

Specification for the book of courses

Study program		Electrical Engineering and Computer Science		
Module		Electronics		
Type and level of studies		Undergraduate Academic Studies		
The name of the course		Signals and Systems		
Lecturer (for lectures)		Nikolić V. Saša		
Lecturer/associate (for exercises)		Stančić Z. Goran		
Lecturer/associate (for OFE)		Stančić Z. Goran		
Number of ECTS	6	Course status (obligatory/elective)	Obligatory	
Prerequisites				
Acquiring basic knowledge of signals and systems. Introduction to the methods of systems analysis in the time domain. Laplace transform and its application to the analysis of the system. Fourier series. Convolution calculation and output of the system for arbitrary excitation.				
Course objectives				
Theoretical and practical knowledge about the characteristics of signals and systems. Knowledge of procedures for the analysis of systems in time and frequency domain.				
Course outcomes				
Theoretical and practical knowledge about the characteristics of signals and systems. Knowledge of procedures for the analysis of systems in time and frequency domain.				
Course outline				
The concept of signals and systems, signal types, classification. Stability. Impuls response. Characterization of continuous systems by differential equations. Fourier series. Discretization of continuous signals. Real and idealized measurement time continuous signals. Sampling Theorem. Impulse response in the time domain. Convolution. Laplace transform. Relation between Laplace and Fourier transformations. Application of the Laplace transform to solve differential equations. Linear transfer function of the system. The stability of the system. Response of linear continuous system to an arbitrary excitation.				
Transformation of the independent variables: displacement operations, reflection, and scaling. Odd and even functions. Analysis of the car first and second order. Signali. Predstavljjanje elementary functions through elementary signals. Laplace transform. Laplace transform and its calculation. Convolution. The calculation of the convolution in the time domain. Calculation of the convolution using the Laplace transform. Fourier series. Developing periodic functions in Fourier series. Determining the output of the system for a given input using Laplace transform.				
Textbooks/references				
1	Nikolić V. Saša, Goran Stančić: Signali i sistemi, 2017. (in Serbian)			
2	Steven T. Karris, Signals and systems with Matlab applications			
3	Simon Haykin, Barry Van Veen, Signals and systems			
4				
5				
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
2	1	2	0	0
Teaching methods				
Lectures, auditory exercises, projects, consultations.				
Grade (maximum number of points 100)				
Pre-exam duties		Points	Final exam	Points
Activity during lectures			Written exam	30
Exercises			Oral exam	30
Colloquia		40		
Projects				