

Module title		Abbreviation
Spacecraft System Analysis		10-LURI=SSA-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>Introduction: history of space flight, system design of spacecraft. Space dynamics: two-body dynamics, Kepler orbits, disturbance forces, transfer orbits. Mission analysis: earth and sun-synchronous orbits, shadows, solar angle of incidence. Thermal control of satellites: thermal analysis, thermal design and technologies, verification of thermal designs. Telecommunication: ground contact analysis, data transmission, satellite monitoring (telemetry, telecommando). Structure and mechanisms. Energy systems: primary, secondary, management, power generation: solar cells. On-board data processing. Propulsion systems. Tests (mechanical, electrical). Operation of spacecraft. Ground segment.</p>		
Intended learning outcomes		
<p>The students master system aspects of the layouting of technical systems. Using the example of spacecraft, major subsystems and their integration into a working whole are being analysed.</p>		
Courses (type, number of weekly contact hours, language — if other than German)		
<p>V (4) + Ü (2) Module taught in: English</p>		
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>written examination (approx. 60 to 120 minutes) 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). Language of assessment: English creditable for bonus</p>		
Allocation of places		
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Additional information		
<p>Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): ES, LR</p>		
Workload		
300 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
<p>Master's degree (1 major) Computer Science (2023) Master's degree (1 major) Aerospace Computer Science (2023)</p>		