

Module title		Abbreviation
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)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	graduate	--
Contents		
<p>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.</p>		
Intended learning outcomes		
<p>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.</p>		
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 is creditable for bonus)		
<p>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: German and/or English</p>		
Allocation of places		
--		
Additional information		
--		
Workload		
300 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
--		
Module appears in		
<p>Module studies (Master) Aerospace Computer Science (2021) Master's degree (1 major) Aerospace Computer Science (2023)</p>		