Course Unit Title	Signals and Systems
Course Unit Code	EE 341
Type of Course Unit	Compulsory
Level of Course Unit	
National Credits	4
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	3
Semester when the course unit is delivered	5
Course Coordinator	Assist. Prof. Ali Serener
Name of Lecturer (s)	Assist. Prof. Ali Serener
Name of Assistant (s)	Samuel Tackie
Mode of Delivery	Face to Face, Laboratory
Language of Instruction	English
Prerequisites	EE202
Recommended Optional Program Components	-

Course description: This course introduces students to the study and analysis of signals and systems. The following main topics are covered: Classifications of signals, basic operations on signals, elementary signals, properties of systems, impulse response, convolution, step response, systems described by differential and difference equations, frequency response, Fourier series and transform, Fourier analysis of discrete-time signals and systems, properties of Fourier representations, Fourier representations for mixed signal classes, sampling, reconstruction, z-Transform.

Objectives of the Course:

- The aim of this course is to understand mathematical properties of systems and signals in time and frequency domains.

Learning Outcomes

At the end of the course the student should be able to	Assessment
1	• learn how to classify signals and systems.	1, 5
2	• understand the concepts behind continuous-time and discrete-time signals and systems.	1, 5
3	• get an understanding of time and frequency domain representation of signals.	1, 5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Apply knowledge of mathematics, natural science with relevant to life science and multidisciplinary context of engineering science.	5
2	Analyze, design and conduct experiments, as well as to analyze and interpret data.	4
3	Design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.	4
4	Function on multidisciplinary teams.	3
5	Control in design work, by using simulation, modelling and tests and integration in a problem solving oriented way.	3
6	Display an understanding of professional and ethical responsibility.	3
7	Communicate effectively aware of the non-technical effects of engineering.	1
8	Search technical literature and other information sources.	2
9	Recognize of the need for, and an ability to engage in life-long learning.	2
10	Exhibit a knowledge of contemporary issues.	1

11	Use the techniques, skills and modern engineering tools necessary for engineering practice to develop marketable products for the global market.		3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	1	Introduction, 1.1-1.3	
2	1	Introduction, 1.4-1.5	
3	1	Introduction, 1.6-1.8	
4	2	LTI Systems, 2.1-2.4	
5	2	LTI Systems, 2.5-2.8	
6	2	LTI Systems, 2.9-2.11	
7	3	Fourier Representations, 3.1-3.6	
8			Midterm
9	3	Fourier Representations, 3.7-3.12	
10	3	Fourier Representations, 3.13-3.18	
11	4	Mixed Signal Classes, 4.1-4.3	
12	4	Mixed Signal Classes, 4.4-4.6	
13	4	Mixed Signal Classes, 4.7-4.9	
14	7	Z-Transforms, 7.1-7.3	
15			Final

Recommended Sources

Textbook:

- Signals and Systems, Simon Haykin and Barry Van Veen, Second Edition, 2003, Wiley.

Assessment

Laboratory	20 %	
Midterm Exam	40 %	
Final Exam	40 %	
Total	100 %	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

1. Attendance to the course is mandatory..
2. Students may use calculators during the exam.
3. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	3	48
Labs and Tutorials	5	2	10
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	20	20
Final Examination	1	20	20
Self Study	14	5	70
Total Workload			168

Total Workload/30(h)	5.6
ECTS Credit of the Course	6