SYLLABUS

Course description

<table>
<tr><td colspan="2">Course code</td><td rowspan="2">Course</td><td colspan="4">MODELOWANIE BRYŁOWE CAD</td></tr>
<tr><td colspan="2">MB/O/I/NST/B1.8</td><td colspan="4">3D CAD SYSTEMS</td></tr>
<tr><td colspan="3">Language of instruction</td><td colspan="4">English</td></tr>
<tr><td colspan="3">Academic year</td><td colspan="4">2023/2024</td></tr>
<tr><td colspan="3">field of study:</td><td colspan="4">Mechanical engineering</td></tr>
<tr><td colspan="3">field of specialisation:</td><td colspan="4">All</td></tr>
<tr><td colspan="3">Educational level</td><td colspan="4">first-cycle studies</td></tr>
<tr><td colspan="3">Education profile</td><td colspan="4">General academic</td></tr>
<tr><td colspan="3">Mode of study</td><td colspan="4">Part-time studies</td></tr>
<tr><td colspan="3">Semester(s)</td><td colspan="4">2</td></tr>
<tr><td colspan="3">Affiliation with a group of classes</td><td colspan="4">Core subjects</td></tr>
<tr><td colspan="3">Course status</td><td colspan="4">Obligatory</td></tr>
<tr><td colspan="3" rowspan="4">Types of classes, instruction hours, ECTS credits</td><td>Types of classes</td><td>Number of instruction hours</td><td colspan="2">Number of ECTS credits</td></tr>
<tr><td>Lecture</td><td>- [h]</td><td colspan="2" rowspan="3">2,5 ECTS</td></tr>
<tr><td>Laboratory</td><td>30 [h]</td></tr>
<tr><td>Project</td><td>-[h]</td></tr>
<tr><td colspan="2" rowspan="3">Linkage of the course</td><td>with the education profile</td><td colspan="3">Related to the conducted scientific activity in the discipline to which the field of study is assigned</td><td>2,5 ECTS</td></tr>
<tr><td>with qualifications</td><td colspan="3">It is used to acquire engineering competences by the student</td><td>2,5 ECTS</td></tr>
<tr><td>with science discipline</td><td colspan="3">Mechanical engineering</td><td>2,5 ECTS</td></tr>
<tr><td colspan="3">Form of teaching</td><td colspan="4">Traditional – classes organized at the University /classes conducted using online learning methods and techniques</td></tr>
<tr><td colspan="3">Prerequisites</td><td colspan="4"></td></tr>
<tr><td colspan="3">Department</td><td colspan="4">Faculty of Mechanical Engineering</td></tr>
<tr><td colspan="3">Coordinator</td><td colspan="4">dr inż. Bogdan Noga</td></tr>
<tr><td colspan="3">The website of the basic organizational unit</td><td colspan="4">http://wm.uniwersytetradom.pl</td></tr>
<tr><td colspan="3">E-mail address, phone number of the coordinator</td><td colspan="4">b.noga@uthrad.pl, 48 361 71 23</td></tr>
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LEARNING OUTCOMES, CURRICULUM CONTENT, TEACHING CLASSES, VERIFICATION OF LEARNING OUTCOMES

Learning Objective:	The aim of the course is to deepen knowledge of computer-aided design and CAD systems The aim of the course is to improve the competence necessary to use CAD techniques to solve engineering problems The aim of the laboratory exercises is to effectively use CAD systems to solve engineering issues issues
Curriculum Content:	**LABORATORY:** Sketch environment - creating flat geometry, creating a profile, defining geometric and dimensional constraints, editing geometry, importing geometry and data from other systems. Part environment - creation of base solids using sketched elements (straight draw, rotation, drag, compound draw, rib, coil), editing of base solids using inserted elements (round off, chamfer, array, copy, hole, thread). Assembly environment - creation of an assembly from individual parts, design of parts from the assembly level, definition of assembly constraints, definition of rotary and rotary-sliding motion, collision analysis, creation of a contact assembly, creation of assemblies using a library of standardised parts, component listing. Creation of technical documentation of parts and assemblies (creation of projections, sections, details, break and tear lines). Creating description of technical documentation of parts (format, drawing frame and table, text, dimensioning, roughness symbol, shape and position tolerance table). Creation of technical documentation description of assemblies (component list, item number, creation and editing of parts list). Demonstration of how to assemble and disassemble designed assemblies (component separation, animation).
Didactic (educational) methods:	**Laboratory**: activities carried out with the use of computer
Course assessment type, the criteria for assessing the achieved learning outcomes, and the method of calculating the final grade:	Subject completed on the basis of the grade from the final colloquium

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	Has knowledge of defining flat parametric geometry, generating single solid models and designing simple assemblies.	K_WG04 K_WG11	Laboratory	Colloquium	Correctness of task performance
W2	Has knowledge of creating technical documentation of parts and assemblies and assembly documentation of the assembly	K_WG04 K_WG11	Laboratory	Colloquium	Correctness of task performance
U1	Can create sketches and generate solid models of individual parts	K_UW05 K_UW14	Laboratory	Colloquium	Correctness of task performance
U2	Can design assemblies using parts and a library of standardised components	K_UW05 K_UW14	Laboratory	Colloquium	Correctness of task performance
U3	Be able to produce technical documentation for parts and assemblies and assembly documentation for the assembly	K_UW05 K_UW14	Laboratory	Colloquium	Correctness of task performance

K1	Understands the need to use modern design support software in engineering practice	K_KO03	Laboratory	Colloquium	Correctness of task performance

Literature and teaching aids
1. B. Noga: Autodesk Inventor. Podstawy projektowania. Helion, Gliwice 2011. 2. B. Noga, Z. Kosma, J. Parczewski: Autodesk Inventor. Pierwsze kroki. Helion, Gliwice 2009. 3. B. Noga, Z. Kosma, J. Parczewski: Laboratorium komputerowych metod inżynierskich, Tom III, Grafika 3D w Autodesk Inventor. Wydawnictwo Politechniki Radomskiej, Radom 2008. 4. F. Stasiak: Zbiór ćwiczeń. Autodesk Inventor 2012. EkspertBooks, Łódź 2011. 5. A. Jaskulski: Autodesk Inventor Professional 2019PL /2019+ /Fusion 360. Metodyka projektowania Wydawnictwo Naukowe PWN, Warszawa 2019 6. Jaskulski: Autodesk Inventor 2020 PL / 2020+. Wydawnictwo Naukowe PWN, Warszawa 2019

Student workload required to achieve the assumed learning outcomes – the balance of ECTS credits			
Attendance, participation	Student workload [h].		
	Other contact hours (IGK)	Student's self-study hours Classes without a teacher (ZBN)	Classes
Participation in .laboratory classes	X	X	20 [h]
Meeting with teachers during their duty hours	10 [h]	X	X
Preparation for laboratory , Preparation for .exam	X	23 [h] 10 [h]	X
Total student workload	10 [h]/ 0,4 ECTS	3 [h]/ 1,3 ECTS	20 [h]/ 0,8 ECTS
ECTS credits for the course	63 h/ 2,5 ECTS		

Additional information, comments
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. 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, przewlekle chorych).