

Course title: **NUMERICAL METHODS**

Course Basic Information			
Academic Unit:	Faculty of Civil Engineering		
Course Name:	NUMERICAL METHODS		
Level:	Bachelor		
Course Status:	Mandatory		
Year of Study:	II (second)		
Number of Hours per Week:	2+2		
ECTS Credits:	6		
Time /Venue:	According to the Timetable		
Course Teacher:	Prof..Dr.Abdullah Zejnullahu		
Contact Details:	e-mail: abdullah.zejnullahu@uni-pr.edu www.fn.uni-pr.edu		
Course Description			
Course Description	The subject concentrates on the achievement of knowledge from the field of Mathematics which can be used to facilitate the knowledge from other subjects and can be applied in solving problems from the field of civil engineering. The class contains: computer arithmetic, approximate methods for solving equations with one variable, numerical linear algebra, approximate methods for solving systems of linear equations, numerical differentiation and numerical integration.		
Course Objectives:	At the end of this course students will be able to use and to understand concepts of Higher Mathematics with the aim to use this knowledge as an aide in other subjects which use mathematical apparatus.		
Learning Outcomes:	Obtain theoretical knowledge from the content of the subject Numerical Analysis for students of Civil engineering. Know different methods for solving problems from the field of hidrotechnical engineering by using known mathematical apparatus. Gain knowledge and get accustomed to use efficient methods in solving different problems from the field of Civil engineering. Be able to apply obtained knowledge of Numerical Analysis as a facilitating factor for the attainment of the knowledge from other subjects, as planned by the studying program of the hidrotechnical engineering science.		
Student Workload (Consistent with the Learning Outcomes)			
Activity	Hours	Day/Week	Total
Lectures	2	1	2
Theory/ Lab Work	2	1	2
Practical Work			
Contact Hours with Teacher /Consultations during Office Hours	2	3	6
Field Work			
Colloquium, Seminars	2	3	6

Homework			
Self-study Time (in the Library or at Home)	4	4	16
Final Exam Preparation	2	2	4
Evaluations (Tests, Quiz, Final exam)	4	1	4
Projects, Presentations, etc.			
Totali	18		150
Teaching Methods: Frontal and individual with lectures and exercises.			
Evaluation Methods:	First assessment	20%	
	Second Assessment	20%	
	Activity during exercises	10%	
	Attendance	5%	
	Final Exam	45%	
Literatura			
Primary Literature:	1. Margarita Qirko , Syti Hysko ; Analiza Numerike , 2004 ,Tiranë		
Additional Literature:	1. Richard L. Burden , J.Douglas Faires ; Numerical Analysis ,1997,ITP		
Course Plan:			
Week	Title of the Lecture		
Week 1:	Errors		
Week 2:	Algorithms and convergence		
Week 3:	Binary search method		
Week 4::	- Fixed point method - Newton's method		
Week 5:	- Secant method - False position method		
Week 6:	- Zero Polynomials - Muller Method		
Week 7:	Lagrange interpolation polynomial		
Week 8::	- Numerical derivation - Richardson extrapolation		
Week 9:	Numerical Integration		
Week 10::	- Composite integration - Romberg method - First mediator rating		
Week 11:	- Module of vectors and matrices - Its own values and its own vectors		
Week 12:	Direct methods for solving systems of linear equations		
Week 13:	LU factorization method		
Week 14:	Iterative methods for systems of linear equations		
Week 15:	Error limits Second mediation evaluation		

Academic Policies and Rules of Civility:

- Silence during classes**
- Turning down cell phones.**
- Punctuality**
- Respecting student Regulations**