Course Syllabus

I. General Information

Course name in Bosnian	Inzinjerska matematika
Course name in English	Engineering Mathematics
Programme	
Level of studies (BA, BSc, MA, MSc, long-cycle MA)	Msc.
Form of studies (full-time, part-time)	Full-time
Discipline	Mathematics
Language of instruction	English

Course coordinator/person responsible	Assoc. Prof. Muhamed Hadziabdic

Type of class *(use only the types mentioned below)*	Number of teaching hours	Semester	ECTS
Lecture	30	III	6
Tutorial	30	III	
Classes			
Laboratory classes			
Workshops			
Seminar			
Introductory seminar			
Foreign language classes			
Practical placement			
Field work			
Diploma laboratory			
Translation classes			
Study visit			

Course pre-requisites	Knowledge of calculus mathematics

II. Course Objectives

C1 – To introduce ordinary differential equations and the methods for solving these equations
C2 – To use differential equations to model different real-life phenomena
C3 – To integrate the knowledge accumulated in the calculus sequence to solve applied problems
C4 – To introduce fundamentals of Linear Algebra and Complex Analysis
C5 – To introduce upper level mathematics necessary for students of engineering

III. Course learning outcomes with reference to programme learning outcomes

Symbol	Description of course learning outcome (Successful completion of the course means that a student is able to)	Reference to programme learning outcome
KNOWLEDGE		
W_01	Recognize and graph basic polynomial, rational and trigonometric functions.	K_W04
W_02	Classify differential equations as to order and degree, ordinary or partial, homogeneous or inhomogeneous, linear or nonlinear	K_W04
W_03		K_W04
SKILLS		
U_01	Analyze different functions by using tools of differential calculus	K_U01
U_02	Apply the principles of vector algebra to solve a variety of basic problems in engineering and applied science	K_U01
U_03	Apply the principles of Partial Differentiation, Directional Derivatives and Double integral.	K_U01
U_04	Derive differential equations for simple engineering systems and be able to derive appropriate boundary or initial conditions	K_U01
U_05	Apply numerical methods to different mathematical problems that include differential equations	K_U01
COMPETENCIES		
K_01	Present mathematical solutions in a concise and informative manner.	K_K01

IV. Course Content

This course covers the topics from Differential Calculus with an introduction to Integral Calculus, Vector Calculus, Differential Equations and Numerical Methods.

V. Didactic methods used and forms of assessment of learning outcomes

Symbol	Didactic methods *(choose from the list)*	Forms of assessment *(choose from the list)*	Documentation type *(choose from the list)*
KNOWLEDGE			
W_01	Conventional lecture Discussion	Written test	Evaluated written test/test
W_02	Conventional lecture Discussion	Written test	Evaluated written test/test
W_03	Conventional lecture Discussion	Written test	Evaluated written test/test
SKILLS			
U_01	Conventional lecture Discussion	Written test	Evaluated written test/test
U_02	Conventional lecture	Written test	Evaluated written

	Discussion		test/test
U_03	Conventional lecture Discussion	Written test	Evaluated written test/test
U_04	Conventional lecture Discussion	Written test	Evaluated written test/test
		COMPETENCIES	
K_01 K_02 K_03	Tutorials	Reports	Report

VI. Grading criteria, weighting factors

Evaluation Tool	**Quantity**	**Weight (%)**
Final Exam	1	**40**
Semester Evaluation Components		**60**
In-term exam	1	30
Quiz	1	10
Assignments	4	20

Mark	**Evaluation criteria**	
Very good (5)	the student realizes the assumed learning outcomes at a very good level	the student demonstrates knowledge of the education content at the level of 95-100%
overgood (4.5)	the student accomplishes the assumed learning outcomes an over good level	the student demonstrates knowledge of the education content at the level of 85-94 %
Good (4)	the student accomplishes the assumed learning outcomes at a good level	the student demonstrates knowledge of the education content at the level of 75-84%
Quite good (3.5)	the student accomplishes the assumed learning outcomes at a quite good level	the student demonstrates knowledge of the education content at the level of 65-74%
sufficient (3)	the student accomplishes the assumed learning outcomes at a sufficient level	the student demonstrates knowledge of the education content at the level of 51-64%

insufficient (2)	the student accomplishes the assumed learning outcomes at an insufficient level	the student demonstrates knowledge of the education content below the level of 51%

VII. Student workload

Form of activity	Number of hours
Number of contact hours (with the teacher)	70 (60 + 10 individual consultation)
Number of hours of individual student work	80

VIII. Literature

Basic literature
Thomas' Calculus, Twelvth Edition, Weir, Hass, Giordano, Advanced Engineering Mathematics by Ervin Kreyszig, Applied Numerical Methods with MATLAB for Engineers and Scientists, Steven c. Chapra.
Additional literature
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