



Title of Module:	<b>PHYSICAL METALLURGY</b>
Code:	<b>TME7038</b>
Total time:	60 hours
Credit points:	4
Level:	MSc and PhD
Prerequisite:	none
Co-requisite:	none

**AIMS:**

Strengthening and deformation mechanism and diffusion. Phase diagrams. Solidification. Interfaces in solids. Diffusional transformations in solids. Diffusionless Transformations in solids.

**SYLLABUS:**

Introduction. Crystalline structure. Defects. Diffusion. Deformation. Nucleation and growth of a crack. Precipitation. Phase transformation. Solid solutions.

**BIBLIOGRAPHY:**

- Avner, "Introduction to Physical Metallurgy", Editora McGraw Hill, 1974.
- Cottrell, "Introdução à Metalurgia", Fundação Cauloste Gulbenkian, 1975.
- Haasen, "Physical Metallurgy", Cambridge University Press, 1992.
- Hull, D., "Introduction to Dislocations", Pergaman Press, 1969.
- Porter, D.A. e Easterling, K.E., "Phase transformations in Metals and Alloys", Van Nostrand Reinhold (UK) co. Ltda., 1984.
- Reed-Hill and Abbaschian, "Physical Metallurgy Principles", PWS-Kent, 1992.
- Smallman, R.E. e Bishop, R.J., "Metals and Materials - Science, Processes, Applications", Butterworth Heinemann Ltda., 1995..

**RESPONSIBLE CO-ORDINATOR:**

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