

Atomic diffusion and applications

Course code: AAD3

ECTS Credits: 2

Department	: MSISI	Lectures	: 10h00
Lecturers	: V. Pelosin	Tutorials	: 8h45
Year of study	: 2 nd year	Laboratory sessions	:
Semester	: 3 rd semester	Project	:
Assessment method(s)	: 1 written test	Home works	:
Language of instruction	: English	Total hours	: 18h45
Type of courses	: Compulsory		

Objective: Knowledge on atomic diffusion mechanisms involved in many industrial processes.

Prerequisites: Materials science

Content:

1. Atomic diffusion

- Macroscopic diffusion, Fick's laws
- Elementary diffusion mechanisms, crystalline diffusion
- Diffusion applications

2. Phase transformations

- Thermodynamic approach
- Free energy of solid solutions
- Germination and growth mechanisms
- Determination of the transformation kinetics
- Diffusive and displacive phase transformation

Recommended reading: None

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