

Thin film technology

Number of ECTS credits: 3

Coefficient: 3

Description:

Basis of layer deposition phenomena: physical and chemical adsorption, kinetic adsorption, dissociative chemisorption, diffusion, nucleation and growth of thin layers. Chemical and physical deposits. Consistent filing. Membership. Use of plasma in processes. Dry etching. Alternative methods: surface treatment, collage, thinning, smart-cut, simox. Thin layers: definition, properties and applications. Epitaxy and texture. Residual stresses and their relaxation. Advanced characteristics: constraints (radius of curvature, FSM), structure (RDX), composition (EDX, SIMS, XPS, etc.), optical properties (ellipsometry).

Pedagogical objectives:

Understand the principle of the physical and chemical methods used for the fabrication of thin layers and their structuring. Know how to choose the method and the manufacturing conditions adapted to the material specific to the microstructure and the properties sought. To know the advanced methods for the characterization of thin layers.

Bibliography: Prerequisite:

Notions of energy, chemical and physical links, vectors

Lectures Hours: 9

Tutorials Hours: 8

Labs Hours: 8

Knowledge monitoring modalities: 100% continuous assesement

Assesement: 1 mini-project, reports of labs, exam

Leader: Ausrine BARTASYTE

Participants: