

The basics of space projects technology
- COURSE SYLLABUS

1.	Course title: <i>The basics of space projects technology</i>
2.	Lecturer: <i>Dr hab. Piotr Orleański</i>
3.	Field, type and level of studies, year of study: <i>Space projects engineering and management, all years of study</i>
4.	Course character: <i>Lecture plus individual presentations</i>
5.	Teaching method: <i>traditional or on-line</i>
6.	Language: <i>English, Polish, depending on the audience</i>
7.	Course type and number of hours: <i>Lecture, 30h</i>
8.	Estimated load of student's independent work: <i>10h</i>
9.	Total workload and number of ECTS points: <i>40h, 5 ECTS</i>
10.	Short description and main focus of the course: <i>1. General information about space projects (organization of space sector, different sources for funding, classification of space projects, organization of space projects, phases, milestones, models, ...).</i> <i>2. Environmental requirements and tests (especially vacuum, temperature, radiation, mechanical stresses, EMC, ...).</i> <i>3. Satellite (platform as the place the payload can be integrated, satellite subsystems, telemetry, communication, ground control, ...).</i> <i>4. Reliability (classification of the mission, design rules, documentation, analysis, components, ...).</i> <i>5. Space 4.0 (how to understand 4.0, 4.0 versus 3.0, advantages, risks and traps, possible mitigations, ...).</i> <i>6. Plus minimum 6 examples of the missions/instruments where the characteristic elements of points 1, 2, 3, 4 and 5 are clearly visible.</i>
11.	References: <ul style="list-style-type: none"> • <i>"Handbook of Space Technology", Wilfried Ley / Klaus Wittmann / Willi Hallmann</i>

	<p>(Editors), 2009 by John Wiley & Sons, Ltd, ISBN: 978-0-470-69739-9</p> <ul style="list-style-type: none"> • "Satelitarna aparatura naukowa – projektowanie instrumentów ze szczególnym uwzględnieniem reguł dotyczących niezawodności, CBK PAN, 2019, ISBN: 978-83-89439-02-4 	
12.	Prerequisites:	
	<i>Basic level of space engineering (physics, electronics, mechanics, optics, ...)</i>	
13.	Educational outcomes:	<u>PQF level 8 codes:</u>
	<i>Knowledge: the course gives the practical knowledge of preparation and realization of the space projects. The lecture can help the future project leaders, space instrument leaders, scientists involved in space projects, project managers, system engineers, PA/QA engineers</i>	<i>P8S_WG, P8S_WK</i>
	<i>Practical Skills: the general information of the space projects is given with a few, selected space projects discussed as an examples</i>	<i>P8S_UW, P8S_UK, P8S_UO</i>
	Social Skills:	
14.	Evaluation of the educational outcomes:	
	<i>individual presentation on selected space project</i>	
15.	Criteria to complete the course:	
	<i>at least 80% attendance plus individual presentation on selected space project</i>	
16.	Contact with the lecturer:	
	<i>porlean@cbk.waw.pl</i>	