

**Course description for the
FAME Master Program 2007/2008**

Augsburg University



Course description (Semester 1) 30 ECTS*
*ECTS: European Credit Transfer System

Fundamentals in Materials Science 1

-Introduction to materials (Seminar)	4 ECTS
-Material physics 1 (Structure, defects, thermodynamics of materials)	6 ECTS
-Material chemistry	6 ECTS
-Characterization of materials	6 ECTS
-Method course 1 (Practical work accompanied by concomitant lectures)	8 ECTS

Course description (Semester 2) 30 ECTS

Fundamentals in Materials Science 2

-Material physics 2 (Electronic properties)	6 ECTS
-Processing of materials (Metals, ceramics, polymers; coatings, thin films; structuring, electro chemical methods)	6 ECTS
-Surfaces and Interfaces	5 ECTS
-Numerical methods & simulation, theoretical concepts	5 ECTS
-Method course 2 (Practical work accompanied by concomitant lectures)	8 ECTS

Course description (Semester 3) 30 ECTS

Coatings and thin films 7,5 ECTS

Physical Vapor Deposition (PVD)
Molecular Beam Epitaxy (MBE)
Plasma Enhanced Chemical Vapor Deposition (PECVD)
Ion Implantation
Plasma Immersion Ion Implantation & Deposition (PIII&D)
Spin Coating

High resolution imaging of interfaces 7,5 ECTS

Scanning probe microscopy
Physical basis of STM and AFM
Technical basis of STM and AFM
Other SPM-type techniques
Applications

Interfaces in composites 7,5 ECTS
Interface dominated materials 7,5 ECTS