LESSON PLAN

Department: MECHANICAL ENGINEERING **Program: B.Tech**
Course :APPLIED MATHEMATICS-III (S134)
SEM: IV **Academic Year : 2017-18**

1. **Pre-requisites: None**

2. **Course Educational Objectives (CEOs):**

3. **Course Outcomes (COs):** At the end of the course, the student will be able to :

CO1 : Compare the rate of accuracy between Regula falsi method and The Newton-Raphson Method in approximating a root of an equation. Also Distinguish among the criteria of selection and procedures of various Numerical integration rules.

CO2 : Estimate the best fit polynomial for the given tabulated data using the methods of Newton's interpolation and Lagrange's interpolation.

CO3 : Solve an initial value problem involving an ordinary differential equation by using various numerical methods

CO4 : Compute the Directional derivative and the divergence and the angular velocity for a given vector valued function.

CO5 : Evaluate the line, surface and volume integrals with the support of vector integral theorems.

4. Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
S134	CO1	3	2	2									2			
	CO2	3	2	2									2			
	CO3	2	2	1									2			
	CO4	3	2	2									2			
	CO5	3	2	2									2			
1 = Slight (Low) 2 = Moderate (Medium) 3- Substantial(High)																

4.Course Delivery Plan:

S.NO	TOPIC TO BE COVERED	No.of Classes		Date	DM
		As per the	Taken		
	Unit-1				
1	Introduction class	1		19-6-17	1
2	Course Objectives and applications	1		20-6-17	1
3	Introduction to solution of algebraic and transcendental equations	1		22-6-17	1

4	Bisection Method	1		23-6-17	1
5	Method of False Position	2		27-6-17 29-6-17	1
6	TUTORIAL-1	1		3-7-17	1,3
7	Newton-Raphson Method	2		4-7-17 6-7-17	1
8	Numerical Integration, Trapezoidal Rule	1		7-7-17	1
9	TUTORIAL-2	1		10-7-17	1,3
10	Simpson's 1/3 Rule	1		11-7-17	1
11	Simpson's 3/8 Rule.	1		13-7-17	1
13	Assignment/Quiz-1	1		14-7-17	4
Number of classes		14			
Unit-II					
14	Introduction to Interpolation	1		17-7-17	1
15	Forward, & Backward Differences	1		18-7-17	1
16	Symbolic Relations and separation of symbols	2		20-7-17 21-7-17	1
17	Newton's formulae for interpolation	2		24-7-17 25-7-17	1
18	TUTORIAL-4	1		27-7-17	1,3
19	Lagrange's interpolation formula	2		28-7-17 31-7-17	1
20	Gauss Interpolation formula	1		1-8-17	1
21	TUTORIAL-5	1		3-8-17	1,3
22	Assignment/Quiz-2	1		4-8-17	4
	Number of classes	12			
Unit-III					
23	Numerical Solution of ODE	1		17-8-17	1
24	Solution of ODE by Taylor's series	1		18-8-17	1
25	Picard's Method of successive Approximation	1		21-8-17	1
26	TUTORIAL-6	1		24-8-17	1,3
27	Euler's Method	1		28-8-17	1
28	Modified Euler's Method	2		29-8-17 31-8-17	1
29	Runge-Kutta Method	2		1-9-17 4-9-17	1
30	TUTORIAL-7	1		5-9-17	1,3
31	Assignment/Quiz-3	1		7-9-17	4
	Number of classes	11			
Unit-IV					
32	Vector Differentiation	1		8-9-17	1
32	Gradient of a scalar point function	1		11-9-17	1

34	Directional Derivatives	2		12-9-17 14-9-17	1
35	TUTORIAL-8	1		15-9-17	1,3
36	Divergence	1		18-9-17	1
37	Curl of a vector	1		19-9-17	1
38	Laplacian and second order operators	1		21-9-17	1
39	Vector Identities	1		22-9-17	1
40	TUTORIAL-9	1		25-9-17	1,3
41	Assignment/Quiz-4	1		26-9-17	4
	Number of classes	11			
Unit-V					
42	Vector Integration	1		28-9-17	1
43	Line Integral	1		29-9-17	1
44	Work done Area	1		3-10-17	1
45	Surface Integral	1		5-10-17	1
46	TUTORIAL-10	1		6-10-17	1,3
47	Volume Integral	1		9-10-17	1
48	Applications on Gauss divergence Theorem	1		10-10-17	1
49	Applications on Green's Theorem	1		12-10-17	1
50	Applications on Stokes' Theorem	1		13-10-17	1
52	Assignment/Quiz-4	1		14-10-17	1
	Number of classes	10			
	Total Number of classes	58			

Delivery Methods (DM):

1.Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz
5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				
Name of the Faculty	**YPCS ANIL KUMAR**	**Dr. A. Rami Reddy**	**Dr. A. Rami Reddy**	

PRINCIPAL

	TEACHING LESSON PLAN
	Department: ME **Program:** B.Tech **Course:** – Thermodynamics **(S 408)** **SEM:** III – A/S **Academic Year: 2017-18**

1. **Pre-requisites:** Engineering Physics

2. **Course Educational Objectives (CEOs):**

To provide insights on laws of thermodynamics and its applications, gas mixtures, pure substances and thermodynamic cycles.

3. **Course Outcomes (COs):** At the end of the course, the student will be able to :

CO1: Comprehend the concepts of heat, work, Forms of energy, Laws of thermodynamics, Mixtures of gases and thermodynamics cycles.
CO2: Describe the laws of thermodynamic principles related to various thermal systems
CO3: Apply the laws of thermodynamics to solve various thermodynamic cycles
CO4: Analyse the thermodynamic concepts for various cycles and gas mixtures
CO5: Evaluate the properties of thermodynamic systems and performance parameters of the thermodynamic cycles

4. **Course Articulation Matrix:**

Mapping of Course Outcomes (COs) with Programme Outcomes (POs)- Thermodynamics- (17ME03)

Code	(COs)	POs												PSOs		
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
S 408	CO1	3	1	1	1	2	1	1	-	-	-	-	1	3	-	1
	CO2	3	2	1	1	1	1	-	-	-	-	2	1	3	-	2
	CO3	3	1	2	2	2	-	-	-	-	-	-	1	3	-	1
	CO4	2	3	2	2	2	-	-	-	-	-	1	1	2	-	1
	CO5	3	1	2	3	2	1	1	-	-	-	-	1	3	-	1
1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)																

5. **Course Delivery Plan:**

S.NO	**TOPIC TO BE COVERED**	**No.of Classes**		**Date**	**DM**
		As per the Schedule	**Taken**		
Unit-1 BASIC CONCEPTS					
1	Basic Concepts and Definitions	1		21.06.17	1
2	Macroscopic & Microscopic view point, Continuum concepts	1		22.06.17	1
3	System-Types, Control Volume Properties of system	1		23.06.17	1
4	State, Path, Process, Cycle and Equilibrium	1		24.06.17	1,2,3
5	Thermodynamic Equilibrium, Quasistatic process, Zeroth law of Thermodynamics	1		28.06.17	1,2
6	Temperature scales - Constant volume gas thermometer	1		29.06.17	1,2

7	Problems on Temperature scales	1		30.06.17	1
8	Energy-forms of energy, Heat work	1		01.07.17	1,4
9	Mechanical and Non-mechanical forms of Work, Problems on work Transfer	2		05.07.17 06.07.17	1,2,6
10	Problems on heat transfer, specific heat and latent heat , Path and Point	1		07.07.17	1,4
11	**Tutorial-1**	1		12.07.17	3,4
Number of classes		**12**			
Unit-II **FIRST LAW OF THERMODYNAMICS**					
12	Introduction, Energy - Property of the system	1		13.07.17	1
13	First Law Analysis of Closed System undergoing different process	1		14.07.17	1,2
14	Displacement work, Different forms of stored energy	1		15.07.17	1,2
15	Thermodynamic Process and Problems on first law for cycle	2		19.07.17 20.07.17	1,6
16	Internal Energy, Specific Heat, Enthalpy, Entropy, PMM1	1		21.0717	1,2,6
17	First law analysis of control volume-conservation of mass, conservation of energy principle	1		22.07.17	1,2
18	The Steady Flow Process-Steady Flow Energy Equation	2		26.07.17 27.07.17	1,2
19	Steady Flow Engineering Devices-Nozzles, Diffusers, Turbine, Compressors, Throttling Valves, Heat Exchangers and Problems	3		28.07.17 29.07.17 02.08.17	1,2,6
20	**Tutorial-2**	1		03.08.17	3,4
Number of classes		**13**			
Unit-III **SECOND LAW OF THERMODYNAMICS**					
21	Thermal energy reservoirs, heat engines, Refrigerator, heat pumps	1		04.08.17	1
22	Kelvin-Planks, Clausius statement of second law of thermodynamics	1		05.08.17	1
23	Problems on Second law of TD	1		16.08.17	1,2,3
24	Equivalence of Kelvin -Planck and Clausius statements, Carnot cycle	1		17.08.17	1,2
25	Carnot Theorem , Perpetual motion machines, reversible and irreversible process , Thermodynamic Temperature scale	1		18.08.17	,2
26	**Entropy**: Introduction, Clausius inequality, property diagrams	1		19.08.17	1,2
27	Max well Relation, entropy change for ideal gases and its problems	2		23.08.17 24.08.17	1,2,4
28	Isentropic relations for ideal gases, Principle of increase of entropy	1		25.08.17	1,2,6
29	Entropy-closed and control volumes. Third law of Thermodynamics	1		26.08.17	1,2
30	Problems	1		30.08.17	1,2,3
31	**Tutorial-3**	1		31.08.17	3,4
Number of classes		**12**			
Unit-IV **NON REACTIVE MIXTURES AND PURE SUBSTANCE**					
32	**Non-reactive mixtures** Introduction, composition of gas mixture ,Mass , Volume and mole fractions and problems	1		01.09.17	1
33	Daltons law of additive pressures Amagat's law of additive volumes, Ideal gas mixture and problems	1		02.09.17	1,2

34	Non-reactive mixtures and its problems	1		06.09.17	,2,6
35	**Pure substance**: Introduction, phase of pure substance	1		07.09.17	1,2
36	Phase change processes, property diagrams, P-V-T surface, property tables	1		08.09.17	1,2,6
37	Problems	1		13.09.17	1,2
38	**Tutorial-4**	1		14.09.17	3,4
Number of classes		**7**			
Unit-V **THERMODYNAMIC CYCLES**					
39	**Gas power cycles**- Introduction, Analysis of power cycles-Carnot-Otto-Diesel	2		15.09.17 16.09.17	1,2
40	Problems	1		20.09.17	1,2
41	Dual and Brayton Cycles and its problems	2		21.09.17 22.09.17	1,2
42	**Vapour power cycles**: Analysis of Carnot vapour cycle,	1		23.09.17	1,2
43	Simple Rankine cycle and Problem	1		27.09.17	1,2
44	**Refrigeration cycles:** Reversed Carnot cycle, Bell-Coleman cycle	1		28.09.17	1,2
45	Problems on Bell-Coleman cycles	1		29.09.17	1,2
46	Simple vapour compression cycle and problems	1		30.09.17	1,2
47	**Tutorial 5 Problems**	1		04.10.17	3,4
Number of classes		**11**			
48	Latest thermometers	2		05.10.17 06.10.17	2,6
49	Advanced thermodynamic cycles	2		07.10.17, 11.10.17	2,6
50	Exergy analysis	2		12.10.17, 13.10.17	2,6
	Total Number of classes	61			

Delivery Methods (DM):

1. Chalk & Talk 2. ICT Tools 3. Tutorials 4. Assignment/Test/Quiz
5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				
Name of the Faculty	**K.L.Prasad**	**Dr. P.Ravindra Kumar**	**Dr. P.Vijay Kumar**	**Dr. S. Pichi Reddy**

LESSON PLAN

MEProgram: B.Tech
llurgy & Material Science (T 250)
SEM: III-A/s **Academic Year : 2017-18**

1. **Pre-requisites:**
2. **Course Educational Objectives (CEOs):**

   CEO should be a paragraph in two or three sentences only.

3. **Course Outcomes (COs):**At the end of the course, the student will be able to :

CO1 : Estimate the properties of the material based on crystal structures.

CO2 : Develop the equilibrium diagram for any binary system.

CO3 : Determine the properties of steels based on Fe-Fe_3C equilibrium diagram.

CO4 : Apply the principle of heat treatment to get desired properties in materials.

CO5 : Distinguish between non ferrous metals and composite materials.

4. Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
T250	CO1		1	1	2	2							3	1	1	
	CO2			1		1				2			3	2		
	CO3	1	2	1	2						1		1		2	1
	CO4								1			2	2		1	
	CO5		2	2	1	1							3			2
1 = Slight (Low) 2 = Moderate (Medium) 3-Substantial(High)																

4. **Course Delivery Plan:**

S.NO	TOPIC TO BE COVERED	No.of Classes		Date	DM
		As per the Schedule	Taken		
	Unit-1				
1	Introduction to Metallurgy and Materials Science	19-06-17	1		1
2	Classification of engineering materials	20-06-17	1		1
3	Mechanical properties of materials	23-06-17	1		1
4	**Structure of Metals**; Crystal Structures-Introduction	24-06-17	1		1
5	simple cubic and Face centered Cubic structures	26-06-17	1		1
6	Body Centered Cubic structure	27-06-17	1		1
7	Closed pack hexagonal and crystallographic planes	30-06-17	1		1
8	**Tutorial-1**	01-07-17	1		2
9	Mechanism of crystallization of metals, Grain and	03-07-17	1		1
10	Effect of grain boundaries on the properties of	04-07-17	1		1
11	Determination of grain size	07-07-17	1		1
12	Constitution of Alloys: Necessity of alloying-	08-07-16	1		1
13	Interstitial and Substitutional Solid Solutions, Hume Rotherys rules	10-07-16	1		1
14	**Tutorial-2**	11-07-16	1		2
Number of classes			14		
	UNIT-II: EQUILIBRIUM DIAGRAMS				
15	**Equilibrium of Diagrams-**Introduction	14-07-16	1		1
16	Cooling curves for pure metals and alloys, Experimental methods of construction of E.D	15-07-16	1		1
17	Classification of E .D, Isomorphous E.D	17-07-16	1		1
18	Eutectic ED, Partial eutetic equilibrium diagrams	18-07-16	1		1
19	Equilibrium cooling and heating of alloys	21-07-16	1		1
20	Lever rule, coring	22-07-16	1		1
21	**Tutorial-3**	24-07-16	1		2
22	Transformations in the solid state-Allotropy	25-07-16	1		1
23	Eutectic reaction, Eutectoid reactions	28-07-16	1		1
24	Peritectoid reactions, Cu-Ni equilibrium diagram	29-07-17	1		1
25	Bi-Cd equilibrium diagram	31-07-17	1		1
26	**Tutorial-4**	01-08-17	1		2
27	Assignment	04-08-17	1		4
28	**Revision for MID -I**	05-08-17	1		1
Number of classes			14		
	UNIT-III: FERROUS METALS AND ALLOYS, STEELS AND CAST IRONS				
29	Ferrous Metals and Alloys- Fe-Fe_3C equilibrium diagrams	18-08-17	1		1
30	Structural changes in Fe-Fe_3C equilibrium	19-08-17	1		1
31	Phase Calculations in Fe-Fe_3C equilibrium	21-08-17	1		1
32	**Steels-**Introduction, Classification of steels	22-08-17	1		1
33	Low carbon steel, Medium carbon, High carbon steel steel	26-08-17	1		1
34	**Tutorial-5**	28-08-17	1		2
35	**Cast Irons-**Introduction, Classification of cast irons	29-08-17	1		1
36	White cast iron ,Malleable cast iron, Grey cast iron	01-08-17	1		1

37	Grey cast iron , Spheriodal graphite C.I	04-08-17	1		1
38	**Tutorial-6**	05-09-17	1		2
Number of classes			10		
UNIT-IV: MECHANICAL WORKING , HEAT TREATMENT OF ALLOYS					
37	**Mechanical Working**- Hot Working	08-09-17	1		1
38	Cold Working	09-09-17	1		1
39	Strain Hardening, Recovery and Recrystallisation	11-09-17	1		1
40	**Heat treatment of Alloys-** Annealing, Hardening	12-09-17	1		1
41	Construction of TTT diagrams for eutectoid steels	15-09-17	1		1
42	**Tutorial-7**	16-09-17	1		2
43	Hardenability- Jominy end quench test	18-09-17	1		1
44	Surface - hardening methods- Introduction	19-09-17	1		1
45	Induction, flame hardening, Carburising and	22-09-17	1		1
46	Age hardening treatment	23-09-17	1		1
47	**Tutorial-8**	25-09-17	1		2
Number of classes			11		
UNIT-V: NON FERROUS METALS AND ALLOYS, COMPOSITE MATERIALS					
48	Non Ferrous Metals and Alloys-Introduction	26-09-17	1		1
49	Structure, properties of Copper and it's alloys	29-09-17	1		1
50	Structure, properties of Aluminum and it's alloys	30-09-17	1		1
51	**Tutorial-9**	03-10-17	1		2
52	**Composite materials :** Classification of composites	06-10-17	1		1
53	Manufacturing of composite materials	07-10-17	1		1
54	Hand lay up processes and filament winding processes	09-10-17	1		1
55	SMC Processes, Continuous pultrusion processes, Resin Transfer moulding	10-10-17	1		1
56	Metal ceramic mixtures-Introduction Metal matrix composites, C-C composites	13-10-17	1		1
57	**Tutorial-10**	14-10-17	1		1
Number of classes			10		
Total Number of classes			57		

Delivery Methods (DM):

1.Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz
5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				
Name of the Faculty	**Dr.S.Pichi Reddy**	**Dr.S.Pichi Reddy**	**Mr.J.Subba Reddy**	**Dr.S.Pichi Reddy**

HOD

LESSON PLAN

Department: Mechanical Engineering **Program:** B.Tech
Course : Mechanics of Materials **(**S305)
SEM: III (A Section) **Academic Year : 2017-18**

1. **Pre-requisites:** Engineering Mechanics, Basic Mechanical Engineering

2. **Course Educational Objectives (CEOs):**

   The Objective of the course is to analyse the stresses & deformations in mechanical members due to various loads.

3. **Course Outcomes (COs):** At the end of the course, the student will be able to :

CO1 : Compute the stresses & deformations of a member due to axial loading under uniform and non uniform conditions.
CO2 : Analyze the variation of Shear Force & Bending Moment in statically determinate beams.
CO3 : Analyze the structural members subjected to flexural and torsional loads.
CO4 : Analyze the biaxial stresses developed at a point of stressed member and indentify the **shear** stresses across the cross section of a beam.
CO5 : Evaluate the deflections of statically determinate beams and analyze the thin & thick pressure vessels.

4. **Course Articulation Matrix:**

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
S305	CO1	3		2				1					1			3
	CO2	3		2				1					1			3
	CO3	3		2				1					1			3
	CO4	3		2				1					1			3
	CO5	3		2				1					1			3
1 = Slight (Low) 2 = Moderate (Medium) 3-Substantial(High)																

4. **Course Delivery Plan:**

S.NO	TOPIC TO BE COVERED	No.of Classes		Date	DM
		As per the Schedule	Taken		
Unit-I : SIMPLE STRESSES AND STRAINS					
1	Introduction to Mechanics of Materials - Course Educational Objective (CEO) & Course Outcomes (CO's)	01		19/06/17	1
2	Concept of Stress & Strain	01		20/06/17	1,2
3	Mechanical properties of Materials	01		21/06/17	1,2
4	Stress Strain diagrams for Mild Steel - Hooke's Law	01		22/06/17	1,5

5	Evaluation of Proof stress by Offset method	01		27/06/17	1
6	Stresses, Strains & Deformations of a body due to axial force	01		28/06/17	1
7	Principle of superposition	01		29/06/17	1
8	Bars of uniformly varying sections	01		03/07/17	1
9	Deformation of Stepped bar due to axial loads	01		04/07/17	1
10	Tutorial-I	01		05/07/17	3
11	Stresses in composite bars & Problems	01		06/07/17	1
12	Temperature stresses & problems	01		10/07/17	1
13	Strain energy due to steady load, sudden load & impact load	01		11/07/17	1
14	Lateral strain, Poisson's ratio & change in volume; Shear stress & shear strain	01		12/07/17	1
15	Relation between Young's Modulus and shear Modulus	01		13/07/17	1
16	Relation between Elastic modulii & Problems	01		17/07/17	1
17	Tutorial-II	01		18/07/17	3
18	Assignment / Quiz (UNIT-I)	01		19/07/17	4
	Number of classes	18		---	
Unit-II : SHEAR FORCE AND BENDING MOMENT					
19	Introduction to Shear force and bending moment; Relation between Shear Force, Bending Moment & rate of Loading	01		20/07/17	1
20	Shear force & Bending moment Diagrams for cantilever beam subjected to Concentrated loads & UDL.	01		24/07/17	1
21	Shear force & Bending moment Diagrams for Simply supported beam subjected to Concentrated loads & UDL.	01		25/07/17	1
22	Estimation of Maximum bending moment for simply supported beam	01		26/07/17	1
23	Tutorial-III	01		27/07/17	3
24	Shear force & Bending moment Diagrams for Overhanging beam subjected to Concentrated loads & UDL	01		31/07/17	1
25	Estimation of Maximum bending moment & point of contra flexure for Overhanging beams	01		01/08/17	1
26	Tutorial-IV	01		02/08/17	3
27	Assignment / Quiz (UNIT-II)	01		03/08/17	4
	Number of classes	09		----	
	Mid - I			**07/08/17-14/08/17**	
Unit-III : STRESSES IN BEAMS & TORSION					
28	Theory of Simple bending, assumptions	01		16/08/17	1
29	Derivation of flexure equation	01		17/08/17	1
30	Section modulus and problems	01		21/08/17	1
31	Normal stresses due to flexure applications	01		22/08/17	1
32	Tutorial-V	01		23/08/17	3
33	Theory of torsion, Assumptions	01		24/08/17	1
34	Derivation of Torsion equation	01		28/08/17	1

35	Polar modulus, Power transmitted by shaft, Stresses in solid and hollow circular shafts	01		29/08/17	1
36	Tutorial-VI	01		30/08/17	3
37	Assignment / Quiz (UNIT-III)	01		31/08/17	4
	Number of classes	10		----	
Unit-IV : ANALYSIS OF STRESSES IN TWO DIMENSIONS & SHEAR STRESSES					
38	State of stress at a point, normal and tangential stresses on inclined planes	01		04/09/17	1
39	Problem on normal and tangential stresses on inclined planes	01		05/09/17	1
40	Principle stresses and their planes, maximum shear stress plane	01		06/09/17	1
41	Mohr's circle diagram Problems on Mohr's circle	01		07/09/17	1
42	Tutorial-VII	01		11/09/17	3
43	Concept of shear stress variation over cross section due to flexural loads Derivation of lateral shear stress	01		12/09/17	1
44	Shear stress distribution across rectangular, triangular & circular sections	01		13/09/17	1
45	Shear stress distribution across T-section & I-section.	01		14/09/17	1
46	Tutorial-VIII	01		18/09/17	3
47	Assignment / Quiz (UNIT-IV)	01		19/09/17	4
	Number of classes	10		-----	
Unit-V : DEFELCTION OF BEAMS & THIN,THICK AND SPHERICAL SHELLS					
48	Derivation of Differential equation for elastic line (Deflection Equation)	01		20/09/17	1
49	Deflection & Slope equations for cantilever beam	01		21/09/17	1
50	Deflection & Slope equations for simply supported beam	01		25/09/17	1
51	Macaulay's method	01		26/09/17	1
52	Tutorial-IX	01		27/09/17	3
53	Introduction to thin & thick shells	01		28/09/17	1
54	Hoop stress and longitudinal stresses for thin cylinders; Change in volume of thin cylinder	01		03/10/17	1
55	Hoop stress and longitudinal stresses for thin spheres - Change in volume of thin spheres	01		04/10/17	1
56	Derivation of Lame's equations of Thick cylinders; Problems on thick cylinders	01		05/10/17	1
57	Tutorial-X	01		09/10/17	3
58	Assignment / Quiz (UNIT-V)	01		11/10/17	4
Number of classes		11		----	
59	**Content beyond the syllabus**: Theories of Failure	01		12/10/17	2
Total Number of classes		59			

Delivery Methods (DM):

1.Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz
5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				
Name of the Faculty	**Dr.P.V.Chandra Sekhar Rao**	**Dr.P.V.Chandra Sekhar Rao**	**B.Sudheer Kumar**	**Dr.S.Pichi Reddy**

PRINCIPAL

S No.	Tentative Date	Topics to be covered	Actual Date	Num. Of classes		Content Delivery Methods
				schduled	Taken	
UNIT-I:Electrical circuits						
1.	19-06-2017	Introduction		1		DM1
2.	20-06-2017	Basic definitions,		1		DM1
3.	21-06-2017	Active & Passive Elements		1		DM1
4.	24-06-2017	Ohm's law &Kirchhoff Voltage law		1		DM1
5.	27-06-2017	Kirchhoff Current law		1		DM1
6.	28-06-2017	Series connection of resistance		1		DM1
7.	29-07-2017	Parallel connection of resistance		1		DM1
8.	01-07-2017	Star to delta transformation		1		DM1
9.	03-07-2017	**Tutorial-1**		1		DM2
10.	04-07-2017	Star to delta transformation		1		DM1
11.	05-07-2017	Delta to Star transformation		1		DM1
12.	10-07-2017	**Tutorial-2**		1		DM2
13.	11-07-2017	Source transformation		1		DM1
14.	12-07-2017	**Assignment/Slip test**		1		DM4
UNIT-II: Transformers						
15.	15-07-2017	Introduction of transformer		1		DM1
16.	17-07-2017	Construction of single phase transformer		1		DM1
17.	18-07-2017	Construction of single phase transformer		1		DM1
18.	19-07-2017	Operation of transformer		1		DM1
19.	22-07-2017	EMF equation of a transformer		1		
20.	24-07-2017	**Tutorial-3**		1		DM2
21.	25-07-2017	Ideal transformer on no load& full load		1		DM1
22.	26-07-2017	Practical transformer on no load &full load		1		DM1
23.	29-07-2017	Practical transformer on no load &full load		1		DM1
24.	31-07-2017	Losses &efficiency of a transformer		1		DM1
25.	01-08-2017	Open circuit test of a transformer		1		DM1
26.	02-08-2017	Short circuit test of a transformer		1		DM1
27.	03-08-2017	**Tutorial-4**		1		DM2
28.	05-08-2017	**Assignment/Slip test**		1		DM4
UNIT-III: A.C MACHINES						
29.	16-08-2017	Fundamentals of alternating current		1		DM1
30.	19-08-2017	Principle of operation of alternators		1		DM1
31.	21-08-2017	Salient &Non-salient pole rotor		1		DM1
32.	22-08-2017	Voltage regulation by synchronous impedance method		1		DM1
33.	23-08-2017	Principle of operation of Induction		1		DM2
34.	26-08-2017	Construction of Induction motor		1		DM1
35.	28-08-2017	**Tutorial-5**			1	DM1
36.	29-08-2017	Slip ring &Squirrel cage Induction motor			1	DM1
37.	30-08-2017	Slip-Torque characteristics			1	DM1
Unit-IV: Diode And Transistors						
38.	04-09-2017	P-n junction diode			1	DM1
39.	05-09-2017	V-I characteristics			1	DM1

40.	06-09-2017	Diode applications			1	DM1
41.	11-09-2017	Half wave rectifier			1	DM1
42.	12-09-2017	Full wave rectifier			1	DM2
43.	13-09-2017	Bridge rectifiers			1	DM1
44.	16-09-2017	PNP&NPN transistor			1	DM1
45.	18-09-2017	**Tutorial-6**			1	DM2
46.	19-09-2017	Application of transistor			1	DM1
47.	20-09-2017	Amplifier			1	DM1
48.	23-09-2017	**Assignment/Slip test**			1	DM4
Unit-V: Electrical& Electronics measuring instruments						
49.	25-09-2017	Basic principles of indicating instruments			1	DM1
50.	26-09-2017	Permanent magnet moving coil instruments			1	DM1
51.	27-09-2017	Block diagram of CRO&CRT			1	DM1
52.	3-10-2017	Tutorial 7			1	DM1
53.	04-10-2017	Applications of CRO&CRT			1	DM2
54.	07-10-2017	Voltage measurement			1	DM1
55.	09-10-2017	Current measurement			1	DM1
56.	10-10-2017	Frequency measurement			1	DM1
57.	11-10-2017	**Revision of unit 1,2,3,**			1	DM2
58.	14-10-2017	**Revision of unit 4,5 /slip test**			1	DM4
Total					58	
Total number of classes required to complete the syllabus					58	
Total number of classes available as per Schedule					58	

NOTE: DELIVERY METHODS: **DM1**: Lecture interspersed with discussions/BB, **DM2:** Tutorial, **DM3:** Lecture with a quiz, **DM4**: Assignment/Test, **DM5**: Demonstration (laboratory, field visit), **DM6:** Presentations/PPT

At the End of the course, students attained the **Course Outcomes: CO1,CO2, CO3, CO4, CO5**& sample proofs are enclosed in Course file.

Signature			
	Name of the Faculty	**Name of Course Co-ordinator**	**HOD**
	A.V.G.A.Marthanda	P.Srihari	Dr.M.Uma Vani

Course Educational Objectives (CEOs): The aim of this course is to study the working principles of electrical circuits, provide Knowledge and skills needed to calculate efficiency of different machines, basic working principles of different electronic circuits and also prepare the students to understand theworking principles of different electrical and electronic measuring instruments.

Course Outcomes (COs): At the end of the course, the student will be able to

CO1: Analyse different types of electrical networks.

CO2: Illustrate the working principles of AC machines.

CO3: Determine efficiency and regulation of AC Machines.

CO4: Interpret the characteristics of different electronic devices and their applications.

CO5:Compare various electrical and electronics measuring instruments.

Course Articulation Matrix:

Course Code	**COs**	**Programme Outcomes**												**PSOs**		
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
S208	CO1	3	1				1	1		3						1
	CO2	3	1				1	1		3						1
	CO3	3	1				1	1		3						1
	CO4	3	1				1	1		3						1
	CO5	3	1				1	1		3						1
1 = Slight (Low) 2 = Moderate (Medium) 3-Substantial(High)																

	LESSON PLAN
	Department: MECH **Program:** B.Tech **Course:** Machine Drawing **(**S293) **SEM:** III-SEC-A **Academic Year: 2017-18**

1. **Pre-requisites:** Engineering Graphics

2. **Course Educational Objective (CEO):**

   The main objective of this course is to visualize the object and develop the assembled views for the part drawings using conventions & drawing proportions.

3. **Course Outcomes (COs):** At the end of the course, the student will be able to :

   CO1 : Comprehend the knowledge on machine drawing conventions

   CO2 : Draw various machine elements while designing as per standards.

   CO3 : Construct an assembly drawing using part drawings of engine components.

   CO4 : Construct an assembly drawing using part drawings of machine components.

4. Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
S293	CO1	1	2			3		1					1		2	3
	CO2	1	2			3		1					1		2	3
	CO3	1	2			3		1					1	1	2	3
	CO4	1	2			3		1					1		2	3
1 = Slight (Low) **2 = Moderate (Medium)** **3-Substantial(High)**																

4. Course Delivery Plan:

S.NO	TOPIC TO BE COVERED	No.of Classes		Date	DM
		As per the Schedule	Taken		
PART-A					
1	Introduction to Machine drawing - Principles of drawing Title boxes, their size, location and details - common abbreviations & their liberal usage	2		21-06-17	1,5
2	Conventional representation of materials, common machine elements and parts such as screws, nuts, bolts, keys, gears, webs, ribs.	2		23-06-17	1,5
3	Methods of dimensioning, general rules for sizes and placement of dimensions for holes, centres, curved and tapered features.	2		28-06-17	1,5
4	Orthographic- Projections & Practices	2		30-06-17	1,5
5	Types of sections – selection of section planes and drawing of sections, auxiliary sectional views.	2		05-07-17	1,5
6	Types of sections – selection of section planes and drawing of sections, auxiliary sectional views.	2		07-07-17	1,5
7	Sectional views, additional views, drawing proportions of Screw threads, bolts, nuts.	2		12-07-17	1,5
8	Sectional views, additional views, drawing proportions of tapper bolts, set screws.	2		14-07-17	1,5
9	Sectional views, additional views, drawing proportions of Keys	2		19-07-17	1,5
10	Sectional views, additional views, drawing proportions of Cotter joints and Knuckle joint	2		21-07-17	1,5
11	Sectional views, additional views, drawing proportions of Riveted joints for plates	2		26-07-17	1,5
12	Sectional views, additional views, drawing proportions of Shaft coupling, Rigid Couplings	2		28-07-17	1,5
13	Sectional views, additional views, drawing proportions of Shaft coupling (flexible couplings)	2		02-08-17	1,5
14	Sectional views, additional views, drawing proportions of Shaft coupling (non alligned couplings) Universal coupling & Oldham coupling	2		04-08-17	1,5
	I MID EXAMS			07-08-17 to 12-08-17	

15	Sectional views, additional views, drawing proportions of foot step bearings	2		16-08-17	1,5
16	Sectional views, additional views, drawing proportions of spigot and socket, pipe joint.	2		18-08-17	1,5
Number of classes		32			
PART-B					
17	Introduction to assembly Drawing	2		23-08-17	2
18	Drawings of assembled views for the part drawings of **Stuffing Box** using conventions and easy drawing proportions	2		25-08-17	1,5
19	Drawings of assembled views for the part drawings of **Steam Engine Cross head** using conventions and easy drawing proportions	2		30-08-17	1,5
20	Practice	2		01-09-17	5
21	Drawings of assembled views for the part drawings of **Eccentric** using conventions and easy drawing proportions	2		06-09-17	1,5
22	Drawings of assembled views for the part drawings of **Petrol Engine Connecting rod** using conventions and easy drawing	2		08-09-17	1,5
23	Assaignment-I	2		13-09-17	4
24	Drawings of assembled views for the part drawings of **Piston assembly** using conventions and easy drawing proportions	2		15-09-17	1,5
25	Drawings of assembled views for the part drawings of **Screw jack** using conventions and easy drawing proportions	2		20-09-17	1,5
26	Drawings of assembled views for the part drawings of **Bench Vice** using conventions and easy drawing proportions	2		22-09-17	1,5
27	Drawings of assembled views for the part drawings of **Pipe Vice** using conventions and easy drawing proportions	2		27-09-17	1,5
28	Assaignment-II	2		29-09-17	4
29	Drawings of assembled views for the part drawings of **Plummer block** using conventions and easy drawing proportions	2		04-10-17	1,5
30	Drawings of assembled views for the part drawings of **Lathe Tailstock** using conventions and easy drawing proportions	2		06-10-17	1,5
31	Practice	2		11-10-17	5
32	REVISION	2		13-10-17	1,2
Number of classes		32			
	II MID EXAMS			18-10-17 to 20-10-17	
Total Number of classes		64			

Delivery Methods (DM):

1.Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz
5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				
Name of the Faculty	**Mr.S.Srinivasa Reddy**	**Mr.S.Srinivasa Reddy**	**Mr.J.Subba Reddy**	**Dr.S.Pichi Reddy**

PRINCIPAL

LAKKIREDDY BALI REDDY COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING
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L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

PROGRAM : B.Tech., III-Sem., MECH-A

ACADEMIC YEAR : 2017-18

COURSE NAME & CODE : Environmental Studies - S 243

L-T-P STRUCTURE : 2-0-0

COURSE CREDITS : 0

COURSE INSTRUCTOR : Dr.Shaheda Niloufer, Sr. Assistant Professor

COURSE COORDINATOR : Dr.Shaheda Niloufer, Sr. Assistant Professor

COURSE OBJECTIVE: To provide a general background on developing an understanding of systems and cycles on the earth and how individual organisms live together in complex communities.

To enable the students in understanding how human activities influence our air, water and soil and it also helps in developing a right attitude about our use of fossil fuels and effect on climate and sustainable management of natural resources.

COURSE ARTICULATION MATRIX(Correlation between COs&POs,PSOs):

CO	Statement At the end of the course, student will be able to	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
1	Evaluate local, regional and global environmental issues related to resources and their sustainable management	2	2	2									2			
2	Realize the importance of ecosystem and biodiversity for maintaining ecological balance	2	2	2									2			
3	Identify environmental problems arising due to engineering and technological activities that help to be the part of sustainable solutions	2	2	3			3	3					2			
4	Create awareness on sustainable population growth and know the contributions of Information Technology in environmental management	2	2	3			3						2			

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**
1- Slight(Low), **2 -** Moderate(Medium), **3 -** Substantial (High).

BOS APPROVED TEXT BOOKS:

1 P.N.Palanisamy et al., "Environmental Science" 2nd edition, Dorling Kindersley

publishers.

2 R. Rajagopalan, "Environmental Studies (From Crisis to Cure)", Oxford University Press.

BOS APPROVED REFERENCE BOOKS:

1 M. Anji Reddy, "Textbook of Environmental Sciences and Technology" by BS Publications, 2011 Second Edition.

2 Erach Bharucha, "Textbook of Environmental Studies for Undergraduate Courses", by University Grants Commission, University Press (India) Private Limited, 2005.

COURSE DELIVERY PLAN (LESSON PLAN): Section-A

UNIT-I : Natural Resources

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to syllabus, Def of Environmental studies, Scope & Importance of environmental studies. Need for public awareness.	1	19.06.17		**TLM1**	
2.	Natural Resource classification & Forest resources	1	23.06.17		**TLM1**	
3.	Water Resources	1	30.06.17		**TLM1**	
4.	Mineral Resources	1	3.07.17		**TLM1**	
5.	Food Resources	1	7.07.17		**TLM1**	
6.	TUTORIAL-1	1	10.06.17		**TLM3**	
7.	Energy Resources	1	14.07.17		**TLM1**	
No. of classes required to complete UNIT-I		7	No. of classes taken:			

UNIT-II : Ecosystems & Biodiversity and its conservation

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
8.	Introduction to UNIT-II Structure and functions of ecosystems	1	17.07.17		**TLM1**	
9.	Ecological succession, Food chains and Food web, Ecological Pyramids	1	21.07.17		**TLM1**	
10.	Bio-geochemical cycles	1	24.07.17		**TLM1** **TLM2**	
11.	TUTORIAL-2	1	28.07.17		**TLM3**	
12.	Biodiversity and levels of measuring biodiversity	1	31.07.17		**TLM1**	
13.	Bio-geographic classification of India, Values, Hot spots, Threats and conservation of biodiversity	1	4.08.17		**TLM1** **TLM2**	
No. of classes required to complete UNIT-II		6	No. of classes taken:			

UNIT-III : Environmental Pollution

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
14.	Air pollution	1	18.08.17		**TLM1**	

15.	Water pollution	1	21.08.17		**TLM1**	
16.	Soil pollution & Noise pollution	1	25.08.17		**TLM1**	
17.	Radioactive pollution(Tutorial 3)	1	28.08.17		**TLM1** **TLM3**	
18.	Solid waste management	1	1.09.17		**TLM1**	
19.	Disaster management	1	4.09.17			
No. of classes required to complete UNIT-III		6	No. of classes taken:			

UNIT-IV : Social Issues and the Environment

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
20.	From unsustainable to sustainable development	1	8.09.17		**TLM1**	
21.	Environmental and human health Resettlement and rehabilitation (Tutorial 4)	1	11.09.17		**TLM1** **TLM3**	
22.	Climate change: Global warming & Acid rains	1	15.09.17		**TLM1**	
23.	Ozone depletion & Nuclear accidents and holocaust	1	18.09.17		**TLM1**	
24.	Consumerism and waste products	1	22.09.17		**TLM1**	
No. of classes required to complete UNIT-IV		5	No. of classes taken:			

UNIT-V : Human Population and Environment

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
25.	Population growth and variations among nations, population explosion	1	25.09.17		**TLM1**	
26.	Family welfare programs Women and child welfare programs	1	29.09.17		**TLM1**	
27.	Human rights and value education, HIV/AIDS (Tutorial 5)	1	6.10.17		**TLM1** **TLM3**	
28.	Role of IT in Environmental management and human health	1	9.10.17		**TLM1**	
29.	Environmental Law	1	13.10.17		**TLM1**	
No. of classes required to complete UNIT-V		5	No. of classes taken:			

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
30.	Case studies on Environmental Pollution	1	13.10.17		**TLM9**	
31.						

Teaching Learning Methods

TLM1	Chalk and Talk	**TLM4**	Problem Solving	**TLM7**	Seminars or GD
TLM2	PPT	**TLM5**	Programming	**TLM8**	Lab Demo
TLM3	Tutorial	**TLM6**	Assignment or Quiz	**TLM9**	Case Study

ACADEMIC CALENDAR:

Description	From	To	Weeks
I Phase of Instructions-1	19-06-2017	05-08-2017	7 W
I Mid Examinations	07-08-2017	12-08-2017	1 W
II Phase of Instructions	16-08-2017	14-10-2017	9 W
II Mid Examinations	16-10-2017	21-10-2017	1 W
Preparation and Practicals	23-10-2017	02-11-2017	2 W
Semester End Examinations	03-11-2017	18-11-2017	2 W

EVALUATION PROCESS:

Evaluation Task	COs	Marks
Assignment/Quiz – 1	1	A1=5
Assignment/Quiz – 2	2	A2=5
I-Mid Examination	1,2	B1=20
Assignment/Quiz – 3	3	A3=5
Assignment/Quiz – 4	4	A4=5
Assignment/Quiz – 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Evaluation of Assignment/Quiz Marks: A=(A1+A2+A3+A4+A5)/5	1,2,3,4,5	A=5
Evaluation of Mid Marks: B=75% of Max(B1,B2)+25% of Min(B1,B2)	1,2,3,4,5	B=20
Cumulative Internal Examination : A+B	**1,2,3,4,5**	**A+B=25**
Semester End Examinations	**1,2,3,4,5**	**C=75**
Total Marks: A+B+C	**1,2,3,4,5**	**100**

Dr. Shaheda Niloufer	Dr. Shaheda Niloufer	Dr. Shaheda Niloufer	
Course Instructor	**Course Coordinator**	**Module Coordinator**	**BOS Chairman&HOD**

LAKKIREDDY BALI REDDY COLLEGE OF ENGINEERING
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L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

PROGRAM : B.Tech., III-Sem., MECH-B

ACADEMIC YEAR : 2017-18

COURSE NAME & CODE : Applied mathematics- III- S 134

L-T-P STRUCTURE : 3-1-0

COURSE CREDITS : 3

COURSE INSTRUCTOR : K. Jhansi Rani, Assistant Professor

COURSE COORDINATOR :

COURSE OBJECTIVE: In this course, the student will learn the methods of interpolation, Numerical Techniques in Integration, solving the algebraic and transcendental equations. The course will also provide the knowledge of Vector Differentiation and Vector Integration.

COURSE ARTICULATION MATRIX(Correlation between COs&POs,PSOs):

CO	Statement At the end of the course, student will be able to	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
1	Compare the rate of accuracy between Regula falsi method and The Newton- Raphson Method in approximating a root of an equation. Also Distinguish among the criteria of selection and procedures of various Numerical integration rules.	3	2	2						1			2
2	Estimate the best fit polynomial for the given tabulated data using the methods of Newton's interpolation and Lagrange's interpolation.	3	2	2						1			2
3	Solve an initial value problem involving an ordinary differential equation by using various numerical methods	2	2	1						1			2
4	Distinguish among the criteria of selection and application of Binomial, Poisson and Normal distribution	3	2	2						1			2
5	Apply various tests of hypothesis and tests of significance in Decision making regarding the population basing on the given sample data.	3	2	2						1			2

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**
1- Slight(Low), **2 -** Moderate(Medium), **3 -** Substantial (High).

BOS APPROVED TEXT BOOKS:

1. S. S. Sastry, "Introductory Methods of Numerical Analysis", PHI, 5thEdition,2005.
2. Dr. B. V. Ramana, "Higher Engineering Mathematics", TMH Publications, 1stEdition,2010.

BOS APPROVED REFERENCE BOOKS:

1.Dr.B.S.Grewal,"HigherEngineeringMathematics",KhannaPublishers, 42nd Edition,2012.

2. Steven .C. Chopra and Ra. P. Canale, "Numerical Methods for Engineers with programming and software application", TMH Publications,4th Edition,2002.

3. M. K. Jain, S. R. K. Iyengar, R.K. Jain, "Numerical Methods for Scientific and Engineering Computation", New Age International Publishers, 5thEdition,2007.

COURSE DELIVERY PLAN (LESSON PLAN): Section-B

UNIT-I : Solution of Algebraic and Transcendental Equations and Numerical Integration

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
32.	Introduction to the course	1	19-06-17		**TLM1**	
33.	Course outcomes	1	20-06-17		**TLM1**	
34.	Algebraic and Transcendental Equation	1	22-06-17		**TLM1**	
35.	False Position method	2	24-06-17, 27-06-17		**TLM1**	
36.	Newton- Raphson Method in one variable	2	29-06-17, 01-07-17		**TLM1**	
37.	Numerical integration & Trapezoidal rule	1	03-07-17		**TLM1**	
38.	Simpson's 1/3 Rule	2	04-07-17, 08-07-17		**TLM1**	
39.	Simpson's 3/8 Rule.	2	10-07-17, 11-07-17		**TLM1**	
40.	TUTORIAL-1	1	06-07-17		**TLM3**	
41.	TUTORIAL-2	1	13-07-17		**TLM3**	
42.	TUTORIAL-3	1	15-07-17		**TLM3**	
43.	Assignment/Quiz-1	1	17-07-17		**TLM6**	
No. of classes required to complete UNIT-I		16	No. of classes taken:			

UNIT-II : Interpolation and Finite Differences

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
44.	Introduction – Finite differences	1	18-07-17		**TLM1**	
45.	Forward Differences- Backward differences –Central differences	1	20-07-17		**TLM1**	
46.	Symbolic relations and separation of symbols	1	22-07-17, 24 -07-17		**TLM1**	
47.	Newton's formulae for interpolation	3	27-07-17, 29-07-17 31-07-17		**TLM1**	

48.	Lagrange's Interpolation	2	01-08-17, 03-08-17.		**TLM1**	
49.	TUTORIAL-4	1	25-07-17		**TLM3**	
50.	TUTORIAL-5	1	27-07-17		**TLM3**	
51.	Assignment/Quiz-2	1	05-08-17		**TLM6**	
No. of classes required to complete UNIT-II		11	No. of classes taken:			

UNIT-III : Numerical solution of Ordinary Differential Equations

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
52.	Introduction to Unit-III	1	17-08-17		**TLM1**	
53.	Solution by Taylor's series	2	19-08-17, 21-08-17		**TLM1**	
54.	Picard's Method	1	22-08-17		**TLM1**	
55.	Euler's Method	1	26-08-17		**TLM1**	
56.	Modified Euler's Method	1	28-08-17		**TLM1**	
57.	Runge- Kutta Method	2	29-08-17, 31-08-17		**TLM1**	
58.	TUTORIAL-6	1	24-08-17		**TLM3**	
59.	TUTORIAL-7	1	02-09-17		**TLM3**	
60.	Assignment/Quiz-3	1	04-09-17		**TLM6**	
No. of classes required to complete UNIT-III		11	No. of classes taken:			

UNIT-IV : Vector Differentiation

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
61.	Introduction	1	05-09-17		**TLM1**	
62.	Gradient	1	07-09-17		**TLM1**	
63.	Directional Derivatives	2	11-09-17, 12-09-17		**TLM1**	
64.	Divergence, Solenoidal fields	1	16-09-17		**TLM1**	
65.	Curl	1	18-09-17		**TLM1**	
66.	Irrotational fields-potential surfaces	1	19-09-17		**TLM1**	
67.	Laplacian and second order operators and related properties of sums and products	1	21-09-17		**TLM1**	
68.	TUTORIAL-8	1	14-09-17		**TLM3**	
69.	TUTORIAL-9	1	23-09-17		**TLM3**	
70.	Assignment/Quiz-3	1	25-09-17		**TLM6**	
No. of classes required to complete UNIT-IV		11	No. of classes taken:			

UNIT-V : Vector Integration

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
71.	Introduction	1	26-09-17			
72.	Line integral	1	28-09-17		**TLM1**	
73.	work done –area	1	03-10-17		**TLM1**	

74.	surface and volume integrals	1	07-10-17		**TLM1**	
75.	Greens Theorem	1	09-10-17		**TLM1**	
76.	Stokes Theorem	1	10-10-17		**TLM1**	
77.	Gauss Divergence Theorem	1	12-10-17		**TLM1**	
78.	TUTORIAL-10	1	05-10-17		**TLM3**	
79.	TUTORIAL-11	1	14-10-17		**TLM3**	
80.	Assignment/Quiz-5	1	14-10-17		**TLM6**	
No. of classes required to complete UNIT-V		10	No. of classes taken:			

Teaching Learning Methods					
TLM1	Chalk and Talk	**TLM4**	Problem Solving	**TLM7**	Seminars or GD
TLM2	PPT	**TLM5**	Programming	**TLM8**	Lab Demo
TLM3	Tutorial	**TLM6**	Assignment or Quiz	**TLM9**	Case Study

ACADEMIC CALENDAR:

Description	From	To	Weeks
I Phase of Instructions-1	19-06-2017	05-08-2017	7 W
I Mid Examinations	07-08-2017	12-08-2017	1 W
II Phase of Instructions	16-08-2017	14-10-2017	9 W
II Mid Examinations	16-10-2017	21-10-2017	1 W
Preparation and Practicals	23-10-2017	02-11-2017	2 W
Semester End Examinations	03-11-2017	18-11-2017	2 W

EVALUATION PROCESS:

Evaluation Task	COs	Marks
Assignment/Quiz – 1	1	A1=5
Assignment/Quiz – 2	2	A2=5
I-Mid Examination	1,2	B1=20
Assignment/Quiz – 3	3	A3=5
Assignment/Quiz – 4	4	A4=5
Assignment/Quiz – 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Evaluation of Assignment/Quiz Marks: A=(A1+A2+A3+A4+A5)/5	1,2,3,4,5	A=5
Evaluation of Mid Marks: B=75% of Max(B1,B2)+25% of Min(B1,B2)	1,2,3,4,5	B=20
Cumulative Internal Examination : A+B	**1,2,3,4,5**	**A+B=25**
Semester End Examinations	**1,2,3,4,5**	**C=75**
Total Marks: A+B+C	**1,2,3,4,5**	**100**

Course Instructor
K. Jhansi Rani

Course Coordinator

HOD
Dr.A.Rami Reddy

TEACHING LESSON PLAN

Department: ME
Course: – Thermodynamics **(S 408)**
SEM: III – B/S

Program: B.Tech

Academic Year: 2017-18

4. **Pre-requisites:** Engineering Physics

5. **Course Educational Objectives (CEOs):**

To provide insights on laws of thermodynamics and its applications, gas mixtures, pure substances and thermodynamic cycles.

6. **Course Outcomes (COs):** At the end of the course, the student will be able to :

CO1: Comprehend the concepts of heat, work, Forms of energy, Laws of thermodynamics, Mixtures of gases and thermodynamics cycles.
CO2: Describe the laws of thermodynamic principles related to various thermal systems
CO3: Apply the laws of thermodynamics to solve various thermodynamic cycles
CO4: Analyse the thermodynamic concepts for various cycles and gas mixtures
CO5: Evaluate the properties of thermodynamic systems and performance parameters of the thermodynamic cycles

7. **Course Articulation Matrix:**

Mapping of Course Outcomes (COs) with Programme Outcomes (POs)- Thermodynamics- (17ME03)															
Code	(COs)	**POs**												**PSOs**	
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
S 408	CO1	3	1	1	1	2	1	1	-	-	-	-	1	3	-	1
	CO2	3	2	1	1	1	1	-	-	-	-	2	1	3	-	2
	CO3	3	1	2	2	2	-	-	-	-	-	-	1	3	-	1
	CO4	2	3	2	2	2	-	-	-	-	-	1	1	2	-	1
	CO5	3	1	2	3	2	1	1	-	-	-	-	1	3	-	1
1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)																

8. **Course Delivery Plan:**

S.NO	**TOPIC TO BE COVERED**	**No.of Classes**		**Date**	**DM**
		As per the Schedule	**Taken**		
Unit-1 BASIC CONCEPTS					
1	Basic Concepts and Definitions	1		19-6-17	1
2	Macroscopic & Microscopic view point, Continuum concepts	1		20-6-17	1
3	System-Types, Control Volume Properties of system	1		23-6-17	1
4	State, Path, Process, Cycle and Equilibrium	1		24-6-17	1,2,3
5	Thermodynamic Equilibrium, Quasistatic process, Zeroth law of Thermodynamics	1		27-6-17	1,2
6	Temperature scales - Constant volume gas thermometer	1		30-6-17	1,2
7	Problems on Temperature scales	1		1-7-17	1
8	Energy-forms of energy, Heat work	1		3-7-17	1,4

9	Mechanical and Non-mechanical forms of Work, Problems on work Transfer	2		4-7-17 7-7-17	1,2,6
10	Problems on heat transfer, specific heat and latent heat , Path and Point	1		8-7-17	1,4
11	**Tutorial-1**	1		10-7-17	3,4
Number of classes		**12**			
Unit-II **FIRST LAW OF THERMODYNAMICS**					
12	Introduction, Energy - Property of the system	1		11-7-17	1
13	First Law Analysis of Closed System undergoing different process	1		14-7-17	1,2
14	Displacement work, Different forms of stored energy	1		15-7-17	1,2
15	Thermodynamic Process and Problems on first law for cycle	2		17-7-17 18-7-17	1,6
16	Internal Energy, Specific Heat, Enthalpy, Entropy, PMM1	1		21-7-17	1,2,6
17	First law analysis of control volume-conservation of mass, conservation of energy principle	1		22-7-17	1,2
18	The Steady Flow Process-Steady Flow Energy Equation	2		24-7-17	1,2
19	Steady Flow Engineering Devices-Nozzles, Diffusers, Turbine, Compressors, Throttling Valves, Heat Exchangers and Problems	3		25-7-17 28-7-17 29-7-17	1,2,6
20	**Tutorial-2**	1		1-8-17	3,4
Number of classes		**13**			
Unit-III **SECOND LAW OF THERMODYNAMICS**					
21	Thermal energy reservoirs, heat engines, Refrigerator, heat pumps	1		31-7-17	1
22	Kelvin-Planks, Clausius statement of second law of thermodynamics	1		2-8-17	1
23	Problems on Second law of TD	1		6-8-17	1,2,3
24	Equivalence of Kelvin -Planck and Clausius statements, Carnot cycle	1		5-8-17	1,2
25	Carnot Theorem , Perpetual motion machines, reversible and irreversible process , Thermodynamic Temperature scale	1		14-8-17	1,2
26	**Entropy**: Introduction, Clausius inequality, property diagrams	1		18-8-17	1,2
27	Max well Relation, entropy change for ideal gases and its problems	2		19-8-17 21-8-17	1,2,4
28	Isentropic relations for ideal gases, Principle of increase of entropy	1		22-8-17	1,2,6
29	Entropy-closed and control volumes. Third law of Thermodynamics	1		28-8-17	1,2
30	Problems	1		29-8-17	1,2,3
31	**Tutorial-3**	1		1-9-17	3,4
Number of classes		**12**			
Unit-IV **NON REACTIVE MIXTURES AND PURE SUBSTANCE**					
32	**Non-reactive mixtures** Introduction, composition of gas mixture ,Mass , Volume and mole fractions and problems	1		4-9-17	1
33	Daltons law of additive pressures Amagat's law of additive volumes, Ideal gas mixture and problems	1		5-9-17	1,2
34	Non-reactive mixtures and its problems	1		8-9-17	1,2,6

35	**Pure substance**: Introduction, phase of pure substance	1		9-9-17	1,2
36	Phase change processes, property diagrams, P-V-T surface, property tables	1		11-9-17	1,2,6
37	Problems	1		12-9-17	1,2
38	**Tutorial-4**	1		15-9-17	3,4
Number of classes		**7**			
Unit-V **THERMODYNAMIC CYCLES**					
39	**Gas power cycles**- Introduction, Analysis of power cycles-Carnot-Otto-Diesel	2		16-9-17 18-9-17	1,2
40	Problems	1		19-9-17	1,2
41	Dual and Brayton Cycles and its problems	2		22-9-17 23-9-17	1,2
42	**Vapour power cycles**: Analysis of Carnot vapour cycle,	1		25-9-17	1,2
43	Simple Rankine cycle and Problem	1		26-9-17	1,2
44	**Refrigeration cycles:** Reversed Carnot cycle, Bell-Coleman cycle	1		29-9-17	1,2
45	Problems on Bell-Coleman cycles	1		3-10-17	1,2
46	Simple vapour compression cycle and problems	1		6-10-17	1,2
47	**Tutorial 5 Problems**	1		7-10-17	3,4
Number of classes		**11**			
48	Latest thermometers	1		9-10-17	2,6
49	Advanced thermodynamic cycles	1		13-10-17	2,6
50	Exergy analysis	1		14-10-17	2,6
	Total Number of classes	58			

Delivery Methods (DM):

1. Chalk & Talk 2. ICT Tools 3. Tutorials 4. Assignment/Test/Quiz
5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				
Name of the Faculty				

LESSON PLAN

ME **Program:** B.Tech

llurgy & Material Science (T 250)

SEM: III-B sec **Academic Year: 2017-18**

1. **Pre-requisites:**
2. **Course Educational Objectives (CEOs):**

CEO should be a paragraph in two or three sentences only.

3. **Course Outcomes (COs):**At the end of the course, the student will be able to

CO1: Estimate the properties of the material based on crystal structures.

CO2: Develop the equilibrium diagram for any binary system.

CO3: Determine the properties of steels based on Fe-Fe_3C equilibrium diagram.

CO4: Apply the principle of heat treatment to get desired properties in materials.

CO5: Distinguish between nonferrous metals and composite materials.

4. Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
T250	CO1		1	1	2	2							3	1	1	
	CO2			1		1				2			3	2		
	CO3	1	2	1	2						1		1		2	1
	CO4								1			2	2		1	
	CO5		2	2	1	1							3			2
1 = Slight (Low) **2 = Moderate (Medium)** **3-Substantial(High)**																

4. Course Delivery Plan:

S.NO	TOPIC TO BE COVERED	No.of Classes		Date	DM
		As per the Schedule	Taken		
	Unit-1				
1	Introduction to Metallurgy and	19-06-17	1		1
2	Classification of engineering materials	21-06-17	1		1
3	Mechanical properties of materials	22-06-17	1		1
4	**Structure of Metals**; Crystal	23-06-17	1		1
5	simple cubic and Face centered Cubic structures	28-06-17	1		1
6	Body Centered Cubic structure	29-06-17	1		1
7	Closed pack hexagonal and	30-06-17	1		1
8	Tutorial-1	03-07-17	1		2
9	Mechanism of crystallization of	05-07-17	1		1
10	Effect of grain boundaries on the	06-07-17	1		1
11	Determination of grain size	07-07-17	1		1
12	Constitution of Alloys: Necessity of	10-07-16	1		1
13	Interstitial and Substitutional Solid Solutions, Hume Rothervs rules	12-07-17	1		1
14	Tutorial-2	13-07-17	1		2
Number of classes		14			
UNIT-II: EQUILIBRIUM DIAGRAMS					

15	**Equilibrium of Diagrams-**Introduction	14-07-17	1		1
16	Cooling curves for pure metals and alloys. Experimental methods of	17-07-17	1		1
17	Classification of E .D, Isomorphous E .D	19-07-17	1		1
18	Eutectic ED, Partial eutetic equilibrium diagrams	20-07-17	1		1
19	Equilibrium cooling and heating of alloys	21-07-17	1		1
20	Lever rule, coring	24-07-17	1		1
21	**Tutorial-3**	26-07-17	1		2
22	Transformations in the solid state-Allotropy	27-07-17	1		1
23	Eutectic reaction, Eutectoid reactions	28-07-17	1		1
24	Peritectoid reactions, Cu-Ni equilibrium diagram	31-07-17	1		1
25	Bi-Cd equilibrium diagram	02-08-17	1		1
26	**Tutorial-4**	03-08-17	1		2
Number of classes		11			
UNIT-III: FERROUS METALS AND ALLOYS, STEELS AND CAST IRONS					
27	Ferrous Metals and Alloys- Fe-Fe_3C equilibrium diagrams	04-08-17	1		1
28	Structural changes in Fe-Fe_3C	16-08-17	1		1
29	Phase Calculations in Fe-Fe_3C	17-08-17	1		1
30	**Steels-**Introduction, Classification of	18-08-17	1		1
31	Low carbon steel, Medium carbon, High carbon steel steel	21-08-17	1		1
32	**Tutorial-5**	23-08-17	1		2
33	**Cast Irons-**Introduction, Classification	24-08-17	1		1
34	White cast iron ,Malleable cast iron,	28-08-17	1		1
35	Grey cast iron , Spheriodal graphite C.I	30-08-17	1		1
36	**Tutorial-6**	31-09-17	1		2
Number of classes		10			
UNIT-IV: MECHANICAL WORKING , HEAT TREATMENT OF ALLOYS					
37	**Mechanical Working**- Hot Working	01-09-17	1		1
38	Cold Working	04-09-17	1		1
39	Strain Hardening, Recovery and	06-09-17	1		1
40	**Heat treatment of Alloys-** Annealing,	07-09-17	1		1
41	Construction of TTT diagrams for	08-09-17	1		1
42	**Tutorial-7**	11-09-17	1		2
43	Hardenability- Jominy end quench test	13-09-17	1		1
44	Surface - hardening methods-	14-09-17	1		1
45	Induction, flame hardening,	18-09-17	1		1
46	Age hardening treatment	20-09-17	1		1
47	**Tutorial-8**	21-09-17	1		2
Number of classes		11	1		
UNIT-V: NON FERROUS METALS AND ALLOYS, COMPOSITE MATERIALS					
48	Non Ferrous Metals and Alloys-	22-09-17	1		1

49	Structure, properties of Copper and it's alloys	25-09-17	1		1
50	Structure, properties of Aluminum and it's alloys	27-09-17	1		1
51	**Tutorial-9**	04-10-17	1		2
52	**Composite materials :** Classification	04-10-17	1		1
53	Manufacturing of composite materials	05-10-17	1		1
54	Hand lay up processes and filament winding processes	06-10-17	1		1
55	SMC Processes, Continuous pultrusion processes, Resin Transfer moulding	09-10-17	1		1
56	Metal ceramic mixtures-Introduction	11-10-17	1		1
57	Metal matrix composites, C-C	12-10-17	1		1
58	**Tutorial-10**	13-10-17	1		2
Number of classes		11			
Total Number of classes		57			

Delivery Methods (DM):

1.Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz
5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				
Name of the Faculty	**Mr. K Narayana**	**Mr. K Narayana**	**Mr.J.Subba Reddy**	

PRINCIPAL

LESSON PLAN

Department: Mechanical Engineering **Program:** B.Tech
Course : Mechanics of Materials **(**S305)
SEM: III (B Section) **Academic Year : 2017-18**

1. **Pre-requisites:** Engineering Mechanics, Basic Mechanical Engineering

2. **Course Educational Objectives (CEOs):**

   The Objective of the course is to analyse the stresses & deformations in mechanical members due to various loads.

3. **Course Outcomes (COs):** At the end of the course, the student will be able to :

CO1 : Compute the stresses & deformations of a member due to axial loading under uniform and non uniform conditions.

CO2 : Analyze the variation of Shear Force & Bending Moment in statically determinate beams.

CO3 : Analyze the structural members subjected to flexural and torsional loads.

CO4 : Analyze the biaxial stresses developed at a point of stressed member and indentify the shear stresses across the cross section of a beam.

CO5 : Evaluate the deflections of statically determinate beams and analyze the thin & thick pressure vessels.

4. Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
S305	CO1	3		2				1					1			3
	CO2	3		2				1					1			3
	CO3	3		2				1					1			3
	CO4	3		2				1					1			3
	CO5	3		2				1					1			3
1 = Slight (Low) 2 = Moderate (Medium) 3-Substantial(High)																

4. Course Delivery Plan:

S.NO	TOPIC TO BE COVERED	No.of Classes		Date	DM
		As per the Schedule	Taken		
Unit-I : SIMPLE STRESSES AND STRAINS					
1	Introduction to Mechanics of Materials - Course Educational Objective (CEO) & Course Outcomes (CO's)	01		19/06/17	1
2	Concept of Stress & Strain	01		20/06/17	1,2
3	Mechanical properties of Materials	01		22/06/17	1,2
4	Stress Strain diagrams for Mild Steel - Hooke's Law	01		23/06/17	1,5

5	Evaluation of Proof stress by Offset method	01		27/06/17	1
6	Stresses, Strains & Deformations of a body due to axial force	01		29/06/17	1
7	Principle of superposition	01		30/06/17	1
8	Bars of uniformly varying sections	01		03/07/17	1
9	Deformation of Stepped bar due to axial loads	01		04/07/17	1
10	Tutorial-I	01		06/07/17	3
11	Stresses in composite bars & Problems	01		07/07/17	1
12	Temperature stresses & problems	01		10/07/17	1,2
13	Strain energy due to steady load, sudden load & impact load	01		11/07/17	1
14	Lateral strain, Poisson's ratio & change in volume; Shear stress & shear strain	01		13/07/17	1
15	Relation between Young's Modulus and shear Modulus	01		14/07/17	1
16	Relation between Elastic modulii & Problems	01		17/07/17	1
17	Tutorial-II	01		18/07/17	3
18	Assignment / Quiz (UNIT-I)	01		20/07/17	4
	Number of classes	18		---	
Unit-II : SHEAR FORCE AND BENDING MOMENT					
19	Introduction to Shear force and bending moment; Relation between Shear Force, Bending Moment & rate of Loading	01		21/07/17	1
20	Shear force & Bending moment Diagrams for cantilever beam subjected to Concentrated loads & UDL.	01		24/07/17	1
21	Shear force & Bending moment Diagrams for Simply supported beam subjected to Concentrated loads & UDL.	01		25/07/17	1
22	Estimation of Maximum bending moment for simply supported beam	01		27/07/17	1
23	Tutorial-III	01		28/07/17	3
24	Shear force & Bending moment Diagrams for Overhanging beam subjected to Concentrated loads & UDL	01		31/07/17	1
25	Estimation of Maximum bending moment & point of contra flexure for Overhanging beams	01		01/08/17	1
26	Tutorial-IV	01		03/08/17	3
27	Assignment / Quiz (UNIT-II)	01		04/08/17	4
	Number of classes	09		----	
	Mid - I			**07/08/17-14/08/17**	
Unit-III : STRESSES IN BEAMS & TORSION					
28	Theory of Simple bending, assumptions	01		17/08/17	1
29	Derivation of flexure equation	01		18/08/17	1
30	Section modulus and problems	01		21/08/17	1
31	Normal stresses due to flexure applications	01		22/08/17	1
32	Tutorial-V	01		24/08/17	3
33	Theory of torsion, Assumptions	01		28/08/17	1
34	Derivation of Torsion equation	01		29/08/17	1

35	Polar modulus, Power transmitted by shaft, Stresses in solid and hollow circular shafts	01		31/08/17	1
36	Tutorial-VI	01		01/09/17	3
37	Assignment / Quiz (UNIT-III)	01		04/09/17	4
	Number of classes	10		----	
Unit-IV : ANALYSIS OF STRESSES IN TWO DIMENSIONS & SHEAR STRESSES					
38	State of stress at a point, normal and tangential stresses on inclined planes	01		05/09/17	1
39	Problem on normal and tangential stresses on inclined planes	01		07/09/17	1
40	Principle stresses and their planes, maximum shear stress plane	01		08/09/17	1
41	Mohr's circle diagram Problems on Mohr's circle	01		11/09/17	1
42	Tutorial-VII	01		12/09/17	3
43	Concept of shear stress variation over cross section due to flexural loads Derivation of lateral shear stress	01		14/09/17	1
44	Shear stress distribution across rectangular, triangular & circular sections	01		15/09/17	1
45	Shear stress distribution across T-section & I-section.	01		18/09/17	1
46	Tutorial-VIII	01		19/09/17	3
47	Assignment / Quiz (UNIT-IV)	01		21/09/17	4
	Number of classes	10		-----	
Unit-V : DEFELCTION OF BEAMS & THIN,THICK AND SPHERICAL SHELLS					
48	Derivation of Differential equation for elastic line (Deflection Equation)	01		22/09/17	1
49	Deflection & Slope equations for cantilever beam	01		25/09/17	1
50	Deflection & Slope equations for simply supported beam	01		26/09/17	1
51	Macaulay's method	01		28/09/17	1
52	Tutorial-IX	01		29/09/17	3
53	Introduction to thin & thick shells	01		03/10/17	1
54	Hoop stress and longitudinal stresses for thin cylinders; Change in volume of thin cylinder	01		05/10/17	1
55	Hoop stress and longitudinal stresses for thin spheres - Change in volume of thin spheres	01		06/10/17	1
56	Derivation of Lame's equations of Thick cylinders; Problems on thick cylinders	01		09/10/17	1
57	Tutorial-X Assignment / Quiz (UNIT-V)	01		12/10/17	3,4
Number of classes		10		----	
58	**Content beyond the syllabus**: Theories of Failure	01		13/10/17	2
Total Number of classes		58			

Delivery Methods (DM):

1.Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz
5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	Course Coordinator	Module Coordinator	HOD
Signature				
Name of the Faculty	K.V.Viswanadh	Dr.P.V.Chandra Sekhar Rao	B.Sudheer Kumar	Dr.S.Pichi Reddy

PRINCIPAL

Pre-requisites: Electricity &Magnetism.

Course Educational Objectives (CEOs): The aim of this course is to study the working principles of electrical circuits, provide Knowledge and skills needed to calculate efficiency of different machines, basic working principles of different electronic circuits and also prepare the students to understand theworking principles of different electrical and electronic measuring instruments.

Course Outcomes (COs): At the end of the course, the student will be able to

CO1: Analyse different types of electrical networks.

CO2: Illustrate the working principles of AC machines.

CO3: Determine efficiency and regulation of AC Machines.

CO4: Interpret the characteristics of different electronic devices and their applications.

CO5:Compare various electrical and electronics measuring instruments.

Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
S208	CO1	3	1				1	1		3						1
	CO2	3	1				1	1		3						1
	CO3	3	1				1	1		3						1
	CO4	3	1				1	1		3						1
	CO5	3	1				1	1		3						1
1 = Slight (Low) 2 = Moderate (Medium) 3-Substantial(High)																

Course Delivery Plan:

S No.	Tentative Date	Topics to be covered	Actual Date	No.Of Classes		DM
				As per the schedule	Taken	
UNIT-I: Electrical circuits						
1.	19-06-2017	Introduction		1		1
2.	21-06-2017	Basic definitions,		1		1
3.	22-06-2017	Active & Passive Elements		1		1
4.	23-06-2017	Ohm's law &Kirchhoff Voltage law &Kirchhoff Current law		1		1
5.	28-06-2017	**Tutorial-1**		1		3
6.	29-06-2017	Series& Parallel connection of resistance		1		1
7.	30-06-2017	Star to delta transformation		1		1
8.	03-07-2017	Delta to Star transformation		1		1
9.	05-07-2017	**Tutorial-2**		1		3
10.	06-07-2017	Source transformation		1		1
11.	07-07-2017	**Assignment/Slip test**		1		4
Number of classes				**11**		
UNIT-II: Transformers						
12.	10-07-2017	Introduction of transformer		1		1
13.	12-07-2017	Construction of single phase transformer		1		1
14.	13-07-2017	Operation of transformer& EMF equation of a transformer		1		1
15.	14-07-2017	**Tutorial**-3		1		3
16.	17-07-2017	Ideal transformer on no load& full load		1		1
17.	19-07-2017	Practical transformer on no load &full load		1		1
18.	20-07-2017	Losses &efficiency of a transformer		1		1
19.	21-07-2017	**Tutorial-4**		1		3

20.	24-07-2017	Open circuit test of a transformer		1		1
21.	26-07-2017	Short circuit test of a transformer		1		1
22.	27-07-2017	**Assignment/Slip test**		1		4
Number of classes				**11**		
UNIT-III: A.C MACHINES						
23.	28-07-2017	Fundamentals of alternating current		1		1
24.	31-07-2017	**Tutorial-5**		1		3
25.	02-08-2017	Principle of operation of alternators		1		1
26.	03-08-2017	Salient &Non-salient pole rotor		1		1
27.	04-08-2017	Voltage regulation by synchronous impedance method		1		1
28.	16-08-2017	Principle of operation of Induction motor		1		1
29.	21-08-2017	**Tutorial-6**		1		3
30.	23-08-2017	Construction of Induction motor		1		2
31.	24-08-2017	Slip ring &Squirrel cage Induction motor		1		2
32.	28-08-2017	Slip-Torque characteristics		1		1
33.	31-08-2017	**Tutorial-7**		1		3
Number of classes				**11**		
Unit-IV: Diode And Transistors						
34.	01-09-2017	**Assignment/Slip test**		1		4
35.	04-09-2017	P-n junction diode& V-I characteristics		1		1
36.	06-09-2017	Diode applications		1		1
37.	07-09-2017	Half wave & Full wave rectifier		1		1
38.	13-09-2017	**Tutorial-8**		1		3
39.	14-09-2017	Bridge rectifiers		1		1
40.	15-09-2017	PNP&NPN transistor		1		1
41.	18-09-2017	Application of transistor&Amplifier		1		1
42.	20-09-2017	**Tutorial-9**		1		3
43.	21-09-2017	**Assignment/Slip test**		1		4
Number of classes				**10**		
Unit-V:Electrical& Electronics measuring instruments						
44.	22-09-2017	Basic principles of indicating instruments		1		1
45.	25-09-2017	Permanent magnet moving coil instruments		1		2
46.	27-09-2017	Permanent magnet moving iron instruments		1		2
47.	29-09-2017	**Tutorial-10**		1		3
48.	04-10-2017	Block diagram of CRO&CRT		1		1
49.	05-10-2017	Applications ofCRO&CRT		1		1
50.	06-10-2017	Voltage measurement		1		1

51.	09-10-2017	Current measurement		1		1
52.	12-10-2017	Frequency measurement		1		1
53.	13-10-2017	**Assignment/Slip test**		1		1
Number of classes				**10**		
Total Number of classes as pert the schedule				**53**		
Total number of classes taken complete the syllabus						

Delivery Methods (DM):1. Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz 5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				
Name of the Faculty	**E. Raghu Babu**	**E. Raghu Babu**		**Dr.M.Uma Vani**

LESSON PLAN

Department: MECH **Program:** B.Tech
Course: Machine Drawing **(**S293)
SEM: III-SEC-B **Academic Year: 2017-18**

1. **Pre-requisites:** Engineering Graphics

2. **Course Educational Objective (CEO):**

   The main objective of this course is to visualize the object and develop the assembled views for the part drawings using conventions & drawing proportions.

3. **Course Outcomes (COs):** At the end of the course, the student will be able to :

CO1 : Comprehend the knowledge on machine drawing conventions

CO2 : Draw various machine elements while designing as per standards.

CO3 : Construct an assembly drawing using part drawings of engine components.

CO4 : Construct an assembly drawing using part drawings of machine components.

4. Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
S293	CO1	1	2			3		1					1		2	3
	CO2	1	2			3		1					1		2	3
	CO3	1	2			3		1					1	1	2	3
	CO4	1	2			3		1					1		2	3
1 = Slight (Low) 2 = Moderate (Medium) 3-Substantial(High)																

4. Course Delivery Plan:

S.NO	TOPIC TO BE COVERED	No.of Classes		Date	DM
		As per the Schedule	Taken		
PART-A					
1	Introduction to Machine drawing - Principles of drawing Title boxes, their size, location and details - common abbreviations & their liberal usage	2		21-06-17	1,5
2	Conventional representation of materials, common machine elements and parts such as screws, nuts, bolts, keys, gears, webs, ribs.	2		23-06-17	1,5
3	Methods of dimensioning, general rules for sizes and placement of dimensions for holes, centres, curved and tapered features.	2		28-06-17	1,5
4	Orthographic- Projections & Practices	2		30-06-17	1,5

5	Types of sections – selection of section planes and drawing of sections, auxiliary sectional views.	2		05-07-17	1,5
6	Types of sections – selection of section planes and drawing of sections, auxiliary sectional views.	2		07-07-17	1,5
7	Sectional views, additional views, drawing proportions of Screw threads, bolts, nuts.	2		12-07-17	1,5
8	Sectional views, additional views, drawing proportions of tapper bolts, set screws.	2		14-07-17	1,5
9	Sectional views, additional views, drawing proportions of Keys	2		19-07-17	1,5
10	Sectional views, additional views, drawing proportions of Cotter joints and Knuckle joint	2		21-07-17	1,5
11	Sectional views, additional views, drawing proportions of Riveted joints for plates	2		26-07-17	1,5
12	Sectional views, additional views, drawing proportions of Shaft coupling, Rigid Couplings	2		28-07-17	1,5
13	Sectional views, additional views, drawing proportions of Shaft coupling (flexible couplings)	2		02-08-17	1,5
14	Sectional views, additional views, drawing proportions of Shaft coupling (non alligned couplings) Universal coupling & Oldham coupling	2		04-08-17	1,5
	I MID EXAMS			07-08-17 to 12-08-17	
15	Sectional views, additional views, drawing proportions of foot step bearings	2		16-08-17	1,5
16	Sectional views, additional views, drawing proportions of spigot and socket, pipe joint.	2		18-08-17	1,5
Number of classes		32			
PART-B					
17	Introduction to assembly Drawing	2		23-08-17	2
18	Drawings of assembled views for the part drawings of **Stuffing Box** using conventions and easy drawing proportions	2		25-08-17	1,5
19	Drawings of assembled views for the part drawings of **Steam Engine Cross head** using conventions and easy drawing proportions	2		30-08-17	1,5
20	Practice	2		01-09-17	5
21	Drawings of assembled views for the part drawings of **Eccentric** using conventions and easy drawing proportions	2		06-09-17	1,5
22	Drawings of assembled views for the part drawings of **Petrol Engine Connecting rod** using conventions and easy drawing	2		08-09-17	1,5
23	Assaignment-I	2		13-09-17	4
24	Drawings of assembled views for the part drawings of **Piston assembly** using conventions and easy drawing proportions	2		15-09-17	1,5
25	Drawings of assembled views for the part drawings of **Screw jack** using conventions and easy drawing proportions	2		20-09-17	1,5
26	Drawings of assembled views for the part drawings of **Bench Vice** using conventions and easy drawing proportions	2		22-09-17	1,5

27	Drawings of assembled views for the part drawings of **Pipe Vice** using conventions and easy drawing proportions	2		27-09-17	1,5
28	Assaignment-II	2		29-09-17	4
29	Drawings of assembled views for the part drawings of **Plummer block** using conventions and easy drawing proportions	2		04-10-17	1,5
30	Drawings of assembled views for the part drawings of **Lathe Tailstock** using conventions and easy drawing proportions	2		06-10-17	1,5
31	Practice	2		11-10-17	5
32	REVISION	2		13-10-17	1,2
Number of classes		32			
	II MID EXAMS			18-10-17 to 20-10-17	
Total Number of classes		64			

Delivery Methods (DM):
1.Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz
5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				
Name of the Faculty	**Mr.S.Srinivasa Reddy**	**Mr.S.Srinivasa Reddy**	**Mr.J.Subba Reddy**	**Dr.S.Pichi Reddy**

PRINCIPAL

LAKKIREDDY BALI REDDY COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING
(Autonomous & Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi, NAAC Accredited with 'A' grade, Accredited by NBA, Certified by ISO 9001:2015)
L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

PROGRAM : B.Tech., III-Sem., MECH-B

ACADEMIC YEAR : 2017-18

COURSE NAME & CODE : Environmental Studies - S 243

L-T-P STRUCTURE : 2-0-0

COURSE CREDITS : 0

COURSE INSTRUCTOR : Dr.Shaheda Niloufer, Sr. Assistant Professor

COURSE COORDINATOR : Dr.Shaheda Niloufer, Sr. Assistant Professor

COURSE OBJECTIVE: To provide a general background on developing an understanding of systems and cycles on the earth and how individual organisms live together in complex communities.

To enable the students in understanding how human activities influence our air, water and soil and it also helps in developing a right attitude about our use of fossil fuels and effect on climate and sustainable management of natural resources.

COURSE ARTICULATION MATRIX(Correlation between COs&POs,PSOs):

CO	Statement At the end of the course, student will be able to	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
1	Evaluate local, regional and global environmental issues related to resources and their sustainable management	2	2	2									2			
2	Realize the importance of ecosystem and biodiversity for maintaining ecological balance	2	2	2									2			
3	Identify environmental problems arising due to engineering and technological activities that help to be the part of sustainable solutions	2	2	3			3	3					2			
4	Create awareness on sustainable population growth and know the contributions of Information Technology in environmental management	2	2	3			3						2			

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**
1- Slight(Low), **2 -** Moderate(Medium), **3 -** Substantial (High).

BOS APPROVED TEXT BOOKS:

1. P.N.Palanisamy et al., "Environmental Science" 2nd edition, Dorling Kindersley publishers.
2. R. Rajagopalan, "Environmental Studies (From Crisis to Cure)", Oxford University Press.

BOS APPROVED REFERENCE BOOKS:

1. M. Anji Reddy, "Textbook of Environmental Sciences and Technology" by BS Publications, 2011 Second Edition.
2. Erach Bharucha, "Textbook of Environmental Studies for Undergraduate Courses", by University Grants Commission, University Press (India) Private Limited, 2005.

COURSE DELIVERY PLAN (LESSON PLAN): Section-A

UNIT-I : Natural Resources

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to syllabus, Def of Environmental studies, Scope & Importance of environmental studies. Need for public awareness.	1	21.06.17		**TLM1**	
2.	Natural Resource classification & Forest resources	1	22.06.17		**TLM1**	
3.	Water Resources	1	28.06.17		**TLM1**	
4.	Mineral Resources	1	29.06.17		**TLM1**	
5.	Food Resources	1	5.07.17		**TLM1**	
6.	TUTORIAL-1	1	6.06.17		**TLM3**	
7.	Energy Resources	1	12.07.17		**TLM1**	

No. of classes required to complete UNIT-I	7	No. of classes taken:

UNIT-II : Ecosystems & Biodiversity and its conservation

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
8.	Introduction to UNIT-II Structure and functions of ecosystems	1	13.07.17		**TLM1**	
9.	Ecological succession, Food chains and Food web, Ecological Pyramids	1	19.07.17		**TLM1**	
10.	Bio-geochemical cycles	1	20.07.17		**TLM1 TLM2**	
11.	TUTORIAL-2	1	26.07.17		**TLM3**	
12.	Biodiversity and levels of measuring biodiversity	1	27.07.17		**TLM1**	
13.	Bio-geographic classification of India, Values, Hot spots	1	2.08.17		**TLM1 TLM2**	
14.	Threats and conservation of biodiversity	1	3.08.17		**TLM1**	
No. of classes required to complete UNIT-II		7	No. of classes taken:			

UNIT-III : Environmental Pollution

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
15.	Air pollution	1	16.08.17		**TLM1**	
16.	Water pollution	1	17.08.17		**TLM1**	
17.	Soil pollution & Noise pollution	1	23.08.17		**TLM1**	
18.	Radioactive pollution(Tutorial 3)	1	24.08.17		**TLM1 TLM3**	
19.	Solid waste management	1	30.08.17		**TLM1**	
20.	Disaster management	1	31.08.17		**TLM1**	
No. of classes required to complete UNIT-III		6	No. of classes taken:			

UNIT-IV : Social Issues and the Environment

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
21.	From unsustainable to sustainable development	1	6.09.17		**TLM1**	
22.	Environmental and human health Resettlement and rehabilitation	1	7.09.17		**TLM1**	
23.	Climate change: Global warming & Acid rains	1	13.09.17		**TLM1**	

24.	Ozone depletion & Nuclear accidents and holocaust	1	14.09.17		**TLM1**	
25.	Consumerism and waste products	1	20.09.17		**TLM1**	
26.	Tutorial 4	1	21.09.17		**TLM3**	
No. of classes required to complete UNIT-IV		6	No. of classes taken:			

UNIT-V : Human Population and Environment

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
27.	Population growth and variations among nations, population explosion	1	27.09.17		**TLM1**	
28.	Family welfare programs Women and child welfare programs	1	28.09.17		**TLM1**	
29.	Human rights and value education, HIV/AIDS	1	4.10.17		**TLM1**	
30.	Role of IT in Environmental management and human health	1	5.10.17		**TLM1**	
31.	Environmental Law	1	11.10.17		**TLM1**	
32.	Tutorial 5	1	12.10.17		**TLM3**	
No. of classes required to complete UNIT-V		6	No. of classes taken:			

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
33.	Case studies on Environmental Pollution	1	12.10.17		**TLM9**	
34.						

Teaching Learning Methods					
TLM1	Chalk and Talk	**TLM4**	Problem Solving	**TLM7**	Seminars or GD
TLM2	PPT	**TLM5**	Programming	**TLM8**	Lab Demo
TLM3	Tutorial	**TLM6**	Assignment or Quiz	**TLM9**	Case Study

ACADEMIC CALENDAR:

Description	From	To	Weeks
I Phase of Instructions-1	19-06-2017	05-08-2017	7 W
I Mid Examinations	07-08-2017	12-08-2017	1 W
II Phase of Instructions	16-08-2017	14-10-2017	9 W
II Mid Examinations	16-10-2017	21-10-2017	1 W
Preparation and Practicals	23-10-2017	02-11-2017	2 W
Semester End Examinations	03-11-2017	18-11-2017	2 W

EVALUATION PROCESS:

Evaluation Task	COs	Marks
Assignment/Quiz – 1	1	A1=5
Assignment/Quiz – 2	2	A2=5
I-Mid Examination	1,2	B1=20

Assignment/Quiz – 3	3	A3=5
Assignment/Quiz – 4	4	A4=5
Assignment/Quiz – 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Evaluation of Assignment/Quiz Marks: A=(A1+A2+A3+A4+A5)/5	1,2,3,4,5	A=5
Evaluation of Mid Marks: B=75% of Max(B1,B2)+25% of Min(B1,B2)	1,2,3,4,5	B=20
Cumulative Internal Examination : A+B	**1,2,3,4,5**	**A+B=25**
Semester End Examinations	**1,2,3,4,5**	**C=75**
Total Marks: A+B+C	**1,2,3,4,5**	**100**

Dr. Shaheda Niloufer	Dr. Shaheda Niloufer	Dr. Shaheda Niloufer	
Course Instructor	**Course Coordinator**	**Module Coordinator**	**BOS Chairman&HOD**

	LESSON PLAN	
	Department: MECHANICAL ENGINEERING **Course :APPLIED MATHEMATICS-III (S134)** **SEM: III**	**Program: B.Tech** **Section : C** **Academic Year : 2017-18**

9. **Pre-requisites**: None

10. **Course Educational Objectives (CEOs):** In this course the students are introduced to numerical techniques for solving various types of equations. They also learn vector differentiation and vector integration.

11. **Course Outcomes (COs):** At the end of the course, the student will be able to :

CO1 : Compare the rate of accuracy between Regula falsi method and The Newton-Raphson Method in approximating a root of an equation. Also Distinguish among the criteria of selection and procedures of various Numerical integration rules.

CO2 : Estimate the best fit polynomial for the given tabulated data using the methods of Newton's interpolation and Lagrange's interpolation.

CO3 : Solve an initial value problem involving an ordinary differential equation by using various numerical methods

CO4 : Compute the Directional derivative and the divergence and the angular velocity for a given vector valued function.

CO5 : Evaluate the line, surface and volume integrals with the support of vector integral theorems.

4. Course Articulation Matrix:

Course Code	**COs**	**Programme Outcomes**												**PSOs**		
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
S134	CO1	3	2	2									2			
	CO2	3	2	2									2			
	CO3	2	2	1									2			
	CO4	3	2	2									2			
	CO5	3	2	2									2			
1 = Slight (Low) **2 = Moderate (Medium)** **3-Substantial(High)**																

12. Course Delivery Plan:

S.NO	TOPIC TO BE COVERED	No.of Classes		Date	DM
		As per the	Taken		
	Unit-1				
1	Introduction class	1		21-6-17	1
2	Course Objectives and applications	1		22-6-17	1
3	Introduction to solution of algebraic and transcendental equations	1		23-6-17	1
4	Bisection Method	1		24-6-17	1
5	Method of False Position	2		28-6-17 29-6-17	1
6	TUTORIAL-1	1		30-6-17	1,3
7	Newton-Raphson Method	2		1-7-17 5-7-17	1
8	Numerical Integration, Trapezoidal Rule	1		6-7-17	1
9	TUTORIAL-2	1		7-7-17	1,3
10	Simpson's 1/3 Rule	1		12-7-17	1
11	Simpson's 3/8 Rule.	1		13-7-17	1
12	TUTORIAL-3	1		14-7-17	1,3
13	Assignment/Quiz-1	1		15-7-17	4
Number of classes		15			
	Unit-II				
14	Introduction to Interpolation	1		19-7-17	1
15	Forward, & Backward Differences	1		20-7-17	1
16	Symbolic Relations and separation of symbols	2		21-7-17 22-7-17	1
17	Newton's formulae for interpolation	2		26-7-17 27-7-17	1
18	TUTORIAL-4	1		28-7-17	1,3
19	Lagrange's interpolation formula	2		29-7-17 2-8-17	1
20	Gauss Interpolation formula	1		3-8-17	1
21	TUTORIAL-5	1		4-8-17	1,3
22	Assignment/Quiz-2	1		5-8-17	4
	Number of classes	12			
Unit-III					
23	Numerical Solution of ODE	1		16-8-17	1
24	Solution of ODE by Taylor's series	1		17-8-17	1
25	Picard's Method of successive Approximation	1		18-8-17	1
26	TUTORIAL-6	1		19-8-17	1,3
27	Euler's Method	1		23-8-17	1
28	Modified Euler's Method	2		24-8-17 26-8-17	1
29	Runge-Kutta Method	2		30-8-17 31-8-17	1
30	TUTORIAL-7	1		1-9-17	1,3

31	Assignment/Quiz-3	1		6-9-17	4
	Number of classes	11			
Unit-IV					
32	Vector Differentiation	1		7-9-17	1
32	Gradient of a scalar point function	1		8-9-17	1
34	Directional Derivatives	2		13-9-17 14-9-17	1
35	TUTORIAL-8	1		15-9-17	1,3
36	Divergence	1		16-9-17	1
37	Curl of a vector	1		20-9-17	1
38	Laplacian and second order operators	1		21-9-17	1
39	Vector Identities	1		22-9-17	1
40	TUTORIAL-9	1		23-9-17	1,3
41	Assignment/Quiz-4	1		27-9-17	4
	Number of classes	11			
Unit-V					
42	Vector Integration	1		28-9-17	1
43	Line Integral	1		29-9-17	1
44	Work done Area	1		4-10-17	1
45	Surface Integral	1		5-10-17	1
46	TUTORIAL-10	1		6-10-17	1,3
47	Volume Integral	1		7-10-17	1
48	Applications on Gauss divergence Theorem	1		10-10-17	1
49	Applications on Green's Theorem	1		11-10-17	1
50	Applications on Stokes' Theorem	1		12-10-17	1
51	TUTORIAL-11	1		13-10-17	1,3
52	Assignment/Quiz-4	1		14-10-17	4
	Number of classes	11			
	Total Number of classes	60			

Delivery Methods (DM):

1.Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz
5. Laboratory/Field Visit 6. Web based learning.

	Instructor	Coordinator	Coordinator	
Signature				
Name of the Faculty				

PRINCIPAL

LESSON PLAN

Department: Mechanical
Course: –Thermodynamics **(**T170)
SEM: III

Program: B.Tech
Class: C/S
Academic Year: 2017-18

1. **Pre-requisites:** Engineering Physics

2. **Course Educational Objectives (CEOs):**

   To provide insights on laws of thermodynamics and its applications, gas mixtures, pure substances and thermodynamic cycles.

3. **Course Outcomes (COs):** At the end of the course, the student will be able to :

CO1: Comprehend the concepts of heat, work, Forms of energy, Laws of thermodynamics, Mixtures of gases and thermodynamics cycles.

CO2: Describe the laws of thermodynamic principles related to various thermal systems

CO3: Apply the laws of thermodynamics to solve various thermodynamic cycles

CO4: Analyse the thermodynamic concepts for various cycles and gas mixtures

CO5: Evaluate the properties of thermodynamic systems and performance parameters of the thermodynamic cycles

4. Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
T170	CO1	3	1	1	1	2	1	1	-	-	-	-	1	3	-	1
	CO2	3	2	1	1	1	1	-	-	-	-	2	1	3	-	2
	CO3	3	1	2	2	2	-	-	-	-	-	-	1	3	-	1
	CO4	2	3	2	2	2	-	-	-	-	-	1	1	2	-	1
	CO5	3	1	2	3	2	1	1	-	-	-	-	1	3	-	1
1 = Slight (Low) 2 = Moderate (Medium) 3-Substantial(High)																

5. Course Delivery Plan:

S.NO	TOPIC TO BE COVERED	No.of Classes		Date	DM
		As per the schedule	Taken		
UNIT-I					
1	Introduction	20/6/17		20/6/17	1,2
2	Macroscopic and Microscopic viewpoint, Continuum, system control volume	22/6/17		22/6/17	1,2
3	properties of system, state Path, Process	23/6/17		23/6/17	1,2
4	Cycle and Equilibrium, Thermodynamic equilibrium	24/6/17		24/6/17	1,2
5	Quasi-static process	27/6/17		27/6/17	1,2
6	Temperature, Temperature scales	29/6/17		29/6/17	1,2
7	Zeroth law of Thermodynamics	30/6/17		30/6/17	1,2
8	Energy-Forms of Energy	1/7/17		1/7/17	1,2
9	Heat, Work	4/7/17		4/7/17	1,2
10	Mechanical Forms of work	6/7/17		6/7/17	1,2
11	Path and Point Functions	7/7/17		7/7/17	1,2
12	Problems	11/7/17		11/7/17	1,2
13	Problems	13/7/17		13/7/17	1,2
14	Problems	14/7/17		14/7/17	1,2
15	Tutorial-I	15/7/17		15/7/17	3
	Number of classes		**15**		
UNIT-II					
16	First Law Of Thermodynamics, Introduction, Energy a property of System, First law analysis of closed system	18/7/17		18/7/17	1,2
17	Displacement work, Thermodynamic Process, Different forms of stored energy	20/7/17		20/7/17	1,2
18	Energy Balance, Internal Energy, Specific Heat, Enthalpy, Entropy, PMM1	21/7/17		21/7/17	1,2
19	Problems	22/7/17		22/7/17	1,2
20	Problems	25/7/17		25/7/17	1,2
21	First law analysis of control volume, Conservation of mass,	27/7/17		27/7/17	1,2

	Conservation of energy				
22	Principle- Flow work, The steady flow process-Steady flow energy equation	28/7/17		28/7/17	1,2
23	Steady flow engineering devices-Nozzles, Diffusers, Turbine Compressors, Throttling Valves, Heat Exchangers	1/8/17		1/8/17	1,2
24	Problems	3/8/17		3/8/17	1,2
25	Problems	4/8/17		4/8/17	1,2
26	Tutorial-II	5/8/17		5/8/17	3
	Number of classes		**11**		
UNIT-III					
27	Second Law Of Thermodynamics, Introduction,	17/8/17		17/8/17	1,2
28	Thermal Energy Reservoirs, Heat Engines	18/8/17		18/8/17	1,2
29	Kelvin Plank & Clausius Statements of second law of thermodynamics	19/8/17		19/8/17	1,2
30	Refrigerators, Heat Pumps	22/8/17		22/8/17	1,2
31	Equivalence of Kelvin-plank and clasius statements, Perpetual motion machines	24/8/17		24/8/17	1,2
32	Reversible and Irreversible process, Carnot cycle, Carnot theorem	26/8/17		26/8/17	1,2,6
33	Corollary of Carnot theorem, Thermodynamic Temperature Scale	29/8/17		29/8/17	1,2,6
34	Entropy, Introduction, Clausius Theorem, Clausius Inequality, T-S Plot	31/8/17		31/8/17	1,2
35	Principle of increase of entropy, Tds-Relations, Maxwell Relations	1/9/17		1/9/17	1,2
36	Entropy change for Ideal Gases, Isentropic relation for ideal gases, Third law of Thermodynamics	2/9/17		2/9/17	1,2,6
37	Problems	5/9/17		5/9/17	1,2
38	Problems	7/9/17		7/9/17	1,2
39	Tutorial-III	8/9/17		8/9/17	3
	Number of classes		**13**		
UNIT-IV					
40	Non Reactive Gas Mixtures, Introduction, Composition of Gas Mixtures, Mass Fraction	12/9/17		12/9/17	1,2
41	Mole fraction, Daltons Law of Additive Pressures, Amagats Law	14/9/17		14/9/17	1,2

	Of Additive Volumes, Ideal Gas Mixtures				
42	Problems	15/9/17		15/9/17	1,2
43	Problems	16/9/17		16/9/17	1,2
44	Properties of Pure Substance, Introduction, Phases of Pure Substance	19/9/17		19/9/17	1,2
45	Properties of Steam, Dryness Fraction, Phase change Process, Property Diagrams of (P-V,P-T,T-S) Pure substance	21/9/17		21/9/17	1,2
46	P-V-T Surface, h-s Diagram or Mollier Diagram for a Pure Substance	22/9/17		22/9/17	1,2
47	Problems	23/9/17		23/9/17	1,2
48	Tutorial-IV	26/9/17		26/9/17	3
	Number of classes		**9**		
UNIT-V					
49	Gas Power cycles, Introduction, Analysis of power cycles, Carnot Otto	28/9/17		28/9/17	1,2,6
50	Diesel, Dual, Brayton Cycles	29/9/17		29/9/17	1,2,6
51	Problems	30/9/17		30/9/17	1,2
52	Problems	3/10/17		3/10/17	1,2
53	Vapour cycles, Analysis of Carnot vapour cycle, Simple Rankine cycle	5/10/17		5/10/17	1,2,6
54	Problems	6/10/17		6/10/17	1,2
55	Refrigeration cycles, Reversed Carnot Cycle, Bell-Coleman Cycle,	7/10/17		7/10/17	1,2,6
56	Simple Vapour Compression Cycle	10/10/17		10/10/17	1,2
57	Problems	12/10/17		12/10/17	1,2
58	Problems	13/10/17		13/10/17	1,2
59	Tutorial-V	14/10/17		14/10/17	3
	Number of classes		**11**		

Delivery Methods (DM):

1. Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz
5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				
Name of the Faculty	Dr.K.Dilip Kumar			

LESSON PLAN

ME**Program:** B.Tech
llurgy & Material Science (T 250)
SEM: III **Academic Year : 2017-18**

1. **Pre-requisites:**
2. **Course Educational Objectives (CEOs):**

   CEO should be a paragraph in two or three sentences only.

3. **Course Outcomes (COs):**At the end of the course, the student will be able to :

CO1 : Estimate the properties of the material based on crystal structures.

CO2 : Develop the equilibrium diagram for any binary system.

CO3 : Determine the properties of steels based on Fe-Fe_3C equilibrium diagram.

CO4 : Apply the principle of heat treatment to get desired properties in materials.

CO5 : Distinguish between non ferrous metals and composite materials.

4. Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
T250	CO1		1	1	2	2							3	1	1	
	CO2			1		1				2			3	2		
	CO3	1	2	1	2						1		1		2	1
	CO4								1			2	2		1	
	CO5		2	2	1	1							3			2
1 = Slight (Low) 2 = Moderate (Medium) 3-Substantial(High)																

4. **Course Delivery Plan:**

S.NO	TOPIC TO BE COVERED	No.of Classes		Date	DM
		As per the Schedule	Taken		
	Unit-1				
1	Introduction to Metallurgy and	19-06-17	1		1
2	Classification of engineering materials	20-06-17	1		1
3	Mechanical properties of materials	21-06-17	1		1
4	**Structure of Metals**; Crystal	24-06-17	1		1
5	simple cubic and Face centered Cubic structures	27-06-17	1		1
6	Body Centered Cubic structure	28-06-17	1		1
7	Closed pack hexagonal and	01-07-17	1		1
8	**Tutorial-1**	03-07-17	1		2
9	Mechanism of crystallization of	04-07-17	1		1
10	Effect of grain boundaries on the	05-07-17	1		1
11	Determination of grain size	10-07-17	1		1
12	Constitution of Alloys: Necessity of	11-07-16	1		1
13	Interstitial and Substitutional Solid Solutions, Hume Rotherys rules	12-07-16	1		1
14	**Tutorial-2**	15-07-16	1		2
Number of classes		14			
	UNIT-II: EQUILIBRIUM DIAGRAMS				
15	**Equilibrium of Diagrams-**Introduction	17-07-17	1		1
16	Cooling curves for pure metals and alloys. Experimental methods of	18-07-17	1		1
17	Classification of E .D, Isomorphous E .D	19-07-17	1		1
18	Eutectic ED, Partial eutetic equilibrium diagrams	22-07-17	1		1
19	Equilibrium cooling and heating of alloys	24-07-17	1		1
20	Lever rule, coring	25-07-17	1		1
21	**Tutorial-3**	26-07-17	1		2
22	Transformations in the solid state-Allotropy	29-07-17	1		1
23	Eutectic reaction, Eutectoid reactions	31-07-17	1		1
24	Peritectoid reactions, Cu-Ni equilibrium diagram	01-08-17	1		1
25	Bi-Cd equilibrium diagram	02-08-17	1		1
26	**Tutorial-4**	05-08-17	1		2
Number of classes		11			
UNIT-III: FERROUS METALS AND ALLOYS, STEELS AND CAST IRONS					
27	Ferrous Metals and Alloys- Fe-Fe_3C equilibrium diagrams	16-08-17	1		1
28	Structural changes in Fe-Fe_3C	19-08-17	1		1
29	Phase Calculations in Fe-Fe_3C	21-08-17	1		1
30	**Steels-**Introduction, Classification of	22-08-17	1		1
31	Low carbon steel, Medium carbon, High carbon steel steel		1		1

32	**Tutorial-5**	23-08-17	1		2
33	**Cast Irons-**Introduction, Classification	26-08-17	1		1
34	White cast iron ,Malleable cast iron,	29-08-17	1		1
35	Grey cast iron , Spheriodal graphite C.I	30-08-17	1		1
36	**Tutorial-6**	02-09-17	1		2
Number of classes		10			
UNIT-IV: MECHANICAL WORKING , HEAT TREATMENT OF ALLOYS					
37	**Mechanical Working**- Hot Working	04-09-17	1		1
38	Cold Working	05-09-17	1		1
39	Strain Hardening, Recovery and	06-09-17	1		1
40	**Heat treatment of Alloys-** Annealing,	11-09-17	1		1
41	Construction of TTT diagrams for	12-09-17	1		1
42	**Tutorial-7**	13-09-17	1		2
43	Hardenability- Jominy end quench test	16-09-17	1		1
44	Surface - hardening methods-	18-09-17	1		1
45	Induction, flame hardening,	19-09-17	1		1
46	Age hardening treatment	20-09-17	1		1
47	**Tutorial-8**	23-09-17	1		2
Number of classes		11	1		
UNIT-V: NON FERROUS METALS AND ALLOYS, COMPOSITE MATERIALS					
48	Non Ferrous Metals and Alloys-	25-09-17	1		1
49	Structure, properties of Copper and it's alloys	26-09-17	1		1
50	Structure, properties of Aluminum and it's alloys	27-09-17	1		1
51	**Tutorial-9**	30-09-17	1		2
52	**Composite materials :** Classification	03-10-17	1		1
53	Manufacturing of composite materials	04-10-17	1		1
54	Hand lay up processes and filament winding processes	07-10-17	1		1
55	SMC Processes, Continuous pultrusion processes, Resin Transfer moulding	09-10-17	1		1
56	Metal ceramic mixtures-Introduction	10-10-17	1		1
57	Metal matrix composites, C-C	11-10-17	1		1
58	**Tutorial-10**	14-10-17	1		2
Number of classes		11			
Total Number of classes		57			

Delivery Methods (DM):

1.Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz
5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				
Name of the Faculty	**Mr. K Narayana**	**Mr. K Narayana**	**Mr.J.Subba Reddy**	

PRINCIPAL

	LESSON PLAN
	Department: Mechanical Engineering **Program:** B.Tech **Course :** Mechanics of Materials **(**S305) **SEM:** III (C Section) **Academic Year : 2017-18**

13. **Pre-requisites:** Engineering Mechanics, Basic Mechanical Engineering

14. Course Educational Objectives (CEOs):

The Objective of the course is to analyse the stresses & deformations in mechanical members due to various loads.

15. **Course Outcomes (COs):** At the end of the course, the student will be able to :

CO1 : Compute the stresses & deformations of a member due to axial loading under uniform and non uniform conditions.
CO2 : Analyze the variation of Shear Force & Bending Moment in statically determinate beams.
CO3 : Analyze the structural members subjected to flexural and torsional loads.
CO4 : Analyze the biaxial stresses developed at a point of stressed member and indentify the shear stresses across the cross section of a beam.
CO5 : Evaluate the deflections of statically determinate beams and analyze the thin & thick pressure vessels.

4. Course Articulation Matrix:

Course Code	**COs**	**Programme Outcomes**												**PSOs**		
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
S305	CO1	3		2				1					1			3
	CO2	3		2				1					1			3
	CO3	3		2				1					1			3
	CO4	3		2				1					1			3
	CO5	3		2				1					1			3
1 = Slight (Low) **2 = Moderate (Medium)** **3-Substantial(High)**																

5. Course Delivery Plan:

S.NO	TOPIC TO BE COVERED	No.of Classes		Date	DM
		As per the Schedule	Taken		
Unit-I : SIMPLE STRESSES AND STRAINS					
1	Introduction to Mechanics of Materials - Course Educational Objective (CEO) & Course Outcomes (CO's)	01		21/06/17	1
2	Concept of Stress & Strain	01		22/06/17	1,2
3	Mechanical properties of Materials	01		23/06/17	1,2
4	Stress Strain diagrams for Mild Steel - Hooke's Law	01		24/06/17	1,5
5	Evaluation of Proof stress by Offset method	01		28/06/17	1
6	Stresses, Strains & Deformations of a body due to axial force	01		29/06/17	1
7	Principle of superposition	01		30/06/17	1
8	Bars of uniformly varying sections	01		01/07/17	1
9	Deformation of Stepped bar due to axial loads	01		05/07/17	1
10	Tutorial-I	01		06/07/17	3
11	Stresses in composite bars & Problems	01		07/07/17	1
12	Temperature stresses & problems	01		12/07/17	1
13	Strain energy due to steady load, sudden load & impact load	01		13/07/17	1
14	Lateral strain, Poisson's ratio & change in volume; Shear stress & shear strain	01		14/07/17	1
15	Relation between Young's Modulus and shear Modulus	01		15/07/17	1
16	Relation between Elastic modulii & Problems	01		19/07/17	1
17	Tutorial-II Assignment / Quiz (UNIT-I)	01		20/07/17	3,4
	Number of classes	17		---	
Unit-II : SHEAR FORCE AND BENDING MOMENT					
18	Introduction to Shear force and bending moment; Relation between Shear Force, Bending Moment & rate of Loading	01		21/07/17	1
19	Shear force & Bending moment Diagrams for cantilever beam subjected to Concentrated loads & UDL.	01		22/07/17	1
20	Shear force & Bending moment Diagrams for Simply supported beam subjected to Concentrated loads & UDL.	01		26/07/17	1
21	Estimation of Maximum bending moment for simply supported beam	01		27/07/17	1

22	Tutorial-III	01		28/07/17	3
23	Shear force & Bending moment Diagrams for Overhanging beam subjected to Concentrated loads & UDL	01		29/07/17	1
24	Estimation of Maximum bending moment & point of contra flexure for Overhanging beams	01		03/08/17	1
25	Tutorial-IV	01		04/08/17	3
26	Assignment / Quiz (UNIT-II)	01		05/08/17	4
	Number of classes	09		----	
	Mid - I			**07/08/17-14/08/17**	
Unit-III : STRESSES IN BEAMS & TORSION					
27	Theory of Simple bending, assumptions	01		16/08/17	1
28	Derivation of flexure equation	01		17/08/17	1
29	Section modulus and problems	01		18/08/17	1
30	Normal stresses due to flexure applications	01		19/08/17	1
31	Tutorial-V	01		23/08/17	3
32	Theory of torsion, Assumptions	01		24/08/17	1
33	Derivation of Torsion equation	01		26/08/17	1
34	Polar modulus, Power transmitted by shaft, Stresses in solid and hollow circular shafts	01		30/08/17	1
35	Tutorial-VI	01		31/08/17	3
36	Assignment / Quiz (UNIT-III)	01		01/09/17	4
	Number of classes	10		----	
Unit-IV : ANALYSIS OF STRESSES IN TWO DIMENSIONS & SHEAR STRESSES					
37	State of stress at a point, normal and tangential stresses on inclined planes	01		06/09/17	1
38	Problem on normal and tangential stresses on inclined planes	01		07/09/17	1
39	Principle stresses and their planes, maximum shear stress plane	01		08/09/17	1
40	Mohr's circle diagram Problems on Mohr's circle	01		13/09/17	1
41	Tutorial-VII	01		14/09/17	3
42	Concept of shear stress variation over cross section due to flexural loads Derivation of lateral shear stress	01		15/09/17	1
43	Shear stress distribution across rectangular, triangular & circular sections	01		16/09/17	1
44	Shear stress distribution across T-section & I-section.	01		20/09/17	1
45	Tutorial-VIII	01		21/09/17	3
46	Assignment / Quiz (UNIT-IV)	01		22/09/17	4
	Number of classes	10		-----	
Unit-V : DEFELCTION OF BEAMS & THIN,THICK AND SPHERICAL SHELLS					
47	Derivation of Differential equation for elastic line (Deflection Equation)	01		23/09/17	1
48	Deflection & Slope equations for cantilever beam	01		27/09/17	1

49	Deflection & Slope equations for simply supported beam	01		28/09/17	1
50	Macaulay's method	01		29/09/17	1
51	Tutorial-IX	01		04/10/17	3
52	Introduction to thin & thick shells	01		05/10/17	1
53	Hoop stress and longitudinal stresses for thin cylinders; Change in volume of thin cylinder	01		06/10/17	1
54	Hoop stress and longitudinal stresses for thin spheres - Change in volume of thin spheres	01		07/10/17	1
55	Derivation of Lame's equations of Thick cylinders; Problems on thick cylinders	01		11/10/17	1
56	Tutorial-X Assignment / Quiz (UNIT-V)	01		12/10/17	3,4
Number of classes		10		----	
57	**Content beyond the syllabus**: Theories of Failure	01		13/10/17	2
Total Number of classes		57			

Delivery Methods (DM):

1.Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz
5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				
Name of the Faculty	**K.V.Viswanadh**	**Dr.P.V.Chandra Sekhar Rao**	**B.Sudheer Kumar**	**Dr.S.Pichi Reddy**

PRINCIPAL

LESSON PLAN

Department: MECH **Program:** B.Tech
Course: Machine Drawing **(**S293)
SEM: III-SEC-C **Academic Year: 2017-18**

1. **Pre-requisites:** Engineering Graphics

2. **Course Educational Objective (CEO):**

   The main objective of this course is to visualize the object and develop the assembled views for the part drawings using conventions & drawing proportions.

3. **Course Outcomes (COs):** At the end of the course, the student will be able to :

   CO1 : Comprehend the knowledge on machine drawing conventions

   CO2 : Draw various machine elements while designing as per standards.

   CO3 : Construct an assembly drawing using part drawings of engine components.

   CO4 : Construct an assembly drawing using part drawings of machine components.

4. Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
S293	CO1	1	2			3		1					1		2	3
	CO2	1	2			3		1					1		2	3
	CO3	1	2			3		1					1	1	2	3
	CO4	1	2			3		1					1		2	3
1 = Slight (Low) **2 = Moderate (Medium)** **3-Substantial(High)**																

4. Course Delivery Plan:

S.NO	TOPIC TO BE COVERED	No.of Classes		Date	DM
		As per the Schedule	Taken		
PART-A					
1	Introduction to Machine drawing - Principles of drawing Title boxes, their size, location and details - common abbreviations & their liberal usage	2		20-06-17	1,5
2	Conventional representation of materials, common machine elements and parts such as screws, nuts, bolts, keys, gears, webs, ribs.	2		22-06-17	1,5
3	Methods of dimensioning, general rules for sizes and placement of dimensions for holes, centres, curved and tapered features.	2		27-06-17	1,5
4	Orthographic- Projections & Practices	2		29-06-17	1,5
5	Types of sections – selection of section planes and drawing of sections, auxiliary sectional views.	2		04-07-17	1,5
6	Types of sections – selection of section planes and drawing of sections, auxiliary sectional views.	2		06-07-17	1,5
7	Sectional views, additional views, drawing proportions of Screw threads, bolts, nuts.	2		11-07-17	1,5
8	Sectional views, additional views, drawing proportions of tapper bolts, set screws.	2		13-07-17	1,5
9	Sectional views, additional views, drawing proportions of Keys	2		18-07-17	1,5
10	Sectional views, additional views, drawing proportions of Cotter joints and Knuckle joint	2		20-07-17	1,5
11	Sectional views, additional views, drawing proportions of Riveted joints for plates	2		25-07-17	1,5
12	Sectional views, additional views, drawing proportions of Shaft coupling, Rigid Couplings	2		27-07-17	1,5
13	Sectional views, additional views, drawing proportions of Shaft coupling (flexible couplings)	2		01-08-17	1,5
14	Sectional views, additional views, drawing proportions of Shaft coupling (non alligned couplings) Universal coupling & Oldham coupling	2		03-08-17	1,5

	I MID EXAMS			07-08-17 to 12-08-17	
15	Sectional views, additional views, drawing proportions of foot step bearings	2		17-08-17	1,5
16	Sectional views, additional views, drawing proportions of spigot and socket, pipe joint.	2		22-08-17	1,5
Number of classes		32			
PART-B					
17	Introduction to assembly Drawing	2		24-08-17	2
18	Drawings of assembled views for the part drawings of **Stuffing Box** using conventions and easy drawing proportions	2		29-08-17	1,5
19	Drawings of assembled views for the part drawings of **Steam Engine Cross head** using conventions and easy drawing proportions	2		31-08-17	1,5
20	Practice	2		05-09-17	5
21	Drawings of assembled views for the part drawings of **Eccentric** using conventions and easy drawing proportions	2		07-09-17	1,5
22	Drawings of assembled views for the part drawings of **Petrol Engine Connecting rod** using conventions and easy drawing	2		12-09-17	1,5
23	Assaignment-I	2		14-09-17	4
24	Drawings of assembled views for the part drawings of **Piston assembly** using conventions and easy drawing proportions	2		19-09-17	1,5
25	Drawings of assembled views for the part drawings of **Screw jack** using conventions and easy drawing proportions	2		21-09-17	1,5
26	Drawings of assembled views for the part drawings of **Bench Vice** using conventions and easy drawing proportions	2		26-09-17	1,5
27	Drawings of assembled views for the part drawings of **Pipe Vice** using conventions and easy drawing proportions	2		28-09-17	1,5
28	Assaignment-II	2		03-10-17	4
29	Drawings of assembled views for the part drawings of **Plummer block** using conventions and easy drawing proportions	2		05-10-17	1,5
30	Drawings of assembled views for the part drawings of **Lathe Tailstock** using conventions and easy drawing proportions	2		10-10-17	1,5
31	Practice	2		12-10-17	5
Number of classes		30			
	II MID EXAMS			18-10-17 to 20-10-17	
Total Number of classes		62			

Delivery Methods (DM):

1.Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz
5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				

Name of the Faculty	**Mr.T.Venkateswara Rao**	**Mr.S.Srinivasa Reddy**	**Mr.J.Subba Reddy**	**Dr.S.Pichi Reddy**

LAKKIREDDY BALI REDDY COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING
(Autonomous & Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi, NAAC Accredited with 'A' grade, Accredited by NBA, Certified by ISO 9001:2015)
L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

PROGRAM : B.Tech., III-Sem., MECH-C

ACADEMIC YEAR : 2017-18

COURSE NAME & CODE : Environmental Studies - S 243

L-T-P STRUCTURE : 2-0-0

COURSE CREDITS : 0

COURSE INSTRUCTOR : V.Bhagya Lakshmi, Assistant Professor

COURSE COORDINATOR : Dr.Shaheda Niloufer, Sr. Assistant Professor

COURSE OBJECTIVE: To provide a general background on developing an understanding of systems and cycles on the earth and how individual organisms live together in complex communities.

To enable the students in understanding how human activities influence our air, water and soil and it also helps in developing a right attitude about our use of fossil fuels and effect on climate and sustainable management of natural resources.

COURSE ARTICULATION MATRIX(Correlation between COs&POs,PSOs):

CO	Statement At the end of the course, student will be able to	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
1	Evaluate local, regional and global environmental issues related to resources and their sustainable management	2	2	2									2			
2	Realize the importance of ecosystem and biodiversity for maintaining ecological balance	2	2	2									2			
3	Identify environmental problems arising due to engineering and technological activities that help to be the part of sustainable solutions	2	2	3			3	3					2			
4	Create awareness on sustainable population growth and know the contributions of Information Technology in environmental management	2	2	3			3						2			

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**
1- Slight(Low), **2 -** Moderate(Medium), **3 -** Substantial (High).

BOS APPROVED TEXT BOOKS:

1. P.N.Palanisamy et al., "Environmental Science" 2nd edition, Dorling Kindersley publishers.
2. R. Rajagopalan, "Environmental Studies (From Crisis to Cure)", Oxford University Press.

BOS APPROVED REFERENCE BOOKS:

1. M. Anji Reddy, "Textbook of Environmental Sciences and Technology" by BS Publications, 2011 Second Edition.
2. Erach Bharucha, "Textbook of Environmental Studies for Undergraduate Courses", by University Grants Commission, University Press (India) Private Limited, 2005.

COURSE DELIVERY PLAN (LESSON PLAN): Section-A

UNIT-I : Natural Resources

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
81.	Introduction to syllabus, Def of Environmental studies, Scope & Importance of environmental studies. Need for public awareness.	1	19.06.17		**TLM1**	
82.	Natural Resource classification & Forest resources	1	20.06.17		**TLM1**	
83.	Water Resources	1	27.06.17		**TLM1**	
84.	Mineral Resources	1	3.07.17		**TLM1**	
85.	Food Resources	1	4.07.17		**TLM1**	
86.	TUTORIAL-1	1	10.06.17		**TLM3**	
87.	Energy Resources	1	11.07.17		**TLM1**	
No. of classes required to complete UNIT-I		7	No. of classes taken:			

UNIT-II : Ecosystems & Biodiversity and its conservation

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
88.	Introduction to UNIT-II Structure and functions of ecosystems	1	17.07.17		**TLM1**	
89.	Ecological succession, Food chains and Food web, Ecological Pyramids	1	18.07.17		**TLM1**	
90.	Bio-geochemical cycles	1	24.07.17		**TLM1 TLM2**	
91.	TUTORIAL-2	1	25.07.17		**TLM3**	
92.	Biodiversity and levels of measuring biodiversity	1	31.07.17		**TLM1**	
93.	Bio-geographic classification of India, Values, Hot spots, Threats and conservation of biodiversity	1	1.08.17		**TLM1 TLM2**	
No. of classes required to complete UNIT-II		6	No. of classes taken:			

UNIT-III : Environmental Pollution

S.No.	Topics to be covered	No. of Classes	Tentative Date of	Actual Date of	Teaching Learning	HOD Sign

		Required	Completion	Completion	Methods	Weekly
94.	Air pollution	1	21.08.17		**TLM1**	
95.	Water pollution	1	22.08.17		**TLM1**	
96.	Soil pollution & Noise pollution	1	28.08.17		**TLM1**	
97.	Radioactive pollution(Tutorial 3)	1	29.08.17		**TLM1** **TLM3**	
98.	Solid waste management Disaster management	1	4.09.17		**TLM1**	
No. of classes required to complete UNIT-III		5	No. of classes taken:			

UNIT-IV : Social Issues and the Environment

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
99.	From unsustainable to sustainable development	1	5.09.17		**TLM1**	
100.	Environmental and human health Resettlement and rehabilitation (Tutorial 4)	1	11.09.17		**TLM1** **TLM3**	
101.	Climate change: Global warming & Acid rains	1	12.09.17		**TLM1**	
102.	Ozone depletion & Nuclear accidents and holocaust	1	18.09.17		**TLM1**	
103.	Consumerism and waste products	1	19.09.17		**TLM1**	
No. of classes required to complete UNIT-IV		5	No. of classes taken:			

UNIT-V : Human Population and Environment

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
104.	Population growth and variations among nations, population explosion	1	25.09.17		**TLM1**	
105.	Family welfare programs Women and child welfare programs	1	26.09.17		**TLM1**	
106.	Human rights and value education, HIV/AIDS (Tutorial 5)	1	3.10.17		**TLM1** **TLM3**	
107.	Role of IT in Environmental management and human health	1	9.10.17		**TLM1**	
108.	Environmental Law	1	10.10.17		**TLM1**	
No. of classes required to complete UNIT-V		5	No. of classes taken:			

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
109.	Case studies on Environmental Pollution	1	10.10.17		**TLM9**	
110.						

Teaching Learning Methods					
TLM1	Chalk and Talk	**TLM4**	Problem Solving	**TLM7**	Seminars or GD
TLM2	PPT	**TLM5**	Programming	**TLM8**	Lab Demo
TLM3	Tutorial	**TLM6**	Assignment or Quiz	**TLM9**	Case Study

ACADEMIC CALENDAR:

Description	From	To	Weeks
I Phase of Instructions-1	19-06-2017	05-08-2017	7 W
I Mid Examinations	07-08-2017	12-08-2017	1 W
II Phase of Instructions	16-08-2017	14-10-2017	9 W
II Mid Examinations	16-10-2017	21-10-2017	1 W
Preparation and Practicals	23-10-2017	02-11-2017	2 W
Semester End Examinations	03-11-2017	18-11-2017	2 W

EVALUATION PROCESS:

Evaluation Task	COs	Marks
Assignment/Quiz – 1	1	A1=5
Assignment/Quiz – 2	2	A2=5
I-Mid Examination	1,2	B1=20
Assignment/Quiz – 3	3	A3=5
Assignment/Quiz – 4	4	A4=5
Assignment/Quiz – 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Evaluation of Assignment/Quiz Marks: A=(A1+A2+A3+A4+A5)/5	1,2,3,4,5	A=5
Evaluation of Mid Marks: B=75% of Max(B1,B2)+25% of Min(B1,B2)	1,2,3,4,5	B=20
Cumulative Internal Examination : A+B	**1,2,3,4,5**	**A+B=25**
Semester End Examinations	**1,2,3,4,5**	**C=75**
Total Marks: A+B+C	**1,2,3,4,5**	**100**

V.Bhagya Lakshmi	Dr. Shaheda Niloufer	Dr. Shaheda Niloufer	
Course Instructor	**Course Coordinator**	**Module Coordinator**	**BOS Chairman&HOD**