

Erasmus Mundus Joint Master GREENANO

SYLLABUS

Semester 3

COURSE NAME:	Nanosciences and Nanotechnologies		
HOSTING UNIVERSITY:	Jozef Stefan International Postgraduate School		
SEMESTER:	NUMBER OF ECTS:	PILLAR:	
3	10	1	
DISTRIBUTION OF HOURS			
Lectures	Seminars	Lab work	Individual student work
30	30	30	210
PROFESSOR:	Boštjan Zalar		
LEARNING AND TEACHING METHODS:	Interactive lectures, laboratory work, individual guided studies		
PREREQUISITES:	Completed first cycle studies in natural sciences or engineering or completed first cycle studies in other fields with knowledge of fundamentals in the field		
OBJECTIVES OF THE COURSE:	The goal of this course is to give an overview of the major directions of research and the latest achievements in the field of nanosciences and nanotechnologies. Competencies: - mastering selected research methods, - ability to carry out independent research work, - ability to use the knowledge in practice.		
CONTENT OF THE COURSE:	Students will interact with researchers from the field of nanosciences and nanotechnologies. They will also learn novel analytic techniques from this field, which are used at JSI and participating research groups. In addition to the introduction of nanomaterials and nanotechnologies, the focus will be on: - methods for the preparation and characterization of materials with nano dimensions (for example the physical methods for the preparation of thin layers), - structural methods (such as methods of electronic microscopy, nuclear magnetic resonance), - electric and electro-mechanical properties from local to macroscopic level (atomic force microscopy with different modules, dielectric spectroscopy).		
INTENDED LEARNING OUTCOMES:	The student will: - select a suitable method and forecast the experimental limitations, - interpret the results of analysis, - prepare the seminar about the selected method in English.		
FORM OF ASSESSMENT:	Seminar which includes the case-study with defense		