Complete version as of 1 October 2019
Curriculum for the
Supplementary Programme Computer Science
at the Faculty of Mathematics, Computer Science and Physics
at the University of Innsbruck

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§ 1   Allocation of the study programme

According to §54 par. 1 of the Universities' Act 2002, the Supplementary Programme Computer Science is allocated to the group of engineering studies.

§ 2   Qualification profile

(1)   The Supplementary Programme Computer Science at the University of Innsbruck is aimed at students and graduates who want to expand their qualification profile by a scientifically sound additional education in the field of computer science.

(2)   Graduates of the Supplementary Programme Computer Science

– have an understanding of central concepts of computer science and are able to describe complex systems,

– master the methods and tools for systematic and automated information processing in the field of software and data engineering and are able to apply these independently, for example for the modelling and programming of IT systems,

– are particularly qualified for computer-related professions within, but also outside of the field of the study programme they are extending.

§ 3   Scope and duration

The Supplementary Programme Computer Science covers 60 ECTS-Credits. This corresponds to a study duration of two semesters. One ECTS-Credit corresponds to a workload of 25 hours.

§ 4   Admission

(1)   Admission to the Supplementary Programme Computer Science requires the admission to or the having passed of one of the following Bachelor's, Master's or Diploma Study Programmes:

– Bachelor's Programme Architecture, Master's Programme Architecture,

– Bachelor's Programme Management and Economics, Diploma Programme International Economics and Business Studies,

– Bachelor's Study Programme Biology, Master's Programme: Environmental Management of Mountain Areas (EMMA), Master's Programme: Botany, Master's Programme: Microbiology, Master's Programme: Molecular Cell and Developmental Biology, Master's Programme: Ecology and Biodiversity, Master's Programme Zoology,

– Bachelor's Programme Pharmacy, Master's Programme Chemistry, Master's Programme Materials Sciences and Nanosciences, Master's Programme Pharmacy,

– Bachelor's Programme Atmospheric Sciences, Bachelor's Programme Earth Sciences, Bachelor's Programme in Geography, Master's Programme Atmospheric Science, Master's Programme Earth Sciences, Master's Programme Geography – Global Change – Regional Sustainability, Master's Programme in Environmental Meteorology,

– Bachelor's Secondary School Teacher Training Programme (General Education) with at least one of the following teaching subjects:

Physical Education, Biology and Environmental Protection, Chemistry, Geography and Economics, Mathematics, Physics,

– Master's Secondary School Teacher Training Programme (General Education) with at least one of the following teaching subjects:

Physical Education, Biology and Environmental Protection, Chemistry, Geography and Economics, Mathematics, Physics,

– Diploma Secondary School Teacher Training with at least one of the following teaching subjects:

Physical Education, Biology and Environmental Protection, Chemistry, Geography and Economics, Mathematics, Physics,

- Bachelor's Programme Physics, Bachelor's Programme Technical Mathematics, Master's Programme: Master's Programme Erasmus Mundus Joint Master Program Astrophysics, Master's Programme Physics, Master's Programme Technical Mathematics,

- Bachelor's Programme Psychology, Bachelor's Programme Sport Management, Bachelor's Programme Sport Science, Bachelor's Programme Psychology, Master's Programme Sport Science,

- Bachelor's Programme Environmental Engineering, Bachelor's Programme Electrical Engineering, Bachelor's Programme Mechatronics, Master's Programme Environmental Engineering,

- Bachelor's Programme Economy, Health and Sports Tourism, Master's Programme: Applied Economics,

(2) For being admitted to the Supplementary Programme Computer Science at minimum of 30 ECTS-Credits must have been passed in the study programme to be extended.

§ 5 Types of courses and maximum number of participants

(1) Courses without continuous performance assessment:

Lectures (VO) are courses held in lecture format. They introduce the research areas, methods and schools of thought for a given subject. No maximum number of participants.

(2) Courses with continuous performance assessment:

Introductory seminars (PS) introduce students interactively to scientific literature through the treatment of selected issues. They convey knowledge and methods of academic work. Maximum number of participants: 25

§ 6 Allocation of places in courses with a limited number of participants

In courses with a limited number of participants, course places are allocated as follows:

1. Students for whom the study duration would be extended due to the postponement are to be given priority.
2. If the criteria in no. 1 do not suffice, students of the Bachelor's Programme Computer Science and of the Secondary School Teacher Training Programme (General Education): Teaching Subject Computer Science are to be given priority.
3. If the criteria in no. 1 and 2 do not suffice, the available places are drawn by random.

§ 7 Compulsory modules

The following compulsory modules corresponding to altogether 60 ECTS-Credits must be passed:

1.	Compulsory Module: Introduction to Programming	h	ECTS-Credits
a.	**VO Introduction to Programming**	3	4.5
b.	**PS Introduction to Programming**	2	3
	Total	**5**	**7.5**
	Learning Outcomes: Successful participants of this module understand the most important concepts of imperative programming and can apply them in practice. They have developed the ability to acquire similar concepts independently. They are capable of analysing existing computer programmes and of designing and implementing their own.		
	Prerequisites: none		

2.	**Compulsory Module: Functional Programming**	**h**	**ECTS-Credits**
a.	**VO Functional Programming**	2	3
b.	**PS Functional Programming**	1	2
	Total	**3**	**5**
	Learning Outcomes: Students understand the differences between imperative and functional programming as well their respective advantages and disadvantages. They know the main concepts of functional programming.		
	Prerequisites: none		

3.	**Compulsory Module: Computer Architecture**	**h**	**ECTS-Credits**
a.	**VO Computer Architecture**	2	3
b.	**PS Computer Architecture**	1	2
	Total	**3**	**5**
	Learning Outcomes: After completing this module, students understand the architectural principles and organisational forms of modern computers and are able to write simple Assembler programmes.		
	Prerequisites: none		

4.	**Compulsory Module: Data Base Systems**	**h**	**ECTS-Credits**
a.	**VO Data Base Systems**	3	4.5
b.	**PS Data Base Systems**	2	3
	Total	**5**	**7.5**
	Learning Outcomes: After completing this module, students know, understand and apply basic concepts of database systems. Moreover, they are able to implement data modelling at a logical, conceptional and physical level and to formulate queries based on these models.		
	Prerequisites: none		

5.	**Compulsory Module: Software Architecture**	**h**	**ECTS-Credits**
a.	**VO Software Architecture**	2	3
b.	**PS Software Architecture**	1	2
	Total	**3**	**5**
	Learning Outcomes: After completing this module, students understand the basic organisation of a complex software system, represented by its components and their relationships to one another. Moreover, they have skills in designing and implementing such systems.		
	Prerequisites: none		

6.	**Compulsory Module: Algorithms and Data Structures**	**h**	**ECTS-Credits**
a.	**VO Algorithms and Data Structures**	3	4.5
b.	**PS Algorithms and Data Structures**	2	3
	Total	**5**	**7.5**
	Learning Outcomes: After completing this module, students know and understand important algorithms and data structures and master elementary analysis procedures with regard to correctness and resource requirements. They are able to create further data structures and algorithms on their own and to use them in their own programmes.		
	Prerequisites: none		

7.	**Compulsory Module: Programming Methodology**	**h**	**ECTS-Credits**
a.	**VO Programming Methodology**	3	4.5
b.	**PS Programming Methodology**	2	3
	Total	**5**	**7.5**
	Learning Outcomes: After completing this module, students understand the concepts of object-oriented programming and can apply them. They have learnt how to work out similar contents for themselves. They are able to analyse object-oriented programmes and to plan and build their own object-oriented programmes. They have acquired the skills to work out similar contents themselves.		
	Prerequisites: none		

8.	**Compulsory Module: Software Engineering**	**h**	**ECTS-Credits**
a.	**VO Software Engineering**	2	2.5
b.	**PS Software Engineering**	2	5
	Total	**4**	**7.5**
	Learning Outcomes: After completing this module, students know and understand the requirements for developing software on an industrial scale. They know the methods and processes of software engineering and can apply them. In addition, they have the skill to analyse software system requirements and create sustainable software solutions. They have acquired skills in team work.		
	Prerequisites: none		

9.	Compulsory Module: Advanced Professional Skills	h	ECTS-Credits
	Courses amounting to altogether 7.5 ECTS-Credits must be passed from the course offer of the Bachelor's Programme in Computer Science. Modules that are compulsory modules of the Supplementary Programme in Computer Science, the module "Bachelor's Thesis" as well as the module "Interdisciplinary Skills" may not be selected.		7.5
	Total		**7.5**
	Learning Outcomes: This module serves the acquisition of additional qualifications in computer science.		
	Prerequisites: The registration requirements specified in curriculum for the Bachelor's Programme in Computer Science must be met.		

§ 8   Examination regulations

(1)   Performance of modules is assessed by module examinations. Module examinations are to proof the knowledge and skills acquired in a module. Once all parts of a module examination are positively passed, the respective module is completed.

(2)   Performance of courses of modules is assessed by course examinations. Courses examinations are

1. examinations that assess the knowledge and skills covered by an individual lecture, where the performance is assessed by a single examination at the end of the course. The course lecturer must communicate the examination method (written or oral) before the start of the course.

2. courses with continuous performance assessment, for which the performance assessment is based on regular written and/or oral contributions by the participants.

(3)   The course lecturer must communicate the targets, contents and methods of their course as well as the contents, methods and evaluation criteria of the course examinations before the start of each semester.§

§ 9   Conclusion

The conclusion of the Supplementary Programme Computer Science requires the conclusion of the regular study programme, the extension of which it serves. A certificate is issued to document the conclusion of the programme.

§ 10   Coming into force

This curriculum comes into force as of 1 October 2019.