

<b>Faculty</b>	<b>Faculty 5: Nature and Engineering</b>
<b>Course Title</b>	<b>Spacecraft System Engineering and Design</b>
<b>Number of ECTS credits</b>	<b>6</b>
Hours per week (SWS)	4 + 8
Required Semester	3 <sup>rd</sup> year students from exchange partners (upon request and check) and Master students
Time	Fall semesters
Course objective	<i>The aim of the course is to provide students with an overview of how the spacecrafts are designed in detail. For this purpose a small satellite will be designed within this module.</i>
Prerequisites	Experience with aerospace basics: math, physics, thermodynamics
Recommended reading	Will be given before the lectures.
Teaching methods	Seminars and self-study
Assessment methods	Examination according to examination regulations
Language of instruction	English
Name of lecturer	<u><a href="#">Prof. Dr.-Ing. Bernd Steckemetz</a></u> <u><a href="#">Prof. Dr.-Ing. Indulis Kalnins</a></u>
Email	<u><a href="mailto:Indulis.Kalnins@hs-bremen.de">Indulis.Kalnins@hs-bremen.de</a></u>
Link	<u><a href="http://www.fbm.hs-bremen.de/modul/beschreibung.aspx?modul_id=9fe517d1-ed2c-490f-a7ad-cdae625e7bf7">http://www.fbm.hs-bremen.de/modul/beschreibung.aspx?modul_id=9fe517d1-ed2c-490f-a7ad-cdae625e7bf7</a></u>
Course content	<ol style="list-style-type: none"> <li>1. <i>A system view of Spacecraft – Introduction</i></li> <li>2. <i>The Spacecraft Environment, Dynamics and Orbit Mechanics</i></li> <li>3. <i>Launch vehicles and Mechanical/Electrical Interface Design to Spacecrafts</i></li> <li>4. <i>Small Satellite Design</i> <ul style="list-style-type: none"> <li>○ <i>Main Budgets and Analysis</i></li> <li>○ <i>Bus and Payload Module Design</i></li> <li>○ <i>Onboard Data Handling System</i></li> <li>○ <i>Electrical Power System</i></li> <li>○ <i>Attitude Determination and Control System</i></li> <li>○ <i>Telecommunications</i></li> <li>○ <i>Thermal Design</i></li> <li>○ <i>Propulsion and De-Orbiting Systems</i></li> <li>○ <i>Deployable Systems and Mechanisms</i></li> </ul> </li> <li>5. <i>Ground Segment and In-Orbit Spacecraft Operations</i></li> <li>6. <i>Product Assurance</i></li> </ol>