

Discipline	Microelectronics	code: 5030	Semester – /winter/
Specialty	Electronics		
ECTS credits: 7	Form of assessment: Exam		
Lecturer	Assoc. Professor, PhD Ekaterina Dimitrova Room: 501E Phone: +359 52 383 340 E-mail: ekaterinad@tu-varna.bg		
Department	Department of Electronics and Microelectronics		
Faculty	Faculty of Computer Sciences and Automation		
Learning objectives			
<p>The course in "Microelectronics" aims to give provide students with basic knowledge of the circuit engineering of modern classes of analogue and digital integrated circuits (ICs), as well as to familiarize them with the technologies for the production of microelectronic products, their limitations and prospects. At its core, the course is circuit-technical and application-oriented, and the technological issues considered complete the students' basic knowledge of application and design of IS. Thus, the course creates the necessary basis for further accumulation of knowledge and skills in the specialty "Electronics". The contents presented in the course are based and reference various aspects of the following subject: "Electronics", "Digital Circuit Design", "Analysis and Synthesis of Electronic Circuits", "Analog Circuits" and "Microprocessor Systems".</p>			
CONTENTS:			
	Training Area	Hours lectures	Hours seminar exercises
	Introduction to the discipline. Review of microelectronic technologies and systems.	2	2
	Basic analogue integrated circuits – MOSFET, Current mirrors, References, Amplifier with dynamic load, Differential amplifiers. Bipolar integrated transistors.	10	10
	Basic digital integrated circuits – Definitions, CMOS technology and CMOS logic circuits.	5	5
	Solid-state memories – Static and dynamic memories. Flash memories.	5	5
	Application specific integrated circuits (ASIC)	2	2
	Microelectronic technologies – BJT, CMOS, Bi-CMOS	6	6
	TOTAL: 60 h	30	30

