Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

# Subdivided Module Catalogue

## for the Module studies (Master)

# Aerospace Computer Science

Examination regulations version: 2021
Responsible: Faculty of Mathematics and Computer Science
Responsible: Institute of Computer Science

# 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

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

# Notes

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 the 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:

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

**15-May-2019 (2019-36)**

**27-Jun-2019 (2019-41)**

**14-Nov-2019 (2019-52)**

**22-Jan-2020 (2020-13)**

**06-May-2020 (2020-39)**

**22-Jul-2020 (2020-57)**

**17-Dec-2020 (2020-110)**

**10-Mar-2021 (2021-17)**

**09-Jun-2021 (2021-58)**

**22-Dec-2021 (2021-85)**

**05-Jul-2022 (2022-52)**

**31-Jan-2023 (2022-86)**

**15-Jun-2023 (2023-58)**

**13-Dec-2023 (2023-107)**

**07-Aug-2024 (2024-82)**

**22-Jan-2025 (2025-1)**

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.

# The subject is divided into

| Abbreviation | Module title | | Method of grading | page |
|---|---|---|---|---|
| **Winter Term 2021** | | | | |
| 10-LURI=FDW-202-m01 | FloatSat Design Lab | 10 | NUM | 5 |
| **Summer Term 2022** | | | | |
| 10-LURI=FDW-202-m01 | FloatSat Design Lab | 10 | NUM | 5 |
| **Winter Term 2022** | | | | |
| 10-LURI=FDW-202-m01 | FloatSat Design Lab | 10 | NUM | 5 |
| **Summer Term 2023** | | | | |
| 10-LURI=FDW-202-m01 | FloatSat Design Lab | 10 | NUM | 5 |
| **Winter Term 2023** | | | | |
| 10-LURI=FDW-232-m01 | FloatSat Design Lab | 10 | NUM | 6 |
| **Summer Term 2024** | | | | |
| 10-LURI=FDW-232-m01 | FloatSat Design Lab | 10 | NUM | 6 |
| **Winter Term 2024** | | | | |
| 10-LURI=FDW-232-m01 | FloatSat Design Lab | 10 | NUM | 6 |
| **Summer Term 2025** | | | | |
| 10-LURI=FDW-232-m01 | FloatSat Design Lab | 10 | NUM | 6 |

| Module title | | | Abbreviation |
|---|---|---|---|
| **FloatSat Design Lab** | | | 10-LURI=FDW-202-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Chair of Computer Science VIII | | Institute of Computer Science | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 10 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | graduate | -- | |

**Contents**

CanSat (now known as FloatSat) is an interdisciplinary project designed - not only - for Aerospace Engineering Master students. It is designed for students with different backgrounds, e. g. in computer science, electronics, mechanical engineering, aerospace technology, physics, mathematics. A satellite project is an interdisciplinary project that requires knowledge and skills in this as well as in numerous other fields. CanSat is thus an ideal platform to combine all available skills in a single project. It covers the design and development of the space segment control software and the ground segment control software: telemetry and telecommanding in wireless communication: space segment - ground segment, electrical subsystem (energy, batteries), mechanical construction.

**Intended learning outcomes**

The students are able to build and integrate into the inside of the sphere the power unit, a control computer, a payload (camera) and attitude control devices: Gyros and reaction wheel of a pico satellite. The software of a CanSat "satellite" includes a real-time operating system (provided by us), commanding (immediate and time-tagged commands), telemetry (real time and history data), attitude control, power control, payload control, image processing and radio links communication. The ground segment ought to be able to generate and send telecommands and to get and (graphically) display the telemetry.

**Courses** (type, number of weekly contact hours, language — if other than German)

R (8)
Module taught in: English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

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)
Language of assessment: English

**Allocation of places**

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**Additional information**

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**Workload**

300 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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|---|---|---|---|
| **FloatSat Design Lab** | | | 10-LURI=FDW-232-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Chair of Computer Science VIII | | Institute of Computer Science | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
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**Courses** (type, number of weekly contact hours, language — if other than German)

R (8)
Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

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