

MANGALORE UNIVERSITY
Department of Materials Science
MSc Materials Science

MSP 557: MATERIALS SCIENCE LAB. – VII (3 Credits)

Objectives of the courses: This laboratory course is designed to impart the hands on experience on the measurement of various properties of different materials covered in the theory courses. This course also exposes the students to various simple measurement techniques. Almost all kinds of materials dealt in theory are covered in the laboratory courses with an emphasis on the understanding of the measurement as well as the material properties. As far as possible, within the constraints of the equipment, the experiments are distributed in the semesters where the theory is taught.

Expected course outcomes: The students should gain an understanding of the techniques used as well as the properties of materials dealt in each of the experiment.

1. Crystal Structure Analysis using X-Ray Diffraction
 - a) Simple Cubic structure b) Face Centered Cubic structure
 - b) Hexagonal structure d) Tetragonal Structure
2. Metallurgical Microscope – Grain Size Measurements
 - a) Ferrous alloys b) Non-ferrous Alloys
3. Phase diagram of Pb-Sn system
4. Conducting studies of polyaniline
5. Viscosity of polymer blends
6. Solar cell I-V characteristics
7. F-centre in alkali halides
8. Thermoluminescence activation energy
9. Preparation of Composite Materials