


Discipline	Digital Signal Processing	code: 5010	Semester – /winter/
Specialty	Electronics		
ECTS credits: 7	Form of assessment: Exam		
Lecturer	Associate Professor, PhD Firgan Feradov Room: 114E Phone: +359 52 383 572 E-mail: firgan.feradov@tu-varna.bg		
Department	Department of Electronics and Microelectronics		
Faculty	Faculty of Computer Sciences and Automation		
Learning objectives			
<p>The course “Digital Signal Processing” introduces the students with the most widely used practical approaches and algorithms for digital signal processing, which are an integral part of contemporary electronic devices used in the fields of communication, multimedia, industrial systems, medical electronics and others. The curriculum is designed to build upon topics studied in the courses in “Theory of information and signals”, “Automation theory” and “Microprocessor systems” and provides the basic skills and knowledge required by electronics engineers working in the aforementioned fields.</p> <p>The course covers topics related to the basics of the theory of discrete signals and systems, analysis of signals in the time and frequency domain through Fourier transform, Laplace transformation, Wavelet transformation, signal filtering and others.</p>			
CONTENTS:			
Training Area			Hours lectures
			Hours seminar exercises

Introduction in the discipline.	2	2
Basic signals and systems concepts.	2	2
Discrete-time linear time invariant systems.	2	2
Discrete-time Fourier transform (DTFT).	4	4
Discretization theorem. Relation between continuous and discrete signals.	2	2
Short-time signal spectrum analysis.	2	2
Wavelet transform.	2	2
Spectral and correlation analysis.	2	4
Laplace transform. Z-transform.	2	2
Structure of a discrete-time linear time invariant systems.	2	2
Design of digital filters	4	4
Practical aspects of the application of digital signal processing algorithms in DSP systems.	4	2
TOTAL: 60 h	30	30