Discipline	MICROPROCESSOR SYSTEMS code: 34 summer semester	
Specialty	Computer Systems and Technologies	
ECTS credits: **6**	Form of assessment: exam	
Lecturer	Assoc. Prof. Zheyno Zheynov, PhD Room 405 TB Phone: +359 52 383 628 E-mail: zh_viv@tu-varna.bg	
Department	Computer Science and Engineering	
Faculty	Faculty of Computing and Automation	

Learning objectives:

The subject "Microprocessor Systems" aims at deepening the theoretical and practical knowledge of the students of the specialty "Computer systems and technologies" in the field of architecture and construction of microprocessor systems. The most common families of 32- and 64-bit microprocessors and the means and methods of implementing them into computing systems, are discussed. The training focuses on system architecture, real and virtual memory, interfaces and interaction between the components, the organization and management of inputs and outputs, as well as the means to build multiprocessor systems.
The discipline is based on the preceding disciplines: "Microprocessors", "Computer Organization", "Computer Architectures", "Operating Systems", "Computer Peripheral" and others.
The discipline provides: "Compilers and Interpreters", "Specialized Computer Systems", "Real-Time Operating System" and others.

CONTENTS:

Training Area	Hours lectures	Hours seminar exercises
Architecture of Intel 32-bit and 64-bit microprocessors. Internal structure and organization. Operation modes.	3	3
P6 microarchitecture. NetBurst, Multi-Thread, Hyper-Threading architecture. Multi-core architecture. Instructuion pipeline.	3	3
Instruction set. Microprocessor programming model. Data types. Addressing modes.	3	3
Memory organization and management. Segmentation and paging. Address translation. Descriptors and descriptor tables.	3	3
System architecture. Protected mode. Multitasking. Task management. Exceptions and interrupts.	3	3
System bus organization. Lines and signals. Timing diagrams.	3	3
Input-output organization. Programmable parallel and serial interfaces. Direct memory access. DMA controller.	3	3
Programmable interrupt controller.	3	3

Architecture and building multiprocessor systems. Advanced programmable interrupt controller.	2	2
Standard interfaces in PC - organization and capabilities. EISA, PCI interfaces. IC for their support.	2	2
Other microprocessor families	2	2
TOTAL: 60 h	**30**	**30**