

Course title: Calculus 2

Course Basic Information	
Academic Unit:	Faculty of Electrical and Computing Engineering
Course title:	Calculus 2
Level:	Bachelor
Course Status:	Mandatory
Year of Study:	I (first)
Number of Classes per Week:	4+2
ECTS Credits:	7
Time /Location:	
Teacher:	Prof. Dr. Marjan Dema, Prof. Asoc. Dr. Qefsere Doko Gjonbalaj, Prof. Asoc. Dr. Shqipe Lohaj, Prof. Ass. Dr. Valdete Rexhëbeqaj Hamiti
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Course Description:	In this subject we work: Integral computation and its implementation, functions with two or more variables and ordinary differential equations.
Course Goals:	Students should be trained so that the knowledge gained through this course can be applied as an ancillary device in information and communication technology.
Expected Learning Outcomes:	Upon completion of this course the student will be able to: <ul style="list-style-type: none">• understand the concept of indefinite and definite integral as well as their application in the measurement of various measures in Geometry, Electrotechnics, Telecommunication, Informatics and other fields;• generalize concepts related to functions with one variable into multi variable functions and in particular into those with two variables;• be able to apply every concept related to the differential calculation for the one variable function in the case of two variable functions;• think logically about various differential equations, solve concrete examples step by step and model different practical problems through differential equations.

Student Workload (should be in compliance with student's Learning Outcomes)			
Activity	Hours	Day/ Week	Total
Lectures	4	15	60
Theory/ Lab Work/Exercises	2	15	30
Practical Work			
Preparation for intermediate test	2	15	30
Consultations with the teacher	1	5	5
Field Work			
Test, seminar paper	2	2	4
Homework	1	15	15
Self-study (library or home)	1	15	15
Preparation for final exam	10	1	10
Assessment time (test, quiz, final exam)	3	1	3
Projects, presentations, etc.	3	1	3
Total			175
Teaching Methods:			
	Lectures, discussions, exercises, consultations, homework, seminar work, intermediate evaluations, final exam.		
Assessment Methods:			
	<i>The pass limit is 50%. Attendance and classroom activity (10%) Seminar work and homework (10%), First Intermediate evaluation (20%), Second Intermediate evaluation (20%), Final Exam (40%).</i>		
Primary Literature:			
	1. Hamiti E. - Matematika I, Prishtinë 2008. 2. Hamiti E. - Matematika II, Prishtinë 2008. 3. Hamiti E. - Matematika III, Prishtinë 2008. 4. Peci H, Doko M. - Përmbledhje detyrash të zgjidhura nga Matematika I, Prishtinë 1997. 5. Loshaj Z. - Përmbledhje detyrash të zgjidhura nga Matematika II, Prishtinë 1996. 6. Hamiti E, Lohaj SH.- Përmbledhje detyrash të zgjidhura nga Matematika III, Prishtinë 2008.		
Additional Literature:			
	1. Mary Attenborough.-Mathematics for Electrical Engineering and Computing 2. Riddle D.- Calculus and Analytic Geometry, Belmont, 1968. 3. Spiegel M.- Advanced Mathematics, New York, 1971.		
Designed teaching plan			
Week	Title of the Lecture		
Week 1:	Indefinite integral. Methods of integration.		
Week 2:	Integration of rational, irrational and trigonometric functions.		
Week 3:	The definite integral and its properties. The fundamental theorem of calculus.		

Week 4:	Improper integrals. Application of definite integrals. Surface area.
Week 5:	Volume. Arc Length and Surface Area
Week 6:	Functions with two or more variables. Limit of multi-variable function. Continuity of multi-variable functions.
Week 7:	Derivatives and partial differentials of multi-variable function.
Week 8:	Extreme values of functions with two variables. Substituting variables.
Week 9:	Ordinary differential equations. Some types of differential equations: separable differential equations, homogeneous differential equations.
Week 10:	First-order linear differential equations, the Bernoulli equation, the Riccati equation.
Week 11:	Total differential equations, integrating factors, second-order differential equations that can be transformed into first-order equations.
Week 12:	Curve families. Orthogonal and isogonal trajectories. Singular solutions of the first-order differential equation.
Week 13:	Homogeneous and nonhomogeneous second-order linear differential equations. Constant variation method.
Week 14:	Homogeneous and nonhomogeneous second-order linear differential equations with constant coefficients. Euler's differential equation.
Week 15:	Homogeneous and nonhomogeneous linear order differential equations of higher order with constant coefficients.

Academic Policies and Code of Conduct

*We start and finish class on time.
 Mobile/smart phones must be turned off (or on vibrate) and hidden from view during class time.
 Laptop and tablet computers are allowed for quiet use only; other activities such as checking personal e-mail or browsing the Internet are prohibited.*