

Wabraraj 26/11

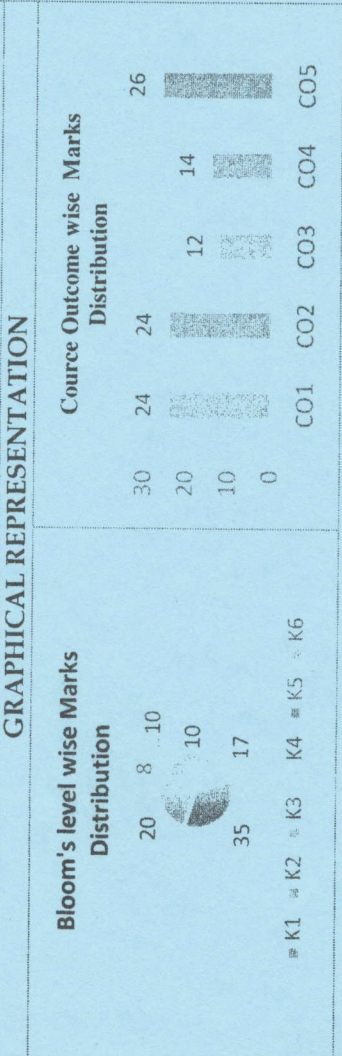
Branch	Mechanical Engineering	Program	B.Tech
Subject Name	Heat & Mass Transfer	Semester	V
		Year	Nov/Dec 2024

Time: 3 Hour  
 Max. Marks : 70

• Start writing from 2nd page onwards; don't write on the 1st Page Backside  
 • Answer all Questions of Section A (Compulsory)  
 • Answer Any Four out of Six of Section B  
 • Answer Any Three out of Five of Section C  
 • Possession of Mobile Phone or any kind of Written Material, Arguments with the Invigilator or Discussion with Co-Student will come under Unfair Means and will Result in the Cancellation of the Paper(s).

Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing	K5 : Evaluating K6 : Creating
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CO- Course Outcomes,	KL- Knowledge Level,	PO - Program Outcome
CO1	Apply heat conduction equations to different surface configurations under steady state	
CO2	Evaluate principal mechanism of heat dissipation transient conditions and solve problems	
CO3	Analysis free and forced convective heat transfer correlations to internal and external flows through/ over various surface configurations and solve problems.	
CO4	Understand basic laws for radiation and apply these principles to radiative heat transfer between different types of surfaces to solve problems.	
CO5	Evaluate LMTD and NTU methods of thermal analysis to different types of heat exchanger configurations and solve problems	
CO6	Apply phenomena of boiling and condensation, apply diffusive and convective mass transfer equations and correlations to solve problems for different applications.	



**Section A (Each question Carry 02 Marks from Q1-i to x - 20 Marks)**

Q. N1	QUESTIONS	Marks	COs	KL
i	Mention the difference between the thermodynamics and heat transfer.	2	CO1	K2
ii	What is meant by critical radius of insulation?	2	CO1	K1
iii	State the applications of fins.	2	CO2	K2
iv	Define the overall heat transfer coefficient.	2	CO2	K1
v	Define black body.	2	CO4	K1
vi	State and explain the Plank's law.	2	CO4	K2
vii	Classify the heat exchangers.	2	CO5	K2
viii	Define fouling factor?	2	CO5	K1
ix	Explain the difference between natural & forced convection? Give examples	2	CO3	K4
x	Define: Nusselt number (Nu) and Prandtl number (Pr)	2	CO5	K2

**Section B (Answer any FOUR out of SIX) – 20 Marks**

(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	A steel pipe with 50 mm OD is covered with a 6.4 mm asbestos insulation ( $k=0.166 \text{ W/mK}$ ) followed by a 25 mm layer of fiber-glass insulation ( $k=0.04850 \text{ W/mK}$ ). The pipe wall temperature is 393K and the outside insulation temperature is 311 K. Calculate the interface temperature between the asbestos and fibre-glass.	5	CO1	K5
3	Derive an expression for heat flow through a composite cylinder with film heat transfer coefficients on inside and outside surfaces of the cylinder.	5	CO1	K3
4	Air at a pressure of $8 \text{ kN/m}^2$ and a temperature at $250^\circ\text{C}$ flows over a flat plate $0.3 \text{ m}$ wide and $1 \text{ m}$ long at a velocity of $8 \text{ m/s}$ . If the plate is to be maintained at a temperature of $78^\circ\text{C}$ , estimate the rate of heat to be removed continuously from the plate.	5	CO3	K5
5	$16.67 \text{ kg/s}$ of the product at $700^\circ\text{C}$ ( $C_p = 3.6 \text{ kJ/kg}^\circ\text{C}$ ) in a chemical plant are to be used to heat $20 \text{ kg/s}$ of the incoming fluid from $100^\circ\text{C}$ ( $C_p = 4.2 \text{ kJ/kg}^\circ\text{C}$ ). If the overall heat transfer coefficient is $1 \text{ kW/m}^2\text{C}$ and the installed heat transfer surface is $42 \text{ m}^2$ , calculate the fluid outlet temperature for the counter flow.	5	CO5	K5
6	Explain effectiveness in heat exchangers its significance.	5	CO5	K3
7	Explain the concept of hydrodynamic boundary layers.	5	CO3	K4

**Section C (Answer any THREE out of FIVE) – 30 Marks-**

(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	A metal plate of $4 \text{ mm}$ thickness ( $k = 90 \text{ W/m}^\circ\text{C}$ ) is exposed to vapour at $100^\circ\text{C}$ on one side and cooling water at $30^\circ\text{C}$ on the opposite side. The heat transfer coefficients on vapour side and water side are $15000 \text{ W/m}^2\text{C}$ and $2500 \text{ W/m}^2\text{C}$ respectively. Determine: i) The rate of heat transfer, ii) The overall heat transfer coefficient, and iii) temperature drop at each side of heat transfer.	10	CO1	K5
9	Derive the expression for temperature distribution and heat dissipation in a straight fin of rectangular profile for fin insulated at the tip.	10	CO2	K6

10 Determine the fraction of black body radiation that would be reflected by the surface of polished aluminium at a temperature of  $250^\circ\text{C}$ , if it is known that the emissive ability of the surface at that temperature is  $E=170 \text{ W/m}^2$ . Assume the temperature of the black body emitter to be equal to the surface temperature of the aluminium.

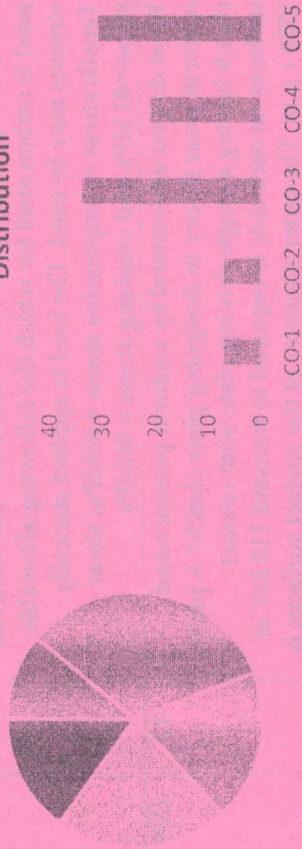
11 Derive the expression for LMTD in a parallel flow double pipe heat exchanger.

12 Derive the expression for temperature as a function of time 't' in lumped heat capacity system.

CO- Course Outcomes,	KL- Knowledge Level,	PO – Program Outcome
CO1	Understanding of overview of the design methodologies employed for the design of various machine components	
CO2	Examine the product dimension and meet quality standard of the products.	
CO3	Analyze the various modes of failure of machine components under different load patterns.	
CO4	Analyse and estimate the fatigue strength of the machine components based on their safety features.	
CO5	Applying the concept of safety and design features of different parts used in various applications.	

**GRAPHICAL REPRESENTATION**

**Bloom's level wise Marks Distribution**      **Course Outcome wise Marks Distribution**



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

		<b>END SEM EXAMINATION</b> School of Engineering & IT	
		Branch: Mechanical Engineering	Program: B. Tech
Subject Name: Design of Machine Element	Semester: V Year: Nov/Dec 2024		
Time: 3 Hour Max. Marks: 70	Start writing from 2nd page onwards; don't Write on the 1st Page Backside Answer all Questions of Section A (Compulsory) Answer Any Four out of Six of Section B Answer Any Three out of Five of Section C Possession of Mobile Phone or any kind of Written Material, Arguments with the Invigilator or Discussion with Co-Student will come under Unfair Means and will Result in the Cancellation of the Paper(s).		
Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

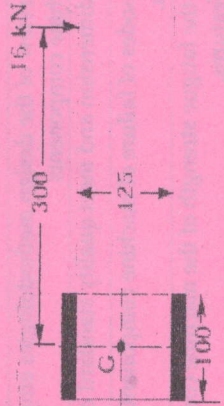
Section A (Each question Carry 02 Marks from Q1-i to x - 20 Marks)			
Q.N	QUESTIONS	Marks	COs
1			
i	What is Factor of Safety?	2	CO1
ii	What is function of bearing in machines? Also make list of different types of bearings.	2	CO3
iii	List out the various phases of design process.	2	CO5
iv	What do you understand by working stress or safe stress?	2	CO4
v	What do you understand by the term welded joint? How it differs from riveted joint?	2	CO2
vi	What is shaft and write down few shaft materials?	2	CO5
vii	What do you understand by riveted joints? What are different types of riveted joints?	2	CO4
viii	How does stress concentration can be relieved?	2	CO3
ix	Define Fatigue Failure.	2	CO5
x	What are different types of keys used in shaft?	2	CO4

**Section B (Answer any FOUR out of SIX) - 20 Marks**  
(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	What are Caulking and Fullering in riveted joints? Explain with the help of diagram. Also explain nomenclature used in riveted joint.	5	CO1	K2
3	What are different types of stresses induced in a bolt when it is subjected to an external load? An eye bolt is to be used for lifting a load of 75 kN. Find the nominal diameter of the bolt, if the tensile stress is not to exceed 120 MPa. Assume coarse threads.	5	CO2	K1
4	Elaborate the steps and Procedure used in designing Knuckle Joint.	5	CO4	K5
5	A shaft 80 mm diameter transmits power at maximum shear stress of 65 MPa. Find the length of a 20 mm wide key required to mount a pulley on the shaft so that the stress in the key does not exceed 42 MPa.	5	CO3	K2
6	What is function of bearings in machines? Classify bearings on different basis and also explain with diagram.	5	CO3	K2
7	Draw a diagram of sleeve or muff coupling. Design a clamp coupling to transmit 30 kW at 100 r.p.m. The allowable shear stress for the shaft and key is 40 MPa and the number of bolts connecting the two halves are six. The permissible tensile stress for the bolts is 70 MPa. The coefficient of friction between the muff and the shaft surface may be taken as 0.3.	5	CO5	K3

**Section C (Answer any THREE out of FIVE) - 30 Marks**  
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	Write difference between butt and lap welded joints. A $125 \times 95 \times 10$ mm angle is welded to a frame by two 10 mm fillet welds, as shown in Fig. A load of 16 kN is applied normal to the gravity axis at a distance of 300 mm from the centre of gravity of welds. Find maximum shear stress in the welds, assuming each weld to be 100 mm long and parallel to the axis of the angle.	10	CO3	K3

	 <p>All dimensions in mm.</p>			
9	Draw a neat sketch and explain terms used in hydrodynamic journal bearing.	10	CO3	K2
10	Design a cotter joint to support a load varying from 40 KN in compression to 40 KN in tensions. The material used is carbon steel for which the following allowable stresses may be used. The load is applied statically. Tensile stress = compressive stress = 60MPa; shear stress = 40 MPa and crushing stress = 90MPa	10	CO5	K4
11	What do you understand by uniform pressure and uniform wear theory in designing plate clutch? A plate clutch having a single driving plate with contact surfaces on each side is required to transmit 110 kW at 1250 r.p.m. The outer diameter of the contact surfaces is to be 300 mm. The coefficient of friction is 0.4. Assuming a uniform pressure of 0.17 N/mm <sup>2</sup> ; determine the inner diameter of the friction surfaces.	10	CO4	K4
12	Draw a helical gear and show and explain terms used in helical gears. A pair of helical gears are to transmit 15 kW. The teeth are 20° stub in diametral plane and have a helix angle of 45°. The pinion runs at 10 000 r.p.m. and has 80 mm pitch diameter. The gear has 320 mm pitch diameter. If the gears are made of cast steel having allowable static strength of 100 MPa; determine a suitable module and face width from static strength considerations and check the gears for wear, given $\sigma_{es} = 618$ MPa.	10	CO5	K5



**ARKA JAIN**  
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END SEM EXAMINATION  
School of Engineering and IT

Branch	Mechanical Engineering	Program	B.Tech
Subject Name	Essence of Indian Knowledge and Tradition	Semester	V
		Year	Nov/Dec 2024
Time: 1.5 Hour Max. Marks : 35	<ul style="list-style-type: none"> <li>Start writing from 2nd page onwards; don't Write on the 1st Page Backside</li> <li>Answer all Questions of Section A (Compulsory)</li> <li>Answer Any Five out of Six of Section B</li> <li>Answer Any Two out of Four of Section C</li> <li>Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under <u>Unfair Means</u> and will Result in the <u>Cancellation of the Papers.</u></li> </ul>		
Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing	K5 : Evaluating K6 : Creating

**Section A (Each question Carry 01 Marks from Q1-i to v) – 05 Marks**

Q. N1	QUESTIONS	Marks	COs	KL
i	What do you understand by Indian Knowledge System?	1	CO1	KL1
ii	Is Architecture, a type of Traditional Knowledge?	1	CO1	KL4
iii	Into how many parts Yajur Veda is divided?	1	CO2	KL2
iv	Name the upveda in which the study of designs of building and structure is explained.	1	CO2	KL5
v	Who is known as the father of the Modern Yoga?	1	CO3	KL3


**Section B (Answer any FIVE out of SIX) – 10 Marks**  
(Each question Carry 02 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	Give two differences between Early and Later Purana.	2	CO1	KL2
3	What do you understand by Dhanurveda?	2	CO3	KL1
4	What are the two basic principles of Ayuvedic Medicine?	2	CO3	KL3
5	Give any two characteristics of Indian Knowledge System.	2	CO2	KL3
6	Name any one mantra of Rig Veda.	2	CO3	KL4


7	Define Shiksha.	2	CO2	KL5
<b>Section C (Answer any TWO out of FOUR) – 20Marks</b> (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Explain all the six Vedangas.	10	CO3	KL1
9	Describe why it is necessary to protect our Indian Knowledge System.	10	CO2	KL2
10	Explain Atharv Veda in detail.	10	CO2	KL5
11	State 10 advantages of Yoga.	10	CO4	KL5

CO- Course Outcomes, **KL-** Knowledge Level, **PO** – Program Outcome

CO1	Basic principles of thought process, reasoning and differencing.
CO2	Understand the Indian Knowledge Systems, Indian perspective of modern scientific world-view and basic principles of Yoga and holistic health care systems.
CO3	Understand the focuses on Indian philosophical traditions, Indian linguistic tradition and Indian artistic tradition.
CO4	Evaluate the legal mechanism of traditional knowledge protection to show the difference between IPR and non-IPR system.
<b>GRAPHICAL REPRESENTATION</b>	
Bloom's Level Wise Marks Distribution	
Course Outcome Wise Marks Distribution	



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**END SEM EXAMINATION**  
School of Engineering & IT

<b>Branch</b>	Mechanical Engineering	<b>Program</b>	B. Tech
<b>Subject Name</b>	Solid Mechanics	<b>Semester</b>	V
		<b>Year</b>	Nov/Dec 2024

**Time: 3 Hour**  
**Max. Marks : 70**

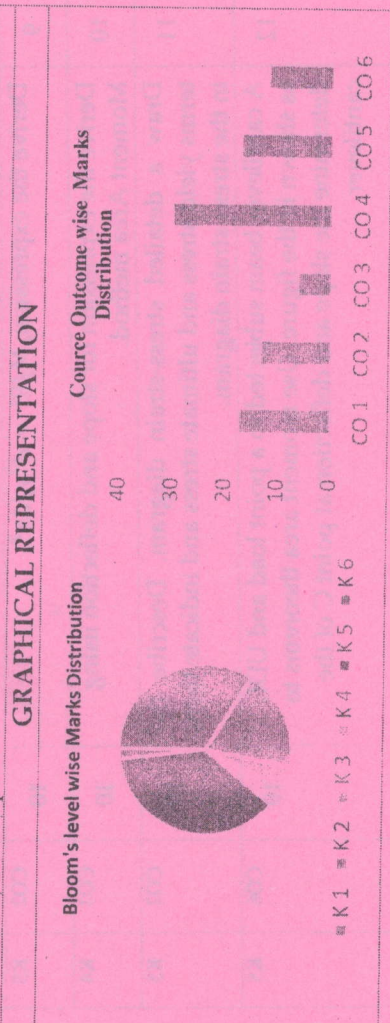
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**Knowledge Level (KL)**  
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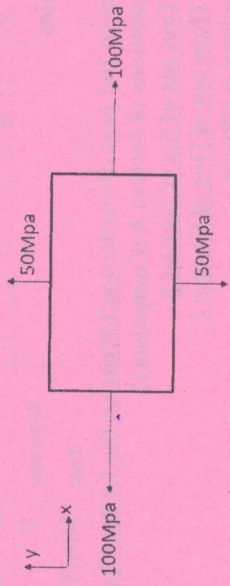
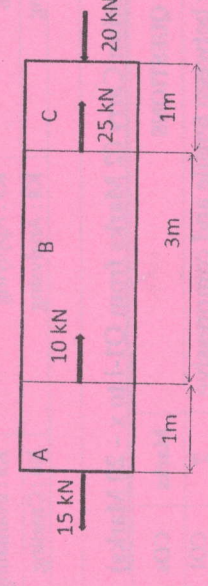
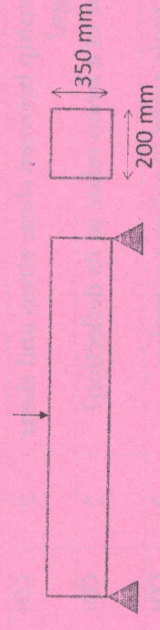
**Section A (Each question Carry 02 Marks from Q1-i to x - 20 Marks)**

Q.N	QUESTIONS	Marks	COs	KL
1				
i	What is the difference between tensile and compressive stress?	2	CO1	K2
ii	What is Poisson's ratio, and how does it relate to the mechanical properties of materials? *	2	CO3	K1
iii	Describe the difference between elastic and plastic deformation.	2	CO2	K1
iv	How can you determine the ultimate tensile strength of a material from a stress-strain curve?	2	CO2	K2
v	How do you calculate the axial stress in a rod subjected to a tensile load?	2	CO5	K3
vi	Outline the steps to construct a shear force diagram for a simply supported beam with a central point load.	2	CO3	K4
vii	What is the significance of the point of zero shear in a beam?	2	CO3	K1
viii	What is the relationship between shear stress and shear force in beam design?	2	CO1	K4
ix	How does the slope of a beam relate to its deflection?	2	CO1	K2
x	How can software tools assist in solving complex structural analysis problems?	2	CO1	K2

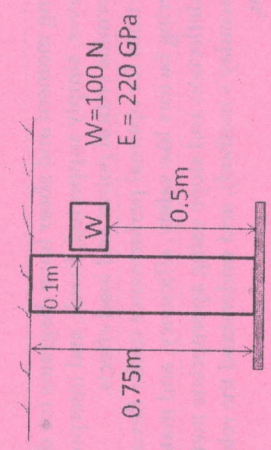

Course Outcomes	CO1	CO2	CO3	CO4	CO5	CO6
	Apply the principles of stress and strain to solve engineering problems involving simple and compound loading scenarios.	Analyze stress-strain relationships and understand the concepts of elasticity, plasticity, and the mechanical properties of materials such as mild steel.	Construct bending moment and shear force diagrams for different types of beams (cantilever, simply supported, fixed), and interpret these diagrams to determine critical points and load effects.	Design beam sections for optimal performance under flexural and shear stresses, considering factors like safety, efficiency, and material economy.	Calculate beam deflection and slope using appropriate methods (moment area method, Macaulay's method), and understand the relationship between moment, slope, and deflection.	Apply engineering principles and tools to solve real-world problems related to structural analysis and design, ensuring safety and reliability in engineering practice



**Section B (Answer any FOUR out of SIX) – 20 Marks**  
(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	 <p>For the given diagram state the values of the two Principal Stresses.</p>	5	CO2	K5
3	 <p>Find Stress in section B. Given the diameter of the bar is 5cm. Assume the value of Young's modulus.</p>	5	CO3	K3
4	<p>Using double integration method find the maximum deflection of cantilever beam subjected to point load, W at the free end.</p>	5	CO6	K4
5	<p>Derive the expression for shear stress in beam with rectangular cross section also draw the shear stress distribution diagram.</p>	5	CO4	K4
6	 <p>What is the value of section modulus of rectangular beam of cross-section 200 mm and 350 mm.</p>	5	CO4	K4
7	<p>What is a beam? Write about different types of beams, support conditions and loading conditions.</p>	5	CO2	K5

**Section C (Answer any THREE out of FIVE) – 30 Marks**  
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	 <p>Define impact loading. A weight of 100 N falls in the platform attached to the hanging rod of negligible weight. Find the deformation in the bar after impact. See diagram for inputs.</p>	10	CO4	K4
9	<p>Derive the expression, <math>M/EI = d^2y/dx^2</math>.</p>	10	CO2	K5
10	<p>Derive the expression for slope and deflection using Moment Area method.</p>	10	CO3	K4
11	<p>Draw a detailed stress-strain diagram. Describe the terms yield stress and ultimate stress and indicate them in the stress-strain diagram.</p>	10	CO2	K5
12	 <p>A cantilever beam subjected to a point load and UDL as shown in the figure. Use moment area theorems to determine the slope and deflection at point C of the cantilever.</p>	10	CO6	K5



Branch: Mechanical Engineering

Program: B. Tech [BACKLOG]

Subject Name: Manufacturing Process -I

Semester: V

Year: Nov/Dec 2024

- Start writing from 2nd page onwards; don't write on the 1st Page Backside
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Knowledge Level (KL)

K1: Remembering  
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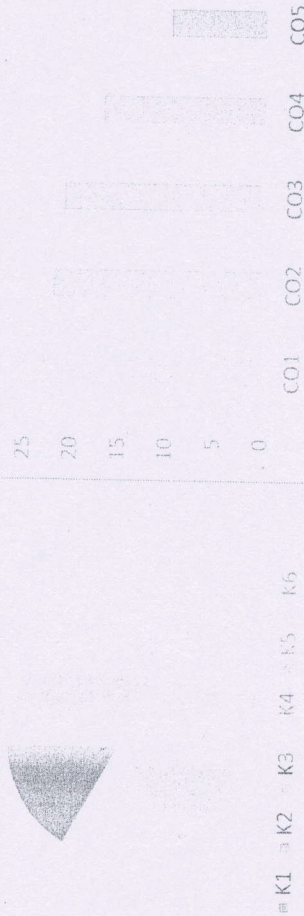
CO- Course Outcomes, KL- Knowledge Level, PO - Program Outcome

CO1	To understand the different conventional and unconventional manufacturing methods employed for making different products.
CO2	An overview of the mechanical behaviour and application of tools used in machining purpose.
CO3	To examine the different Techniques involved in traditional machining process.
CO4	To understand the manufacturing process of complex shape products.
CO5	To analyse the basic components of Lathe machine, Milling Machine, Drilling machine, Grinding Machine and different tools.

**GRAPHICAL REPRESENTATION**

Bloom's Level wise Marks Distribution

Course Outcome Wise Marks Distribution



**Section A (Each question Carry 02 Marks from Q1-i to Q1-x) - 20 Marks**

Q.N	QUESTIONS	Marks	COs	KL	PO
1					
i	What is the function of pattern in metal casting?	2	CO1	K1	PO1
ii	What do you understand by shrinkage allowance?	2	CO4	K2	PO2
iii	Write difference between single point cutting tool and multi point cutting tool.	2	CO1	K3	PO1
iv	Write the conditions in which continuous chip with built-up edge forms.	2	CO2	K1	PO4
v	What are different types of arc welding?	2	CO3	K1	PO1
vi	Write difference between oxidising flame and carburizing flame.	2	CO3	K3	PO1
vii	Write tool designation in ASA system.	2	CO3	K4	PO4
viii	Explain process of spark production in EDM.	2	CO1	K5	PO3
ix	Explain function of abrasive particles in USM.	2	CO1	K3	PO1
x	What is plasma state? How it can be used in machining?	2	CO4	K2	PO4

**Section B (Answer any FOUR out of SIX) - 20 Marks**

(Each question 5 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Draw a schematic diagram of sand casting and explain function of each component.	5	CO4	K2	PO1
3	Prove that height and diameter should be equal in term of optimum design of cylindrical riser.	5	CO2	K2	PO4
4	Explain rolling process with diagram.	5	CO3	K3	PO1
5	What do you understand by tool life? If the Taylor's tool cont. $n = 0.5$ and $C = 400$ , what is the percentage change in tool life when the cutting speed is reduced by 50%.	5	CO2	K5	PO1
6	Explain MIG welding process. Also enlist its application areas and advantages.	5	CO2	K4	PO4
7	What is rapid Prototyping? Explain steps involved in it with suitable diagram.	5	CO1	K3	PO3

**Section C (Answer any THREE out of FIVE) - 30 Marks**

(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
8	What is pattern? Explain different types of allowances provided on patterns with diagram.	10	CO4	K2	PO4
9	What are the components of forces in metal cutting? Explain Merchant's Circle diagram. Also find equation for shear force, normal force, and friction force in terms of main cutting force and thrust force.	10	CO1	K3	PO1
10	Explain different solid state welding techniques with diagram.	10	CO3	K5	PO1
11	Explain working principle, components, applications, advantages and limitations of Electric Discharge Machining.	10	CO2	K4	PO2
12	Explain Electron beam machining with suitable sketch. Also explain its advantages and limitations.	10	CO5	K3	PO3

18/09/2024



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School of Engineering & IT

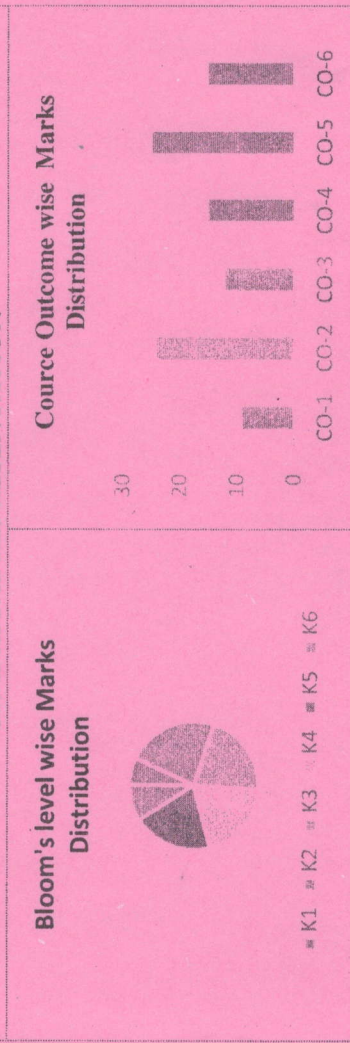
Branch	EEE/ME	Program	B.Tech
Subject Name	Professional Practice Law & Ethics	Semester	V
		Year	Nov/Dec 2024
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> <li>Start writing from 2nd page onwards; don't write on the 1st Page Backside</li> <li>Answer all Questions of Section A (Compulsory)</li> <li>Answer Any Four out of Six of Section B</li> <li>Answer Any Three out of Five of Section C</li> <li>Possession of <u>Mobile Phone</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussion with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Paper(s)</u>.</li> </ul>		
Knowledge Level (KL)	K1: Remembering	K3: Applying	K5: Evaluating
	K2: Understanding	K4: Analysing	K6: Creating

**Section A (Each question Carry 02 Marks from Q1-i to x - 20 Marks)**

Q.N	QUESTIONS	Marks	COs	KL
1				
i	Explain the term ethics.	2	CO1	K2
ii	Explain the function of IRC.	2	CO1	K1
iii	What is professional bodies?	2	CO1	K1
iv	What is code of ethics?	2	CO1	K2
v	Explain any two duties of an architect.	2	CO2	K2
vi	What are the 6 basic ethical principles?	2	CO2	K4
vii	Name any four types of professional ethics.	2	CO2	K2
viii	What is professional responsibility?	2	CO3	K4
ix	Who is called whistle blower?	2	CO5	K4
x	What is red flag conditions?	2	CO5	K1

Course Outcome	CO1	Understand what constitutes professional practice, introduction of various stakeholders and their respective roles; understanding the fundamental ethics governing the profession.
	CO2	Compare into contracts and contracts management in engineering, dispute resolution mechanisms; laws governing engagement of labor.
	CO3	Apply the understanding of Intellectual Property Rights, Patents.
	CO4	Distinguish various constitutional laws & ethics.
	CO5	Justify the types of roles they are expected to play in the society as practitioners of the engineering profession.
	CO6	Build good ideas of the legal and practical aspects of their profession.

**GRAPHICAL REPRESENTATION**



<b>Section B (Answer any FOUR out of SIX) – 20 Marks</b> (Each question Carry 05 Marks)			
Q. No.	QUESTIONS	Marks	KL
2	Compare between gift & bribery.	5	K1
3	Discuss on different types of contract.	5	K3
4	Explain whistle blowing process with an example.	5	K2
5	Compare between void contract and voidable contract.	5	K1
6	Discuss the problems arise in joint venture.	5	K3
7	Explain arbitration with example.	5	K4
<b>Section C (Answer any THREE out of FIVE) – 30 Marks-</b> (Each question Carry 10 Marks)			
Q. No.	QUESTIONS	Marks	KL
8	Discuss the objectives of IRC.	10	K3
9	Explain industrial disputes act, 1947 and it's various objectives.	10	K4
10	Give a case study on Carlill vs. Carbolic Smoke Ball Co.	10	K1
11	Explain the process of obtaining patent.	10	K4
12	Analyse the concept of conflict of interest in engineering projects. Propose a set of guidelines and procedures for managing conflicts of interest in a multinational engineering company.	10	K5