

Phase Transformations and Heat Treatment - Web course

COURSE OUTLINE

The course consists of the following 9 parts; the lecture hours include the time for tutorial sessions and each module contains a tutorial sheet along with solutions

- Part 1: Preliminaries (Thermodynamics and kinetics: 6 modules – about 6 lecture hours)
- Part 2: Interfaces (4 modules – about 6 lecture hours)
- Part 3: Nucleation and growth (4 modules – about 8 lecture hours)
- Part 4: Solid-Solid phase transformations I (Precipitation, massive transformations, and martensitic transformations – 5 modules: about 8 lecture hours)
- Part 5: Solid-Solid phase transformations II (Spinodal decomposition and ordering – 2 modules: about 6 lecture hours)
- Part 6: Heat treatment (About 6 modules: about 6 lecture hours)
- Part 7: Miscellaneous topics (Grain growth, recrystallisation, and coarsening – 3 modules: about 4 lecture hours)
- Part 8: Classification of transformations (1 module – about 2 lecture hours)
- Part 9: Annotated bibliography (Supplementary information)

References:

D A Porter, K E Easterling, and M Y Sherif, Phase transformations in metals and alloys, Third edition, CRC Press, 2009.



NP-TEL

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<http://nptel.iitm.ac.in>

Metallurgy and Material Science

Pre-requisites:

Thermodynamics, diffusion, Structure

Coordinators:

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