

ELEMENTS OF MECHANICAL ENGINEERING

MODULES

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|------------------------------------|--------------------|-------------------|-------------|
| Semester | : I/II | CIE Marks | : 40 |
| Course Code | : 18ME15/25 | SEE Marks | : 60 |
| Teaching Hours/week (L:T:P) | : 2:2:0 | Exam Hours | : 03 |
| Credits : 03 | | | |

Course Objectives:

This course (**18ME15/25**) will enable students to

- CLO1 Learn the fundamental concepts of energy, its sources and conversion.
- CLO2 Comprehend the basic concepts of thermodynamics.
- CLO3 Understand the concepts of boilers, turbines, pumps, internal combustion engines and refrigeration
- CLO4 Distinguish different metal joining techniques.
- CLO5 Enumerate the knowledge of working with conventional machine tools, their specifications.

Course outcomes

Course Outcomes:

Upon completion of this course, students will be able to

- CO1 Identify different sources of energy and their conversion process.
- CO2 Explain the working principle of hydraulic turbines, pumps, IC engines and refrigeration.
- CO3 Recognize various metal joining processes and power transmission elements.
- CO4 Understand the properties of common engineering materials and their applications in engineering industry.
- CO5 Discuss the working of conventional machine tools, machining processes, tools and accessories.
- CO6 Describe the advanced manufacturing systems.

Pattern

Question paper pattern:

- **The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 60.**
- The question paper will have **ten** full questions carrying equal marks.
- Each full question consisting of **20** marks.
- There will be **two** full questions (with a **maximum** of **three** sub questions) from each module.
- Each full question will have sub question covering all the topics under a module.
- The students will have to answer **five** full questions, selecting **one** full question from each module.

Modules (1-5)

Module 1

- Sources of energy
- Basic concepts of thermodynamics
- Steam

Module 2

- Boilers
- Turbines

Continued..

Module 3

- Internal combustion engines
- Refrigeration and air conditioning

Module 4

- Engineering materials
- Joining Process
- Belt drives
- Gear drives

Continued..

Module 5

- Lathe
- Milling machine
- Introduction to advanced manufacturing systems

BASICS

- MASS vs Weight
- Density
- Specific gravity
- Some conceptual Q
- Laws