

MSE-405 Materials Engineering Lab V

Credit Hours: 0-1

Pre-requisites: None

Course Objectives

- To know about the various nondestructive testing techniques

Course Contents

- Demonstration, calibration of digital ultrasonic flaw detector and thickness measurement of different given samples
- Dye Penetrant Testing
- Detection of flaws in given sample using digital ultrasonic flaw detector
- Leakage testing by DPT technique
- Detection of flaws in given sample using digital ultrasonic flaw detector
- SOP of lab equipment
- Program evaluation technique
- Work break down structure
- Critical path method, Soldering and Brazing
- TIG welding using filler rod
- TIG welding using filler stainless steel rod

Course Outcome

- After attending this course students will be able to use ultrasonic flaw detector Dye Penetrant Testing, Detection of flaws in given sample using digital ultrasonic flaw detector, Leakage testing by DPT technique,
- Detection of flaws in given sample using digital ultrasonic flaw detector, SOP of lab equipment, Program evaluation technique, Work break down structure, Critical path method, Soldering and Brazing , TIG welding using filler rod, TIG welding using filler stainless steel rod

List of Practicals

- Demonstration, calibration of digital ultrasonic flaw detector and thickness measurement of different given samples (e.g. Carbon steels and Al)
- Detection of flaws in given sample using digital ultrasonic flaw detector
- Dye Penetrant Testing of carbon steels (weldments)
- Leakage testing by Dye Penetrant Technique

- To analyze the given sample of polymeric material using FTIR
- To find out the thermal decomposition temperature of the given polymeric material using TGA.
- Demonstration of Hall Effect Measurement apparatus.
- Measurement and calculation of series, parallel and compound circuit resistances
- Study of effect of short circuit and open circuit on net resistance
- Measurement of voltage and current in a circuit.

Suggested Books

- Consult the books related to the subjects covered in semester 7