

**T JOHN INSTITUTE OF TECHNOLOGY**  
**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**  
**LESSON PLAN**

Name of the Faculty : KUMARA B M  
 Branch : Mechanical Department  
 Subject/Semester : Basic Thermodynamics /3 rd semester

sl no	Date	Time	Unit No	Topics	*L
1	21/07/11		Unit I	Fndamental Concepts & Definitions: Thermodynamics definition and scope,	
2	22/07/11			Microscopic and Macroscopic approaches. Some practical applications of thermodynamic Systems,	
3	23/07/11			Characteristics of system boundary and control surface, examples.	
4	25/07/11			Thermodynamic properties; definition and units, intensive and extensive properties.	
5	26/07/11			Thermodynamic state, state point, state diagram, path and process, quasi-static process,	
6	27/07/11			Cyclic and non-cyclic processes; Thermodynamic equilibrium, mechanical equilibrium;	
7	28/07/11			Diathermic wall, thermal equilibrium, chemical equilibrium, Zeroth law of thermodynamics,	
8	29/07/11			Temperature; concepts, scales, fixed points and measurements.	
9	30/07/11			Work and Heat: Mechanics, definition of work and its limitations.	
10	1/8/2011			Thermodynamic definition of work; examples, sign convention	

11	3/8/2011		Unit II	Displacement work; as a part of a system boundary,	
12	4/8/2011			expressions for displacement work in various processes through p-v diagrams.	
13	5/8/2011			Shaft work; Electrical work. Other types of work.	
14	5/8/2011			Heat; definition, units and sign convention.	
15	8/8/2011			Revisions with question papers	
16	10/8/2011			Revisions with question papers	
17	11/8/2011		Unit-III	First Law of Thermodynamics: Joules experiments, equivalence of heat and work.	
18	12/8/2011			Statement of the First law of thermodynamics, extension of the First law to non - cyclic processes,	
19	13/08/11			Energy, energy as a property, modes of energy, pure substance;	
20	17/08/11			Definition, two-property rule, Specific heat at constant volume, specific heat at constant pressure. Enthalpy, extension of the First law to control volume, steady state-steady flow energy equation,	
21				Important applications, analysis unsteady processes, Such as film and evacuation of vessels with and without heat transfer.	
22	18/08/11			Revisions with question papers	
23	19/08/11			Revisions with question papers	
24	19/08/11			Revisions with question papers	
25	22/08/11			Second Law of Thermodynamics: Devices converting heat to work,	

26	24/08/11		(a) in a thermodynamic cycle, (b) in a mechanical cycle. Thermal reservoir. Direct heat engine; schematic representation and efficiency.	
27	25/08/11		Direct heat engine; schematic representation and efficiency.	
28	26/08/11		Devices converting work to heat in thermodynamic cycle, Reversed heat engine, schematic representation,	
29	26/08/11	Unit-IV	Coefficients of performance. Kelvin - Planck statement of the Second law of Thermodynamics.	
30	27/08/11		PMM I and PMM II, Clausius statement of Second law of Thermodynamics.	
31	29/08/11		Equivalence of the two statements, Reversible and irreversible processes.	
32	2/9/2011		Factors that make a process irreversible, reversible heat engines.	
33	2/9/2011		Carnot cycle, Carnot principles. Revisions with question papers	
34	8/9/2011		Entropy: Clausius inequality, Statement, proof, application to a reversible cycle.	
35	9/9/2011		Entropy; definition, a property, change of entropy, principle of increase in entropy.	
36	9/9/2011	Unit-V	Entropy as a quantitative test for irreversibility, calculation of entropy using Tds relations.	
37	10/9/2011		Entropy as a coordinate, Available and unavailable energy.	
38	10/9/2011		Revisions with question papers	
39	12/9/2011		Revisions with question papers	

40	14/09/11			Revisions with question papers	
41	15/09/11			Revisions with question papers	
42	16/09/11		Unit VI	Pure Substances: P-T and P-V diagrams, triple point and critical points.	
43	16/09/11			Sub-cooled liquid, saturated liquid, mixture of saturated liquid and vapour.	
44	19/09/11			Saturated vapour and superheated vapour states of pure substance with water as example.	
45	21/09/11			Enthalpy of change of phase (Latent heat).	
46	22/09/11			Dryness fraction (quality), T-S and H-S diagrams,	
47	23/09/11			Representation of various processes on these diagrams. Steam tables and its use.	
48	23/09/11			Throttling calorimeter, separating and throttling calorimeter.	
49	24/09/11			Revisions with question papers	
50	26/09/11			Revisions with question papers	
51	28/09/11			Revisions with question papers	
52	29/09/11		Unit VII	Thermodynamic relations: Maxwell relation, Clausius Clayperon's equation.	
53	30/09/11			Ideal gas; equation of state, internal energy and enthalpy as functions of temperature only. Universal and particular gas constants, specific heats,	
54	30/09/11			Universal and particular gas constants, specific heats,	
55	3/10/2011			perfect and semi-perfect gases. Evaluation of heat, work,	
56	7/10/2011			Change in internal energy. enthalpy and entropy in various quasi-static processes.	
57	7/10/2011			Revisions with question papers	
58	8/10/2011			Revisions with question papers	

59	#####			Revisions with question papers	
60	#####		Unit VIII	Ideal gas mixture : Ideal gas mixture, Dalton's laws of partial pressures.	
61	17/10/11			Amagat's law of additive volumes, evaluation of properties,	
62	19/10/11			Analysis of various processes.	
63	20/10/11			Real Gases: Introduction. Van-der Waal's Equation of state.	
64	21/10/11			Van-der Waal's constants in terms of critical properties compressibility factor.	
65	21/10/11			Compressibility chart	
66	24/10/11			Revisions with question papers	
67	26/10/11			Revisions with question papers	
68	28/10/11			Revisions with question papers	
69	28/10/11			Revisions with question papers	
70	29/10/11		Revisions with question papers		
71	31/10/11		Revisions with question papers		
72	2/11/2011		Revisions with question papers		
73	3/11/2011		Revisions with question papers		

\*L Lecture, \*P Practical, \*T Tutorials

Total No of Hours as per Lesson plan : 73

Total No of Hours as per VTU schedule :52

#### Text Books

SI No	Author	Title
1	, A.Venkatesh	Basic Engineering Thermodynamics
2	P.K.Nag,	Basic and Applied Thermodynamics

#### Reference

SI No	Author	Title
1	Yunus A.Cenegal	Thermodynamics, An Engineering Approach
2	G.J.Van Wylen and	. Fundamentals of Classical Thermodynamics

Signature of the Staff

Signature of the HOD  
Signature of the Principal

Name of the Faculty : Nagamadhu.M  
Branch : Mechanical Department  
Subject/Semester : Design of Machine Element Sem = 5th

Date	Time	Unit No	Topics	*L
21/07/2011			<b><u>Unit-I</u></b>	1
22/07/2011	10:50-11:4	I	Introduction:	1
23/07/2011	9:50-10:40		Definitions: normal, shear, biaxial	1
25/07/2011	11:40-12:3		and tri axial stresses,	1
26/07/2011	9:00-9:50		Stress tensor, Principal Stresses.	1
27/07/2011	1:15-2:05		Engineering Materials and their	1
28/07/2011	10:50-11:4		mechanical properties,	1
29/07/2011	9:50-10:40		Stress-Strain diagrams, Stress Analysis,	1
30/07/2011	11:40-12:3		Design considerations: Codes and Standards.	1
				Total 10
01/08/11	9:00-9:50	II	<b><u>Unit- II</u></b> Design For Static & Impact Strength:	1
02/08/11	1:15-2:05		Static Strength: Static loads and factor of safety, Theories of failure:	1
03/08/11	1:15-2:05		Maximum normal stress theory, Maximum shear stress theory, Maximum	1
04/08/11	10:50-11:4		strain theory, Strain energy theory, Distortion energy theory. Failure of brittle	1
08/08/11	9:50-10:40		and ductile materials, Stress concentration, Determination of Stress	1
09/08/11			concentration factor.	1
10/08/11	11:40-12:3		Impact Strength: Introduction, Impact stresses due to axial, bending and	1
11/08/11	9:00-9:50		torsional loads, effect of inertia.	1
				Total 09
13/08/2011	1:15-2:05		<b><u>Unit III</u></b> Design For Fatigue Strength:	1
16/08/2011	10:50-11:4		Introduction- S-N Diagram, Low cycle	1
17/08/2011	9:50-10:40		fatigue, High cycle fatigue,	1
18/08/2011	11:40-12:3		Endurance limit, Modifying factors: size effect,	1
19/08/2011	9:00-9:50		surface effect,	1
22/08/2011	10:50-11:4		Stress concentration effects, Fluctuating stresses,	1

23/08/2011	9:50-10:40		Goodman and Soderberg relationship,	1
24/08/2011	11:40-12:3		stresses due to combined loading,	1
25/08/2011	9:00-9:50		cumulative fatigue damage.	1
				<b>Total 12</b>
				<b><u>UNIT - 4</u></b>
26/08/2011	11:40-12:3	IV	Threaded Fasteners:	1
27/08/2011	1:15-2:05		Stresses in threaded fasteners,	1
29/08/2011	10:50:11:4		Stresses in threaded fasteners,	1
30/08/2011	9:50-10:40		Effect of initial tension,	1
02/09/11	11:40-12:3		Design of threaded fasteners under static,	1
08/09/11	9:00-9:50		dynamic and impact loads,	1
09/09/11	1:15-2:05		Design of eccentrically loaded bolted joints.	1
10/09/11	10:50:11:4			
				<b>Total 09</b>
				<b><u>UNIT - 5</u></b>
12/09/11	9:50-10:40	V	Design Of Shafts:	1
13/9/2011	11:40-12:3		Torsion of shafts,	1
14/9/2011	9:00-9:50		Torsion of shafts,	1
15/9/2011	9:50-10:40		design for strength	1
16/9/2011	1:15-2:05		design for strength and rigidity	1
19/9/2011	10:50:11:4		design for strength and rigidity with steady loading,	1
20/9/2011	9:50-10:40		ASME codes for power transmission shafting, shafts	1
21/9/2011	11:40-12:3		ASME codes for power transmission shafting, shafts	1
22/9/2011	9:00-9:50		under fluctuating loads and combined loads.	1
23/9/2011	1:15-2:05			
				<b>Total 09</b>
				<b><u>UNIT - 6</u></b> Cotter And Knuckle Joints, Keys
24/9/2011	10:50:11:4	VI	And Couplings:	1
26/9/2011	9:50-10:40		Design of Cotter and	1
28/09/2011	11:40-12:3		Knuckle joints, Keys: Types of keys, Design of keys, Couplings: Rigid and	1
29/09/2011	9:00-9:50		Knuckle joints, Keys: Types of keys,	1
30/09/2011	11:40-12:3		Design of keys, Couplings: Rigid and	1
3/10/2011	1:15-2:05		flexible couplings, Flange coupling,	1
4/10/2011	10:50:11:4		Bush and Pin type coupling and	1
7/10/2011	9:50-10:40		Oldham's coupling.	1
				<b>Total 08</b>
				<b><u>UNIT - 7</u></b>
8/10/2011	9:00-9:50	VII	Riveted and Welded Joints –	1
#####	9:00-9:50		Types, rivet materials,	1
#####	10:50-11:4		failures of riveted joints,	1
#####	9:50-10:40		riveted joints, Joint Efficiency,	1
17/10/2011	11:40-12:3		Boiler Joints, Lozanze Joints, Riveted	1
18/10/2011	1:15:2:05		Brackets. Welded Joints – Types,	1
19/10/2011	10:50-11:4		Strength of butt and fillet welds,	1
20/10/2011	9:50-10:40		Types, Strength of butt	1
21/10/2011	11:40-12:3		Strength of butt and fillet welds,	1
24/10/2011	9:00-9:50			

26/10/2011	10:50-11:4		eccentrically loaded welded joints.	1
				<b>Total 10</b>
28/10/2011	10:50-11:4	VIII	<b><u>UNIT - 8</u></b>	1
29/10/2011	11:15-2:05		Power Screws: Mechanics of power screw, Stresses in power screws,	1
2/11/2011	10:50-11:4		efficiency and self-locking,	1
3/11/2011	9:50-10:40		Design of Power Screw, Design of Screw Jack:	1
4/11/2011	11:40-12:3		Complete Design	1
8/11/2011	9:00-9:50		Revisition	1
9/11/2011	1:15-2:05		Revisition	1
15/11/2011	10:50-11:4		Revisition	1
16/11/2011			Revisition	1
17/11/2011			Revisition	1
18/11/2011			Revisition	1
			<b>Total 11</b>	

\*L Lecture, \*P Practical, \*T Tutorials  
 Total No of Hours as per Lesson plan : 78  
 Total No of Hours as per VTU schedule : 52

Text Books

SI No	Author	Title
1	Joseph E Shigley and	Mechanical Engineering Design,
2	V.B. Bhandari,	Design of Machine Elements,

DESIGN DATA HANDBOOK:

SI No	Author	Title
1	S. Lingaiah,	Design Data Hand Book,
2	and Balaveera Reddy,	Data Hand Book,
3	H.G. Patil,	Design Data Hand Book,

Reference

SI No	Author	Title
1	M. F. Spotts, T. E. Shigley	Design of Machine Elements
2	Robert L. Norton,	Machine Design
3	Hall, Holowenko, L	Machine Design Publishing
4	Robert C. Juvinall	Fundamentals of Machine Component Design Wiley India

Signature of the Staff  
 Signature of the HOD  
 Signature of the Principal

Name of the Faculty : Guruprasad VK  
 Branch : Mechanical  
 Subject/Semester : V sem

Date	Time	Unit No	Topics	*L
------	------	---------	--------	----

21/07/2011	9:00 to 9:5	I	Introduction
22/07/2011	9:00 to 9:5		Meaning - nature and characteristics of Management
23/07/2011	12:55 to 3:4		Scope and Functional areas of management
25/07/2011	12:55 to 3:4		Management as a science, art of profession
26/07/2011	1:15 to 2:0		Management & Administration
27/07/2011	10:50 to 11		Roles of Management, Levels of Management, Development of Management Thought
28/07/2011	9:00 to 9:5		Development of Management Thought
29/07/2011	9:00 to 9:5		early management approaches
30/07/2011	1:15 to 2:0		Modern management approaches
1/08/2011	2:55 to 3:4	II	Nature, importance
#####	1:15 to 2:0		purpose of planning process Objectives
#####	10:50 to 11		Types of plans (Meaning Only)
#####	9:00 to 9:5		Decision making Importance of planning
#####	9:00 to 9:5		steps in planning & planning premises
#####	2:55 to 3:4		steps in planning & planning premises
#####	1:15 to 2:0		Hierarchy of plans.
#####	10:50 to 11		Hierarchy of plans.
#####	9:00 to 9:5	III	Nature and purpose of organization Principles of organization
#####	9:00 to 9:5		Types of organization
13/08/2011	10:50 to 11		Types of organization
16/08/2011	1:15 to 2:0		Departmentation Committees- Centralization Vs Decentralization of authority. and responsibility
17/08/2011	10:50 to 11		Departmentation Committees- Centralization Vs Decentralization of authority. and responsibility
18/08/2011	9:00 to 9:5		Span of control
19/08/2011	9:00 to 9:5		MBO and MBE (Meaning Only) Nature and importance of staffing
22/08/2011	12:55 to 3:4		MBO and MBE (Meaning Only) Nature and importance of staffing
23/08/2011	1:15 to 2:0		Process of Selection & Recruitment (in brief).
24/08/2011	10:50 to 11		Meaning and nature of directing
25/08/2011	9:00 to 9:5		Leadership styles,
26/08/2011	9:00 to 9:5		Motivation Theories,

27/08/2011	9:00 to 9:5	IV	Communication - Meaning and importance - coordinatio	
29/08/2011	2:55 to 3:4		meaning and importance and Techniques of Co Ordinat	
30/08/2011	1:15 to 2:0		Meaning and steps in controlling	
#####	9:00 to 9:5		Essentials of a sound control system	
#####	9:00 to 9:5		Methods of establishing control (in brief):	
<hr/>				
#####	9:00 to 9:5	V	Meaning of Entrepreneur	
#####	2:55 to 3:4		; Evolution of .the Concept	
13/09/2011	1:15 to 2:0		Functions of an Entrepreneur	
14/09/2011	10:50 to 11		Types of Entrepreneur, Entrepreneur - an emerging	
15/09/2011	9:00 to 9:5		Class. Concept of Entrepreneurship - Evolution of Entrep	
16/09/2011	9:00 to 9:5		Development of Entrepreneurship	
19/09/2011	2:55 to 3:4		Stages in entrepreneurial process	
20/09/2011	1:15 to 2:0		Role of entrepreneurs in Economic Development	
21/09/2011	10:50 to 11		Entrepreneurship in India	
23/09/2011	9:00 to 9:5		Entrepreneurship - its Barriers.	
<hr/>				
24/09/2011	2:55 to 3:4	VI	Small Scale Industries: Definition; Characteristics;	
			Need and rationale; Objectives; Scope; role of	
			SSI in	
26/09/2011	2:55 to 3:4		Economic Development	
28/09/2011	10:50 to 11		Advantages of SSI Steps to start SSI	
29/09/2011	9:00 to 9:5		Government policy towards SSI; Different Policies of SSI;	
30/09/2011	9:00 to 9:5		Government Support for SSI during 5 year plans.	
#####	2:55 to 3:4		Impact of Liberalization, Privatization, Globalization on S	
#####	1:15 to 2:0		Effect of WTO/GATT Supporting Agencies of Government	
#####	10:50 to 11	Meaning, Nature of support; Objectives; Functions;		
#####	9:00 to 9:5	Types of Help; Ancillary Industry and Tiny Industry (Definit		
<hr/>				
#####	2:55 to 3:4	VII	Different Schemes	
17/10/2011	2:55 to 3:4		TECKSOK; KIADB	
18/10/2011	1:15 to 2:0		KSSIDC; KSIMC	
19/10/2011	10:50 to 11		DIC Single Window Agency	
20/10/2011	9:00 to 9:5		SISI	
21/10/2011	9:00 to 9:5		NSIC	
24/10/2011	2:55 to 3:4		SIDBI	
26/10/2011	10:50 to 11		KSFC.	
<hr/>				
28/10/2011	9:00 to 9:5		Meaning of Project	
29/10/2011	10:50 to 11		Project Identification	
31/10/2011	2:55 to 3:4		Project Selection; Project Report;	
02/11/11	10:50 to 11		Need and Significance of Report;	
3/11/2011	9:00 to 9:5		Contents; Formulation; Guidelines by Planning Commissi	

4/11/2011	9:00 to 9:5	VIII	Network Analysis; Errors of Project Report; Project Apprais	
			Identification of business opportunities:	
8/11/2011	1:15 to 2:0		Market Feasibility Study; Technical Feasibility Study;	
9/11/2011	10:50 to 11		Financial Feasibility Study & Social Feasibility Study.	

\*L Lecture, \*P Practical, \*T Tutorials  
 Total No of Hours as per Lesson plan : 71  
 Total No of Hours as per VTU schedule :52

Text Books

SI No	Author	Title
1	P. C.Tripathi, P.N. Red	Principles of Management
2	Vasant Desai	Dynamics of Entrepreneurial Development & Ma
3	Poornima. M. Charant	Entrepreneurship Development

Reference

SI No	Author	Title
1	Robers Lusier - Thoms	Management Fundamentals - Concepts, Application,
2	S.S.Khanka	Entrepreneurship Development
3	Stephen Robbins	Management

Signature of the Staff  
 Signature of the HOD  
 Signature of the Principal

Name of the Faculty : SOMASHEKAR S  
 Branch : Machanical Department  
 Subject/Semester : Mechanics of Materials Sem = 3th

Date	Time	Unit No	Topics	*L
22/07/2011		I	Introduction, Stress, strain	√
23/07/2011			,mechanical	√
25/07/2011			properties of materials, Linear elasticity,	√
26/07/2011			Hooke's Law and Poisson's ratio	√
27/07/2011			Stress-Strain relation - behaviour in tension for	√
28/07/2011			Extension / Shortening of a bar, bars with cross	√
29/07/2011			sections varying in steps,	√
30/07/2011			bars with continuously varying cross sections	√
01/08/11			Elongation due to self weight, Principle of super	√
02/08/11			position.	√

03/08/11		II	: Volumetric strain	√
04/08/11			expression for volumetric strain	√
08/08/11			elastic constants, simple shear stress	√
09/08/11			shear strain	√
10/08/11			temperature stresses	√
11/08/11			Introduction,	√
13/08/2011		III	Plane stress	√
16/08/2011			, stresses on inclined plane	√
17/08/2011			, principal stresses and maximum shear stresses	√
18/08/2011			, principal stresses and maximum shear stresses	√
19/08/2011			Mohr's circle for	√
22/08/2011			plane stress.	√
23/08/2011			Energy Methods: Work and strain energy	√
24/08/2011		IV	Strain energy in bar/beams	√
25/08/2011			Castiglianos theorem, Energy methods	√
26/08/2011			Thick and Thin Cylinder Stresses in thin cylinders	√
27/08/2011			changes in	√
29/08/2011			dimensions of cylinder (diameter, length and volume)	√
30/08/2011			). Thick cylinders	√
31/08/2011			Lame's equation (compound cylinders not included)	√
01/09/11		V	Bending Moment and Shear Force in Beams: Introduction	√
02/09/11			beams, loads and reactions, shear forces and bending moments	√
05/09/11			rate of loading	√
			, sign conventions, relationship between shear force and bending	√
06/09/11			Shear force and bending moment diagrams for cantilever	√
07/09/11			subjected to concentrated loads, uniformly distributed loads	√
08/09/11			uniformly varying load (UVL) and couple for different	√
09/09/11				√
10/09/11			Bending and Shear Stresses in Beams: Introduction	√
12/09/11			bending assumptions in simple bending. Bending stress	√
13/9/2011			relationship between bending stress, radius of curvature	√
14/9/2011			relationship between bending stress, radius of curvature	√
15/9/2011			. Moment carrying capacity of a section. Shear stress	√
			shear stress across	
		VI	rectangular, circular, symmetrical I and T sections.	
16/9/2011				√
			VII	
			Deflection of Beams: Introduction, Differential equation for deflection.	
19/9/2011				
20/9/2011			Equations for deflection, slope and bending moment.	

21/9/2011			Double integration cantilever and simply supported beams for point load	
22/9/2011		VIII	UDL,UVL and Couple, Macaulay's method	
23/9/2011			Introduction. Pure torsion, assumptions, derivation of torsional equations,	√
24/9/2011			polar modulus, torsional rigidity	√
26/9/2011			stiffness of shafts. Power transmitted by	√
27/9/2011			solid and hollow circular shafts	√
28/09/2011			Euler's theory for axially loaded elastic long colu	√
29/09/2011			Derivation of Euler's load for various end condit	√
30/09/2011			, limitations of Euler's	√
3/10/2011			theory, Rankine's formula.	√
4/10/2011			Revision	√
5/10/2011		Revision	√	
6/10/2011		Revision	√	
7/10/2011		Revision	√	
8/10/2011		Revision	√	
#####		Revision	√	
#####		Revision		
#####		Paper solution	√	
13/10/2011			Paper solution	√
14/10/2011			Paper solution	
17/10/2011			Paper solution	√
18/10/2011			Paper solution	√
19/10/2011			Paper solution	√
20/10/2011			Paper solution	√
21/10/2011			Paper solution	

\*L Lecture, \*P Prac  
Total No of Hours as p  
Total No of Hours as p

Text Books:

SI No	Author		Title
1	R.C.Hibbe	VIII	Mechanics of materials
2	James.M.C		Mechanics of materials

REFERENCE BOOKS

SI No	Author		Title
1	S.S. Rattan,		Strength of Materials
2	S S.Bhavikatti,		Strength of Materials
3	K.V. Rao, G.C. Raju		Strength of Materials

\_\_\_\_\_

Signature of the Staff

Signature of the HOD  
Signature of the Principal

Name of the Faculty : Sathishkumar.S  
Branch : Machanical Department  
Subject/Semester : Manufacturing processes I /5 th semester

sl no	Date	Time	Unit No	Topics	*L
1	21/07/11		Unit I	Introduction : Concept if manufacturing process, its importance. Classification of Manufacturing processes.	
2	22/07/11			Introduction of Casting processes & steps involved.	
3	22/07/11			Varities of components produced by casting process.	
4	22/07/11			Advantages & Limitation of Casting process.	
5	25/07/11			Pattern: Definition , functions, Materials used for pattern.	
6	27/07/11			Various pattern allowances and their importance. Classification of patterns.	
7	28/07/11			Binders: Definition, types of binder. used in moulding sand. Used in moulding sand	
8	29/07/11			Additives: Need, Types of additives used.	
9	29/07/11		Unit II	Sanding moulds: Types of base sand, requirement of base sand, types of sand moulds.	
10	1/8/2011			Sand moulds: Moulding sand mixture ingredients ( base sand , binder & additives) for differnt sand mixtures.	
11	3/8/2011			Method used for sand moulding.	
12	4/8/2011			Cores: Definition, Need , Types. Method of making cores, Binders used.	
13	5/8/2011			Concept of Gating and Riserling. Principle involved. And types.	
14	5/8/2011			Fettling and cleaning of castings, Basic steps involved. Casting defects causes, features and remedies.	
15	8/8/2011			Moulding machines: Jolt type, squeeze type, Jolt & Squeeze type and Sand slinger.	

16	10/8/2011			Special moulding Process: Study of important moulding processes : Green sand , Dry sand, Sweep mould,		
17	11/8/2011		Unit-III	CO <sub>2</sub> mould , sheld mould, Investment mould.		
18	12/8/2011			Metal Mould: Gravity die- casting, Pressure die-casting, centrifugal casting.		
19	13/08/11			centrifugal casting, Squeeze Casting ,		
20	17/08/11			Slush casting		
21				Thixocasting.		
22	18/08/11			continuous casting processes		
23	19/08/11			Introduction of Melting Furnaces:..		
24	19/08/11			Classification of furnaces		
25	22/08/11			Unit-VII	Constructional features &	
26	24/08/11				working of Gas fired pit furnace	
27	25/08/11		Resistance furnace,			
28	26/08/11		Coreless induction furnace			
29	26/08/11		Electric Arc Furnace			
30	27/08/11		Cupola Furnace			
31	29/08/11					
32	2/9/2011		Welding: Definition , principles.			
33	2/9/2011		Classification, Application, Advantages & Limitations of welding.			
34	8/9/2011		Unit-IV		Arc welding: Principle, Metal arc welding(MAW), Flux Shielded metal arc welding (FSMAW),	
35	9/9/2011			Gas welding: Inert gas welding (TIG & MIG),		
36	9/9/2011			Submerged Arc welding (SAW) and Atomic Hydrogen Welding processes.(AHW)		
37	10/9/2011			Reaction in gas welding, Flame characteristics,		
38	10/9/2011			Gas torch construction & working. Forward and Backward welding.		
39	12/9/2011			Special type of welding: Resistance welding – principles, seam welding,		
40	14/09/11			Butt welding, Spot welding and Projection welding.		
41	15/09/11			Friction welding,		
42	16/09/11			Explosive welding,		
43	16/09/11			Thermit welding		
44	19/09/11		Laser welding			

45	21/09/11		Unit V	Electron beam welding	
	22/09/11			Metallurgical aspect in welding: structures of welds, Formation of different zones during welding. Heat affected zone(HAZ).	
46					
47	23/09/11			Parameters affecting HAZ.	
	23/09/11			Effect of carbon content on structure and properties of steel .	
48					
49	24/09/11			Shrinkage in welds & Residual stresses.	
50	26/09/11		Concept of electrodes		
51	28/09/11		Filler rod and fluxes		
	29/09/11		Unit VII	Welding defects Detection causes & remedy.	
52					
53	30/09/11			Principles of soldering and	
54	30/09/11			Brazing:.	
	3/10/2011			Parameters involved mechanism types of	
55				Different types of soldering	
56	7/10/2011			brazing methods	
57	7/10/2011		Inspection method-		
	8/10/2011		used for inspection of casting Inspection		
58			method-		
59	#####		used for inspection of welding		
60	#####		Unit VIII	Visual,magnetic particle.	
61	17/10/11			ultasonic	
62	19/10/11			Radigraphy	
63	20/10/11			Eddy current	
64	21/10/11			Holography method of inspection.	
	21/10/11			Metallurgical aspect in welding: structures of welds,	
65					
	24/10/11		Formation of different zones during welding. Heat affected zone(HAZ).		
66					
67	26/10/11		Revisions with question papers		
68	28/10/11		Revisions with question papers		
69	28/10/11		Revisions with question papers		
70	29/10/11		Revisions with question papers		
71	31/10/11		Revisions with question papers		
72	2/11/2011		Revisions with question papers		
73	3/11/2011		Revisions with question papers		
74	4/11/2011		Revisions with question papers		
75	4/11/2011		Revisions with question papers		
76	16/11/11		Revisions with question papers		
77	17/11/11		Revisions with question papers		
78	18/11/11		Revisions with question papers		
79	18/11/11		Revisions with question papers		

\*L Lecture, \*P Practical, \*T Tutorials  
 Total No of Hours as per Lesson plan : 74  
 Total No of Hours as per VTU schedule :52

Text Books

SI No	Author	Title
1	P.N.Rao	"Manufacturing and Techonology": Foundry Forming and w
2	Dr .K. Radhakrishna,	"Manufacturing process-1",

Reference

SI No	Author	Title
1	Serope Kalpakjain, Ste	Principals of Turbomachines
2	Roy A Lindberg, 4th	"Process and materials if Manufacturing:,"

Signature of the Staff  
 Signature of the HOD  
 Signature of the Principal

Name of the Faculty : Mallikarjuna B M  
 Branch : Mechanical  
 Subject/Semester : Material science and metallurgy/3rd sem

sl no	Date	Time	Unit No	Topics	*L
1	21/07/11		1	Structure of crystalline solids: Fundamental concepts of unit cell space lattice	√
2	21/07/11			Bravais space lattices, unit cells for cubic structure & HCP	√
3	22/07/11			study of stacking of layers of atoms in cubic structure & HCP,	√
4	26/07/11			calculations of radius, Coordination Number and Atomic Packing Factor for different cubic structures	√
5	27/07/11			calculations of radius, Coordination Number and Atomic Packing Factor for different cubic structures	√
6	28/07/11			Crystal imperfections-point, line,	√
7	28/07/11			Crystal imperfections- surface & volume defects	√
8	29/07/11			Diffusion, Diffusion Mechanism ,Fick's laws of diffusion	√
9	30/07/11			Concepts of stress & strain	√
10	2/8/2011			tensile properties	√
11	3/8/2011			true stress & strain, Hardness	√

12	4/8/2011	2	Rockwell, and Vickers Hardness testing	√
13	4/8/2011		Brinell Hardness testing	√
14	5/8/2011		Plastic deformation	√
15	9/8/2011		slip & twinning	√
16	10/8/2011		Solutions for previous question papers	√
17	11/8/2011	4	Solid solutions, Types	√
18	11/8/2011		Rules of governing the formation of solids solutions. Phase diagrams, Basic terms	√
19	12/8/2011		phase rule, cooling curves, construction of phase diagrams	√
20	13/08/11		interpretation of equilibriums diagrams	√
21	16/08/11		Types of phase diagrams .Lever rule	√
22	17/08/11		Types of phase diagrams	√
23	18/08/11		Types of phase diagrams .	√
24	18/08/11		Solutions for previous question papers	√
25	19/08/11	5	Iron carbon equilibrium Diagram, phases in the Fe-C system	√
26	23/08/11		Invariant reactions	√
27	24/08/11		critical temperatures	√
28	25/08/11		Microstructure of slowly cooled steels	√
29	25/08/11		effect of alloying elements on the Fe-C diagram	√
30	26/08/11		ferrite & Austenite stabilizers	√
31	27/08/11		The TTT diagram, drawing of TTT diagram,	√
32	27/08/11		TTT diagram for hypo-eutectoid steels	√
33	30/08/11		TTT diagram for hyper-eutectoid steels	√
34	2/9/2011		effect of alloying elements,	√
35	8/9/2011	CCT diagram	√	
36	8/9/2011		Annealing, and its types	√
37	9/9/2011		normalizing, hardening	√
38	10/9/2011		tempering, martempering, austempering	√
39	13/09/11		surface hardening like case hardening, carburizing	√
40	14/09/11		cyaniding, nitriding Induction hardening	√
41	15/09/11		hardenability, Jominy end-quench test	√
42	15/09/11		Age hardening of Al & Cu alloys	√
43	16/09/11		Solutions for previous question papers	√
44	20/09/11	8	Composite Materials: Definition, classification	√
45	21/09/11		types of matrix materials	√
46	22/09/11		reinforcements	√
47	22/09/11		fundamentals of production of FRP's and MMC's	√
48	23/09/11		fundamentals of production of FRP's and MMC's	√
49	28/09/11		advantages and application of composites.	√
50	29/09/11		advantages and application of composites.	√
51	29/09/11		Solutions for previous question papers	√
52	30/09/11		Fracture: types,	√

53	4/10/2011		stages in cup & cone fracture	√
54	7/10/2011		Griffith's criterion	√
55	#####		Fatigue: fatigue tests, S-N curves	√
56	18/10/11	3	Factors affecting fatigue life	√
57	19/10/11		and protection methods	√
58	20/10/11		Creep: The creep curves,	√
59	20/10/11		Mechanisms of creep	√
60	21/10/11		Creep-resistant materials	√
61	26/10/11		Engineering Alloys: Properties	√
62	28/10/11		composition and uses of low carbon, mild	√
63	29/10/11		composition and uses of high carbon steels	√
64	2/11/2011		Steel designation & AISI –SAE designation	√
65	3/11/2011		Cast irons, gray CI, white CI, malleable CI	√
66	3/11/2011		SC iron. Microstructures of cast iron	√
67	4/11/2011		The light alloys, Al & Mg & Titanium alloys	√
68	8/11/2011		Copper & its alloys, brasses & bronzes.	√
69	9/11/2011		Revision with question papers	
70	15/11/11		Revision with question papers	
71	16/11/11		Revision with question papers	
72	17/11/11		Revision with question papers	
73	17/11/11		Revision with question papers	
74	18/11/11		Revision with question papers	

\*L Lecture, \*P Practical, \*T Tutorials  
Total No of Hours as per Lesson plan : 68  
Total No of Hours as per VTU schedule :52

Text Books

SI No	Author	Title
1	William D.Callister	"Materials Science & Engineering- An Introduction"
2	Donald R. Askeland, P	"Essentials of Materials For Science And Engineering"

Reference

SI No	Author	Title
1	James F. Shackel ford	"Introduction to Material Science for Engineering"
2	V Raghavan	"Physical Metallurgy, Principles & Practices"
3	Smith	"Foundation of Material Science and Engineering"

Signature of the Staff

Signature of the HOD  
Signature of the Principal











*P	*T
----	----

	1

--	--

	1
√	

--	--

	1
	1




	√
<hr/>	
	√

	Publication
	Mischke. McGraw Hill International edition, 6th
	Tata McGr Hill Publishing Company Ltd., New Delhi, 2nd

	Publication
	McGraw Hill, 2nd
	CBS
	I. K. International Publisher,

	Pearson Education,
	Pearson Education Asia, 2001.
	Company Ltd., New Delhi, Special Indian Edition,

Pvt. Ltd., New Delhi, 3rd

*P	*T
----	----



n	
ion	


preneurship	

--	--


SI	
for SSI,	
ion Only)	

--	--


--	--


on for Project report;

















