



Computer Applications II.

***MSc in Petroleum Engineering* MFKOT720021**

COURSE DESCRIPTION

**FACULTY OF EARTH AND
ENVIRONMENTAL SCIENCES AND ENGINEERING
MINING AND ENERGY INSTITUTE**

2026. Fall Term

Course Data Sheet

Course Title: Computer Applications II. Instructor: Dr. Zoltán TURZÓ associate professor	Code: MFKOT720021 Responsible department/institute: DPE/IPNG (OMTSZ/BEI)
	Course Element: Compulsory
Position in curriculum* (which semester): 1 (2)	Pre-requisites (if any): no
No. of contact hours per week (lecture + seminar): 0+3	Type of Assessment (examination / practical mark / other): practical mark
Credits: 3	Course: full time

Course Description:

1. Database management using Microsoft Excel: user interface, elements of databases, relational databases.
2. Creation of queries and reports.
3. Database maintenance.
4. General descriptions of CAD programs.
5. Creation of simple engineering drawings using AutoCAD: user interface
6. Creation of simple engineering drawings using AutoCAD: drawings up to scale
7. Creation of simple engineering drawings using AutoCAD: drawing elements.
8. Three-dimensional drawings.
9. General descriptions of mathematical programs.
10. Usage of MathCAD program: simple calculations.
11. Usage of MathCAD program: graphics, matrix operations,
12. Usage of MathCAD program: processing and analyzing measured data,
13. Usage of MathCAD program: programming,
14. Usage of MathCAD program: integral and differential calculations

Competencies to evolve:

Knowledge:

Knows the economic processes related to the hydrocarbon industry.

Knows the basics of numerical simulation of underground storages.

Knows the methods and tools of computerized design and analysis in the hydrocarbon industry.

Ability:

Able to interpret the economic processes related to the hydrocarbon industry and to give adequate answers to them.

Capable of monitoring and forecasting the processes taking place in oil and natural gas water wells.

Able to choose the optimal production method, design and select the production equipment.

Capable of predicting the behavior of fluids in petroleum, natural gas, and geothermal reservoirs, the properties of reservoir rocks, and the characteristics of flow in such reservoirs.

Able to recognize the production mechanisms of underground reservoirs and select the primary or enhanced extraction mechanisms that provide optimal production.

Capable of numerical simulation of underground storages.

Capable of hydrocarbon industrial computer design and analysis.

Attitude:

Autonomy and responsibility:

Assessment and grading:

Students will be assessed with using the following elements.

Attendance:	5 %
Homework	20 %
Midterm exam	30 %
Final exam	45 %
Total	100%

Grading scale:

% value	Grade
90 -100%	5 (excellent)
80 – 89%	4 (good)
70 - 79%	3 (satisfactory)
60 - 69%	2 (pass)
0 - 59%	1 (failed)

Compulsory or recommended literature resources:

- User manual of Microsoft Excel
- User manual of Visual Basic
- User manual of the AutoCad

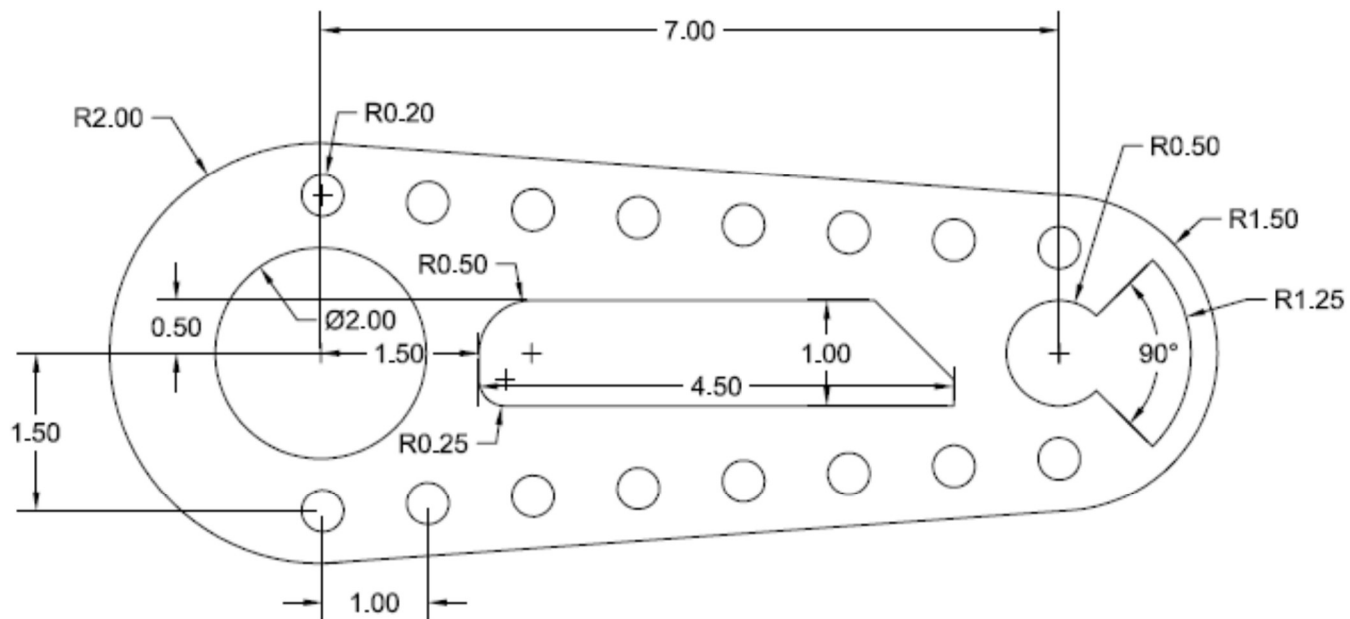
- User manual of MathCad

Course Schedule for 2026/27 school year, Fall term

Date	Topic
2026.09.07	Checking the knowledge level of the students: Database management using Microsoft Excel: user interface, elements of databases.
2026.09.14	Visual Basic (VB) functions in EXCEL: syntax, simple functions, managing VB modules
2026.09.21	VB Do Loop cycle
2026.09.28	VB For Loop
2026.10.05	General descriptions of CAD programs.
2026.10.12	Creation of simple engineering drawings using AutoCAD: user interface, drawing elements.
2026.10.19	Creation of simple engineering drawings using AutoCAD: user interface, drawing elements.
2026.11.02	Creation of simple engineering drawings using AutoCAD: user interface, drawing elements.
2026.11.09	Three-dimensional drawings.
2026.11.16	General descriptions of mathematical programs. Usage of MathCAD program: simple calculations, graphics,
2026.11.23	MathCad: matrix operations, processing and analyzing measured data
2026.11.30	MathCad: programming, integral and differential calculations.
2026.12.07	Test Writing

Test example
Computer Applications II.

Create an AutoCAD drawing similar to this one bellow



The created file must be submitted at the end of the test time!

The name should be:

Your name + "-CompAppIIAcadTest-YYMMDD"