

Course code C.2. Course item

1. INFORMATION ABOUT THE COURSE

A. Basic information

Course title	Computer Aided Design in Construction and Architecture
Field of study	Computer Aided Engineering
Cycle	<i>Second</i>
Study profile	<i>Academic</i>
Study mode	<i>Full-time</i>
Specialisation	<i>Not applicable</i>
Unit responsible for the field of study	<i>Faculty of Architecture, Civil and Environmental Engineering</i>
Lecturer	<i>Dr inż. Tomasz Janiak</i>
Introductory courses	<i>Not relevant</i>
Prerequisites	<i>Basic Descriptive Geometry</i>

B. Semester/ weekly timetable

Semester	Lectures	Classes	Laboratories	Project classes	Seminars	Field experience	ECTS credits
II	15	-	30	-	-	-	3

LEARNING OUTCOMES (acc. to National Qualifications Framework)

No.	Description of learning outcomes	Reference to learning outcomes for the field of study	Reference to learning outcomes for the area of study
KNOWLEDGE			
K1	they know the software for 3D modeling and 2D and technical documentation as part architectural design and construction	CAE_W03	T2A_W04, T2A_W05
K2	they are able to simulate the behavior of objects and technical devices with computer-aided tools	CAE_W04	T2A_W04, T2A_W05
K3	they understand the problems of cooperation, including the exchange of data between different computer-aided environments; know how to solve these problems	CAE_W07	T2A_W04, T2A_W05
SKILLS			
S1	they can create numerical models of processes and systems of technical objects and spatial	CAE_U01	T2A_U09, T2A_U17
S2	they are able to simulate the behavior of objects and	CAE_U02	T2A_U09,

	technical devices (principally building structures) with computer-aided tools, and on this basis can propose improvements to existing structures and systems		T2A_U16, T2A_U17
S3	they can obtain information from literature, databases and the Internet (primarily in English), they are able to interpret the information and critical evaluation, they can draw conclusions and formulate and thoroughly justify opinions	CAE_U07	T2A_U01
SOCIAL COMPETENCES			
SC1	they understand the need for learning throughout life	CAE_K01	T2A_K01

2. TEACHING METHODS

<i>Multimedia lectures, presentations.</i> <i>Design classes, projects.</i>
--

2. METHODS OF EXAMINATION

<i>Lectures: test, students' presentation.</i> <i>Laboratories: two projects</i>

3. COURSE CONTENT

Lectures	<ol style="list-style-type: none"> 1. Introduction, basic concepts of construction 2. Modeling of buildings 3. Engineering Graphics 4. Computer-assisted analysis of the structure and dimensioning of elements 5. MES and other numerical methods in CAD software 6. Overview of CAD software used in architectural design, construction, preparation of cost estimates, etc.
Laboratories	The use of CAD software to prepare architectural drawings and construction documents. The use of CAD software to perform the calculations for static and strength of building.

4. VALIDATION OF LEARNING OUTCOMES

(Each learning outcome from the list requires validation methods to ensure that it was achieved by a student.)

Learning outcome	Form of assessment (for example:)					
	Test	Presentation	Project	-	-	-
K1	x	x				
K2	x	x				
K3	x					
S1			x			
S2			x			
S3		x				
SC1		x				

5. LITERATURE

Basic literature	<p>Mazur J., Kosiński k., Polakowski K. Grafika inżynierska z wykorzystaniem metod CAD. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 2004</p> <p>Sydor M., Wprowadzenie do CAD. Podstawy komputerowo wspomaganego projektowania, Wydawnictwo Naukowe PWN, Warszawa, 2009</p> <p>Mazur J., Kosiński K., Polakowski K., Grafika inżynierska z wykorzystaniem metod CAD, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 2006</p> <p>Zeid I., CAD/CAM theory and practice, McGraw-Hill, New York, 1991</p> <p>Lee K., Principles of CAD/CAM/CAE systems, Addison-Wesley, Reading 1999</p> <p>Dowolna literatura dotycząca programu AutoCAD lub programów pokrewnych.</p>
Supplementary literature	<p>Instrukcje użytkowania wykorzystywanych programów typu CAD</p> <p>Materiały informacyjne i promocyjne producentów oprogramowania CAD (w tym również pozyskiwane przez Internet)</p>

6. TOTAL STUDENT WORKLOAD REQUIRED TO ACHIEVE EXPECTED LEARNING OUTCOMES EXPRESSED IN TIME AND ECTS CREDITS

Student's activity	Student workload– number of hours (for example:)
Participation in classes indicated in point 2.2	45
Preparation for classes	15
Reading assignments	15
Other (preparation for exams, tests, carrying out a project etc)	15
Total student workload	90
Number of ECTS credits allocated by the lecturer	3
Final number of ECTS credits (determined by the Programme Council for the Field of Study)	3