MEĐIMURSKO VELEUČILIŠTE U ČAKOVCU
MEĐIMURJE UNIVERSITY OF APPLIED SCIENCES IN ČAKOVEC

COURSE SYLLABUS

ACADEMIC YEAR:	2024/2025

1. GENERAL COURSE INFORMATION

1.1 Course name	Mathematics 2				
1.2 Study program/s	UNDERGRADUATE PROFESSIONAL STUDY PROGAMME COMPUTER ENGINEERING				
1.3 Course status (O,E)	O	**1.6 Mode of instruction (number of hours)**	**Lectures**	30	
1.4 Course code			**Exercises**	45	
1.5 Course abbreviation			**Seminars**		
1.6 Semester	II		**E-learning**	Merlin	
1.7 ECTS	7	**1.7 Place and time of instruction**	The premises of the Međimurje University of Applied Sciences in Čakovec, according to the schedule published on the website		

2. TEACHING STAF.F

2.1 Course leader/s-title	Tibor Rodiger, senior lecturer	**contact**	trodiger@mev.hr
		contact	
2.2 Assistant/s- title		**contact**	
		contact	
2.3 Instruction held by- title	Tibor Rodiger, senior lecturer	**contact**	trodiger@mev.hr
2.4 Course leader/s-title		**contact**	

3. COURSE DESCRIPTION

3.1. Course goals	The student should learn the chapters in mathematics necessary to solve engineering problems
3.2 Prerequisites	
3.3 Course outcomes	After successfully completing the course, students will be able to: I1 – Derive implicitly given functions I2 – Apply derivatives for tangent, normal and angle between curves, L'Hospital's rule I3 – Examine the flow of a function and draw a graph using monotonicity, convexity, extrema and asymptotes I4 – Calculate the indefinite and definite integral I5 – Apply the integration of the area, the length of the arc of the curve and the volume of the rotating body I6 – Solve differential equations
3.4 Contribution of the course to the study program	Apply relevant mathematical and statistical methods in software engineering.
3.5 Course content	The course includes the derivation of an implicit function, application of derivations, integral calculus, application of integrals and differential equations.

3.6 Types of coursework	x	Lectures	X	Exercises		Blended e-learning	X	Individual activities		Laboratory

	Seminars and workshops		Distant learning		Field classes		Multimedia and network		Mentorship
	Other								

3.7 Language of instruction	Croatian					
3.8 Monitoring students' work (enter the number of ECTS credits for each activity so that the total number of ECTS credits is equal to the total ECTS value of the course, 1 ECTS = 30 hours)	2,5	Class attendance		Seminars		Research
	3,5	Midterm exams/written exam		Project		Essay
	1	Oral exam		Practical task		

Activity specification	Percent %	Points
Assessment during instruction		
Lesson assignments	10%	10
Midterm exam 1	40%	40
Midterm exam 2	40%	40
Oral exam	10%	10
Exam assessment for the students who failed to fullfil all the obligatory requirements during the semester		
Written exam	80%	80
Oral exam	20%	20
Total:	**100%**	**100**

Points   Grade
89 – 100 excellent (5)
76 – 88   very good (4)
63 – 75   good (3)
50 – 62   pass (2)
* 0 – 49   fail (1)*

3.9 Specific features related to taking the course	*If a student collects 50% of the points of each outcome he/she directly accesses the oral exam. If a student does not achieve a sufficient number of points on the midterm exam, he/she cannot take the next midterm exam, and has to take the written exam.* *If he/she passes the written exam, he/she will proceed to the oral part of the exam.* *The final grade is given on the oral part of the exam.*
3.10 Students obligations	• a full-time student has the right to sit for the exam if he attends classes for a minimum of 70% of the total prescribed number of hours • a full-time student who attends classes from 50 to 70% of the total prescribed number of hours can exercise the right to take the exam by completing additional teaching activities in agreement with the course teacher • a full-time student who attends a certain course for less than 50% of the prescribed number of hours enrolls in the course the following academic year • a part-time student has the right to sit for the exam if he/she attends classes for a minimum of 30% of the total prescribed number of hours • a part-time student who attends classes for 20 to 30% of the total prescribed number of hours can exercise the right to sit for the exam

		by completing additional teaching activities in agreement with the course teacher
	•	a part-time student who attends the classes of a certain course for less than 20% of the prescribed number of hours re-enrolls in the course the following academic year
3.11 Written assignments		
3.12 Required reading	1.	P. Javor: Uvod u matematičku analizu, Školska knjiga, Zagreb, 1993.
	2.	T. Rodiger: Derivacije – riješeni zadaci, drugo prošireno izdanje, MEV, Čakovec, 2023.
3.13 Additional reading	1.	B. P. Deminovič i suradnici: Zadaci i riješeni primjeri iz Matematičke analize, Golden marketing –Tehnička knjiga, Zagreb, 2003
	2.	Ivan Slapničar: Matematika 1 i 2, digitalni udžbenik s interaktivnim animacijama i interaktivnom provjerom znanja, http://www.fesb.hr/mat2.
	3.	T. Bradić, R. Roki, J. Pečarić, M. Strunje: Matematika za tehnološke fakultete, Element, Zagreb, 1998.
	4.	B.Kovačić, L.Marohnić, T.Strmečki: Repetitorij matematike za studente elektrotehnike, TVZ, Zagreb, 2014

4. ADDITIONAL INFORMATION ABOUT THE COURSE

4.1 Quality control	The quality of the program, teaching process, teaching skills and level of mastery of the material will be established by conducting a written evaluation based on questionnaires, and in other standardised ways and in accordance with the by-laws of the Međimurje University of Applied Sciences in Čakovec.
4.2 Contact the teacher	Students can contact the teacher during the office hours and during classes. All other methods of communication are arranged with the teacher. It is also possible to ask questions by e-mail, which will be answered in 48 hours at the latest. It is desirable for students to come as often as possible for any possible questions during the teacher's office hours.
4.3 Information about the course	It is the obligation of each student to be regularly informed about the course. All notifications about the classes or possible postponement of classes will be posted on the bulletin board and on the website of the University at least 24 hours in advance.

5. ELABORATION OF THEMATIC UNITS

Week	Topic	Course outcome
1.	Application of derivatives: logarithmic derivative, implicit function derivative, higher order derivatives	I1
2.	Application of derivatives: tangent and normal of a function, angle between curves, L'Hospital's rule	I2
3.	Application of derivatives: rise and fall of a function, extrema, convexity and concavity, inflection points	I3
4.	Graphing a function: examining the flow of a function and drawing a graph	I3
5.	Graphing a function: examining the flow of a function and drawing a graph	I3
6.	Indefinite integral: primitive function and indefinite integral	I4
7.	Indefinite integral: method of substitution. Midterm exam 1	I4
8.	Indefinite integral: method of partial integration	I4
9.	Indefinite integral: integrals of rational functions, integration of trigonometric and irrational functions	I4
10.	Definite integral: definite integral, Newton-Leibnitz formula	I4
11.	Application of the integral: area	I5

12.	Application of the integral: area	I5
13.	Application of integrals: arc length of a curve, volume of a rotating body	I5
14.	Differential equations: Separation of variables	I6
15.	Differential equations: Homogeneous differential equations. Midterm exam 2	I6