

CBCS SCHEME

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BESCKD104/BESCK104D

**First Semester B.E./B.Tech. Degree Supplementary Examination,
June/July 2024**

Introduction to Mechanical Engineering

Time: 3 hrs.

Max. Marks: 100

- Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. VTU Formula Hand Book is permitted.
3. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	Highlight the key role of Mechanical Engineering in Industries and society.	10	L1	CO1
	b.	Explain the emerging trends and technologies in the following sectors: i) Energy ii) Manufacturing iii) Automotive iv) Aerospace v) Marine.	10	L2	CO1
OR					
Q.2	a.	Sketch and explain Hydel power plant.	10	L2	CO1
	b.	Write short notes on Global warming and Ozone depletion.	10	L2	CO1
Module – 2					
Q.3	a.	Explain the following lathe operations along with neat sketch: i) Turning ii) Knurling iii) Facing.	10	L2	CO2
	b.	Sketch and explain the following operations: i) Drilling ii) Boring iii) Reaming.	10	L2	CO2
OR					
Q.4	a.	Write a short notes on: i) CNC Machine ii) 3D printing.	10	L2	CO2
	b.	Explain the advantages and applications of CNC machine.	10	L2	CO2
Module – 3					
Q.5	a.	Sketch and explain the working principle of 4 stroke petrol engine.	10	L2	CO3
	b.	Explain the following: i) Components of IC Engine [Any five] ii) Applications of IC Engines.	10	L2	CO3
OR					
Q.6	a.	Highlight the advantages and limitations of electric vehicles and hybrid vehicles.	10	L2	CO3
	b.	Sketch the layout and explain the key components of electric and hybrid vehicles.	10	L2	CO3
1 of 2					

Module – 4

Q.7	a.	Explain the differences between ferrous and non-ferrous metals along with examples and applications.	10	L2	CO4
	b.	Write short notes on polymers and shape memory alloys.	10	L2	CO4

OR

Q.8	a.	What is welding? Explain electric arc welding with a neat sketch.	10	L2	CO4
	b.	Explain clearly the differences between welding, soldering and brazing.	10	L2	CO4

Module – 5

Q.9	a.	Sketch and explain the following configuration of Robots: i) Cartesian co-ordinate configuration. ii) Polar cylindrical co-ordinate configuration.	10	L2	CO5
	b.	Define the term Automation. Explain briefly the following automation considering examples: i) Flexible ii) Fixed iii) Programmable.	10	L2	CO5

OR

Q.10	a.	Define Robot. List the advantages and disadvantages of Robotics.	10	L1	CO5
	b.	Explain the following: i) Smart manufacturing and Industrial IOT. ii) Open loop and closed loop systems.	10	L2	CO5

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