Course code	Course Name	L-T-P - Credits	Year of Introduction
MT232	METALLOGRAPHY AND HEAT TREATMENT LAB	0-0-3-1	2016

Prerequisite: MT206 Metallurgical heat treatments

Course Objectives

- To develop the knowledge of heat treatment and associated procedure of various engineering materials and apply them to study how it influences the microstructure and results in different mechanical behavior.

List of Exercises/Experiments: (Minimum 12 are mandatory)

1. Determination of grain size of low carbon steels
2. Heat treatment: annealing of steel
3. Heat Treatment: normalizing of steel
4. Heat treatment:Hardening and tempering of steel
5. Carburizing of steel
6. Heat treatment of tool steels
7. Heat treatment of stainless steels
8. Heat treatment of titanium alloys
9. Heat treatment of magnesium alloys
10. Heat treatment of aluminium alloys
11. Heat treatment of super alloys
12. Microstructural evaluation of mild steel
13. Microstructure of grey cast iron
14. Microstructure of stainless steel
15. Sensitization of stainless steel
16. Heat treatment for precipitation hardening
17. Heat treatment for recovery of cold worked structure
18. Heat treatment for recrystallization

Expected Outcome.

At the end of this course, the students would be able to:

i. Understand the importance heat treatment in developing different microstructure in engineering materials.
ii. Carry out microstructural investigation using optical microscope
iii. Suggest various heat treatment procedures for variety of engineering materials
iv. Classify different heat treated microstructure using microscope
v. Provide the practical solution for the betterment of the materials performance based heat treatment and microstructure
vi. Develop comprehensive heat treatment procedure for newly developed metals and alloys.