Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

# Annex SFB

# Studienfachbeschreibung (subject description, SFB) for the subject Aerospace Computer Science as a Master's with 1 major

## with the degree "Master of Science" (120 ECTS credits)

Responsible: Faculty of Mathematics and Computer Science — Examination regulations version: 2023
Responsible: Institute of Computer Science — Examination regulations version: 2023

Abbreviations used:

Course types: **E** = field trip, **K** = colloquium, **O** = conversatorium, **P** = placement/lab course, **R** = project, **S** = seminar, **T** = tutorial, **Ü** = exercise, **V** = lecture

Term: **SS** = summer semester, **WS** = winter semester

Methods of grading: **NUM** = numerical grade, **B/NB** = (not) successfully completed

Regulations: **(L)ASPO** = general academic and examination regulations (for teaching-degree programmes), **FSB** = subject-specific provisions, **SFB** = list of modules

Other: **A** = thesis, **LV** = course(s), **PL** = assessment(s), **TN** = participants, **VL** = prerequisite(s)

Conventions for the modules in this SFB:

Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not creditable for bonus.

Information on assessment procedures:

Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.

Should a module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.

Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

In accordance with the general regulations governing the degree subject described in this module catalogue:

**ASPO2015**

associated official publications (FSB (subject-specific provisions)/SFB (list of modules)):

**15-Feb-2023 (2023-10)**

This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.

Every module will be described using the following form:

| Abbreviation | **Module title** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ECTS | | Duration | (in semesters) | Method of grading | | Module level | |
| | Courses | To be specified in the form X (y) with course type X abbreviated as specified above and number of weekly contact hours y | | | | | | |
| | Method of assessment | | | | | | | |
| | Only after successful completion of | if applicable | | | | | | |
| | Other prerequisites | if applicable | | | | | | |
| | Participants and allocation of places | if applicable | | | | | | |
| | Additional information | if applicable | | | | | | |
| | Referred to in LPO I | if applicable (examination regulations for teaching-degree programmes) | | | | | | |

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| **Electives Field (90 ECTS credits)** | | | | | | | | |
| **Seminars (min. 5 ECTS credits)** | | | | | | | | |
| 10-Lu-RI=SEM1-232-m01 | **Seminar 1 - Current Topics in Aerospace Computer Science** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | S (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | term paper (10 to 15 pages) and presentation (30 to 45 minutes) with subsequent discussion on the topic of the seminar<br>Language of assessment: German and/or English | | | | | |
| 10-Lu-RI=SEM2-232-m01 | **Seminar 2 - Current Topics in Aerospace Computer Science** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | S (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | term paper (10 to 15 pages) and presentation (30 to 45 minutes) with subsequent discussion on the topic of the seminar<br>Language of assessment: German and/or English | | | | | |
| **Aerospace Computer Science (min. 20 ECTS credits)** | | | | | | | | |
| 10-LURI=S-SA-232-m01 | **Spacecraft System Analysis** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | V (4) + Ü (2)<br>Module taught in: English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):<br>ES, LR | | | | | |
| 10-LURI=R-P-232-m01 | **Rocket Propulsion** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | V (2) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |

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| 10-I=DRLOC-221-m01 | **Deep Reinforcement Learning for Optimal Control** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | V (2) + Ü (2)<br>Module taught in: English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: English<br>creditable for bonus | | | | | |
| 10-LURI=GRF-M-232-m01 | **Orbital Mechanics** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (4) + Ü (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>or b) project (report (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic)<br>creditable for bonus | | | | | |
| 10-LURI=S-D-202-m01 | **Space Dynamics** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2)<br>Module taught in: English | | | | | |
| | Method of assessment | | written examination (approx. 90 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: English<br>creditable for bonus | | | | | |
| 10-LURI=AS-S-202-m01 | **Advanced Sensory Systems and Sensor Data Processing** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | written examination (approx. 90 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |

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| 10-LU-RI=SBV-232-m01 | **Satellite Image processing** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | V (4) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| 10-LURI=SL-R-232-m01 | **Selected Topics in Aerospace Computing** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 90 minutes) or<br>b) project (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| **Robotics and Telematics (min. 20 ECTS credits)** | | | | | | | | |
| 10-LU-RI=RO1-232-m01 | **Robotics 1** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):<br>KI, ES, LR, HCI, GE | | | | | |

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| 10-LU-RI=RO2-232-m01 | **Robotics 2** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (4) + Ü (2) + P (1)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):<br>KI, ES, LR, HCI, GE | | | | | |
| 10-LU-RI=AMS-232-m01 | **Autonomous Mobile Systems** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (4) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>Creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):<br>IT, KI, ES, LR, GE | | | | | |
| 10-LU-RI=3D-202-m01 | **3D Point Cloud Processing** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |

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| 10-LURI=PHO-TO-232-m01 | **Photogrammetric Machine Vision** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | V (2) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>Creditable for bonus | | | | | |
| 10-I=TSD-232-m01 | **Telecommunication Systems** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (4) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>creditable for bonus<br>Language of assessment: German and/or English | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): LR | | | | | |
| 10-LURI=SR-T-232-m01 | **Selected Topics in Robotics and Telematics** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 90 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |

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| 10-I=RRS-222-m01 | **Remote Sensing** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | V (2) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or EnglishCreditable for bonus | | | | | |
| | Additional Information | | possible majors for MA 120 Computer Science: LR,IN | | | | | |
| 10-I=QC-221-m01 | **Quantum Communications** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | V (2) + V (2)<br>Module taught in: English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): LR | | | | | |
| 10-LURI=R-SP-232-m01 | **Radar Signal Processing** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | V (2) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| **Practica Aerospace Computer Science (min. 20 ECTS credits)** | | | | | | | | |
| 10-LURI=R-SE-232-m01 | **Space Systems Design** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | R (8)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | project report (10 to 15 pages) and presentation of project (15 to 30 minutes)<br>Language of assessment: German and/or English<br>Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | |

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| 10-LURI=EP-B-232-m01 | **Design of Planetary Bases and Orbital Stations** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | R (8)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | project report (10 to 15 pages) and presentation of project (15 to 30 minutes)<br>Language of assessment: German and/or English<br>Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | |
| 10-LU-RI=PRT-232-m01 | **Practical course - Space Technology** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | P (8)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | Report on practical course (10 to 15 pages) and presentation of results (15 to 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| 10-LURI=FZ-B-232-m01 | **Aircraft Construction** | | | | | | | |
| | ECTS | 10 | Duration | 2 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | R (8)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | Report on practical course (10 to 15 pages) and presentation of results (15 to 30 minutes)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| 10-LURI=F-SIM-232-m01 | **Flight Simulator** | | | | | | | |
| | ECTS | 10 | Duration | 2 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | R (8)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | Report on practical course (10 to 15 pages) and presentation of results (15 to 30 minutes)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| 10-LURI=P-TEL-232-m01 | **Practical Robotics and Telematics** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | P (8)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | Report on practical course (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic<br>Language of assessment: German and/or English | | | | | |

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| 10-LURI=TD-P-232-m01 | **Team Design Project** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | R (8)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | Practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic)<br>Language of assessment: German and/or English | | | | | |
| 10-LURI=FD-W-232-m01 | **FloatSat Design Lab** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | R (8)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | Practical project: development, construction and presentation of a satellite control system (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic)<br>Language of assessment: German and/or English | | | | | |
| 10-I=TEL-232-m01 | **Telecommunication Systems Lab** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | R (8)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | a) written examination (approx. 20 minutes) or<br>b) oral group examination (max. 3 candidates, approx. 15 minutes each) or<br>c) report (4-8 pages)<br>Language of assessment: German and/or English | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):<br>LR | | | | | |
| 10-LU-RI=ESRR-232-m01 | **Embedded Systems in Robotics and Space Technology** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | R (8)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | Practical project: development, construction and presentation of an embedded system (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic)<br>Language of assessment: German and/or English | | | | | |

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| 10-I=IPW-232-m01 | **International Project Workshop** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | R (6)<br>Module taught in: English | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 90 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: English | | | | | |
| | Additional Information | | Project will be block taught, 4 - 6 weeks | | | | | |
| **Computer Science and Applications (min. 15 ECTS credits)** | | | | | | | | |
| 10-I=AG-161-m01 | **Computational Geometry** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):<br>AT,HCI,GE | | | | | |
| 10-I=DB2-212-m01 | **Databases 2** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>creditable for bonus<br>Language of assessment: German and/or English | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,KI,HCI | | | | | |

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| 10-I=DM-232-m01 | **Data Science** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT,KI,HCI,GE,SEC | | | | | |
| 10-I=APR-212-m01 | **Advanced Programming** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>creditable for bonus<br>Language of assessment: German and/or English | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,KI,LR, HCI, ES,GE,SEC | | | | | |
| 10-I=SSS-212-m01 | **Security of Software Systems** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2)<br>Module taught in: English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>creditable for bonus<br>Language of assessment: English | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,KI,LR, HCI, ES, SEC | | | | | |

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| 10-I=A-GIS-212-m01 | **Algorithms for Geographic Information Systems** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>creditable for bonus<br>Language of assessment: German and/or English | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,KI,HCI,LR | | | | | |
| 10-HCI=M-MUI-161-m01 | **Multimodal User Interfaces** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | presentation of project results (approx. 40 minutes)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| 10-I=ES-161-m01 | **Embedded Systems** | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (4) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,ES,LR,GE | | | | | |
| 10-I=KI1-212-m01 | **Artificial Intelligence 1** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>creditable for bonus<br>Language of assessment: German and/or English | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,KI,HCI | | | | | |

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| 10-I=KI2-212-m01 | **Artificial Intelligence 2** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>creditable for bonus<br>Language of assessment: German and/or English | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,KI,HCI,GE | | | | | |
| 10-I=LVS-232-m01 | **Performance Evaluation of Distributed Systems** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):<br>AT,IT,GE,IN | | | | | |
| 10-I=SB-212-m01 | **Systems Benchmarking** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>creditable for bonus<br>Language of assessment: German and/or English | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):<br>SE,IT,ES,HCI,GE | | | | | |

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| 10-I=ST-232-m01 | **Discrete Event Simulation** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):<br>IT,KI,ES,GE,IN | | | | | |
| 10-I=SNA-232-m01 | **Statistical Network Analysis** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2)<br>Module taught in: English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):<br>IN | | | | | |
| 10-I=MLN1-221-m01 | **Machine Learning for Networks 1** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | V (2) + Ü (2)<br>Module taught in: English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,IT,SE,KI,HCI | | | | | |

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| 10-xtAI=CV-202-m01 | **Computer Vision** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2)<br>Module taught in: English | | | | | |
| | Method of assessment | | Written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: English<br>Creditable for bonus | | | | | |
| 10-I=IP-222-m01 | **Image Processing and Computational Photography** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | V (2) + Ü (2)<br>Module taught in: English | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: English<br>Creditable for bonus | | | | | |
| 10-I=PCV-232-m01 | **Practical Computer Vision** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | R (8)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | a) practical report (10 to 15 pages) and presentation of results (approx. 15 to 30 minutes) or<br>b) written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): KI,LR;HCI | | | | | |

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| 10-I=PIP-232-m01 | **Image Processing and Computational Photography Lab** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | R (8)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | a) practical report (10 to 15 pages) and presentation of results (approx. 15 to 30 minutes) or<br>b) written examination (approx. 60 to 120 minutes)<br>If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| 10-I=AKA-232-m01 | **Selected Topics in Algorithms** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):<br>AT | | | | | |
| 10-I=AKT-232-m01 | **Selected Topics in Theory** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):<br>AT | | | | | |

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| 10-I=AK-SE-232-m01 | **Selected Topics in Software Engineering** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE. | | | | | |
| 10-I=A-KITS-232-m01 | **Selected Topics in IT Security** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2)<br>Module taught in: English | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):<br>SE,KI,LR, HCI, ES, SEC | | | | | |
| 10-I=AKIT-232-m01 | **Selected Topics in Internet Technologies** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT. | | | | | |

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| 10-I=A-KIS-232-m01 | **Selected Topics in Intelligent Systems** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):<br>KI | | | | | |
| 10-I=A-KES-232-m01 | **Selected Topics in Embedded Systems** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): ES. | | | | | |
| 10-I=AKL-R-232-m01 | **Selected Topics in Aerospace Engineering** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): LR. | | | | | |

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| 10-I=AKH-CI-232-m01 | **Selected Topics in HCI** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü/S (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Additional Information | | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): HCI. | | | | | |
| 10-I=AKII-232-m01 | **Selected Topics in Computer Science** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | V (2) + Ü/S (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| 10-LURI=AK-P1-232-m01 | **Selected Topics in Physics 1** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | V (2) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |

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| 10-LURI=AK-P2-232-m01 | **Selected Topics in Physics 2** | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | V (4) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| 10-LURI=A-KAA-232-m01 | **Selected Topics in Astronomy and Astrophysics** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | |
| | Courses | | V (2) + Ü (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | a) written examination (approx. 60 to 120 minutes) or<br>b) practical project (project documentation (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic) or<br>c) oral examination of one candidate each (approx. 20 minutes) or<br>d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| **Master Project Modules (30 ECTS credits)** | | | | | | | | |
| 10-LURI-MA-MK-212-m01 | **Concluding Colloquium Aerospace Computer Science** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | K (0) | | | | | |
| | Method of assessment | | final colloquium (approx. 60 minutes)<br>Language of assessment: German and/or English | | | | | |
| 10-LURI-MA-202-m01 | **Master's Thesis Aerospace Computer Science** | | | | | | | |
| | ECTS | 25 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | | No courses assigned to module | | | | | |
| | Method of assessment | | Master's thesis (50 to 100 pages)<br>Language of assessment: German or English | | | | | |
| | Additional Information | | Time to complete: 6 months | | | | | |