MSC MATERIAL SCIENCES PROGRAM STRUCTURE AT TOR VERGATA			
PRIMARY ACADEMIC AREAS	**DISCIPLINARY SECTOR**	**COMPULSORY COURSES**	**ECTS**
CHEMISTRY AND PHYSICS OF MATTER	FIS/03	Theory of solids and Molecular models (1 sem)	6
		Materials and devices for optoelectronics (1 sem)	6
		New perspective for nanodevices by carbon allotropes (2 sem)	6
		Atomic-controlled Nanostructures by Organic Molecules (2 sem)	6
		Microscopy and nanoscopy (3 sem)	9
		Superconducting and magnetic materials (3 sem)	9
	CHIM/02	Bioplastics (2 sem)	6
	CHIM/07	Chemical sensors (2 sem)	6
MATERIAL ENGINEERING	ING-IND/22	Innovative materials for sustainable technology (1 sem)	6
COMPLIMENTARY ACTIVITIES	ING-INF/01	Organic and biological Electronics (1 sem)	8
	CHIM/03	Nanostructured materials for electronics (3 sem)	6
COMPLIMENTARY ACTIVITIES AND ELECTIVE COURSES			**ECTS**
Internship & Elective course			12
EXTRA ACTIVITY			**ECTS**
English Language (4 sem)			4
FINAL THESIS			**ECTS**
Master thesis (4 sem)			30
TOTAL			**ECTS**
			120

MSC PHOTONICS PROGRAM STRUCTURE AT TU WILDAU	
COMPULSORY COURSES	**ECTS**
Mathematical Methods (1 sem)	5
Measurement technology and instrumentation (1 sem)	5
Microtechnologies (1 sem)	7
Structure of Matter (1 sem)	4
Technical optics 1 (1 sem)	5
Theoretical fundamentals of photonics 1 (1 sem)	4
Research and development project 1 (2 sem)	5
Laser technology (2 sem)	5
Optical measurement and analysis methods (2 sem)	7
Technical optics 2 (2 sem)	8
Elective Courses (2 & 3 sem)	9
Applied Photonics (3 sem)	6
Research and development project 2 (3 sem)	5
Laser materials processing (3 sem)	6
Management (3 sem)	4
Theoretical fundamentals of photonics 2 (3 sem)	5
DISSERTATION (Master Degree Project) (4 sem)	30
TOTAL	**ECTS**
	120

STUDY PLAN FOR TOR VERGATA STUDENTS					
1ST SEMESTER COURSES AT TV	**ECTS TV**	**RECOGNIZED ECTS TUW**			**ECTS TV**
Theory of Solids and Molecular Materials	6	30			30
Organic and Biological Electronics	8				
Materials and Devices for Optoelectronics	6				
Innovative materials for sustainable technology	6				
English Language	4				
2ND SEMESTER COURSES AT TU	**ECTS TUW**	**ECTS TUW**	**CORRESPONDING EXAMS AT TV**	**ECTS TV**	**RECOGNIZED ECTS TV**
Research and development project 1	5	30	Bioplastics	3	30
			Internship	2	
Laser technology	5		Internship	3	
			Atomic controlled Nanostructures by Organic Molecules	2	
Optical measurement and analysis methods	7		Chemical sensors	6	
			Internship	1	
Technical optics 2	8		New perspective for nanodevices by carbon allotropes	6	
			Atomic controlled Nanostructures by Organic Molecules	2	
Compulsory elective module 1	5		Bioplastics	3	
			Atomic controlled Nanostructures by Organic Molecules	2	
3RD SEMESTER COURSES AT TV	**ECTS TV**	**RECOGNIZED ECTS TUW**			**ECTS TV**
Microscopy and nanoscopy	9	30			30
Superconducting and magnetic materials	9				
Nanostructured materials for electronics	6				
Elective course	6				
FINAL THESIS (4th Sem.)		**ECTS TUW**			**RECOGNIZED ECTS TV**
Final thesis must be submitted and presented at both institutions.	30	30			30
TOTAL	**ECTS**	**ECTS TUW**			**ECTS TV**
	120	120			120

STUDY PLAN FOR TU WILDAU STUDENTS

1ST SEMESTER COURSES AT TUW	ECTS TUW	ECTS TUW	CORRESPONDING EXAMS AT TV	ECTS TV	RECOGN. ECTS TV
Mathematical Methods	5		Theory of solids and Molecular models	1	
			Superconducting and magnetic materials	2	
			Introduction to Quantum Optics	2	
Measurement technology and instrumentation	5		Organic and biological Electronics	1	
			Nanostructured materials for electronics	2	
			Introduction to Quantum Optics	2	
Microtechnologies	7	30	Organic and biological Electronics	1	30
			Microscopy and nanoscopy	6	
Structure of Matter	4		Theory of solids and Molecular models	2	
			Innovative materials for sustainable technology	2	
Technical optics 1	5		Materials and devices for optoelectronics	3	
			Microscopy and nanoscopy	2	
Theoretical fundamentals of photonics 1	4		Theory of solids and Molecular models	2	
			Superconducting and magnetic materials	2	
2ND SEMESTER COURSES AT TV	**ECTS TV**	**RECOGN. ECTS TUW**			**ECTS TV**
Bioplastics	6				
Carbon allotropes materials	6				
Internship	6	30			30
Atomic-controlled Nanostructures by Organic Molecules	6				
Chemical sensors	6				

STUDY PLAN FOR TU WILDAU STUDENTS					
3RD SEMESTER COURSES AT TU	**ECTS TUW**	**ECTS TUW**	**CORRESPONDING EXAMS AT TV**	**ECTS TV**	**RECOGN. ECTS TV**
Applied Photonics	6	30	Organic and biological Electronics	2	30
			Materials and devices for optoelectronics	2	
			Nanostructured materials for electronics	2	
Research and Development Project	5		Organic and biological Electronics	2	
			Superconducting and magnetic materials	3	
Laser Materials Processing	6		Innovative materials for sustainable technology	4	
			Introduction to Quantum Optics	2	
Management	4		English Language	4	
Theoretical fundamentals of photonics	5		Theory of solids and Molecular models	1	
			Superconducting and magnetic materials	2	
			Nanostructured materials for electronics	2	
Optical fibres/Programming in Python (CEM)	4		Organic and biological Electronics	2	
			Materials and devices for optoelectronics	1	
			Microscopy and nanoscopy	1	
FINAL THESIS (4th SEM)	**ECTS TV**	**RECOGN. ECTS TU**			**ECTS TV**
Final thesis must be submitted and presented at both institutions.	30	30			30
TOTAL	**ECTS TV**	**ECTS TU**			**ECTS TV**
	120	120			120

	CURRENT GRADING SCALE	
	Italy	Germany
	V	A
student **did pass** the exam	30 e lode	1
	30	
	29	1.3
	28	
	27	1,7
	26	2
	25	2,3
	24	
	23	2,7
	22	3
	21	3,3
	20	
	19	3,7
	18	4
student **did <u>not</u> pass** the exam	V<18	4<A<5

Algorithm for conversion: V=18+(4-A)*4 A=4-(V-18)/4