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Department of Chemical Engineering

Materials &Corrosion Labs (64318)

Total Credits	1

major compulsory

Prerequisites	P1 : Material Science (64311) OR Properties of Engineering Materials and Corrosion (64213)

Course Contents

This course aims to introduce students into the practical aspects they studied in the course of material properties and corrosion. This includes materials and failure identifications, mechanical properties, the micro-structure of metals and the preparation of metallic samples, different methods of heat treatment, surface hardening for ferrous and non-ferrous alloys and how to determine the corrosion rate of some metals.

	Intended Learning Outcomes (ILO's)	Student Outcomes (SO's)	Contribution
1	Design&conduct experiments, as well as to analyze &interpret data.	B	70 %
2	communicate effectively	G	10 %
3	use the techniques, skills &modern engineering tools necessary for engineering practice	K	10 %
4	show An understanding of professional &ethical responsibility	F	10 %

Textbook and/ or Refrences

Laboratory Manual Reference: William D. Callister, Jr., Materials Science and Engineering, an Introduction John Willey &Sons, Inc., 7th Edition, 2007

Assessment Criteria	Percent (%)
Mid. Term Exam	15 %
Laboratory Work	50 %
Final Exam	35 %

Course Plan

Week	Topic
1	Introduction
2	Material Identification
3	Failure identification
4	Specimen Preparation for metallographic study
5	Microscopic Examination
6	Tensile Test
7	Impact Test
8	Hardness Test
9	Heat Treatment
10	Precipitation hardenening
11	Pack Carburizing
12	Jominy Test
13	Corrosion Test