Basic data of the subject	
University:	**University of Applied Sciences in Ferizaj**
Academic unit:	**Faculty of Engineering and Informatics**
Program:	**Applied Informatics**
Title of the subject:	**Basics of Informatics**
Level:	**Bachelor**
Course Status:	**Obligatory**
Year of studies:	**I, Semester I**
Number of hours per week:	**3**
Value of Credits - ECTS:	**5**
Time / location:	
Course lecturer:	
Contact details:	
Course Description:	*This course enables students to know, understand and apply the basic concepts of digital electronics. It provides candidates with an opportunity to develop the knowledge and skills to be able to design and construct logic circuits to meet a design brief.*
Objectives of the course:	*The purpose of the module is to present the way of digital logic design (analysis and design).*
Expected learning outcomes:	*Upon successful completion of this course, student will be able to:* • *To express values in different system: Binary, Octal, Hexadecimal, etc.* • *To formulate different codes for information.* • *Explain and find the functions that perform a digital logic circuit.* • *Analyse logic circuits.* • *Designing the digital circuits.*
Prerequisites:	*The prerequisite for this course is that the student has basic knowledge of mathematics, logic, and computer technology*

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 takes 15 weeks with 1.5 hours of lectures and 1.5 hour weekly individual and group exercises.* *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 attend lectures and exercises regularly and contribute to the discussions that take place in lectures. Lectures, exercise, individual work, discussions and group work.*
Assessment methods:	*The student can choose to be assessed one of the two forms of assessment, given below:* *1. Form 1: Evaluation with two tests and the Project* *2. Form 2: Evaluation of the final exam.* ***Form 1:*** *In the first form of assessment "Assessment with two tests and project" the student is assessed in four activities that are carried out during the lectures:* 1. *Test 1 (30%), individual assessment* 2. *Test 2 (30%), individual assessment* 3. *Class activity (10%), individual assessment* 4. *Project (30%), group assessment.* ***Additional clarification:*** *If the student in each activity above reaches the maximum points, then he will be evaluated with 100 points.* *Students who pass the exam according to Form 1 of the assessment, are released from the obligation to take the final exam. Only if the student is not satisfied with the grade achieved according to form 1, then he can undergo the final exam to obtain a higher grade.* ***Form 2:*** *In the second form of evaluation, "Evaluation with the final exam", the student will undergo the exam which will be held after the end of the course lectures and is organized in the exam deadlines, determined by the University Senate.* *Through the final exam, the student can achieve a maximum of 70% of the points from the total of 100 points.*

	The rest of the 30% points must be completed through group work on the Project, an activity carried out during the lectures. *In Test 1, Test 2, and the final exam, the evaluation of the students will be done through an evaluation form, which must be completed individually by the student. The evaluation form will contain objective and subjective questions through which the student's learning outcomes will be evaluated:* • *The objective questions will be of the following types: (1) Multiple choice questions, (2) True/False, (3) Completion, and (4) Composition/Matching; questions that will be used to assess the student's abilities to recall and recognize the concepts and material of the course.* • *The subjective questions will be of the Essay/written task type that will be used to assess the student's understanding and abilities to apply the knowledge gained in the analysis, synthesis, and evaluation of the problem, from the answers prepared by the student to the question of submitting.* *Activity in the class means the student's engagement in dealing with the issues discussed in the class, during the lectures* *Project (30%), group assessment: it is an activity in which students apply the acquired knowledge in a concrete project. It is carried out in groups of 2 or 3 students who are obliged to carry out the activity, document it, and present it to the subject professor.* *For the form of realism and documentation of the activity, all members of the group will be evaluated with the same point (20%), while the evaluation of the presentation skills of the activity is individual and includes 10%.* ***Rating:*** *91-100 points – graded 10 (ten)* *81-90 points – graded 9 (nine)* *71-80 points – grade 8 (eight)* *61-70 points – grade 7 (seven)* *51-60 points – grade 6 (six)* *0-50 points – The student repeats the exam*
The ratio of theory and practice:	*60% theory and exercises with 40% lab work.*
Literature	
Basic Literature:	1. *Agni Dika "Qarqet digjitale kombinuese I", Universiteti i Prishtinës, 2008*

Additional Literature:	2. *S.M. Deokar, A. A. Phadke, "Digital Logic Design and VHDL", Wiles, 2009*
Designed learning plan	
Week:	**Lectures and exercises to be held**
Week one:	*Presentation of the subject*
Week two:	*Numerical systems. The binary number system, arithmetic operations in the binary system. Transformations between systems.*
Week three:	*Codes and encoding. Boolean algebra. Logical functions and their presentation.*
Week four:	*Combinatorial logic circuits.*
Week five:	*Analysis of logic circuits. Synthesis of logic circuits.*
Week six:	*Encoders, decoders, codes transducers.*
Week seven:	*Test 1*
Week eight:	*Multiplexers, de-multiplexers, arithmetic circuits, comparators, ROM memories.*
Week nine:	*Digital sequential circuits. Flip-Flops: SR, JK, D, T.*
Week ten:	*State Tables of the circuits. Diagram of states of the circuit.*
Week eleven:	*Analysis of synchronous and asynchronous sequential circuits.*
Week twelve:	*Design of sequential circuits.*
Week thirteen:	*Design of digital counters.*
Week fourteen:	*Design of memory. Software for simulating logic circuits.*
Week fifteen:	*Test 2*
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	