

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Basics of Precision Devices Design</b>		Code <b>1010641271010640322</b>
Field of study <b>Mechanical Engineering</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>4 / 7</b>
Elective path/specialty <b>Mechatronics</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time, part-time) <b>full-time</b>	
No. of hours Lecture: <b>1</b> Classes: <b>1</b> Laboratory: <b>-</b> Project/seminars: <b>-</b>		No. of credits <b>3</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art <b>technical sciences</b> <b>Technical sciences</b>		ECTS distribution (number and %) <b>3 100%</b> <b>3 100%</b>
<b>Responsible for subject / lecturer:</b> Ph.D. Janusz Płotkowiak email: janusz.plotkowiak@put.poznan.pl tel. 61 665-2254 Working Machines and Transportation Piotrowo 3 Street, 60-965 Poznań		<b>Responsible for subject / lecturer:</b> Ph.D. Jarosław Adamiec email: jaroslaw.adamiec@put.poznan.pl tel. 61 665 2254 Working Machines and Transportation Piotrowo 3 Street, 60-965 Poznań
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Fundamentals of mechanics, strength of materials, machine design, manufacturing, engineering drawing machine.
2	<b>Skills</b>	Writing construction consistent with the principles of engineering drawing. Determination of forces, moments and stresses in components.
3	<b>Social competencies</b>	Understanding the need to broaden their competence, willingness to cooperate within the team
<b>Assumptions and objectives of the course:</b> The extension of the knowledge acquired in framework of the subject basics of machine design issues related to the design and construction of precision devices.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. Has a basic knowledge of the basics of machine design and the theory of machines and mechanisms, including mechanical vibration. - [K1A_W05]		
2. Has a basic understanding of the tribological processes occurring in machines, i.e. friction, lubrication and wear - [K1A_W12]		
3. Has an elementary knowledge of automation systems, microcontrollers, control algorithms, industrial robots, electronic navigation systems used in machines, wired and wireless communications in local area networks used in machines. - [K1A_W17]		
<b>Skills:</b>		
1. Is able to perform basic functional and strength calculations of machine elements such as transmissions, bearings, clutches, brakes. - [K1A_U08]		
2. Is able to browse catalogs and webpages of machine elements producers for ready parts to use in own projects. - [K1A_U15]		
<b>Social competencies:</b>		

<p>1. Understands the need and knows the possibilities of lifelong learning. - [K1A_K01]</p> <p>2. Is aware of and understands the importance and impact of non-technical aspects of mechanical engineering activities and its impact on the environment and responsibility for own decisions. - [K1A_K02]</p> <p>3. Is aware of the importance of behavior in a professional manner, compliance with the rules of professional ethics and respect for cultural diversity. - [K1A_K03]</p> <p>4. Has a sense of responsibility for one's own work and is willing to comply with the principles of teamwork and taking responsibility for collaborative tasks. - [K1A_K04]</p>
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<b>Assessment methods of study outcomes</b>
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The written examination
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<b>Course description</b>
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The characteristic design features precision devices. General principles of construction, among others.: Mounting and technological requirements, the accuracy of transmitting signals, ergonomics, etc. Materials. Connections, quick connectors. Guides and bearings in precision devices. Clutches and brakes. The keepers, stops trading. Elastic elements. Lubrication of precision devices. The electronic components in devices precision.
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<b>Basic bibliography:</b>
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1. Praca zbiorowa : Konstrukcja przyrządów i urządzeń precyzyjnych, WNT Warszawa 1996.
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<b>Additional bibliography:</b>
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1. Stępień S.: Poradnik konstruktora sprzętu elektronicznego. Warszawa, 1981
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<b>Result of average student's workload</b>
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Activity	Time (working hours)
1. Participation in lectures	15
2. Fixation of the lecture	2
3. Consultation on the material submitted to the lectures	2
4. Preparation for the exam	10
5. Participation in the exam	2
6. Preparing for classes exercises	10
7. Preparation for classes exercises	15
8. Strengthening exercises content	2
9. Consultation on the material disposed on exercises	2
10. Preparing to pass exercises	10
11. Participation in completing exercises	2

<b>Student's workload</b>
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Source of workload	hours	ECTS
Total workload	72	3
Contact hours	38	2
Practical activities	0	0