

**35. Satellite technology (PH040IU)**

Module designation	<i>This course is introductory to general knowledge about satellites, including two parts separately of satellite technology and applications. The first part of the course will introduce students to the fundamental topics of satellite technology, satellite orbits, and satellite launching. The second part of the course focuses mostly on satellite applications, including communication techniques, remote sensing, navigation, weather satellites, and military satellites.</i>
Semester(s) in which the module is taught	1, 2
Person responsible for the module	Dr. Lê Xuân Huy
Language	English
Relation to curriculum	Compulsory
Teaching methods	Lecture, lesson, project
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 127.5 Contact hours (please specify whether lecture, exercise, laboratory session, etc.): lecture: 37.5 Private study including examination preparation, specified in hours: 90
Credit points/ECTS	3 credits/4.62 ECTS
Required and recommended prerequisites for joining the module	None



Module objectives/intended learning outcomes	Upon the successful completion of this course students will be able to:	
	Competency level	Course learning outcome (CLO)
	Knowledge	CLO1. Show the understanding of main satellite applications for developing and functioning satellite/spacecraft systems. CLO2. Show basic knowledge of designing payloads, instruments, and bus systems of a satellite/spacecraft mission
	Skill	CLO3. Express the ability of teamwork skills
Attitude	CLO4. Recognize the state of space business and space industry in the world and in Vietnam.	



Content	<p><i>The description of the contents should clearly indicate the weighting of the content and the level.</i></p> <p>Weight: lecture session (3 hours)</p> <p>Teaching levels: I (Introduce); T (Teach); U (Utilize)</p>		
	Topic	Weight	Level
	Introduction to Satellite technologies and Application	1	I, T
	Space Environments	1	I, T
	Satellite Orbits	1	I, T
	Satellite System Engineering	1	I, T
	Mission Design	1	I, T
	Power subsystem	1	I, T
	Communications subsystem	1	I, T
	Command and data-handling subsystem	1	I, T
	Attitude determination and Control System 1	1	I, T
	Attitude determination and Control System 2	1	I, T
	Assembly, Integration and Test	1	I, T
	Ground station and Mission control and operation	1	I, T
	Space Project Management	1	I, T
New Space and Traditional space 1	1	I, T	
New Space and Traditional space 2	1	U	
Examination forms	Project		



<p>Study and examination requirements</p>	<p>Attendance: A minimum attendance of 80 percent is compulsory for the class sessions. Students will be assessed on the basis of their class participation. Questions and comments are strongly encouraged.</p> <p>Assignments/Examination: Students must have more than 50/100 points overall to pass this course.</p>
<p>Reading list</p>	<p>Textbooks:</p> <p>[1] Anil K. Maini & Varsha Agrawal (2011). <i>Satellite Technology: Principles and Applications</i>, A John Wiley and Sons, Ltd., Publication)</p> <p>References:</p> <p>[2] James R. Wertz, Wiley J. Larson, <i>Space Mission Analysis and Design</i>, Third Edition</p> <p>[3] Miguel A. Aguirre, <i>Introduction to Space Systems: Design and Synthesis</i>, 2013th Edition</p> <p>[4] Wilfried Ley, Klaus Wittmann, Willi Hallmann, <i>Handbook of Space Technology</i>, Aerospace Series, 2009</p>