



Course code Course title
METRO 001 Solidification of metals

Prerequisites

Basic physical metallurgy, basic thermodynamics including phase diagrams.

Training Objectives

- Understanding how microstructures are formed during solidification.
Columnar – equiaxed solidification
- Understanding how process parameters influences microstructure
Growth rate, temperature gradient
- Understanding how alloy content influences microstructure
Phase diagram, solute segregation
- Basic knowledge of how solidification can be studied experimentally

Summary

1. Introduction
2. Nucleation & grain refinement
3. Crystal morphology (atomic scale)
4. Interface stability, constitutional undercooling
5. Cells and dendrites
6. Eutectic & peritectic solidification
7. Segregation
8. Experimental techniques for studying solidification