

MSE-649

**Crystal growth by epitaxy**

Fontcuberta i Morral Anna

<b>Cursus</b>	<b>Sem.</b>	<b>Type</b>
Materials Science and Engineering		Opt.

Language of teaching	English
Credits	2
Session	
Exam	Multiple
Workload	60h
<b>Hours</b>	<b>28</b>
Courses	14
Exercises	12
TP	2
<b>Number of positions</b>	

**Frequency**

Every year

**Remark**

August 19th - 21st and 26th - 28th 2020

**Summary**

This is an interactive course explaining the main physical and chemical concepts to understand epitaxy of crystalline thin films and what determines the morphology, composition and structure of a material grown per epitaxy both in the bulk and as nanostructure.

**Content**

This is an interactive course explaining:

1. The main physical and chemical concepts to understand epitaxy of crystalline thin films.
2. What determines the morphology, composition and structure of a material grown per epitaxy.

In the main body of the course contains the main scientific concepts that explain high quality epitaxy. We will also describe the main techniques used by industry and scientific laboratories for the epitaxial growth of materials and devices. Finally, the translation of the epitaxy of macroscopic crystals will be translated to the growth of nanostructures and novel materials.

**Keywords**

molecular beam epitaxy, thermodynamic diagrams, surface reconstruction

**Learning Prerequisites****Required courses**

thermodynamics

**Assessment methods**

oral/written