

SYLLABUS

1. Information regarding the programme

1.1 Higher education institution	Babeş-Bolyai University
1.2 Faculty	Faculty of Mathematics and Computer Science
1.3 Department	Department of Computer Science
1.4 Field of study	Computers and Information Technology
1.5 Study cycle	Undergraduate
1.6 Study programme / Qualification	Information Engineering

2. Information regarding the discipline

2.1 Name of the discipline (en) (ro)	Computer Aided Graphics 1 Grafică asistată de calculator 1						
2.2 Course coordinator	Lecturer dr. eng. habil. Praisach Zeno-Iosif						
2.3 Seminar coordinator	Lecturer dr. eng. habil. Praisach Zeno-Iosif						
2.4. Year of study	1	2.5 Semester	1	2.6. Type of evaluation	E	2.7 Type of discipline	Compulsory DF
2.8 Code of the discipline	MLE7004						

3. Total estimated time (hours/semester of didactic activities)

3.1 Hours per week	4	Of which: 3.2 course	2	3.3 seminar /laboratory	2 LP
3.4 Total hours in the curriculum	56	Of which: 3.5 course	28	3.6 seminar /laboratory	28
Time allotment:	hours				
Learning using manual, course support, bibliography, course notes	14				
Additional documentation (in libraries, on electronic platforms, field documentation)	14				
Preparation for seminars/labs, homework, papers, portfolios and essays	14				
Tutorship	0				
Evaluations	2				
Other activities:					
3.7 Total individual study hours	44				
3.8 Total hours per semester	100				
3.9 Number of ECTS credits	4				

4. Prerequisites (if necessary)

4.1. curriculum	•
4.2. competencies	•

5. Conditions (if necessary)

5.1. for the course	• PC, video projector, AUTOCAD software
5.2. for the seminar /lab	• PC, video projector, AUTOCAD software

activities	
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6. Specific competencies acquired

Professional competencies	<p>C1.4 Formal evaluation of the functional and non-functional characteristics of computing systems</p> <p>C3.1 Identifying classes of problems and solving methods that are specific to computing systems</p> <p>C3.5 Developing and implementing information system solutions for concrete problems</p>
Transversal competencies	<p>CT1 Honourable, responsible, ethical behaviour, in the spirit of the law, to ensure the professional reputation</p> <p>CT3 Demonstrating initiative and pro-active behaviour for updating professional, economical and organizational culture knowledge</p>

7. Objectives of the discipline (outcome of the acquired competencies)

7.1 General objective of the discipline	<ul style="list-style-type: none"> Improve constructive design skills of components used in engineering; To teach students the techniques of computer-aided design and modelling of parts, with application on AutoCAD.
7.2 Specific objective of the discipline	<ul style="list-style-type: none"> Create graphic elements/objects in 2D/3D space and modify their properties. Adding, using and following standardisation elements. Making the project to the required scale using the correct units of measurement. Making complex projects and integrating elements from external files created with CAD or other software applications.

8. Content

8.1 Course	Teaching methods	Remarks
Ch. 1 AutoCAD environment interface: Navigating AutoCAD environment, prototype files.	Lecture, exposition, explanations, dialogue, video projection. Feedback is provided through questions to students after completion of each chapter taught.	2 hours
Ch. 2 Drawing organization and query commands: Using layers, changing object properties, taking properties from an existing object, using the property palette and line types.		2 hours
Ch. 3 Creating basic drawings: Entering data, Creating basic objects, using <i>Object Snap</i> , <i>Object Snap Tracking</i> , <i>Polar Tracking</i> , <i>Polar Snap</i> . Using and setting measurement units.		2 hours
Ch. 4 Manipulating objects: selecting objects from the drawing, changing the position of an object - <i>Move</i> , creating new objects based on existing ones, changing the angle of an object's position, creating a mirror image of objects, matrix multiplication of objects - <i>Array</i> , changing the size of an object - <i>Scale</i> .		2 hours
Ch. 5 Modifying objects: <i>Trim</i> and <i>Extend</i> commands, Creating parallel geometries - <i>Offset</i> , Merging objects, Splitting an object into two objects, Creating connections, Creating chamfers.		2 hours
Ch. 6 Using Layout, Viewports and Annotation		2 hours

Scale		
Ch. 7 Drawing annotation: Creating multi-line text, single-line text, using text styles, editing text.		2 hours
Ch. 8 Dimensioning: Creating dimensions, using dimensioning styles, editing dimensions, Using multileader.		2 hours
Ch. 9 Hatch: Hashing objects, editing hatch objects.		2 hours
Ch. 10 Creating additional objects: polylines, splines, ellipses.		2 hours
Ch. 11 Plotting: Using page settings, Plotting drawings.		2 hours
Ch. 12 3D Design: Introduction to 3D, Creating simple models from 2D profiles.		2 hours
Ch. 13 3D modelling: Creating solids. Creating composite solids.		2 hours
Ch. 14 3D modelling: 3D working methods. Creating models from cross sections.		2 hours
Bibliography		
<p>1. Nedelcu D., Cojocaru V., <i>Grafică asistată de calculator prin AutoCAD</i>, Editura Eftimie Murgu, Reșița, 2010, ISBN 978-973-1906-84-3, 508 pagini (include DVD cu aplicații detaliate în video–tutoriale).</p> <p>2. Chadwick T., Ellis R., <i>A Practical Guide to AutoCAD® 2019</i>, CADapult Press, Inc. 2018, ISBN: 978-1-934865-40-8</p> <p>3. Simion I., <i>Autocad 2011 pentru ingineri</i>, Editura Teora, București, 2011.</p> <p>4. Badut M., <i>AutoCAD-ul în trei timpi</i>, ediția a IV-a, Editura Polirom, 2014, ISBN: 978-973-46-4430-8.</p> <p>5. Ghionea I., <i>Proiectarea asistată de calculator în 3D cu AutoCAD</i>, Editura BREN, Bucuresti, 2005.</p> <p>6. Segal L., Ciobănașu G., <i>Grafică inginerească cu AutoCAD</i>, Editura TehnoPress, Iași, 2003.</p> <p>7. Zirbel, J.H., Combs, S.B. – <i>Utilizarea programului AutoCAD</i>, Editura Teora, ISBN 973-601-303-0, București, 1996.</p> <p>8. Dolga L., Voia I., Vodă M. - <i>Modelare spațială în mediul AutoCAD R14</i>, Editura Orizonturi Universitare, Timișoara, 1999.</p> <p>9. Dolga L. - <i>Bazele proiectării asistate de calculator</i>, Centrul de multiplicare al Universității „Politehnica” Timișoara, 1997.</p> <p>10. Dolga L., Saftencu D., Vodă M. - <i>Grafică asistată de calculator</i>, Îndrumător de lucrări, Centrul de multiplicare al Universității „Politehnica” Timișoara, 1995.</p> <p>11. Finkelstein E., <i>AutoCAD 2009 & AutoCAD LT 2009 Bible</i>, Ed. Indianapolis Wiley Publishing, 2008</p>		
8.2 Laboratory	Teaching methods	Remarks
L.1. Safety rules applicable in the laboratory. AutoCAD working environment. Applications 2D-1 (<i>Guide bushing</i>) and 2D-2 (<i>Chamfered bushing</i>) in [1];		2 hours
L.2. Applications 2D-4 (<i>Reduction</i>) and 2D-5 (<i>Grooved bushing</i>) in [1];		2 hours
L.3. Applications 2D-6 (<i>Plate for indexing mechanism</i>) and 2D-7 (<i>Nozzle</i>) in [1];	Practical applications from the literature reference [1] using AutoCAD. The examples of the teaching framework are made with a video projector.	2 hours
L.4. Applications 2D-8 (<i>Hemispherical head</i>) and 2D-9 (<i>Bolt</i>) in [1];		2 hours
L.5 Applications 2D-10 (<i>Stamped plate</i>) and 2D-11 (<i>Semi flange</i>) in [1];		2 hours
L.6 Applications 2D-12 (<i>Spacer</i>) and 2D-13 (<i>Gasket</i>) in [1];		2 hours
L.7 Applications 2D-14 (<i>Arm joint</i>) and 2D-15 (<i>Profiled plate</i>) in [1];		2 hours
L.8 Applications 2D-16 (<i>Tubing</i>) and 2D-17 (<i>Guide bracket</i>) in [1];		2 hours
L.9 Applications 2D-18 (<i>Hook</i>) and 2D-19 (<i>Planar</i>		2 hours

cam) in [1];		
L10 Application 2D-20 (<i>Double elliptic eccentric</i>) in [1];		2 hours
L11 Application 2D-21 (<i>Wire support</i>) in [1];		2 hours
L12 Application 3D-1 (<i>Fork</i>) in [1];		2 hours
L13 Application 3D-2 (<i>Sliding bearing</i>) in [1];		2 hours
L14 Completion of laboratory work.		2 hours

Bibliography

- Nedelcu D., Cojocaru V.,** *Grafică asistată de calculator prin AutoCAD*, Editura Eftimie Murgu, Reșița, 2010, ISBN 978-973-1906-84-3, 508 pagini (include DVD cu aplicații detaliate în video – tutoriale).
- Simion I.,** *Autocad 2011 pentru ingineri*, Editura Teora, București, 2011.
- Badut M.,** *AutoCAD-ul în trei timpi*, ediția a IV-a, Editura Polirom, 2014, ISBN: 978-973-46-4430-8.
- Ghionea I.,** [*Proiectarea asistată de calculator în 3D cu AutoCAD*](#), Editura BREN, Bucuresti, 2005.
- Dolga L. -** *Bazele proiectării asistate de calculator*, Centrul de multiplicare al Universității „Politehnica” Timișoara, 1997.
- Frey D.,** *AutoCAD 2008 și AutoCAD LT 2008*, Editura Teora, București, 2008.
- Finkelstein E.,** *AutoCAD 2009 & AutoCAD LT 2009 Bible*, Ed. Indianapolis Wiley Publishing, 2008.

9. Corroborating the content of the discipline with the expectations of the epistemic community, professional associations and representative employers within the field of the program

- They were established with the main employers in discussions prior to the study programme.

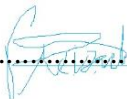
10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the grade (%)
10.4 Course	Participation in debates	Attendance. Number of interventions	10 %
	Level of acquired knowledge	Grid test	40 %
10.5 Seminar/lab activities	Involvement in activities	Correct solving of the laboratory applications	10 %
	Level of practical skills acquired	Practical application solved in AUTOCAD	40 %
10.6 Minimum performance standards			
<ul style="list-style-type: none"> ➤ Passing the grid test with a mark of 5 ➤ Passing the practical application with a mark of 5 			

Date

May 2022

Signature of course coordinator

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Signature of seminar coordinator

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Date of approval

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24.05.2022

Signature of the head of department

Prof. dr. Laura Dioșan

