Syllabus

Basic data of the subject	
University/Faculty:	**University of Applied Sciences in Ferizaj/ Faculty of Engineering and Informatics**
Academic unit:	**Industrial Engineering with Informatics**
Title of the subject:	**Mathematics 1**
Level:	**Bachelor**
Course Status:	**Core**
Year of studies:	**I**
Number of hours per week:	**4**
Value of Credits - ECTS:	**6**
Time / location:	**Friday, 9:00-12:00**
Course lecturer:	**Prof. Asst. Dr. Valdete Loku**
Contact details:	Valdete.loku@ushaf.net
Course Description	*Mathematics I, covers the basic concepts of sets theory and then the set of real numbers, properties and operations of real numbers. In the following, students will be introduced to the set of complex numbers, the trigonometric form of complex numbers, and then the operations of complex numbers. Further, is given the meaning of the determinant, the properties and computation of the order n are given, as well as the solution of the system of linear equations by the determinants. The following gives the meaning of the matrix, matrix operations, inverse matrices, and the application of matrices to the solution of the system of linear equations. Now, we will give basic vector meanings, vector linear actions, and scalar, vector and mixed vector product. At the end of the course, students will be introduced to the equation of plane and line in space as well as second-order surface equations.*
Objectives of the course:	*The purpose of this course is to provide students with basic knowledge in the field of higher mathematics and their application in industrial engineering and beyond.*
Expected learning outcomes:	*Upon completion of this module, students will be able to:* *• Understand basic concepts in mathematics* *• To solve the tasks given by Mathematics I* *• Analyse tasks and different problems from mathematics I.* *• Apply knowledge gained from Mathematics I in the field of industrial engineering and computing.* *This module should also develop the following skills among students:* *• Communication and presentation skills,* *• Teamwork skills,*

	• *Interpretation of numbers, tables and graphs,* • *Writing skills.*

Contribution to the student load (which must correspond with learning outcomes)			
Activity	**Hour**	**Day/Week**	**In total**
Lectures	2	15	30
Theoretical exercises / laboratory	2	15	30
Internship			
Contacts with teacher / consultations	1	1	1
Field exercises			
Midterm, seminars and projects.			
Homework			
Self-learning time student (at the library or at home)	4	15	60
Final preparation for the exam	6	3	27
Time spent on evaluation (tests, quiz and final exam)	2		2
Projects and presentations			
Total			**150**

Teaching methodology:	*Lectures and exercises combined with case studies and classroom discussions.*
Assessment methods:	*Final exam rated 100% of the grade. The exam consists of two parts, the written exam and the oral exam.*
Literature	
Basic Literature:	*Dr.sc.Razim Hoxha,Matematikë I, 2011,Prishtinë* *Dr.sc.Sadri Shkodra, Matematikë I. 2001,Prishtinë*
Additional Literature:	*E.Ademaj, E.Gashi , Algjebra e përgjithshme,1986,Prishtinë*

Designed learning plan	
Week:	**Lectures and exercises to be held**
Week one:	**Basic concepts of the set theory, properties and operations** *Mathematics I, 2011,* Chapter 1.
Week two:	Set of real numbers. Operations with real numbers, absolute value. *Mathematics I, 2011,* Chapter 2.
Week three:	**Set of complex numbers. Definition of the complex number and operations. Trigonometric form of complex numbers.** *Mathematics I, 2011,* Chapter 3.
Week four:	Power and roots of the complex numbers in trigonometric form.

	Mathematics I, 2011, Chapter 3.
Week five:	*Determinants. Understanding the determinant and properties of the determinants. Decomposition method.* *Mathematics I, 2011, chapter 4.*
Week six:	*Solving System of Linear Equations by Determinants-Kramer Rule.* *Mathematics I, 2011, chapter 4.*
Week seven:	*Matrices. Understanding the matrix. Types of matrices. The square matrix of the order n. Matrix operations. Inverse matrix. Matrix rank.* *Mathematics I, 2011, chapter 5.*
Week eight:	*Applying Matrices to the System Solution of Linear Equations - Matrix Solution of the System. Gauss's method for solving the system of linear equations.* *Mathematics I, 2011, chapter 5.*
Week nine:	*Vectors. Understanding vector and linear actions with vectors. Vectors in the coordinate system in space.* *Mathematics I, 2011, chapter 6.*
Week ten:	*Scalar and vector product of two vectors, Mixed product of three vectors and applications.* *Mathematics I, 2011, chapter 6.*
Week eleven:	*The equation plane in space. Forms of the equation of the plane.* *Mathematics I, 2011, chapter 7*
Week twelve:	*The equation of a straight line in space. The forms of a straight line equation.* *Mathematics I, 2011. Chapter 8.*
Week thirteen:	*Line and plane in space.* *Mathematics I, 2011, chapter 9.*
Week fourteen:	*Second Grade Surfaces* *Mathematics I, 2011, chapter 9.*
Week fifteen:	*Solution of the exercises.*

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.