

*Basavarajeswari Group of Institutions*  
**BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT**  
(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

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Course Code

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**Second Semester B.E. Degree Examinations, Sept/Oct 2023**  
**INTRODUCTION TO MECHANICAL ENGINEERING**

Duration: 3 Hrs

Max. Marks: 100

Note: 1. Answer any FIVE full questions

		Module - 1	M	RBTL:CO: PI
Q.1	a	Explain briefly the emerging trends of Mechanical engineering in different sectors.	10	2:1:1.6.1
	b	Explain the role of Mechanical Engineer in Industry and Society	10	2:1:1.6.1
OR				
Q.2	a	Describe the construction & working of Thermal power plant with aschematic diagram	10	2:1:1.6.1
	b	Explain the utilization of solar energy using flat plate collector witha schematic diagram.	10	2:1:1.6.1
Module – 2				
Q.3	a	Explain any four Lathe operations with a neat diagram.	08	2:2:1.6.1
	b	Explain any four Drilling operations with a neat diagram.	08	2:2:1.6.1
	c	Differentiate between Up milling and Down milling	04	2:2:1.6.1
OR				
Q.4	a	Describe the various components of CNC with schematic diagram.	07	2:2:1.6.1
	b	Explain any three Milling operations with a neat diagram.	06	2:2:1.6.1
	c	List the advantages and applications of CNC	07	2:2:1.6.1
Module – 3				
Q.5	a	Explain the working of the 4 stroke Petrol engine with sketches. Plot the PV diagram.	12	2:3:1.6.1
	b	List the differences between 4 stroke Petrol and diesel engine	08	2:3:1.6.1
OR				
Q.6	a	Explain the components and working of electric vehicles.	08	2:3:1.6.1
	b	Explain the components of Hybridvehicles.	08	2:3:1.6.1
	c	List the advantages and limitations of electric vehicles.	04	2:3:1.6.1

#### Module – 4

- Q.7 a Recite the classification of metals 05 2:4:1.6.1  
b Describe the following Materials i) Ceramics ii) Shape memory Alloys 06 2:4:1.6.1  
c Describe the three types of carbon steels with applications 09 2:4:1.6.1  
OR
- Q.8 a List the differences between Soldering, Brazing and Welding 10 2:4:1.6.1  
b Describe the construction & working of Arc welding process with neat sketch 10 2:4:1.6.1

#### Module – 5

- Q.9 a Define Mechatronics. List the differences between Open loop and Closed loop systems 08 2:5:1.6.1  
b Based on the configuration, explain the four types of robots with sketches 08 2:5:1.6.1  
c Mention advantages and applications of Robotics. 04 2:5:1.6.1  
OR
- Q.10 a Define Automation. Explain the three types of Automation. 07 2:5:1.6.1  
b Describe the basic elements of fourth industrial revolution with block diagram 08 2:5:1.6.1  
c Define IoT. List the characteristics of IoT. 05 2:5:1.6.1