Syllabus

Basic data of the subject	
University	**University of Applied Sciences in Ferizaj**
Academic unit	**Faculty of Engineering and Informatics**
Program	**Industrial Engineering with Informatics**
Title of the subject:	**Engineering Mathematics**
Level:	**Bachelor**
Course Status:	**Obligatory**
Year of studies:	**II, semester III**
Number of hours per week:	**3**
Value of Credits - ECTS:	**5**
Time / location:	
Course lecturer:	
Contact details:	
Course Description	*The subject Engineering Mathematics includes the concepts and develops the meaning of indefinite integrals, integration techniques, then definite integrals are examined, their definition, existence, their temporal properties. Applications of certain integrals are taken in various calculations such as surface areas, curve arc length calculations, the volume of rotating bodies, the surface area of rotating bodies, then the basic concepts of differential equations are given and as a result they are examined a concrete engineering problem, known as "pressure and speed of movement in a moving compressible fluid".*
Objectives of the course:	*The purpose of this course is to equip students with basic knowledge in the field of higher mathematics and their application in industrial engineering and beyond.*
Expected learning outcomes:	*After completing this module, students will be able to:* *• Understand basic concepts from indefinite integrals* *• To understand the concept of definite integral* *• To know how to solve indefinite and definite integrals.* *• To know how to apply integrals in the practical part of various problems.* *• To understand the basic concepts of differential equations* *• To know how to apply differential equations in practice.* *This module should also develop the following skills in students:* *• Communication and presentation skills,* *• Team work skills,* *• Skills of interpreting numbers, tables and graphs,* *• Writing skills.*
Prerequisite	*It is required that the student has completed the exams in algebra with analytical geometry and calculus*

Contribution to the student load (which must correspond with learning outcomes)			
Activity	**Hour**	**Day/Week**	**In total**
Lectures with numerical exercises	3	15	45
Internship			
Contacts with teacher / consultations			
Field exercises			
Midterm, seminars and projects.	3	2	6
Homework			
Self-learning time student (at the library or at home)	3	15	45
Final preparation for the exam	7	2	14
Time spent on evaluation (tests, quiz and final exam)			
Projects and presentations.	3	5	15
Total			**125**

Teaching methodology:	*The course lasts 15 weeks with 2 hours of lectures and 1 hour of weekly individual and group exercises.* *The exercises will be held in the form of individual and group work in which concrete examples will be discussed.* *Active participation is extremely important, so students are encouraged to regularly attend lectures and exercises and contribute to the discussions that take place in the lectures.* *Lectures, individual work, discussions and group work.*
Assessment methods:	*Within the semester, it is planned to organize two periodic tests from lectures and exercises with 45 points each (assignment - open/alternative questions), or the student has the right to undergo only the final exam which has 90 points (test from the part of exercises and lectures), the test contains tasks and open/alternative questions.* *The student passes the exam if he collects 50 points from all evaluation criteria,* *10 points - activity and attendance in lectures and exercises,* *90 points – from two Periodic Tests from lectures and exercises, or Final Exam.* *Evaluation is done according to this scheme* *0-50 points- grade 5 (five)* *51-60 points- grade 6 (six)* *61-70 points- grade 7 (seven)* *71-80 points- grade 8 (eight)* *81-90 points- grade 9 (nine)* *91-100 points- grade 10 (ten)*
The ratio of theory and practice	60% theory with exercises and 40% laboratory work.
Literature	
Basic Literature:	*Naim Braha and Islam Shehu, Analiza matematike , Prishtine, 2006.* *Ejup Hamiti, Matematika 2 and 3, Prishitne*

Additional Literature:	*W. Rudin, Principles of mathematical analysis, McGraw-Hill, !976* Tai-Ran Hsu, Applied Engineering Analysis, John Wiley & Sons, 2018

Designed learning plan	
Week:	**Lectures and exercises to be held**
Week one:	Indefinite function integral and properties. Substitution method and partial method for calculating the indefinite integral.
Week two:	Integration of classes of rational functions
Week three:	Integration of classes of irrational functions
Week four:	Integration of the classes of trigonometric functions
Week five:	Integration of the classes of transcendent functions
Week six:	The definite integral of the function, its properties and calculation. Some properties of definite integrals
Week seven:	Test I
Week eight:	Formula of Newton-Leibnitz
Week nine:	Application of the definite integrals -1
Week ten:	Applications of the definite integrals-2
Week eleven:	Basic concepts of differential equations
Week twelve:	Class of differential equations with divided variables
Week thirteen:	Homogeny differential equations and equations with complete differential
Week fourteen:	Linear differential equations of first order. Bernuli equations, pressure and velocity in a moving incompressible fluid.
Week fifteen:	Test II

Academic policies and rules of conduct
Regular attendance of lectures and exercises is necessary, as well as active participation with discussion and solution of tasks. Not impeding the progress required for learning using mobile phones turned off or in silent mode.