Discipline	MICROPROCESSORS code: 21 4th semester	
Specialty	Software and Internet Technologies	
ECTS credits: 5	Form of assessment: exam	
Lecturer	Assist. Prof. L. Gueorguieff, PhD Room 405 Phone: +359 52 383 628 E-mail: lig@tu-varna.bg	
Department	Computer Science and Engineering	
Faculty	Faculty of Computing and Automation	

Learning objectives:

The architecture of the 32-bit microprocessors is studied: operational unit structure, internal organisation, main information exchange methods and instruction set. The programming model of the microprocessor is defined and its registers, addressing modes, exceptions and interrupts are examined. Assembly language and basic programming structures that can be implemented with it are studied during the laboratory exercises. The goal here is to master the machine code instructions and the computational process organisation, becoming acquainted with the operation of the microprocessor at the lowest level, up to a single bit. Skills for algorithmisation of linear, branching, loop and combined programming structures and their optimal implementation in Assembler are developed, including with translation from the C language. Invocation of assembly language subroutines from input / output programmes in C is studied in practice, paying attention to parameter passing and passing back the return value.

CONTENTS:		
Training Area	Hours of lectures	Hours of laboratory exercises
Structure of the microprocessor, main units. Programming model, registers	2	Programming in Assembly language
Instruction set. Instruction types. Memory addressing modes	2	
System bus and signals of the microprocessor	2	
Vector floating point unit	2	
Exceptions and interrupts	1	
Memory management unit	1	
Microprocessor architecture development	2	
Other, more general topics (history, architecture development, etc)	3	
TOTAL: 45 h	15	30