K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BANGALORE - 560109

DEPARTMENT OF CIVIL ENGINEERING

SESSION: 2021-2022 (ODD SEMESTER)

LESSON PLAN

NAME OF THE STAFF : **SAISUSHMA B A**

COURSE CODE/TITLE : **18CV56/ HIGHWAY ENGINEERING**

SEMESTER/YEAR : **V/ III**

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date	Delivery Date
MODULE 1- PRINCIPLES OF TRANSPORTATION ENGINEERING, HIGHWAY DEVELOPMENT AND PLANNING							
1	Importance of transportation, Different modes of transportation and comparison, Characteristics of road transport.	L+D	BB+LCD	1	1	01-10-2021	01/10/21
2	Jayakar committee recommendations, and implementation, Central Road Fund, Indian Roads Congress,	L+ D	BB+LCD	1	2	01-10-2021	01/10/21
3	Central Road Research Institute, Road types and classification	L+ D	BB+LCD	1	3	04-10-2021	04/10/21
4	Road patterns, planning surveys, master plan – saturation system of road planning, phasing road development in India	L+D	BB+LCD	1	4	08-10-2021	08/10/21

5	Problems on best alignment among alternate proposal, Present scenario of road development in India (NHDP & PMGSY)	L+D,PS	BB	1	5	08-10-2021	09|10|21
6	Salient Features of 3rd and 4th twenty year road development plans and Policies, Karnataka (KSHIP & KRDCL) Road development plan - vision 2021.	L+ D	BB+LCD	1	6	09-10-2021	11|10|21
7	Ideal Alignment, Factors affecting the alignment	L+D	BB+LCD	1	7	09-10-2021	18|10|21
8	Engineering surveys-Map study, Reconnaissance, Preliminary and Final location & detailed survey, Reports and drawings for new and re-aligned projects	L+D	BB+LCD	1	8	11-10-2021	18|10|21
MODULE 2: HIGHWAY ALIGNMENT AND SURVEYS AND HIGHWAY GEOMETRIC DESIGN							
9	Cross sectional elements–width surface, camber, Sight distances–SSD	L+D	BB+LCD	1	9	18-10-2021	22|10|21
10	OSD ISD, HSD	L+D	BB+LCD	1	10	22-10-2021	22|10|21
11	Radius of curve, transition curve	L+D	BB+LCD	1	11	22-10-2021	25|10|21
12	Design of horizontal and vertical alignment- curves	L+D	BB+LCD	1	12	25-10-2021	29|10|21
13	super-elevation	L+D	BB+LCD	1	13	25-10-2021	08|11|21
14	Widening, gradients, summit and valley curves	L+D	BB+LCD	1	14	29-10-2021	12|11|21

15	Numerical on above	L+D, PS	BB	1	15	29-10-2021	13/11/21
16	**ASSIGNMENT -01 (QUIZ)**	**L+D**	**LCD**	**1**	**14**	**08-11-2021**	15/11/21
17	Numerical on above	L+ D, PS	BB	1	16	15-11-2021	26/11/21
MODULE 3: PAVEMENT MATERIALS							
18	Subgrade soil- desirable properties, HRB soil classification	L+D	BB+LCD	1	17	19-11-2021	29/11/21
19	Determination of CBR and modulus of subgrade reaction, Numerical on above	L+ D, PS	BB	1	18	19-11-2021	29/11/21
20	Numerical on above	L+D, PS	BB	1	19	26-11-2021	03/12/21
21	Numerical on above	L+D, PS	BB	1	20	26-11-2021	03/12/21
22	Aggregates- Desirable properties and tests, Bituminous materials- explanation on Tar, bitumen	L+D	BB+LCD	1	21	29-11-2021	04/12/21
23	Cutback and emulsion-tests on bituminous material	L+D	BB+LCD	1	22	03-12-2021	06/12/21
24	Pavement types, Component parts of flexible and rigid pavements and their functions, ESWL and its determination (Graphical method only)	L+D	BB+LCD	1	23	03-12-2021	09/12/21
25	Numerical on above	L+ D, PS	BB	1	24	04-12-2021	10/12/21
26	Tutorials	L+ D	BB	1	24	04-12-2021	17/12/21

MODULE 4: PAVEMENT CONSTRUCTION							
27	Design of soil aggregate mixes by Rothfuch's method, Numerical on above	L+D, PS	BB	1	25	06-12-2021	17/12/21
28	Numerical on above	L+ D, PS	BB	1	26	10-12-2021	20/12/21
29	**ASSIGNMENT– 02 (SEMINAR)**	**L+ D, PS**	**BB+LCD**	**1**	**26**	**10-12-2021**	24/12/21
30	Uses and properties of bituminous mixes and cement concrete in pavement construction	L+D	BB+LCD	1	27	13-12-2021	24/12/21
31	Earthwork; cutting and Filling, Preparation of subgrade	L+ D	BB+LCD	1	28	20-12-2021	03/01/22
32	Specification and construction of Granular Sub base, BM, DBM	L+D,	BB+LCD	1	29	21-12-2021	04/01/22
33	WBM Base, WMM base,	L+D	BB+LCD	1	30	24-12-2021	05/01/22
34	Dry lean concrete base and PQC	L+D	BB+LCD	1	31	24-12-2021	05/01/22
35	Bituminous Concrete, Concrete roads, Concrete roads	L+D	BB+LCD	1	32	27-12-2021	06/01/22
MODULE 5: HIGHWAY DRAINAGE AND HIGHWAY ECONOMICS:							
36	Significance and requirements, Surface drainage system and design	L+D	BB+LCD	1	33	31-12-2021	07/01/22
37	Sub surface drainage system, Numerical on above	L+D	BB+LCD	1	34	31-12-2021	10/01/22
38	Design of filter materials,	L+ D, PS	BB	1	35	03-01-2022	11/01/22
39	Types of cross drainage structures, their choice and location	L+ D, PS	BB	1	36	07-01-2022	12/01/22

40	Highway user benefits, VOC, Economic analysis - annual cost method	L+D	BB+LCD	1	37	07-01-2022	13/01/22
41	Benefit Cost Ratio method, NPV-IRR methods	L+D	BB+LCD	1	37	08-01-2022	17/01/22
42	Numerical on above	L+D, PS	BB	1	38	08-01-2022	18/01/22
43	Highway financing, BOT-BOOT concepts	L+ D	BB+LCD	1	39	10-01-2022	18/01/22
44	**ASSIGNMENT- 03 (CASE STUDY)**	**L+D**	**BB+LCD**	**1**	**39**	**17-01-2022**	19/01/22
45	Tutorials	L+D	BB	1	39	31-01-2022	20/01/22

Total no. of Lecture Hours= 40

Total no. of Tutorial Hours= 02

ASSIGNMENT DETAILS

	MODE OF ASSIGNMENT & INSTRUCTIONS	DATE
ASSIGNMENT- 01	**Quiz** on first internals portions for all the students. *It will be conducted through online mode in class.	**08-11-2021**

ASSIGNMENT- 02	**Seminar on** o IRC specifications of NH, SH, MDR, ODR & VR o IRC specifications of Bituminous materials (soil, aggregates, tar & bitumen) *Students can make a group of 5 in a batch for conducting assignment 2 *Select the topic on prior approval by the faculty in charge *Seminar should be Given on above mentioned date	**10-12-2021**
ASSIGNMENT- 03	o **A Case study on** o Accident Analysis o Highway alignment project o Setting out Radius of curvature o Setting out Transition curve o Earth work (cutting and filling) o Cross sectional elements of highway o Tests on Aggregates o Tests on Bitumen o Drainage system *Assignment 3 will be conducted outside as a case study. * Students can make a group of 5 in a batch for conducting assignment 3. *Select the topic on prior approval by the faculty in charge. *Reports should be submitted on above mentioned date.	**17-01-2022**

Eai Sushma.B.A
28/10/2021

Course In charge

Head - Dept

Professor & Head
Dept. of Civil Engineering
K.S. Group of Institutions
K.S. School of Engineering & Management
Bangalore-560 062

Dr. K. RAMA NARASIMHA
Principal/Director
K S School of Engineering and Management
Bengaluru - 560 109