

Faculty	Faculty 5: Nature and Engineering
Course Title	Non-Chemical Space Propulsion Systems
Number of ECTS credits	6
Hours per week (SWS)	4 + 8
Required Semester	3 rd year students from exchange partners (upon request and check) and Master students
Time	Fall semesters
Course objective	<i>Acquire basic knowledge about non-chemical space propulsion and its application. Ability to perform preliminary design of non-chemical space propulsion systems.</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	Prof. Dr.-Ing. Uwe Apel
Email	Uwe.Apel@hs-bremen.de
Link	http://www.fbm.hs-bremen.de/modul/beschreibung.aspx?modul_id=86edc393-3960-406f-9fb2-a13aec042a9a
Course content	<ol style="list-style-type: none"> 1. <i>Classification of Space Propulsion Systems</i> <ul style="list-style-type: none"> ○ <i>Types of Space Propulsion Systems</i> ○ <i>Performance Parameters</i> ○ <i>Mission Design and Propulsion System Selection</i> 2. <i>Electrical Space Propulsion</i> <ul style="list-style-type: none"> ○ <i>Electrothermal Propulsion</i> ○ <i>Electromagnetic Propulsion</i> ○ <i>Electrostatic Propulsion</i> 3. <i>Nuclear Space Propulsion</i> <ul style="list-style-type: none"> ○ <i>Isotope Propulsion</i> ○ <i>Solid Core Reactors</i> ○ <i>Liquid and Gas Core Reactors</i> 4. <i>Solar Space Propulsion</i> <ul style="list-style-type: none"> ○ <i>Solar Thermal Propulsion</i> ○ <i>Solar Electric Propulsion</i> ○ <i>Solar Sails</i> 5. <i>Laser Propulsion</i>