DEPARTMENT OF MOLECULAR BIOTECHNOLOGY
COURSE SYLLABUS

Course Details				
Code	**Academic Year**			**Semester**
NWI102	1			Spring
Title	**T**	**A**	**L**	**ECTS**
Introduction to Programming	2	0	2	6

Language	German					
Level	**Undergraduate**	**X**	**Graduate**		**Postgraduate**	
Department / Program	Molecular Biotechnology					
Forms of Teaching and Learning	Face to Face					
Course Type	**Compulsory**	**X**	**Elective**			
Objectives	• Understanding the structure, functionality and application of computer systems and computer networks • Practical handling of computers and their interfaces • Fundamentals of PLC and microcontroller programming Knowledge of the applicability for engineering tasks					
Content	Computational Information Representation, Boolean Algebra, Matlab - Simulink, Computer Architecture, Operating Systems, Programming Languages (Java and C ++), Computer Networks, Algorithms, Unified Modeling Language, Databases, PLC Programming, IT Security, Microcontrollers					
Prerequisites						
Coordinator						
Lecturer(s)						
Assistant(s)						
Work Placement	No					

Recommended or Required Reading	
Books / Lecture Notes	• Einführung in die Informatik, Heinz-Peter Gumm, Oldenbourg Wissenschaftsverlag, München, 2013. • Algorithmik: Die Kunst des Rechnens, David Harel, Springer, Deutschland, 2006 (Orjinal: Algorithmics: The Spirit of Computing, David Harel, Addison-Wesley, Great Britain , 2004)
Other Sources	

Additional Course Material	
Documents	
Assignments	
Exams	

Course Composition		
Mathematics und Basic Sciences	40	%

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Engineering	40	%
Engineering Design		%
Social Sciences		%
Educational Sciences		%
Natural Sciences	20	%
Health Sciences		%
Expert Knowledge		%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	40
Quiz		
Assignments		
Attendance		
Recitations		
Projects		
Final Exam	1	60
	Total	**100**

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	15	2	30
Self-Study	15	3	45
Assignments	5	15	75
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations			
Laboratory	15	2	30
Projects			
Final Exam	1	2	2
		Total Work Load	**184**
		ECTS Points (Total Work Load / Hours)	**6**

Learning Outcomes

1	Understanding the structure, functionality and application of computer systems and computer networks
2	
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Weekly Content	
1	How does a computer think? How to interact with it? How does it work?
2	Introduction to data types and structures, logical operators, functions, data analysis
3	package management, code profiling and optimization.
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Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7
1							
2							
3							
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7							
8							

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9							
10							
11							
12							

Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High
Compiled by:	
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