b>Tutorial</b>	

### UNIT -II Permeability

**CO2:** student will be able To impart the concept of seepage of water through soils and determine the discharge of water through soils

**T1:** Gopal Ranjan and A.S.R.Rao, "Basic and Applied Soil Mechanics", New Age International Publishers

**T2:** V.N.S.Murthy, "Soil Mechanics and Foundation Engineering", CBS publishers  
**3. M.Palani Kumar, "Soil Mechanics", PHI Learning**

31	Introduction to permeability		
32	Soil water, one dimensional flow		
33	Darcy's law, factors		
34	Determination of k permeability		
35	Layered systems of permeability		
36	Total, neutral and effective stresses		
37	Quick sand condition		
38	Laplace's equations		
39	Seepage through soils		
40	Flow net and uses		
41	Problems		
42	<b>Tutorial</b>		

From:  
12-09-2022  
To:  
17-10-2022

Lecture interspersed with discussions ppt

### UNIT -III Stress Distribution In Soils

**CO3:** The Student wil be able to understand the stress distribution on point loads areas of different shapes

**T1:** Gopal Ranjan and A.S.R.Rao, "Basic and Applied Soil Mechanics", New Age International Publishers

**T2:** V.N.S.Murthy, "Soil Mechanics and Foundation Engineering", CBS publishers  
**3. M.Palani Kumar, "Soil Mechanics", PHI Learning**

43	Stress induced by applied loads		
44	Boussinesqu's equation		
45	Westergaard's equation		
46	Newmark's influence chart		
47	Problems on rectangular area		
48	Problems on circular area		
49	Problems on square area		
50	<b>Tutorial</b>		

From:  
18-10-2022  
To:  
27-10-2022

Lecture interspersed with discussions ppt

### UNIT - IV Compaction

**CO4** The student will be able to know to impart the principles of compaction and consolidation of soils and determine the magnitude and the rate of consolidation settlement

**T1: Gopal Ranjan and A.S.R.Rao, "Basic and Applied Soil Mechanics", New Age International Publishers**

**T2: V.N.S.Murthy, "Soil Mechanics and Foundation Engineering", CBS publishers 3. M.Palani Kumar, "Soil Mechanics", PHI Learning**

51	Consolidation and compressibility	From: 28-10-2022 To: 11-11-2022	Lecture interspersed with discussions ppt
52	e-p and e-log p curves		
53	Stress history , concept		
54	Spring analogy		
55	Terzaghi's theory		
56	One-dimensional consolidation equation derivation		
57	Time rate of consolidation		
58	Degree of consolidation		
59	Determination of coefficient of consolidation		
60	Over and normally consolidated clay		
61	Problems on consolidation		
62	Problems on consolidation		
63	<b>Tutorial</b>		

**UNIT -V Shear Strength of Soils**

**CO5:** The Student Will Be Able To Enable The Student To Understand The Concept Of shear Strength Of soils, Determine The Shear Parameters Of Sands And Clays And The Areas Of Their Application

**T1: Gopal Ranjan and A.S.R.Rao, "Basic and Applied Soil Mechanics", New Age International Publishers**

**T2: V.N.S.Murthy, "Soil Mechanics and Foundation Engineering", CBS publishers 3. M.Palani Kumar, "Soil Mechanics", PHI Learning**

64	Introduction of shear strength	From: 14-11-2022 To: 24-11-2022	Lecture interspersed with discussions ppt
65	Basic mechanism		
66	Mohr coloumb's failure, critical void ratio		
67	Stress- strain behavior on clay		
68	Determination of shear strength by vane shear test		
69	Determination of shear strength by direct shear test		
70	Determination of shear strength by unconfined shear test		
71	Determination of shear strength by tri axial test		
72	Problems on direct test		
73	Drainage condition- one way and two way drainage		
74	Problems		

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## TENTATIVE LESSON PLAN: STRUCTURAL ANALYSIS

<b>Course Title: STRUCTURAL ANALYSIS</b>		
<b>Section : Sec A</b>	<b>Date :04-07-2022</b>	<b>Page No : 01 of 03</b>
<b>Revision No : 00</b>	<b>Prepared By : CH. RAJESH</b>	<b>Approved By : HOD</b>

**Tools : Black board, PPTs, Model**

No. of Periods	TOPIC	Date	Mode of delivery
<b>UNIT -I PROPPED CANTILEVER AND FIXED BEAMS</b>			
<b>CO1:</b> The student will be able to Analysis of propped cantilever beams and fixed beams & Deflection of propped cantilevers and fixed beams <b>T1:</b> Structural Analysis by R.C. Hibbeler, Pearson, New Delhi. <b>T2 :</b> Basic Structural Analysis, K U Muthu et. al, IK International Publishing house pvt. Ltd. <b>RB T1 :</b> Indeterminate Structural Analysis, K U Muthu et. al, IK International Publishing house pvt. Ltd.			
1	Unit – I Propped Cantilevers: Introduction	2.08.2022	Lecture interspersed with discussions
2	Degree of Static and Kinematic indeterminacy of Beams	3.08.2022	
3	Degree of Static and Kinematic indeterminacy of Frames	4.08.2022	
4	Degree of Static and Kinematic indeterminacy of Trusses	5.08.2022	
5	Analysis of propped cantilevers problems	06.08.2022	
6	Analysis of propped cantilevers problems	9.08.2022	
7	Analysis of propped cantilevers problems	10.08.2022	
8	Fixed Beams – Introduction to statically indeterminate beams with U. D. load, central point load, eccentric point load, number of point loads, uniformly varying load, couple and combination of loads	11.08.2022	
9	shear force and Bending moment diagrams-Elastic curve Deflection of fixed beams including effect of sinking of support, effect of rotation of a support.	12.08.2022	
10	Analysis of fixed beams problems	13.08.2022	
11	Analysis of fixed beams problems	16.08.2022	
12	, Analysis of fixed beams problems	17.08.2022	
13	Analysis of fixed beams problems	20.08.2022	
<b>UNIT -II ANALYSIS OF CONTINUOUS BEAMS AND PORTAL FRAMES</b>			
<b>CO2:</b> The student will be able To Analyze beams and frames by using slope deflection method & moment distribution method <b>T1:</b> Structural Analysis by R.C. Hibbeler, Pearson, New Delhi. <b>T2 :</b> Basic Structural Analysis, K U Muthu et. al, IK International Publishing house pvt. Ltd. <b>RB T1 :</b> Indeterminate Structural Analysis, K U Muthu et. al, IK International Publishing house pvt. Ltd.			
14	Analysis of Continuous beams and Portal Frames Slope-Deflection Method: Introduction	24.08.2022	Lecture
15	derivation of slope deflection equation	25.08.2022	
16	application to continuous beams with and without settlement of supports.	26.8.2022	
17	Analysis of Single bay single storey portal frames without sway Shear force and Bending moment diagrams , Elastic curve	26.08.2022	
18	Problem on slope deflection method	27.08.2022	
19	Problem on slope deflection method	29.08.2022	



20	Problem on slope deflection method	1.09.2022	interspersed with discussions
21	Problem on slope deflection method	2.09.2022	
22	Moment distribution method: Application to continuous beams with and without settlement of supports	2.09.2022	
23	Moment distribution method problems	3.09.2022	
24	Moment distribution method problems	5.09.2022	
25	Moment distribution method problems	6.09.2022	
26	Moment distribution method problems	7.09.2022	
27	Moment distribution method problems	8.09.2022	
<b>UNIT – III ANALYSIS OF PIN-JOINTED PLANE FRAMES</b>			
CO3: The student will be able to differentiate determinate and indeterminate structures also applying static and kinematic indeterminacies with truss problems			
T1: Structural Analysis by R.C. Hibbeler, Pearson, New Delhi.			
T2 : Basic Structural Analysis, K U Muthu et. al, IK International Publishing house pvt. Ltd.			
RB T1 : Indeterminate Structural Analysis, K U Muthu et. al, IK International Publishing house pvt. Ltd.			
28	<b>Unit - 3</b> Analysis of Pin-Jointed Plane Frames, Determination of Forces in members of plane pin-jointed perfect trusses	09.09.2022	Lecture interspersed with discussions
29	method of joints problems	09.09.2022	
30	method of joints problems	12.09.2022	
31	method of joints problems	13.09.2022	
32	method of sections problems	14.09.2022	
33	method of sections problems	15.09.2022	
34	method of sections problems	16.09.2022	
35	method of sections problems	16.09.2022	
36	Analysis of various types of cantilever and simply supported trusses by method of joints	17.09.2022	
37	Analysis of various types of cantilever and simply supported trusses by method of sections	19.09.2022	
38	Method of Tension coefficients problems	20.09.2022	
39	Method of Tension coefficients problems	21.09.2022	
40	Method of Tension coefficients problems	22.09.2022	
41	Analysis of various types of cantilever and simply supported trusses by method of tension co-efficients	23.09.2022	
42	Analysis of various types of cantilever and simply supported trusses by method of tension co-efficients	24.09.2022	
<b>UNIT – IV MOVING LOADS AND INFLUENCE LINES</b>			
CO4: The student will be able to To Analyze the variation of shear force and bending moment in the members due to rolling loads for trusses and beams .			
T1: Structural Analysis by R.C. Hibbeler, Pearson, New Delhi.			
T2 : Basic Structural Analysis, K U Muthu et. al, IK International Publishing house pvt. Ltd.			
RB T1 : Indeterminate Structural Analysis, K U Muthu et. al, IK International Publishing house pvt. Ltd.			
43	<b>Unit – 4</b> Moving Loads And Influence Lines: Introduction maximum SF and BM at a given section and absolute maximum S.F. and B.M due to single concentrated load	10.10.2022	
44	U. D load longer than the span, U. D load shorter than the span problems of ILD For simply supported	11.10.2022	
45	span problems of ILD For simply supported	12.10.2022	



46	span problems of ILD For simply supported	14.10.2022	Lecture interspersed with discussions
47	two point loads with fixed distance between them and several point loads	15.10.2022	
48	Problems of two point loads	17.10.2022	
49	Problems of two point loads	18.10.2022	
50	Equivalent uniformly distributed load-Focal length , Influence lines for forces in members of Pratt and Warren trusses.	19.10.2022	
51	Definition of influence line for SF, Influence line for BM , load position for maximum SF at a section problems	21.10.2022	
52	problems	22.10.2022	
53	U.D. load longer than the span problems	25.10.2022	
54	U.D. load longer than the span problems	27.10.2022	
55	U.D. load shorter than the span problems	28.10.2022	
56	U.D. load shorter than the span problems	29.10.2022	

**UNIT -V MATRIX METHODS OF ANALYSIS**

**CO5:** The student will be able To Design stiffness matrix for the structural elements and Develop relationship between flexibility and stiffness matrices


**T1:** Structural Analysis by R.C. Hibbeler, Pearson, New Delhi.

**T2 :** Basic Structural Analysis, K U Muthu et. al, IK International Publishing house pvt. Ltd.

**RB T1 :** Indeterminate Structural Analysis, K U Muthu et. al, IK International Publishing house pvt. Ltd.

57	<b>Unit – 5 MATRIX METHODS OF ANALYSIS:</b> Introduction to Flexibility and Stiffness matrix methods of analyses using 'system approach' up to three degree of indeterminacy	31.10.2022	Lecture interspersed with discussions
58	Analysis of continuous beams including settlement of supports using flexibility method	1.11.2022	
59	Problems on flexibility methods	2.11.2022	
60	Problems on flexibility methods	3.11.2022	
61	Problems on flexibility methods	4.11.2022	
62	Analysis of continuous beams including settlement of supports using stiffness methods	5.11.2022	
63	Problems on stiffness method	7.11.2022	
64	Problems on stiffness method	8.11.2022	
65	Problems on stiffness method	9.11.2022	
66	Analysis of pin-jointed determinate plane frames using flexibility methods	10.11.2022	
67	Problems on plane frames by flexibility matrix	11.11.2022	
68	Analysis of single bay single storey portal frames using stiffness method	12.11.2022	
69	Problems	14.11.2022	
70	Problems	15.11.2022	
71	Problems	16.11.2022	
72	Problems	17.11.2022	

  
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## TENTATIVE LESSON PLAN:R2021011

<b>Course Title: MATHEMATICS-III</b>			
<b>Section CIVIL</b>	<b>Date : 05-09-22</b>	<b>Page No : 01 of 04</b>	
<b>Revision No : 00</b>	<b>Prepared By: K.Basavaraju</b>	<b>Approved By : HOD</b>	
<b>Tools: Black board</b>			
<b>No. of Periods</b>	<b>TOPIC</b>	<b>Date</b>	<b>Mode of Delivery</b>
<b>UNIT – I: VECTOR CALCULUS</b> <b>CO1: To interpret the physical meaning of different operators such as gradient, curl and divergence, to estimate the work done against a field, circulation and flux using vector calculus</b> <b>TB: "Engineering Mathematics", Dr. T.K.V.Iyengar; S.Chand publications</b>			
1	<b>Vector Differentiation: Introduction</b>	From: 05/09/2022 From: 05/09/2022 To 22/09/2022	Lecture interspersed with discussions
2	Properties of vectors and scalars		
3	Derivative of vector – definition		
4	Vector differential operator		
5	Gradient of a vector		
6	Divergence of a vector		
7	Curl of a vector		
8	Properties of gradient		
9	Vector identities		
10	Vector identities		
9	Vector identities		
10	Vector identities		
11	Problems on application of gradient		
12	Problems on divergence and curl		
13	<b>Vector Integration: Introduction</b>		
14	Problems on line integral		
15	Problems on line integral		
16	Problems on surface integrals		
17	Problems on volume integrals		
18	Problems on Greens theorem		
19	Problems on Green theorem		
20	Problems on Gauss divergence theorem		
21	Problems on Stokes theorem		
<b>UNIT – II: LAPLACE TRANSFORMS</b> <b>CO2: To apply the Laplace transform for solving differential equations</b> <b>TB: "Engineering Mathematics", Dr. T.K.V.Iyengar; S.Chand publications</b>			
22	Laplace Transforms: Definitions, Existence	From 23/09/2022 To 12/10/2022	Lecture interspersed with discussions
23	Laplace Transform of standard functions		
24	Linearity property; Shifting properties Change of scale property		
25	Laplace Transforms of derivatives; Integrals		
26	$L(t^n f(t))$		
27	Laplace Transforms of division by t		
28	Evaluation of integrals		



29	Laplace Transforms of periodic functions; unit step functions; Unit impulse functions		
30	<b>Inverse Laplace Transforms:</b> Finding $L^{-1}$ using partial fractions		
31	Properties of inverse transform		
32	Convolution theorem		
33	Solutions of Difference Equations		
<b>UNIT – III: FOURIER SERIES AND FOURIER TRANSFORMS</b> <b>CO3: TO find or compute the Fourier series of periodic signals, able to apply integral expressions for the forward and inverse Fourier transform to a range of non-periodic waveforms</b> <b>TB: "Engineering Mathematics", Dr. T.K.V.Iyengar; S.Chand publications</b>			
34	Introduction	From 13/10/2022 To 22/10/2022 & From 31/10/2022 To 12/11/2022	Lecture interspersed with discussions
35	Periodic functions		
36	Fourier series of periodic function		
37	Dirchlets conditions		
38	Even and odd functions		
39	Change of interval		
40	Half range sine and cosine series		
41	Fourier transforms		
42	Fourier integral theorem		
43	Fourier sine and cosine integrals		
44	Sine and cosine transforms		
45	Properties		
46	Inverse transforms		
47	Finite Fourier transforms		
<b>UNIT – IV: PDE OF FIRST ORDER</b> <b>CO4: To identify solution methods for partial differential equations that model physical processes</b> <b>TB: "Engineering Mathematics", Dr. T.K.V.Iyengar; S.Chand publications</b>			
48	Introduction	From: From 14/11/2022 To 26/11/2022	Lecture interspersed with discussions
49	Formation of PDE by eliminating arbitrary constants		
50	Formation of PDE by eliminating arbitrary functions		
51	Solutions of PDE		
52	Method of grouping		
53	Method of multipliers		
54	Nonlinear PDE $f(p, q) = 0$		
55	Nonlinear PDE $f(p, q, z) = 0$		
56	Nonlinear PDE $f(p, x) = g(q, y)$		
57	Clairaut's equation		
58	PDE reducible to standard form		
59	$f(px^m, qy^n) = 0$		
60	$f(pz^m, qz^m) = 0$		
<b>UNIT – V: SECOND ORDER PARTIAL DIFFERENTIAL EQUATIONS AND APPLICATIONS</b>			



CO5: Identify solution methods for partial differential equations that model physical processes TB: "Engineering Mathematics", Dr. T.K.V. Iyengar; S.Chand publications		From	To
61	Introduction; Homogeneous Linear P.D.E with constant coefficients; finding CF Finding PI: RHS term of the type $e^{(ax+by)}$	28/11/2022	Lecture interspersed with discussions
62	$\sin(ax + by)$ ; $\cos(ax + by)$	17/12/2022	
63	$x^m y^n$		
64	Method of separation of variables		
65	Solution of one dimensional wave equation		
66	Heat equation		
67	Two dimensional Laplace equation		

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J. Lakshmi  
Signature of HOD 5/9/23





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**TENTATIVE LESSON PLAN: R2021014**

**Surveying And Geometrics**

<b>Course Title: Surveying And Geometrics (R2021014)</b>		
<b>Section : Sec A</b>	<b>Date : 5-09-2022</b>	<b>Page No : 01 of 03</b>
<b>Revision No : 00</b>	<b>Prepared By : B.SAIKUMAR REDDY</b>	<b>Approved By : HOD</b>

**Tools : Black board, PPTs, Model**

No. of Periods	TOPIC	Date	Mode of delivery
<b>UNIT -I INTRODUCTION AND BASIC CONCEPTS</b>			
CO1: The Student Will Be Able To Know methods of surveying			
T1: surveying volume(1,2,3) by b.c punmia, laxmi publications			
T2: Chandra A.M plane surveying higher surveying new age international pvt ltd			
1	UNIT-1 Introduction and Basic Concepts	<b>From:</b> 5-09-2022 <b>To:</b> 23-09-2022	Lecture interspersed with discussions ppt
2	Objectives ,Classification		
3	Principles of Surveying		
4	Surveying accessories		
5	Compass		
6	leveling		
7	Plane table surveying		
8	Measurement of distances and directions		
9	Linear distances-Approximate methods		
10	Direct Methods-chains- tapes		
11	Ranging ,Tape corrections		
12	Prismatic Compass- Bearings		
13	Included angles, Local Attraction		
14	Magnetic Declination and dip		
15	Whole circle Bearings systems		
16	Quadrant Bearings systems of locating Bearings		
17	Problem		
18	Problem		
<b>UNIT -II LEVELLING ,CONTOURING,AREAS,VOLUMES</b>			
CO2: student wil be able to know and measure the areas and volumes and leveling of			



instruments			
<b>T1: surveying volume(1,2,3)by b.c punmia,laxmi publications</b> <b>T2: Chandra A.M plane surveying higher surveying new age international pvt ltd</b>			
19	UNIT-2 Introduction	<b>From:</b> <b>24-09-2022</b> <b>To:</b> <b>28-10-2022</b>	Lecture interspersed with discussions ppt
20	Leveling –types of levels		
21	Temporary and permanent adjustments method of leveling		
22	Methods of leveling		
23	Booking and Determination of level		
24	Effect of Curvature of earth		
25	Refraction		
26	Introduction of contours		
27	Characteristics and Uses of contours		
28	methods of contour surveying		
29	Areas: Determination of areas consisting of irregular boundary		
30	Regular boundary		
31	Volume: Determination of volume of earth work in cutting		
32	Embankments for level section		
33	Volume of borrow pits		
34	Capacity of reservoirs		
35	Problems on height of instrument		
36	Problems on rise and fall method		
37	Problems		
<b>UNIT –III THEODILITE SURVEYING</b> <b>CO3: student will be able to know the theodilite surveying and different methods of surveying.</b> <b>T1: surveying volume(1,2,3)by b.c punmia,laxmi publications</b> <b>T2: Chandra A.M plane surveying higher surveying new age international pvt ltd</b>			
38	UNIT-3 Theodolite: Introduction	<b>From:</b> <b>29-10-2022</b> <b>To:</b> <b>24-11-2022</b>	Lecture interspersed with discussions ppt
39	Types of Theodolites		
40	principles-uses		
41	adjustments – temporary and permanent		
42	Measurement of horizontal angles by Repetition method		
43	Measurement of horizontal angles by reiteration method		



44	Measurement of vertical angles.	
45	Trigonometrical leveling when base is accessible	
46	Trigonometrical leveling when base is inaccessible	
47	Traversing:Methods of traversing	
48	Traverse computations	
49	adjustements	
50	Introduction to omitted measurements	
51	Problems	
52	Problems	
53	problems	
54	Doubts clarification in theodolite	

**UNIT – IV curves ,tachometric surveying,modern surveying**

**CO4** The student will be able to know about curves and their necessity and elements of simple compound reverse curves

**T1: surveying volume(1,2,3)by b.c punmia,laxmi publications**

**T2: Chandra A.M plane surveying higher surveying new age international pvt ltd**

55	UNIT-4 Introduction Curves		
56	Curves: Types of curves and their necessity		
57	design and setting out – simple curves		
58	design and setting out compound curve		
59	design and setting out Reverse curve		
60	Tacheometric Surveying : Principles		
61	Stadia and tangential methods		
62	Problem		
63	Problem		
64	Modern Surveying methods: Principles		
65	Types of E.M.D Instruments, Total Station		
66	Advantages and its applications		
67	Introductions to Global Positioning system		
68	Problem		

**From:**  
**25-11-2022**  
**To:**  
**09-12-2022**

Lecture interspersed with discussions ppt

**UNIT – V photogramertic surveying**

**CO5** The student will be able to know about the photogrammetric surveying

**T1: surveying volume(1,2,3)by b.c punmia,laxmi publications**

**T2: Chandra A.M plane surveying higher surveying new age international pvt ltd**

68	UNIT-5 Photogrammetry Surveying –Basics		
69	Perspective geometry of aerial photograph		
70	Relief and tilt displacements , terrestrial		
71	Flight planning , sterscopy		
72	Ground control extension for photographic		

**From:**

73	Mapping-aerial radial triangulation	12-12-2022	Lecture
74	Methods: Photographic mapping	To:	interspersed
75	Paper prints, stereoplotting instruments	23-12-2022	with
76	Mosaics		discussions
77	Map substitutes		ppt

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**TENTATIVE LESSON PLAN: (R2021012)**

<b>Course Title: Strength of Materials-I (R2021012)</b>			
<b>Section : Sec A</b>	<b>Date : 05-09-2022</b>	<b>Page No : 01 of 04</b>	
<b>Revision No : 00</b>	<b>Prepared By : G.Sahithi</b>	<b>Approved By : HOD</b>	
<b>Tools : Black board, PPTs, Model</b>			
<b>No. of Periods</b>	<b>TOPIC</b>	<b>Date</b>	<b>Mode of Delivery</b>
<p><b>UNIT –I SIMPLE STRESSES AND STRAINS AND STRAIN ENERGY</b>                      CO1: The student will be able to understand the basic concepts of Strength of Materials and Principles of Elasticity and Plasticity Stress strain behavior of materials and their governing laws. Introduce student the moduli of Elasticity and their relations.  <b>T1 Strength of Materials by S.S Bhavikatti,</b>  <b>T2 Strength of Materials by R.K Bansal, Lakshmi Publications</b></p>			
1	Introduction to elasticity and plasticity –Types of stresses	05-09-2022	Lecture interspersed with discussions
2	Types of strains – Hooke’s law	06-09-2022	
3	Stress – strain diagram for mild steel	07-09-2022	
4	Working stress – Factor of safety – Lateral strain, Poisson’s ratio and volumetric strain	08-09-2022	
5	Problems related to stress, strain and elongation	09-09-2022	
6	Problems on relation between stress strain and youngs modulus	12-09-2022	
7	Elastic moduli and the relationship between them	13-09-2022	
8	Problems on relation between elastic constants	14-09-2022	
9	Bars of varying section	15-09-2022	
10	Problems on bars of varying cross section	16-09-2022	
11	Description of composite bars	17-09-2022	
12	Problems on composite bars	19-09-2022	
13	Temperature stresses, problems	20-09-2022	
14	<b>Strain Energy</b> – Resilience – Gradual, sudden, impact and shock loadings	21-09-2022	
15	Problems on strain energy	22-09-2022	
<p><b>UNIT –II SHEAR FORCE AND BENDING MOMENT</b>                      CO2 The student will be able to draw the diagrams indicating the variation of the key performance features like bending moment and shear forces  <b>T1 Strength of Materials by S.S Bhavikatti,</b>  <b>T2 Strength of Materials by R.K Bansal, Lakshmi Publications</b></p>			
16	Definition of beam – Types of beams	23-09-2022	
17	Concept of shear force and bending moment	24-09-2022	
18	Diferrent types of loadings	26-09-2022	
19	Conversion of udl, uvl into point loads	27-09-2022	
20	S.F and B.M diagrams for simply Supported subjected to point loads, u.d.l loadings	28-09-2022	
21	S.F and B.M diagrams for simply	29-09-2022	

	Supported subjected to u.v.l loadings		Lecture interspersed with discussion
22	S.F and B.M diagrams for cantilever subjected to point loads, u.d.l loadings	30-09-2022	
23	S.F and B.M diagrams for cantilever subjected to u.v.l loadings	01-10-2022	
24	overhanging beams, Relation between S.F., B.M and rate of loading at a section of a beam	03-10-2022	
25	Problems on calculation of SFD,BMD for S.S.B subjected to point load	10-10-2022	
26	Problems on calculation of SFD,BMD for S.S.B subjected to u.d.l	11-10-2022	
27	Problems on calculation of SFD,BMD for S.S.B subjected to combination loadings	12-10-2022	
28	Problems on calculation of SFD,BMD for cantilever subjected to u.d.l	13-10-2022	
29	Problems on calculation of SFD,BMD for cantilever subjected to combination load	14-10-2022	
30	Problems on calculation of SFD,BMD for over hanging beams	15-10-2022	
31	Problems on calculation of SFD,BMD for over hanging subjected beams subjected to combination loading beams	17-10-2022	
<p><b>UNIT –III FLEXURAL STRESSES &amp; SHEAR STRESSES</b>            CO3 The student will have knowledge of stresses developed in the cross section and bending equations, calculation of section modulus of section for different cross sections</p> <p><b>T1 Strength of Materials by S.S Bhavikatti,</b>  <b>T2 Strength of Materials by R.K Bansal, Lakshmi Publication</b></p>			Lecture interspersed with discussions
32	Theory of simple bending	18-10-2022	
33	Assumptions of simple bending	19-10-2022	
34	Derivation of bending equation: $M/I = \epsilon/y = E/R$ ,	20-10-2022	
35	Definition of bending stresses	22-10-2022	
36	Section Modulus	25-10-2022	
37	Section modulus of rectangular and circular sections (Solid and Hollow),	26-10-2022	
38	Section modulus of I,T sections	27-10-2022	
39	Section modulus of angle sections	28-10-2022	
40	Section modulus of channel sections	29-10-2022	
41	Problems on section modulus for standard sections	31-10-2022	
42	Problems on section modulus for standard sections	01-11-2022	
43	Problems on bending stresses	02-11-2022	
44	Problems on bending stresses	03-11-2022	
45	Problems on bending stresses	04-11-2022	
46	Derivation of formula for shear stress	05-11-2022	



47	Introduction to Shear stress distribution	07-11-2022
48	Shear stress distribution across various beam sections like rectangular section	08-11-2022
49	Shear stress distribution across various beam sections like circular section	09-11-2022
50	Shear stress distribution across various beam sections like triangular section	10-11-2022
51	Shear stress distribution across I section	11-11-2022
52	Shear stress distribution across T section	21-11-2022
53	Shear stress distribution across built up section	22-11-2022
54	Problems on S.S.D across various standard sections	23-11-2022
55	Problems on S.S.D across various standard sections	24-11-2022
56	Determination of S.S.D in T section	25-11-2022
57	Determination of S.S.D in I section	26-11-2022
58	Determination of S.S.D in built up sections	28-11-2022

#### UNIT – IV DEFLECTION OF BEAMS

CO4 The student will be able to calculate the deflections in beams under various loading and support conditions.

**T1 Strength of Materials by S.S Bhavikatti,**

**T2 Strength of Materials by R.K Bansal, Lakshmi Publication**

59	Bending into a circular arc – slope, deflection and radius of curvature – Differential equation for the elastic line of a beam	29-11-2022	Lecture interspersed with discussions
60	Double integration Method	30-11-2022	
61	Determination of slope and deflection for cantilever subjected to point loads,	01-12-2022	
62	Determination of slope and deflection for cantilever subjected to u.d.l	02-12-2022	
63	Determination of slope and deflection for cantilever subjected to u.v.l	03-12-2022	
64	Determination of slope and deflection for S.S.B subjected to point loads	05-12-2022	
65	Determination of slope and deflection for S.S.B subjected to u.d.l	06-12-2022	
66	Determination of slope and deflection for S.S.B subjected to u.v.l	07-12-2022	
67	Macaulay's methods and problems on it	08-12-2022	
68	Mohr's theorem and Moment area method	09-12-2022	

#### UNIT –V THIN AND THICK CYLINDERS

CO5 The student will be able to classify cylinders based on their thickness and to derive equations for measurement of stresses across the cross section when subjected to external pressure.

**T1 Strength of Materials by S.S Bhavikatti,**

**T2 Strength of Materials by R.K Bansal, Lakshmi Publication**

69	Introduction to Thin and thick cylinders	12-12-2022	Lecture interspersed with discussions
70	Derivation of formula for hoop and longitudinal stress	13-12-2022	
71	Volumetric strain,	13-12-2022	
72	Changes in diameter volume in cylinders	14-12-2022	
73	Introduction to thin spherical shells and derivation	15-12-2022	
74	Lames theory derivation	15-12-2022	
75	Hoop and radial stress	17-12-2022	
76	Design of thick cylinders	17-12-2022	
77	Compound cylinders and problems	19-12-2022	
78	Thick spherical shells	19-12-2022	
79	Problems on cylinders	19-12-2022	

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## TENTATIVE LESSON PLAN: R2021013

Course Title: FLUID MECHANICS			
Section: Sec A	Date: 05/09/2022	Page No: 01 of 03	
Revision No: 00	Prepared By: E.USHA SREE	Approved By: HOD	
Tools: Black board, power point presentations			
No. of Periods	TOPIC	Tentative date	Mode of Delivery
<b>UNIT 1: INTRODUCTION TO FLUID MECHANICS &amp; HYDROSTATICS</b>			
CO1: understand the various properties of fluids and their influence on fluid motion, calculate the forces that act on submerged planes and curves.			
TB: Fluid mechanics and hydraulic mechanics by R.K. Bansal -Laxmi publications			
1	Properties of fluid	From 05/09/2022  To 22/09/2022	Lecture interspersed with discussions
2	Gravity, viscosity, surface tension, vapour pressure		
3	Numerical problems		
4	Mechanics of fluid motion		
5	Pressure at point, Pascal's law		
6	Hydraulic law-atmospheric, gauge and vacuum pressures		
7	Numerical problems		
8	Measurement of pressure		
9	Pressure gauges		
10	Differential and Micro manometers		
11	Numerical problems		
12	Mechanical gauges		
13	<b>Hydrostatics- Introduction</b>		
14	Hydrostatic law, Total Pressure Center of pressure		
15	Moments of Inertia, Geometric properties		
16	Hydrostatic forces on submerged plane-Horizontal		
17	Hydrostatic forces on submerged plane-Vertical		
18	Hydrostatic forces on submerged plane-Inclined		
19	Hydrostatic forces on submerged Curved Surface		
20	Numerical problems		
21	Archimedes Principle, Metacenter		
22	Tutorial		
<b>UNIT 2: FLUID KINEMATICS &amp; FLUID DYNAMICS</b>			
CO2: identify and analyse various types of fluid flows and identify and analyze various types of fluid flows.			
TB: Fluid Mechanics and Hydraulic Mechanics by r.k. bansal -laxmi publications			
23	<b>Fluid kinematics</b> -Fluid flow, stream, streak, path line		
24	Classification of flows		
25	Continuity equation- 1,2,3 D		
26	Flow Nets		
27	Numerical problems		



28	Stream and velocity potential function	From 23/09/2022  To 17/09/2022	Lecture interspersed with discussions
29	<b>Fluid Dynamics</b> - Surface and body forces		
30	Euler's equation of motion		
31	Bernoulli's equation		
32	Numerical problems		
33	Momentum equation		
34	Forces on Pipe bend		
35	Numerical problems		
36	Applications		
37	Tutorial		

### UNIT 3: LAMINAR FLOW, TURBULENT FLOW AND CLOSED CONDUIT FLOW

**CO3:** apply the integral forms of the three fundamental laws of fluid mechanics to turbulent and laminar flow through pipes and ducts in order to predict relevant pressures, velocities and forces.

**TB:** fluid mechanics and hydraulic mechanics by r.k. bansal -laxmi publications

38	<b>Flows-Reynolds experiment</b>	From 18/09/2022  To 28/11/2022	Lecture interspersed with discussions
39	Characteristics of laminar and turbulent flow		
40	Shear and velocity distribution		
41	Laws, Hagen Poiseuille's formula		
42	Flow between plates		
43	Long tubes, problems		
44	Hydrodynamically smooth and rough boundary		
45	Darcy's equation		
46	Flow through Pipes and Major, minor losses		
47	Pipes in series, parallel		
48	Hardy Cross method		
49	TEL, HGL, moody chart		
50	Equivalent Pipes		
51	Numerical Problems		
52	Tutorial		

### UNIT 4: MEASUREMENT OF FLOW

**CO4:** measure the quantities of fluid flowing in pipes, tank and channels.

**TB:** fluid mechanics and hydraulic mechanics by r.k. bansal -laxmi publications

53	Measurement Of Flow-Pitot tube	From 29/11/2022  To 09/12/2022	Lecture interspersed with discussions
54	Orificemeter		
55	Venturimeter		
56	Classification of orifice		
57	Flow over rectangular notch		
58	Problems		
59	V- notch		
60	Problems		
61	Trapezoidal, stepped		
62	Numerical Problems		
63	Numerical Problems		
64	Broad crested weir		



65	Problems		
66	Tutorial		
<b>UNIT 5: BOUNDARY LAYER THEORY</b>			
<b>CO5:</b> know the concept of boundary layer theory			
<b>TB:</b> fluid mechanics and hydraulic mechanics by r.k. bansal -laxmi publications			
67	<b>Boundary Layer Theory</b>	From 12/12/2022  To 19/12/2022	Lecture interspersed with discussions
68	Concept, Prandtl contribution		
69	Characteristics of B.L		
70	Thickness of B.L		
71	Vonkarman Integral Equation		
72	Seperation, control of B.L		
73	Drag , lift, Magnus effect		
74	Numerical Problems		
75	Tutorial		
76	Summary on FM		
77	Revision-1,2 units		
78	Revision- 3,4,5 units		
79	Old Question papers		
80	Old Question papers		
81	Old Question papers		
82	Old Question papers		
83	Old Question papers		
84	Old Question papers		

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**Department of Civil Engineering**

**TENTATIVE LESSON PLAN: CE**

<b>Course Title: HIGHWAY ENGINEERING (R2021015)</b>		
<b>Section : Sec A</b>	<b>Date : 05/09/2022</b>	<b>Page No : 01 of 03</b>
<b>Revision No : 00</b>	<b>Prepared By : K.KIRAN</b>	<b>Approved By : HOD</b>

**Tools : Black board, PPTs, Model**

No. of Periods	TOPIC	Tentative Date	Implemented Date
<b>UNIT I Highway Planning and Alignment</b> <b>CO1: Plan highway network for a given area.</b> <b>TB1::Highway Engineering, Khanna S. K., Justo C. E. G and Veeraragavan A, Nem Chand Bros., Roorkee.</b> <b>TB2::Traffic Engineering and Transportation Planning, Kadiyali L. R, Khanna Publishers, New Delhi.</b>			
1	Highway development in India	<b>From:</b> 5/9/2022  <b>To:</b> 20/9/2022	Lecture interspersed with discussions
2	Classification of Roads		
3	Road Network Patterns		
4	Necessity for Highway Planning		
5	Different Road Development Plan		
6	First, second, third road development plans,		
7	road development vision 2021		
8	Rural Road Development Plan – Vision 2025		
9	Planning Surveys		
10	Highway Alignment		
11	Factors affecting Alignment		
12	Engineering Surveys		
13	Drawings and Reports.		
<b>UNIT – II Highway Geometric Design</b> <b>CO2:Determine Highway alignment and design highway geometrics</b> <b>TB1::Highway Engineering, Khanna S. K., Justo C. E. G and Veeraragavan A, Nem Chand Bros., Roorkee.</b> <b>TB2::Traffic Engineering and Transportation Planning, Kadiyali L. R, Khanna Publishers, New Delhi.</b>			
14	Importance of Geometric Design	<b>From:</b> 21/9/2022  <b>To :</b> 10/10/2022	Lecture interspersed with discussions
15	Design controls and Criteria		
16	Highway Cross Section Elements		
17	Sight Distance Elements		
18	Stopping sight Distance		
19	Overtaking Sight Distance and Intermediate Sight Distance		
20	Design of Horizontal Alignment		
21	Design of Super elevation and Extra widening		
22	Design of Transition Curves		
23	Design of Vertical alignment		
24	Gradients- Vertical curves.		





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**UNIT – III Traffic Engineering**

**CO3: Design Intersections and prepare traffic management plans**

**TB1::Highway Engineering, Khanna S. K., Justo C. E. G and Veeraragavan A, Nem Chand Bros., Roorkee.**

**TB2::Traffic Engineering and Transportation Planning, Kadiyali L. R, Khanna Publishers, New Delhi.**

25	Basic Parameters of Traffic-Volume	<b>From:</b> 11/10/2022 <b>To :</b> 2/11/2022	Lecture interspersed with discussions
26	Speed and Density		
27	Traffic Volume Studies		
28	Speed studies		
29	spot speed and speed & delay studies		
30	Parking Studies		
31	Road Accidents		
32	Causes and Preventive measures		
33	Condition Diagram and Collision Diagrams		
34	PCU Factors		
35	Capacity of Highways		
36	Factors Affecting		
37	LOS Concepts		
38	Road Traffic Signs		
39	Road markings		
40	Types of Intersections; At-Grade Intersections		
41	Design of Plain, Flared, Rotary and Channelized Intersections		
42	Design of Traffic Signals –Webster Method		
43	IRC Method.		

**UNIT – IV Highway Materials:**

**CO4: Judge suitability of pavement materials**

**TB1::Highway Engineering, Khanna S. K., Justo C. E. G and Veeraragavan A, Nem Chand Bros., Roorkee.**

**TB2::Traffic Engineering and Transportation Planning, Kadiyali L. R, Khanna Publishers, New Delhi.**

44	Subgrade soil: classification	<b>From:</b> 3/11/2022 <b>To :</b> 26/11/2022	Lecture interspersed with discussions
45	Group Index		
46	Subgrade soil strength		
47	California Bearing Ratio		
48	Modulus of Subgrade Reaction.		
49	Stone aggregates: Desirable properties		
50	Tests for Road Aggregates		
51	Bituminous Materials: Types		
52	Desirable properties		
53	Tests on Bitumen		
54	Bituminous paving mixes: Requirements		
55	Marshall Method of Mix Design.		





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**UNIT – V Design Of Pavements: Types of pavements**

**CO5: Design flexible and rigid pavements**

**TB1::Highway Engineering, Khanna S. K., Justo C. E. G and Veeraragavan A, Nem Chand Bros., Roorkee.**

**TB2::Traffic Engineering and Transportation Planning, Kadiyali L. R, Khanna Publishers, New Delhi.**

56	Functions and requirements of different components of pavements	<b>From:</b> 27/11/2022 <b>To :</b> 20/12/2022	Lecture interspersed with discussions
57	Design Factors		
58	Flexible Pavements: Design factors		
59	Flexible Pavement Design Methods – CBR method		
60	IRC method		
61	Burmister method		
62	Mechanistic method		
63	IRC Method for Low volume Flexible pavements.		
64	Rigid Pavements: Design Considerations		
65	wheel load stresses		
66	Temperature stresses		
67	Frictional stresses		
68	Combination of stresses		
69	Design of slabs		
70	Design of Joints		
71	IRC method		
72	Rigid pavements for low volume roads		
73	Continuously Reinforced Cement Concrete Pavements		
74	Roller Compacted Concrete Pavements.		

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5/9/22