UNIVERSITY OF MITROVICA "ISA BOLETINI"

Course Curriculum Model (Syllabus)

Faculty:	FACULTY OF MECHANICAL AND COMPUTER ENGINEERING	
Department:	Informatics Engineering	
Level:	Bachelor	
Code of the course:	104-CSE	
Course:	COMPUTER CIRCUITS	
Course Status:	Compulsory	(mandatory)
Semester:	I	(summer)
Number of hours per week:	3+2	
ECTS:	6	
Time / location:	According to schedule	
Year of studies:	I	
Lecturer:	Prof. Ass. Dr. Arianit Maraj	
Assistant:		
Contact details:	Lecturer	Assistant
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Content	Fundamentals of digital signals and systems. Numerical systems and data converting. Binary, octal and hexadecimal arithmetics. Codes and coding algorithms. Boolean algebra and logical gates. Presentation forms of logical functions. Methods of minimization of logic functions. Analyse and synthesize of combinational circuits. Encoders, decoders, converters of codes and indicators. Multiplexers, demultiplexers and comparators. Sequential circuits; synchronous and asynchronous. Generators and detectors of parity. Projecting of arithmetic circuits. Integrated circuits of middle scale and identification of their parameters according to technical documentation of producers.
Purpose	The purpose of this course is to provide students with fundamental concepts, methods of analysis, and design of digital logic circuits.

Accessibility	On successful completion of this course, students should be able to: 1. Convert alphanumeric data used in today's digital systems from one number system to another and between different coding formats. 2. Apply arithmetic operations to binary, octal, hexadecimal, NBCD, floating point, one's and two's complement numbers used for hardware arithmetic. 3. Implement Boolean logic laws with digital logic gates, Ven diagrams, switches, and with digital waveforms. 4. Simplify and optimize logic functions up to four variables using Boolean algebra and K-maps. 5. Analyse and synthesize combinational circuit networks using K-maps and modern software simulation tools to achieve a prescribed task or solve a given problem. 6. Design combinational logic circuit such as encoder, decoder, multiplexer and demultiplexer. 7. Design adder, subtractor, comparator and code converter 8. Design a sequential circuits; synchronous and asynchronous	
Program	**weeks**	**Lecture**
	First week:	Syllabus presentation, Introduction to digital signals and systems
	Second week:	Numerical systems and data representation
	***Third week*:**	Binary, octal and hexadecimal arithmetic
	Fourth week:	Signed binary numbers and complementary arithmetic
	Fifth week:	Codes and coding algorithms
	***Sixth week*:**	First midterm exam
	Seventh week:	Boolean algebra and logical gates
	Eighth week:	Presentation forms of logical functions
	***Ninth week*:**	Methods of minimization of logic functions
	***Tenth week*:**	Analyse and synthesize of combinational circuits
	***Eleventh week*:**	Second midterm exam
	Twelfth week:	Encoders and decoders; Converters of codes and indicators
	***Thirteenth week*:**	Multiplexers and demultiplexers
	Fourteenth week:	Sequential circuits; synchronous and asynchronous
	Fifteenth week :	Designing of the sequential circuits

Literature	**Principal literature:** A. Dika, Qarqet Kompjuterike , Universiteti i Prishtinës, Prishtinë **Recommended Literature:** Floyd, Digital Logic Fundamentals, Prentice Hall 2010
Teaching methodology	Lecture, Tutorials, Assignments, Lab Experiments, Lab Report and presentation.

Contribution to student workload (which should correspond to student learning outcomes - 1 ECTS credit = 25 hours)

Activity	Hours	Days/weeks	Total
Lectures	3	15	45
Exercise sessions (with TA)	2	15	30
Practical work	-	-	-
Office hours	5		5
Fieldwork	-	-	-
Midterms, seminars	2	4	8
Homework	2	4	8
Self-study	2	15	30
Final exam preparation	4	3	12
Time spent in exams	2	3	6
Projects, presentations, etc.	3	2	6
Total			**150**

Evaluation

Teaching methodology:
(according to the Statute and Regulation for studies of UMIB)

Tests / Colloquia	60%
Practical test during exercises	10%
Seminary work	-
Interpretation and presentation of artistic creativity and other works	-
Assignments and other courses during the semester	10 %
Professional activities	-
Others (specify) -	-
Final exam	20%

Academic policies

The Professor sets the criteria for regular attendance at lectures and exercises and the rules of ethics such as keeping calm in class, turning off cell phones, entering the hall on time, etc.

The achieved performance will be evaluated according to the following table:

Points	Grade
50 - 59.9	6
60 - 69.9	7
70 - 79.9	8
80 - 89.9	9
90 – 100	10

Mitrovica

08.01.2021

Course provider:

Prof. Ass, Dr. Arianit Maraj

(Signature)