

SYLLABUS

Course description

Course code		Course	Dokumentacja projektowa		
ME/O/I/NST/B6			Design record		
Language of instruction		English			
Academic year		2025/2026			
field of study:		Mechanical Engineering			
field of specialization:		All			
Educational level		First-cycle studies			
Education profile		General academic			
Mode of study		Part-time studies			
Semester(s)		1, 2			
Affiliation with a group of classes		B. Group of obligatory course core subject			
Course status		Obligatory			
Types of classes, instruction hours, ECTS credits		Types of classes	Number of instruction hours	Number of ECTS credits	
		Lecture	16 [h]	7 ECTS	
		Classes	[h]		
		Lab	32 [h]		
Linkage of the course	with the education profile	Related to the conducted scientific activity in the discipline to which the field of study is assigned			ECTS
	with qualifications	It is used to acquire engineering competences by the student			7 ECTS
	with science discipline	Mechanical engineering			7 ECTS
Form of teaching		Traditional – classes organized at the University /classes conducted using distance learning methods and techniques			
Prerequisites		None			
Department		Faculty of Mechanical Engineering			
Coordinator		Marcin Migus, Ph.D. Eng.			
The website of the basic organizational unit		http://wm.uniwersytetradom.pl			
E-mail address, phone number of the coordinator		m.migus@urad.edu.pl			

LEARNING OUTCOMES, CURRICULUM CONTENT, TEACHING CLASSES, VERIFICATION OF LEARNING OUTCOMES

Learning Objective:	The goal of the course is to equip students with the skills necessary to create comprehensive and accurate technical documentation using industry-standard tools. The course will
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	focus on developing the ability to prepare detailed design records, including technical drawings, specifications, and project reports, in both 2D and 3D formats. Students will also learn to design documentation standards, effectively communicate technical information, and solve practical challenges related to project documentation.
Curriculum Content:	<p>Lecture topics: First Semester: 2D Design Introduction to Design Record and Project Documentation Overview of design records and their role in engineering documentation. Basic Principles of 2D Drawing and Drafting Geometric Dimensioning and Tolerancing Technical Drawing Standards and Conventions Materials and Surface Finishes in 2D Second Semester: 3D Design Introduction to 3D CAD Systems for Design Record Familiarization with 3D CAD software and its use in creating design records. Advanced Geometric Modeling Techniques Assembly Modeling and Drawing Creation Design for Manufacturing and Assembly Documentation of 3D Models for Production</p> <p>Laboratory Topics: First Semester: 2D Design Introduction to CAD software and tools for creating 2D technical drawings Sketching and Dimensioning Basic Geometric Shapes Applying Geometric Tolerances in 2D Drawings Using Layers and Line Types in CAD for Clarity Drafting Detailed and Assembly Drawings Creating Section Views and Auxiliary Views in CAD Design Documentation and Bill of Materials (BOM) Finalizing 2D Design Records for Printing and Sharing Second Semester: 3D Design Creating and Editing 3D Models Using CAD Software Advanced 3D Modeling Techniques Assembly Modeling and Simulation Converting 2D Drawings to 3D Models Advanced modeling techniques for creating complex 3D geometries. Designing for Additive Manufacturing (3D Printing) Creating 3D Technical Drawings and BOMs Rendering and Visualizing 3D Models Performing Interference and Fit Checks on Assemblies</p>
Didactic (educational) methods:	Lecture - Conventional lecture using audiovisual aids, verbal problem-solving method. Laboratory exercises – implementation of a practical tasks.
Course assessment type, the criteria for assessing the achieved learning outcomes, and the method of calculating the final grade:	The condition for passing is to achieve all the required learning out comes specified for the Design record course.

Learning outcomes for the course in relation to the field of study learning outcomes and the type of classes				Methods of verifying learning outcomes	
Learning outcome number	Description of the learning outcomes for the course (PEU) A student who has passed the course (W) knows and understands / (U) can / (K) is ready to:	Field of study learning outcome (KEU)	Types of classes	Form of verification (credits)	Methods of testing and assessment
W1	Knows and understands the principles of design documentation and the tools used in the creation and management of technical drawings and project records.	K_WG04	Lecture	graded pass	Test

U1	Is able to prepare technical documentation and project records, including drawings and specifications, in English or another foreign language recognized as the language of international communication.	K_UK16	Laboratory	graded pass	Continuous assessment
K1	Is ready to complete and critically evaluate specialized knowledge related to technical documentation and is able to select appropriate sources of information and methods for learning and applying design documentation standards for himself and others.	K-KK01	Lecture Laboratory	-	Class participation
K2	Is willing to comprehensively analyze and effectively carry out tasks related to the creation of technical documentation, and in the event of difficulties, seek expert advice to ensure the accuracy and quality of the design records.	K-KK02	Lecture Laboratory	-	Class participation

Literature and teaching aids	
<p>Primary literature: Jaskulski, A. (2023). <i>Autodesk Inventor Professional 2024 PL/2024+. Fusion 360. Metodyka efektywnego projektowania.</i> Wydawnictwo Helion. Szczepański, K. (2020). <i>AutoCAD 2021. Poradnik użytkownika.</i> Wydawnictwo Helion.</p> <p>Additional literature: Cheng, L. (2019). <i>Mastering AutoCAD 2020 and AutoCAD LT 2020.</i> John Wiley & Sons. Albrecht, K. (2018). <i>Mastering Autodesk Inventor 2019 and Autodesk Fusion 360.</i> Wiley. CADArtifex, Dogra, S., & Willis, J. (2023). <i>Autodesk Inventor 2024: A Power Guide for Beginners and Intermediate Users.</i> CADArtifex.</p> <p>Study aids: Online courses regarding subject.</p>	

Student workload required to achieve the assumed learning outcomes – the balance of ECTS credits		
Attendance, participation	Student workload [h].	
	Student's self-study hours Classes without a teacher (ZBN)	Classes
Participation in lectures/classes/lab	X	48 [h]
Preparation for lectures/classes/lab, Preparation for credit / exam	127 [h]	X
Total student workload Preparation for credit / exam	127 [h]/ 5,08 ECTS	48 [h]/ 1,92 ECTS
ECTS points per subject	7 ECTS	

Additional information, comments
<p>In the case of students with special needs, including disabilities, and chronic illnesses, the methods and forms of verification of learning outcomes specified above (in the syllabus) are adapted to the individual needs of these students, as appropriate.</p> <p>Detailed rules and forms of support for students with special needs, including those with disabilities and chronically ill, during classes, credits, and exams are specified in: University Regulations (Regulamin Studiów Uniwersytetu Technologiczno-Humanistycznego w Radomiu), Study Regulations (Zasady Studiowania), and Procedure for Ensuring Accessibility of the Educational Process to Students with Special Needs, Including Those with Disabilities and Chronically ill (Procedura dotycząca zapewnienia dostępności procesu kształcenia studentom ze szczególnymi potrzebami, w tym: z niepełnosprawnością, przewlekłe chorych).</p>