Course code	Course title
METRO 009	Metals and alloys: an introduction

Prerequisites

Basic physics and chemistry.

Training Objectives

- Understanding the structure of metals in solid state
- Understanding the concept of metallic alloys
- Understanding the basics of metals and alloys processing
- Understanding the interactions among microstructure, processing and properties of metals and alloys
- Basic knowledge of steels, cast irons, Aluminium and Magnesium alloys

Summary

List of the course topics (some topics spread over several lectures):
1. Introduction to the structure of metals and alloys
   - Crystal structures
   - Point, line and surface defects
   - Binary systems: solid solutions, supersaturation and two-phases structures

2. Processing of metals and alloys:
   Solidification, Deformation, Diffusion and Heat treating

3. Relevant properties of metallic alloys – An overview

4. Correlation among structure, processing and properties of metals and alloys

5. Overview of commercial metallic alloys
   - Iron and steels

6. Overview of commercial metallic alloys
   - Al alloys
   - Mg alloys