



SRK INSTITUTE OF TECHNOLOGY,
 ENIKEPADU, VIJAYAWADA -521108
 Approved by AICTE, Permanently Affiliated to JNTUK, Kakinada
 ISO 9001:2015 Certified Institution
 Accredited with NAAC 'A' grade
 DEPARTMENT OF CIVIL ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: UNIVERSAL HUMAN VALUES-2: UNDERSTANDING HARMONY

Year / Semester: IV/I Section: I A.Y: 2023-24 Mode of Delivery: Onboard/PPT

No. of Periods	TOPIC	Date	Remarks
UNIT I – COURSE INTRODUCTION - NEED, BASIC GUIDELINES, CONTENT AND PROCESS FOR VALUE EDUCATION			
CO1: To train the student for Development of a holistic perspective based on self-exploration about themselves human being), family, society and nature/existence.			
TB :: "A foundational course in Human Values and Professional Ethics by RR Gaur, R Sangal, GP Bagaria , " Excel Books".			
1	Introduction	From: 17-07-2023 To: 10-08-2023	Lecture Interspersed with discussions
2	Need, Basic Guide lines for Value Education		
3	Content and Process for Value Education		
4	Introduction to Self-Exploration		
5	Self-Exploration content and process		
6	Personality Traits		
7	Self -Excellence, Natural Acceptance" and Experiential Validation"		
8	The process for self-exploration		
9	Adaptability, Belief and Understanding- Self discipline		
10	Continuous Happiness and Prosperity		
11	A look at basic Human Aspirations		
12	Right understanding, Relationship and Physical Facility		
13	the basic requirements for fulfillment of aspirations of every human being with their correct priority		
14	Method to fulfill the above human aspirations		
15	Understanding and living in harmony at various levels.		
16	Myers-Briggs Type Indicator (MBTI) Personality test		
UNIT –II UNDERSTANDING HARMONY IN THE HUMAN BEING - HARMONY IN MYSELF!			
CO2: To understand Harmony in the Human Being - characteristics and activities and harmony in I and correct appraisal of Physical needs, meaning of Prosperity in detail.			
TB :: "A foundational course in Human Values and Professional Ethics by RR Gaur, R Sangal, GP Bagaria , " Excel Books".			
17	Introduction Understanding Harmony in the Human Being	From: 14-08-2023 To: 31-08-2023	Lecture Interspersed with discussions
18	Understanding human being as a co-existence of the sentient "I" and the material „Body"		
19	Understanding the needs of Self (I) and Body " - happiness and physical facility"		
20	Understanding the Body as an instrument of I		
21	I being the doer, seer and enjoyer		
22	Habits and Hobbies		
23	SWOT Analysis (Activity)		
24	Understanding the characteristics and activities of I		
25	Harmony in I		

26	Dalai Lamas" Tibetan Personality Test"		
27	.Understanding the harmony of I with the Body		
28	Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail		
29	Programs to ensure Sanyam and Health		
30	Epidemiology- Definition of health, Social and Preventive Medicine, Personal hygiene and handling stress		
31	WHO Guidelines		

UNIT – III UNDERSTANDING HARMONY IN THE FAMILY AND SOCIETY- HARMONY IN HUMAN RELATIONSHIP

CO3: To understand (or develop clarity) the harmony in the human being, family, society and Human Relationship

TB :: "A foundational course in Human Values and Professional Ethics by RR Gaur, R Sangal, GP Bagaria " Excel Books".

32	Introduction Understanding Harmony in the Family and Society	From: 01-09-2023 To: 26-09-2023	Lecture Interspersed with discussions
33	Harmony in Human-Human Relationship		
34	Understanding values in human-human relationship		
35	meaning of Justice, Trust and Respect as the foundational values of relationship		
36	Understanding the meaning of Trust; Difference between intention and competence		
37	Understanding the meaning of Respect, Difference between respect and differentiation		
38	The other salient values in relationship, Friends and Foes, Empathy, False Prestige.		
39	Concept of an Ideal family- Marriage as an Institution		
40	Understanding the harmony in the society		
41	Visualizing a universal harmonious order in society		
42	Undivided Society, Universal Human Order- from family to world family.		

UNIT – IV : UNDERSTANDING HARMONY IN THE NATURE AND EXISTENCE - WHOLE EXISTENCE AS COEXISTENCE

CO4: To strengthen the students in Understanding Existence as Co-existence of mutually interacting units in all- pervasive space, Holistic perception of harmony at all levels of existence.

TB :: "A foundational course in Human Values and Professional Ethics by RR Gaur, R Sangal, GP Bagaria , " Excel Books".

43	Introduction to Understanding Harmony in the Nature and Existence	From: 27-09-2023 To: 18-10-2023	Lecture Interspersed with discussions
44	Whole existence as Coexistence		
45	Understanding the harmony in the Nature and its Equanimity		
46	Respect for all, Nature as Teacher		
47	Interconnectedness and mutual fulfillment among the four orders of nature		
48	Recyclability and self-regulation in nature		
49	Understanding Existence as Co-existence of mutually interacting units in all		
50	pervasive space		
51	Holistic perception of harmony at all levels of existence.		
52	practice sessions		

UNIT - V IMPLICATIONS OF THE ABOVE HOLISTIC UNDERSTANDING OF HARMONY ON PROFESSIONAL ETHICS

CO5: To Infuse the student with Humanistic Education, Humanistic Constitution and Humanistic Universal Order

TB :: "A foundational course in Human Values and Professional Ethics by RR Gaur, R Sangal, GP Bagaria " Excel Books".

53	Implications of the above Holistic Understanding of Harmony on Professional Ethics	From: 19-10-2023 To: 11-11-2023	Lecture Interspersed with discussions
54	Natural acceptance of human values		
55	Definitiveness of Ethical Human Conduct		
56	Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order		
57	Competence in professional ethics		
58	Case studies of typical holistic technologies, management models and production systems		
59	Vision for the Holistic alternatives, UHVs for entrepreneurship		
60	Strategy for transition from the present state to Universal Human Order		
61	(a) At the level of individual(b) At the level of society		
62	practice sessions and Case Studies		

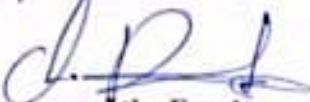
M. Srijanya 17/7/23
Signature of the Faculty

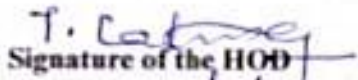
T. G. S. 17/7/23
Signature of the HoD

TENTATIVE LESSON PLAN UTP

Course Title: UTP			
Section : Sec A	Date : 10-7-2023	Page No : 01 of 03	
Revision No : 00	Prepared By : K.KIRAN & CH .RAJESH	Approved By : HOD	
Tools: Black board, PPTs, Model			
No. of Periods	TOPIC	Date	Mode of delivery
UNIT –I URBAN TRANSPORT PLANNING			
1	Urban Transportation Problems & Travel Demand	From: 17-7-2023 To: 2-8-2023	Lecture interspersed with discussions
2	Urban Issues		
3	Travel Characteristics		
4	Evolution of Planning Process		
5	Supply and Demand		
6	Systems approach; Trends		
7	Overall Planning process		
8	Long term Vs Short term planning		
9	Demand Function, Independent Variable		
10	Travel Attributes		
11	Assumptions in Demand Estimation		
12	Sequential, and Simultaneous Approaches		
13	Aggregate and Disaggregate Techniques		
UNIT –II DATA COLLECTION AND INVENTORIES:			
14	Unit – 2 Data Collection and Inventories: Collection of data	From: 3-8-2023 To: 28-8-2023	Lecture interspersed with discussions
15	Organisation of surveys and Analysis		
16	Study Area, Zoning		
17	Types and Sources of Data		
18	Road Side Interviews, Home Interview Surveys		
19	Commercial Vehicle Surveys		
20	Sampling Techniques		
21	Expansion Factors, Accuracy Checks		
22	Use of Secondary Sources		
23	Economic data – Income		
24	Population – Employment		
25	Vehicle Owner Ship		
UNIT –III TRIP GENERATION & DISTRIBUTION:			
26	UTPS Approach,	From: 29-08-2023 To: 3-10-2023	Lecture interspersed with discussions
27	Trip Generation Analysis: Zonal Models		
28	, Category Analysis, Household Models		
29	Trip Attraction models		
30	Commercial Trip Rates		
31	Trip Distribution		
32	Growth Factor Methods		
33	Gravity Models		
34	Opportunity Models		
35	Time Function Iteration Models		

UNIT IV MODE CHOICE ANALYSIS & TRAFFIC ASSIGNMENT			
36	Unit 4 – Mode Choice Analysis: Mode Choice Behaviour	From 4-10-2023 To: 29-10-2023	Lecture interspersed with discussions
37	Competing Modes, Mode Split Curves		
38	Aggregate and Disaggregate Approaches		
39	Discrete Choice Analysis		
40	Discrete Choice Analysis, Choice sets		
41	Maximum Utility, Probabilistic Models: Binary Logit		
42	Multinomial Logit Model – IIA property; Aggregation.		
43	Traffic Assignment: Diversion Curves; Basic Elements of Transport Networks		
44	Coding, Route Properties		
45	Path Building Criteria		
46	Skimming Tree		
47	All-or-Nothing Assignment		
48	Capacity Restraint Techniques		
49	Reallocation of Assigned Volumes, Equilibrium Assignment.		
UNIT –V CORRIDOR IDENTIFICATION, PLAN PREPARATION & EVALUATION:			
50	Unit – 5 Corridor Identification, Plan Preparation & Evaluation: Master plans	From: 29-10-23 To: 12-112023	Lecture interspersed with discussions
51	Selection of Corridor		
52	, Corridor Identification		
53	Corridor deficiency Analysis		
54	Travel Forecasts to Evaluate Alternative Improvements		
55	, Impacts of New Development on Transportation Facilities		
56	. Pivot Point Analysis		
57	Environmental and Energy Analysis		
58	Case studies		

K. P. S.

 Signature of the Faculty
 10/7/23

T. Lakshmi

 Signature of the HOD
 10/7/23



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DEPARTMENT OF CIVIL ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Safety Engineering / R204103W

Year / Semester : IV/I

Section: I

A.Y: 2023-24

S.NO	TOPIC	Date	Mode of Delivery
UNIT-I Introduction to the Development of Industrial Safety and Management CO1: Understand the concepts of industrial safety and management TB: "Occupational Safety Management and Engineering", by Willie Hammer, 2nd Edition, Prentice Hall Publications.			
1	History and development of Industrial safety	From 17-07-2023 To 28-07-2023	Lecture interspersed with discussions & PPTs
2	Implementation of factories act		
3	Safety and productivity		
4	Safety organizations		
5	Safety committees and structure		
6	Role of management and role of Govt. in Industrial safety		
UNIT-II Accident Preventions, Protective Equipments and the Acts CO2: Demonstrate the accident preventions and protective equipment. TB: "Industrial Maintenance Management", by Sri vastava, S.K, S. Chand and Co Publications.			
7	Personal protective equipment	From 31-07-2023 To 18-08-2023	Lecture interspersed with discussions & PPTs
8	Survey the plant for locations		
9	Part of body to be protected		
10	Education and training in safety		
11	Prevention causes and cost of accident		
12	Housekeeping		
13	First aid		
14	Firefighting equipment		
15	Accident reporting		
16	Investigations		
17	Industrial psychology in accident prevention		
18	Safety trials		



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UNIT-III Safety Acts			
CO3: Understand and apply the knowledge of safety acts			
TB: "Occupational Safety Management and Engineering", by Willie Hammer, 2nd Edition, Prentice Hall Publications.			
19	Features of Factory Act	From 21-08-2023 To 30-09-2023	Lecture interspersed with discussions & PPTs
20	Introduction of Explosive Act		
21	Boiler Act		
22	ESI Act		
23	Workman's compensation Act		
24	Industrial hygiene		
25	Occupational Safety		
26	Diseases prevention		
27	Ergonomics		
28	Occupational diseases		
29	Stress		
30	Fatigue		
31	Health		
32	Safety and the physical environment		
33	methods of controlling chemical hazards		
34	safety and the physical environment		
35	Control of industrial noise and protection against it		
36	Code and regulations for worker safety and health		
37	Code for safety of system		
UNIT-IV FIRE PREVENTION AND PROTECTION			
CO4: Understand the concepts of fire prevention and protection systems.			
TB: "Hand book on Industrial Fire Safety", by Purandare D.D & Abhay D.Purandare, P & A publications, New Delhi, 2006.			
38	Sources of ignition	From 03-10-2023 To 19-10-2023	Lecture interspersed with discussions & PPTs
39	Fire triangle		
40	Principles of fire extinguishing		
41	Active and passive fire protection systems		
42	Various classes of fires A, B, C, D, E		
43	Fire extinguishing agents		
44	Water, Foam, Dry chemical powder,		
45	Carbon-dioxide Halon alternatives		



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	Halocarbon compounds		
46	Inert gases, dry powders		
47	Types of fire extinguishers		
48	Fire stoppers		
49	Hydrant pipes, hoses, monitors		
50	Fire watchers, layout of stand pipes		
51	Fire station, fire alarms and sirens		
52	Maintenance of fire trucks		
53	Foam generators		
54	Escape from fire rescue operations		
55	Fire drills		
56	First aid for burns		
UNIT-V BUILDING FIRE SAFETY			
CO5: Applying the concepts of fire safety principles in buildings.			
TB: "Hand book on Industrial Fire Safety", by Purandare D.D & Abhay D.Purandare, P & A publications, New Delhi, 2006.			
57	Objectives of fire safe building design		
58	Fire load		
59	Fire resistant material and fire testing		
60	Structural fire protection		
61	Structural integrity		
62	Concept of egress design		
63	Exit - width calculations		
64	Fire certificates		
65	Fire safety requirements for high rise buildings		
		From 26-10-2023 To 11-11-2023	Lecture interspersed with discussions & PPTs


G. Sahithi
Signature of Faculty 17/7/23

J. Lakshmi
Signature of HoD
17/7/23


Course Title DESIGN AND DRAWING OF REINFORCED CONCRETE STRUCTURES (R2031012)		
Section : Sec A	Date : 14/7/2023	Page No : 01 of 03
Revision No : 00	Prepared By : K.KIRAN	Approved By : HOD

Tools : Black board, PPTs, Model


No. of Periods	TOPIC	Tentative Date	Implemented Date
UNIT –I Design Methods CO1: To Work on different types of design methods TB1:: Reinforced Concrete Structures, N. Krishna Raju & R. N. Pranesh, and New Age Publications. TB2:: Limit State Design, A. K.Jain, Nem Chand Brothers			
1	UNIT –I Design Methods	From: 17/7/2023 To: 10/8/2023	Lecture interspersed with discussions
2	Working stress method: Elastic theory		
3	design constants		
4	modular ratio, neutral axis depth and Moment of resistance		
5	balanced, under-reinforced and over-reinforced sections.		
6	Design of singly And doubly reinforced beams		
7	IS Code Provisions.		
8	Limit State Design: Basic statistical principles		
9	Characteristic strength		
10	Characteristic loads		
11	Partial load and safety factors		
12	stress-strain curves for HYSD bars and MS bars.		
13	Assumptions		
14	Stress block parameters		
15	Moment of Resistance.		
16	TUTORIAL		
UNIT –II Design for Flexure and Shear CO1: To Carryout analysis and design of flexural members and detailing TB1:: Reinforced Concrete Structures, N. Krishna Raju & R. N. Pranesh, and New Age Publications. TB2:: Limit State Design, A. K.Jain, Nem Chand Brothers			
17	UNIT –II Design for Flexure and Shear	From: 11/8/2023 To : 30/8/2023	Lecture interspersed with discussions
18	Design of singly reinforced beams		
19	effective depth		
20	Moment of Resistance		
21	Doubly reinforced beams		
22	flanged (T) beams		
23	Minimum depth		
24	Minimum And Maximum Flexural Tension Reinforcement		
25	Design of Flanged Sections (T & L)		
26	Effective Width of flange		

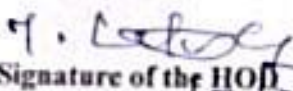
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27	Analysis and Design Problems.		
28	Design for Shear and Torsion		
29	Analysis and design of sections for shear and torsion		
30	bond, Anchorage and development length		
31	I.S. code provisions.		
32	Design examples in simply supported and Continuous beams		
33	Detailing.		
34	TUTORIAL		
UNIT – III Slabs and Serviceability CO1: Design different type of slabs TB1:: Reinforced Concrete Structures, N. Krishna Raju & R. N. Pranesh, and New Age Publications. TB2:: Limit State Design, A. K.Jain, Nem Chand Brothers			
35	UNIT – III Slabs and Serviceability	From: 31/8/2023 To : 30/9/2023	Lecture interspersed with discussions
36	Classification of slabs, design of one - way slabs		
37	one way continuous slab using IS Coefficients (Conventional)		
38	Design of two - way slabs - simply supported slabs		
39	slabs with various edge conditions using IS Coefficients.		
40	Design of Stair case		
41	Limit state of serviceability		
42	Deflection		
43	cracking		
44	IS code provisions for beams and slabs.		
45	TUTORIAL		
UNIT – IV Design of Compression members CO5: Design different types of compression members. TB1:: Reinforced Concrete Structures, N. Krishna Raju & R. N. Pranesh, and New Age Publications. TB2:: Limit State Design, A. K.Jain, Nem Chand Brothers			
46	UNIT – IV Design of Compression members	From: 3/10/2023 To : 27/10/2023	Lecture interspersed with discussions
47	Effective length,		
48	Braced and un-braced columns		
49	IS Code provisions,		
50	Design of short a columns under axial loads, uniaxial bending and		
51	biaxial bending		
52	Design of long columns under axial loads, uniaxial bending and		
53	Biaxial bending (Demonstration using SP 16)		
54	TUTORIAL		
UNIT – V :FOOTINGS CO5: Design different typeS of footings TB1:: Reinforced Concrete Structures, N. Krishna Raju & R. N. Pranesh, and New Age Publications.			

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TB2:: Limit State Design, A. K.Jain, Nem Chand Brothers			
55	UNIT –V Footings	From: 28/10/2023 To : 25/11/2023	Lecture interspersed with discussions
56	Types of footings		
57	Design of isolated footings		
55	Pedestal footings		
56	Square footings		
57	Rectangular footings		
58	circular footings subjected to axial loads, uni-axial bending moment.		
59	TUTORIAL		


 Signature of the Faculty
 14/7/23


 Signature of the HOD
 14/7/23

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TENTATIVE LESSON PLAN


Course/Code: ADDITIVE MANUFACTURING / R204103P

Year / Semester : IV/I

Section: I

A.Y: 2023-24

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I INTRODUCTION CO1: Understand the principles of prototyping, classification of RP processes and liquid-based RP systems TB: Rapid prototyping: Principles and Applications /Chua C.K., Leong K.F. and LIM C.S/World Scientific publications			
1	Prototyping fundamentals	From: 17/07/2023 To: 14/08/2023	Lecture interspersed with discussions
2	Historical Development		
3	Fundamentals of Rapid Prototyping		
4	Advantages and Limitations of Rapid Prototyping		
5	Commonly Used Terms		
6	classification of RP process		
7	LIQUID-BASED RAPID PROTOTYPING SYSTEMS: Stereo lithography Apparatus (SLA): models and specifications		
8	SLA process		
9	SLA working principle		
10	Photopolymers & photo polymerization		
11	layering technology		
12	laser and laser scanning		
13	Applications, Advantages and disadvantages of SLA		
14	SLA case studies		
15	Solid Ground Curing (SGC): models and specifications		
16	SGC process		
17	SGC working principle		
18	SGC applications, advantages and disadvantages		
19	SGC case studies		
UNIT-II SOLID-BASED RAPID PROTOTYPING SYSTEMS CO2: Understand and apply different types of solid-based RP systems. TB: Rapid prototyping: Principles and Applications /Chua C.K., Leong K.F. and LIM C.S/World Scientific publications			
20	Laminated object manufacturing (LOM) - models and specifications		Lecture interspersed
21	LOM process		

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22	LOM working principle	From: 17/08/2023 To: 04/09/2023	with discussions
23	LOM Applications, Advantages and disadvantages,		
24	LOM case studies		
25	Fused deposition modelling (FDM) - models and specifications		
26	FDM process		
27	FDM working principle		
28	FDM Applications, Advantages and disadvantages		
29	FDM case studies		

UNIT-III POWDER BASED RAPID PROTOTYPING SYSTEMS

CO3: Apply powder-based RP systems

TB: Rapid prototyping: Principles and Applications /Chua C.K., Leong K.F. and LIM C.S/World Scientific publications

30	Selective laser sintering (SLS): models and specifications	From: 05/09/2023 To: 30/09/2023	Lecture interspersed with discussions
31	SLS process		
32	working principle		
33	applications, advantages and disadvantages		
34	case studies		
35	Three dimensional printing (3DP): models and specifications		
36	3DP process		
37	3DP working principle		
38	3DP Applications, advantages and disadvantages		
39	3DP case studies		

UNIT-IV RAPID TOOLING

CO4: Analyze and apply various rapid tooling techniques.

TB: Rapid prototyping: Principles and Applications /Chua C.K., Leong K.F. and LIM C.S/World Scientific publications

40	Introduction to rapid tooling (RT)	From: 03/10/2023 To: 28/10/2023	Lecture interspersed with discussions
41	Conventional tooling Vs RT		
42	Need for RT. rapid tooling classification		
43	Indirect rapid tooling methods: spray metal deposition		
44	RTV epoxy tools		
45	Ceramic tools		
46	Investment casting		
47	Spin casting		
48	Die casting		
49	Sand casting process		
50	Direct rapid tooling: Direct AIM, LOM Tools		
51	Direct Metal Tooling using 3DP		

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UNIT-V RAPID PROTOTYPING DATA FORMATS


CO5: Understand different types of data formats and explore the applications of AM processes in various fields.

TB : Rapid prototyping: Principles and Applications /Chua C.K., Leong K.F. and LIM C.S/World Scientific publications

52	STL Format, STL File Problems	From: 30/10/2023 To: 23/11/2023	Lecture interspersed with discussions
53	consequence of building valid and invalid tessellated models		
54	STL file Repairs: Generic Solution		
55	other Translators, and Newly Proposed Formats		
56	RP APPLICATIONS: Application in engineering		
57	analysis and planning, aerospace industry		
58	automotive industry, jewelry industry		
59	coin industry, GIS application		
60	RP medical and bioengineering applications		
61	customized implants and prosthesis		
62	forensic sciences.		

TB : Rapid prototyping: Principles and Applications /Chua C.K., Leong K.F. and LIM C.S/World Scientific publications


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 Department Of Civil Engineering

TENTATIVE LESSON PLAN: R2031013
 Geotechnical engineering -I

Course Title: Geotechnical engineering -I(R2031013)		
Section : Sec A	Date :09-07-2023	Page No : 01 of 03
Revision No : 00	Prepared By :B.SAIKUMAR REDDY	Approved By : HOD
Tools : Black board, PPTs, Model		

No. of Periods	TOPIC	Date	Mode of delivery
UNIT -I INTRODUCTION-SOIL FORMATION			
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			
T3: M.Palani Kumar, "Soil Mechanics", PHI Learning			
1	Soil structure and formation	From: 71-07-2023 To: 6-08-2023	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	Tutorial		
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	Tutorial	

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	Tutorial		
		From: 7-08-2023 To: 26-08-2023	Lecture interspersed with discussions ppt

UNIT-III Stress Distribution In Soils

CO3: The Student will 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	Tutorial		
		From: 27-08-2023 To: 20-09-2023	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: 21-09-2023 To: 20-10-2023	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	Tutorial		

UNIT -V Shear Strength of Soils

CO5: The Student Wil Be Able To Enable The Student To Understand The Concept Ofshear Strength Ofsoils, 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: 21-10-2023 To: 24-11-2023	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		

Signature of the Faculty

HOD/date

9/12/23

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TENTATIVE LESSON PLAN: R2021011

Course Title: MATHEMATICS-III			
Section : CIVIL	Date : 07-08-2023	Page No : 01 of 04	
Revision No : 00	Prepared By : V.PRASANTHI	Approved By : HOD	
Tools: Black board			
No. of Periods	TOPIC	Date	Mode of Delivery
UNIT – I: VECTOR CALCULUS			
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			
TB: "Engineering Mathematics", Dr. T.K.V.Iyengar; S.Chand publications			
1	Vector Differentiation: Introduction	From: 07-08-23 To 25-08-23	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		
11	Problems on application of gradient		
12	Problems on divergence and curl		
13	Vector Integration: Introduction		
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		
UNIT – II: LAPLACE TRANSFORMS			
CO2: To apply the Laplace transform for solving differential equations			
TB: "Engineering Mathematics", Dr. T.K.V.Iyengar; S.Chand publications			
22	Laplace Transforms: Definitions, Existence		
23	Laplace Transform of standard functions		

24	Linearity property; Shifting properties Change of scale property	From 26-08-23 To 15-09-23	Lecture interspersed with discussions
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	Inverse Laplace Transforms: Finding L^{-1} using partial fractions		
31	Properties of inverse transform		
32	Convolution theorem		
33	Solutions of Difference Equations		

UNIT – III: FOURIER SERIES AND FOURIER TRANSFORMS

CO3:TO find or compute the Fourier series of periodic signals , able to apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms

TB:“ Engineering Mathematics”, Dr. T.K.V.Iyengar; S.Chand publications

34	Introduction	From 16-09-23 To 23-09-23 & From 03-10-23 To 12-10-23	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		

UNIT – IV: PDE OF FIRST ORDER

CO4: To identify solution methods for partial differential equations that model physical processes

TB:“ Engineering Mathematics”, Dr. T.K.V.Iyengar; S.Chand publications

48	Introduction	From	Lecture interspersed
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 $f(p, q) = 0$	13-10-23 To 28-10-23	with discussions
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	$f(pz^m, qz^m) = 0$		
UNIT – V: SECOND ORDER PARTIAL DIFFERENTIAL EQUATIONS AND APPLICATIONS			
CO5: To identify solution methods for partial differential equations that model physical processes			
TB: "Engineering Mathematics", Dr. T.K.V.Iyengar; S.Chand publications			
61	Introduction; Homogeneous Linear P.D.E with constant coefficients; finding CF Finding PI: RHS term of the type $e^{(ax+by)}$	From 30-10-23 To 19-11-23	Lecture interspersed with discussions
62	$\sin(ax + by); \cos(ax + by)$		
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		

Prasanth V.
Signature of Faculty 02/08/23

J. Latha
Signature of HOD 6/8/23



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 Department Of Civil Engineering

TENTATIVE LESSON PLAN: R2021014

Surveying And Geometrics

Course Title: Surveying And Geometrics (R2021014)		
Section : Sec A	Date : 7-08-2023	Page No : 01 of 03
Revision No : 00	Prepared By : B.SAIKUMAR REDDY	Approved By : HOD
Tools : Black board, PPTs, Model		

No. of Periods	TOPIC	Date	Mode of delivery
UNIT -I INTRODUCTION AND BASIC CONCEPTS			
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	From :7-08-2023 To: 25-08-2023	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		
UNIT -II LEVELLING ,CONTOURING,AREAS,VOLUMES			
CO2: student wil be able to know and measure the areas and volumes and leveling of			

instruments

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

19	UNIT-2 Introduction	From: 26-08-2023 To: 15-09-2023	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		

UNIT –III THEODILITE SURVEYING

CO3: student will be able to know the theodilite surveying and different methods of surveying.

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

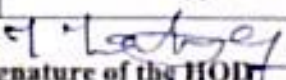
T2: Chandra A.M plane surveying higher surveying new age international pvt ltd

38	UNIT-3 Theodolite: Introduction	From: 16-09-2023 To: 24-09-2023	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.	& From: 16-10-2023 To: 12-10-2023
45	Trigonometrical leveling when base is accessible	
46	Trigonometrical leveling when base is inaccessible	
47	Traversing: Methods of traversing	
48	Traverse computations	
49	adjustments	
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	Lecture interspersed with discussions ppt
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	
UNIT – V photogrammetric 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	

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


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1/8/23

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TENTATIVE LESSON PLAN: (R2021012)

Course Title: Strength of Materials-I (R2021012)		
Section : Sec A	Date : 01-08-2023	Page No : 01 of 04
Revision No : 00	Prepared By :G.Sahithi	Approved By : HOD

Tools : Black board, PPTs, Model

No. of Periods	TOPIC	Date	Mode of Delivery
<p>UNIT –I SIMPLE STRESSES AND STRAINS AND STRAIN ENERGY 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.</p> <p>T1 Strength of Materials by S.S Bhavikatti, T2 Strength of Materials by R.K Bansal, Lakshmi Publications</p>			
1	Introduction to elasticity and plasticity –Types of stresses	<p align="center">From: 01-08-2023</p> <p align="center">To: 16-08-2023</p>	<p align="center">Lecture interspersed with discussions</p>
2	Types of strains – Hooke’s law		
3	Stress – strain diagram for mild steel		
4	Working stress – Factor of safety – Lateral strain, Poisson’s ratio and volumetric strain		
5	Problems related to stress, strain and elongation		
6	Problems on relation between stress strain and youngs modulus		
7	Elastic moduli and the relationship between them		
8	Problems on relation between elastic constants		
9	Bars of varying section		
10	Problems on bars of varying cross section		
11	Description of composite bars		
12	Problems on composite bars		
13	Temperature stresses, problems		
14	Strain Energy – Resilience – Gradual, sudden, impact and shock loadings		
15	Problems on strain energy		
<p>UNIT –II SHEAR FORCE AND BENDING MOMENT CO2 The student will be able to draw the diagrams indicating the variation of the key performance features like bending moment and shear forces</p> <p>T1 Strength of Materials by S.S Bhavikatti, T2 Strength of Materials by R.K Bansal, Lakshmi Publications</p>			
16	Definition of beam – Types of beams		
17	Concept of shear force and bending moment		
18	Diferrent types of loadings		
19	Conversion of udl, uvl into point loads		
20	S.F and B.M diagrams for simply Supported subjected to point loads, u.d.l loadings		
21	S.F and B.M diagrams for simply		

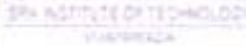
	Supported subjected to u.v.l loadings				
22	S.F and B.M diagrams for cantilever subjected to point loads, u.d.l loadings				
23	S.F and B.M diagrams for cantilever subjected to u.v.l loadings				
24	overhanging beams, Relation between S.F., B.M and rate of loading at a section of a beam				
25	Problems on calculation of SFD,BMD for S.S.B subjected to point load	From: 17-08-2023 To: 31-08-2023	Lecture interspersed with discussion		
26	Problems on calculation of SFD,BMD for S.S.B subjected to u.d.l				
27	Problems on calculation of SFD,BMD for S.S.B subjected to combination loadings				
28	Problems on calculation of SFD,BMD for cantilever subjected to u.d.l				
29	Problems on calculation of SFD,BMD for cantilever subjected to combination load				
30	Problems on calculation of SFD,BMD for over hanging beams				
31	Problems on calculation of SFD,BMD for over hanging subjected beams subjected to combination loading beams				
UNIT –III FLEXURAL STRESSES&SHEAR STRESSES 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 T1 Strength of Materials by S.S Bhavikatti, T2 Strength of Materials by R.K Bansal, Lakshmi Publication					
32	Theory of simple bending			From: 01-09-2023 To: 16-09-2023	Lecture interspersed with discussions
33	Assumptions of simple bending				
34	Derivation of bending equation: $M/I = f/y = E/R,$				
35	Definition of bending stresses				
36	Section Modulus				
37	Section modulus of rectangular and circular sections (Solid and Hollow),				
38	Section modulus of I,T sections				
39	Section modulus of angle sections				
40	Section modulus of channel sections				
41	Problems on section modulus for standard sections				
42	Problems on section modulus for standard sections				
43	Problems on bending stresses				
44	Problems on bending stresses				
45	Problems on bending stresses				
46	Derivation of formula for shear stress				

47	Introduction to Shear stress distribution	From: 01-09-2023 To: 16-09-2023	
48	Shear stress distribution across various beam sections like rectangular section		
49	Shear stress distribution across various beam sections like circular section		
50	Shear stress distribution across various beam sections like triangular section		
51	Shear stress distribution across I section		
52	Shear stress distribution across T section		
53	Shear stress distribution across built up section		
54	Problems on S.S.D across various standard sections		
55	Problems on S.S.D across various standard sections		
56	Determination of S.S.D in T section		
57	Determination of S.S.D in I section		
58	Determination of S.S.D in built up sections		
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	From: 18-09-2023 To: 12-10-2023	Lecture interspersed with discussions
60	Double integration Method		
61	Determination of slope and deflection for cantilever subjected to point loads,		
62	Determination of slope and deflection for cantilever subjected to u.d.l		
63	Determination of slope and deflection for cantilever subjected to u.v.l		
64	Determination of slope and deflection for S.S.B subjected to point loads		
65	Determination of slope and deflection for S.S.B subjected to u.d.l		
66	Determination of slope and deflection for S.S.B subjected to u.v.l		
67	Macaulay's methods and problems on it		
68	Mohr's theorem and Moment area method		
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	From: 13-10-2023 To: 25-11- 2023	Lecture interspersed with discussions
70	Derivation of formula for hoop and longitudinal stress		
71	Volumetric strain,		
72	Changes in diameter volume in cylinders		
73	Introduction to thin spherical shells and derivation		
74	Lames theory derivation		
75	Hoop and radial stress		
76	Design of thick cylinders		
77	Compound cylinders and problems		
78	Thick spherical shells		
79	Problems on cylinders		

G. Sakhthi
11/2/23
Signature of the Faculty

T. Lakshy
Signature of the HOD
1/12/23


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TENTATIVE LESSON PLAN: CE

Course Title: HIGHWAY ENGINEERING (R2021015)		
Section : Sec A	Date : 5/8/2023	Page No : 01 of 03
Revision No : 00	Prepared By : K.KIRAN	Approved By : HOD

Tools : Black board, PPTs, Model

No. of Periods	TOPIC	Tentative Date	Implemented Date
UNIT I Highway Planning and Alignment CO1: Plan highway network for a given area. 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.			
1	Highway development in India	From: 7/8/2023 To: 27/8/2023	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.		
UNIT – II Highway Geometric Design CO2:Determine Highway alignment and design highway geometrics 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.			
14	Importance of Geometric Design	From: 28/8/2023 To : 18/9/2023	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	From: 19/9/2023 To : 15/10/2023	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	From: 16/10/2023 To : 06/11/2023	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.		

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	From: 7/11/2023 To : 25/11/2023	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.		

Signature of the Faculty

5/8/23

Signature of the HOD

5/8/23

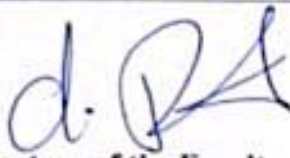
TENTATIVE LESSON PLAN FM


Course Title: Fluid Mechanics			
Section : Sec A	Date : 10-7-2023	Page No : 01 of 03	
Revision No : 00	Prepared By : CH .RAJESH	Approved By : HOD	
No. of Periods	TOPIC	Tentative date	Mode of Delivery
Unit 1: introduction to fluid mechanics & hydrostatics 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: 1/8/23 To: 25/8/23	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	Hydrostatics- Introduction		
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		
Unit 2: fluid kinematics & fluid dynamics Co2: identify and analyse various types of fluid flows. Tb: fluid mechanics and hydraulic mechanics by r.k. bansal -laxmi publications			
23	Fluid kinematics -Fluid flow, stream, streak, path line	From: 26/8/23 To: 18/9/23	Lecture interspersed with discussions
24	Classification of flows		
25	Continuity equation- 1,2,3 D		
26	Flow Nets		
27	Numerical problems		
28	Stream and velocity potential function		
29	Fluid Dynamics - 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	Flows-Reynolds experiment		
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	Tutorials		
		From: 19/9/23	
		To: 15/10/23	Lecture interspersed with discussions
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		
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		
		From: 16/10/23	
		To: 2/11/23	Lecture interspersed with discussions

Unit 5: Boundary Layer Theory**Co5:** Know The Concept Of Boundary Layer Theory**Tb:** Fluid Mechanics And Hydraulic Mechanics By R.K. Bansal -Laxmi Publications

67	Boundary Layer Theory	From: 2/11/23 To: 25/11/23	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		


Signature of the Faculty
10/11/23


Signature of the HOD
10/11/23