



MARMARA UNIVERSITY - FACULTY OF ENGINEERING

2017-2018 Spring

CSE3048 Introduction to Signals and Systems

COURSE DESCRIPTION FORM

Offering Department	Department of Computer Engineering	Undergraduate must course (6th semester)								
Course Code	CSE 3048									
Course Name	Signals and Systems									
Language of Instruction	English									
ECTS	5									
Contact Hours	Theoretical (T):3	Practice (U):0	Laboratory(L):							
Pre-requisites	MATH 2055 Differential Equations									
Instructor	Name	Mehmet Baran								
	E-mail	crom.baran@gmail.com								
Course Materials	Mandatory	Oppenheim, Willsky, Young; Signals and Systems, Prentice Hall.								
	Recommended									
Course Objectives	The purpose of this lecture is to teach the student theory of systems and transform methods. Additionally, the students got acquainted with some applications of these techniques (Filtering, modulation, sampling) .									
Course Content	Continuous and discrete signals, Dirac delta and Unit step, Linear systems, , Superposition, Convolution Continuous and discrete fourier series and transformations..									
Learning Outcomes	LO1	To explain the general principles of continuous and discrete signals.								
	LO2	Computing the output of continuous or discrete LTI systems via convolution operation.								
	LO3	Decomposing signals into their components via continuous/discrete Fourier transform.								
	LO4	Explaining filtering, sampling and modulation.								
	LO5	Using MATLAB for basic signal processing.								
	LO6	Explaining FDM and TDM methods.								
Program Outcomes		LO1	LO2	LO3	LO4	LO5	LO6			
PO1	Adequate knowledge in mathematics, science (a) and computer engineering subjects (b) pertaining to the relevant discipline (1); ability to use theoretical and applied information in these areas to model and solve engineering problems (2).	1a,1b	1a,1b	1a,1b	1a,1b					
PO4	Ability to devise (a), select, and use (b) modern techniques and tools needed for engineering practice (1); ability to employ information technologies effectively (2).					1b, 2				
PO13	Knowledge of mathematics, basic sciences (a), computer science (b) and engineering sciences (c) required for the design and analysis of complex electrical and electronic devices, software and systems including hardware and software.	a	a	a	a				a	
Subjects (Knowledge, Skills and Behaviours), Contributions of Subjects to Learning Outcomes, Assessment Methods	No	Week	Subjects	LO1	LO2	LO3	LO4	LO5	LO6	
	K1	1	Complex numbers. Euler formula.	MF						
	K2	2-3	Continuous signals: Complex exponentials and sinusoids., Dirac Delta Function.	MF						
	K3	4	Continuous signals: Complex exponentials and sinusoids., Dirac Delta Function.	MF						
	K4	5-6	LTI systems: Convolution sum/integral, Properties of LTI systems.		MF					
	K5	7	Continuous Fourier Series/Transforms.				MF			
	K6	8	Properties of Fourier transforms.				MF			
	K7	9	Discrete fourier series				MF			
	K8	10	Discrete Fourier Transform and its Properties				MF			
	K9	11	Filtering on continuous and discrete time.					MF	H	
	K10	12	Introduction to Modulation.					MF	H	
	K11	13	FDM and TDM					MF	H	
K12	14	Sampling. Nyquist's theorem.					MF			
Assessment Methods and Weights	No	Type	Weight	Implementation Rule			Make-up Rule			
	MF	Midterm, Final	90%	All lecture materials (textbooks etc) are closed during exams. No communication or computation devices			Marmara University regulations will be followed for make-up exams.			

				are allowed. .Marmara University regulations will be followed for make-up exams.													
	H	Homeworks	10%	-kConvolution and FT questions -Finding faces in a photo by using correlations and MATLAB. -Separating signals by using FDM via MATLABç													
	TOTAL		100%														
Determining Letter Grades	<ul style="list-style-type: none"> • The letter grades will be determined based on the twp midterm,one final exams and homeworks. • In order to determine the letter grade, a curve or catalog based method will be followed based on the total average scores of the students. • The final exam score and the total average score of the student must be at least 35 to pass the course. • According to Marmara University Undergraduate regulations, the weight of the final exam must be at least 40 out of 100. 																
	<table border="1"> <thead> <tr> <th>Assessment</th> <th>Midterm 1</th> <th>Midterm 2</th> <th>Homeworks</th> <th>Final</th> <th>TOTAL</th> </tr> </thead> <tbody> <tr> <td>Weight</td> <td>25</td> <td>25</td> <td>10</td> <td>40</td> <td>100</td> </tr> </tbody> </table>					Assessment	Midterm 1	Midterm 2	Homeworks	Final	TOTAL	Weight	25	25	10	40	100
	Assessment	Midterm 1	Midterm 2	Homeworks	Final	TOTAL											
Weight	25	25	10	40	100												
Time Applied by the Instructor																	
Teaching Method, Student Work Load	No	Method	Explanation		Hours												
	1	Lectures	Lectures are given in class using the board or via presentations. Example questions are solved to enhance the concepts.		14x3=42												
	2	Problem Session/ Practice	Problems related to the course topics are solved on the board.		-												
	3	Laboratory	Experiments are done in the laboratory or theoretical concepts covered during the lectures are practiced using computer exercises.		-												
	4	Interactive Courses	Questions are asked to students during lectures and they are encouraged to guess the answers (peer learning is also in this category)		-												
	5	Field Work	Students attend activities outside the campus.		-												
	6	Midterm	Midterm exam is given during the midterm week.		2x2=4												
	7	Final	Final exam is given during the final exam week.		2												
	Estimated Time to be Allocated by a Student																
	8	Project	The students carry out research about the problem given in the project, design and implement their solution and prepare a report.		-												
	9	Homeworks	The students solve the problems given as homework.		30												
	10	Pre-class learning of Course Material	The students study and learn the new subjects from course materials.		-												
11	Review of Course Material	Students review the course subjects from course materials to prepare for the exams and homeworks.		36													
12	Office Hour	Students ask questions to the instructor or the assistant during office hours.		2													
TOTAL					116												
Academic Honesty	Violations of scholastic honesty include, but are not limited to cheating, plagiarizing, fabricating information or citations, facilitating acts of dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students.																
	In case academic dishonesty is observed, the first authority is the instructor of the course. The instructor may decide to give the student zero for the homework(s)/lab(s)/exam(s), give the letter grade FF, or may take disciplinary action.																