



DEPARTMENT OF MECHANICAL ENGINEERING

VISION

"To incorporate technical & professional skills in Mechanical Engineers to fulfill industrial & social needs".

MISSION

- *To educate, guide, and mentor the students for academic excellence.*
- *To develop technical skills and discipline among the students as per the requirement of the industry.*
- *To impart ethics & social values by arranging social activities.*

Subject Name: MEM (22343)

Assignment No 1

Course Outcome: – C304.1

Questions.

1. Give detailed classification of Engineering Materials
2. Explain Different types of Crystal structures.
3. List and explain Physical and Mechanical properties of materials
4. What is microstructure? List and explain different types of microstructures.
5. Explain sample preparation process for etching and etchant used in the process.
6. Explain Brinell and Rockwell hardness testing method in detail.

Course coordinator: - Mr. Rahul Gondhali

Date of Submission:



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Assignment No 2

Course Outcome: – C304.2

Questions.

1. Give detailed classification Steels.
2. Give properties of plain carbon and alloy steels.
3. Define concept of Phase, Pure metal, alloy and solid solution.
4. Explain Stainless Steel along with its advantages, disadvantages and applications.
5. Give composition of various types of steels.
6. Draw and explain Iron Carbide Equilibrium diagram.
7. Compare between Cold work steel, Hot work steel and High speed steel.

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Assignment No 3

Course Outcome: – C304.3

Questions.

1. Give detailed classification Cast Iron
2. What is specification of cast iron? Give Specification of White, Grey and nodular cast iron.
3. Give criteria for selection of cast iron for engineering applications.
4. How steels or materials are designated.
5. Give Designation and coding of cast iron as per BIS, ASME, EN, DIN.

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Assignment No 4

Course Outcome: – C304.4

Questions.

1. Give classification of different alloys of Copper and Aluminium.
2. Give Composition, Properties and Applications of Bronze and Brass.
3. Compare Brass and Bronze.
4. Give Composition, Properties and Applications of Y-alloy, Duralium and Hindalium.
5. Compare Y-alloy, Duralium and Hindalium.
6. What are the various materials that are used for making bearing.
7. Explain porous and self-lubricating bearings.

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Subject Name: MEM (22343)

Assignment No 5

Course Outcome: – C304.5

Questions.

1. What are Polymers? Give its types and characteristics.
2. Give Properties and Uses of Thermoplastic, Thermosetting plastics and rubber.
3. Give Properties and Uses ABS, Acrylic, Nylon and Vinyl.
4. List and explain various types of Rubbers along with their properties.
5. List and explain various types of Ceramics along with their properties.
6. List and explain various types of Composite Materials along with their properties.
7. What are Advance manufacturing materials such as Nano materials and Smart materials?

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Subject Name: MEM (22343)

Assignment No 6

Course Outcome: – C304.6

Questions.

1. What is heat treatment process? What are the various heat treatment processes and their effects?
2. What is Annealing? Explain it in detail with temperature range, type and application.
3. What is Normalising? Explain it in detail with temperature range, type and application.
4. Explain purpose of Hardening process. Give its purpose, temperature range, type and application.
5. Explain Tempering process in detail.
6. What is case hardening? What are different Case hardening methods?
7. Explain with sketch Muffle type heat treatment furnace.
8. Explain box type furnace with schematic diagram.

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