SYLLABUS

Basic data of the subject	
Faculty:	**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:	**5**
Time / location:	
Course lecturer:	**Prof. Asst. Dr. Valdete Loku**
Contact details:	**valdete.loku@ushaf.net**

Course Description	*Mathematics I includes the basic concepts of community and then the community of real, complex numbers, systems of linear equations, matrices and determinants, vectors, straight lines and planes, and surfaces of the second degree.*
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:* • know the basic concepts of real and complex numbers, matrices, systems of equations, vectors, plane and space, etc. • be able to solve mathematical problems of complex and real numbers, matrices and systems of linear equations. • be able to solve mathematical problems with vector, plane and space. • apply mathematical knowledge to various engineering problems

Contribution to the student load (which must correspond with learning outcomes)			
Activity	Hour	Day/Week	In total
Lectures	4	15	60
Internship			
Contacts with teacher / consultations	1	10	10
Field exercises			
Midterm, seminars and projects.			
Homework	1	10	10
Self-learning time student (at the library or at home)	2	15	30
Final preparation for the exam	2	8	16
Time spent on evaluation (tests, quiz and final exam)	2	1	2

Projects and presentations				
Total				**127**

Teaching methodology:	*The course lasts 15 weeks with 2 hours of lectures and 2 hours 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 taking place in* *lectures. Lectures, individual work, discussions and group work.*
Assessment methods:	*It is planned to organize two within the semester* *Periodic tests from lectures and exercises with 45 points (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 questions open/alternative,* *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.*
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.