

PHY-M-VF 1

Effective WS 2011/12

1. Module title:		Surface Science			
2. Field / responsibility of:		Physics / the faculty, the Dean of Studies			
3. Module contents:		<ul style="list-style-type: none"> • Introduction and overview • Vacuum • Creation and preparation of surfaces • Thermodynamics of clean surfaces and morphology • Geometrical structure of surfaces, relaxations, reconstructions, superlattices • Electronic characteristics, local work function • Adsorbates on surfaces • Vibrations and phonons on surfaces • Diffusion, nucleation and growth • Research methods 			
4. Qualification objectives of the module / competencies to be acquired:		Acquiring a fundamental knowledge of concepts and characteristics of surfaces. In addition, this module covers methods of preparing surfaces and growing layers. Experimental research methods will be discussed.			
5. Prerequisites for participation:					
a) Recommended knowledge:		Solid-state physics, quantum mechanics I			
b) Prerequisite courses:		None			
6. Module can be used for:		MSc. in Physics, MSc. in Nanoscience, MSc. in Comp. Science, MSc. in Chemistry; BSc.in Nanoscience, BSc. in Comp. Science			
7. Module is offered:		On a yearly basis			
8. Module can be completed in:		1 semester			
9. Recommended semester of study:		Minimum: 1			
10. Overall module workload / number of credit points:		Workload: Total number of hours: 240 Allocation: 1. Attendance: 4 credit hours 2. Independent study (including exam preparation/ exam): 180 hours Credit points: 8			
11. The module is successfully completed when the requirements below have been met.					
12. Module components:					
Nr.	Req./req. elective	Form of teaching	Subject area / topic	Credit hours	Coursework
PHY-M-VF 1.1	Required elective	Lecture	Surface science	4	

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13. Module exam:					
Nr.	Competence / topic	Type of exam	Duration	Time / notes	Weighting for module grade
PHY-M-VF 1.1	Surface science			Type of exam: Oral or written; duration: 20 min, or 105 min, 135 min or 210 min (if it consists of two parts); time: Lecture period to end of semester	1
14. Notes:					
Further information will be provided by the instructors at the beginning of the course.					