



Course Specification

1- Basic Information

Code	Course Title			Bylaw	
EET 204	System Analysis تحليل نظم			2011	
Program	Electrical Engineering and Computers Engineering BSc.		Category	Core course (Mandatory)	
Delivered by	Electrical Engineering and Computers Engineering Dept.		Prerequisite	--	
Course Units	Lectures	2	hr.	Stage	B. Sc.
	Tutorials	2	hr.	Level	03 Elec.
	Practical	-	hr.	Semester	1 st . Semester
	Total Units	3	Cr. h.	Academic Year	2022/2023
Approval Date	Program	Academic council		No. (46) 19/9/2022	
		Dept. council		5/9/2022	
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		Dept. council		5/9/2022	

2- Course Aims

- 2.1 Understand the basic concepts of signal processing.
- 2.2 Enrich the student knowledge of types of signals and systems.
- 2.3 Enrich the student mathematical background and understand the convolution concept.
- 2.4 Understand how to find Fourier series and transform for periodic functions.
- 2.5 Develop the student ability to design system in time and frequency domains.

3- Course Subject Area

A	B	C	D	E	F	G	Total
Humanities and Social Sciences	Mathematics and Basic Sciences	Basic Engineering Sciences	Applied Engineering and Design	Computer Applications and ICT	Projects and Practice	Discretionar y Subjects	
-	-	100 %	-	-	-	-	100 %

4- Competencies of Learning Outcomes from the Course

Program competencies that the course contributes in achieving it		Course competencies in detail	
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	a8.1	Illustrate signal and their functional representation, system classification and representation, convolution, impulse response, correlation, Fourier series, Fourier transform, spectrum of temporal and special signals response, and application of linear filters.
		a8.2	Write and illustrate information related to signal and their functional representation, system classification and representation, convolution, impulse response, correlation, Fourier series, Fourier transform, spectrum of temporal and special signals response, and application of linear filters.
A10	Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.	a10.1	Solve problems and design products related to electrical systems and linear filters.
		a10.2	Discuss information related to signal and their functional representation, system classification and representation, convolution, impulse response, correlation, Fourier series, Fourier transform, spectrum of temporal and special signals response, and application of linear filters.
B2	Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design.	b2.1	Designs and/or re-design a process, component or system using systems and signals analysis.
		b2.2	Use numerical modeling methods and/or appropriate computational techniques to solve problems related to electrical systems and signals.
		b2.3	Use appropriate computer programming for the design and diagnostics of different electrical systems and signals manipulation.
B4	Estimate and measure the performance of an electrical/electronic/digital system and circuit under specific input excitation, and evaluate its suitability for a specific application.	b4.1	Use relevant laboratory equipment and analyze the results correctly to verify signal and their functional representation, system classification and representation, and impulse response.
		b4.2	Employ the appropriate specifications for systems and signals.
C1	Basics of design and analyzing electrical and computer engineering systems, while considering the constraints of applying inappropriate technology and the needs of commercial risk evaluation.	c1.1	Evaluate the performance of electrical systems.
		c1.2	Evaluate, organize and utilize information and knowledge from different sources to construct a proper design or solution for electrical systems.
		c1.3	Identify principles of analyzing and designing of the systems, while considering the constraints of applying inappropriate technology and the needs of commercial risk evaluation.

5- Course Content

Signal and their functional representation, System classification and representation. Convolution and impulse response, Correlation, Fourier series, Fourier transform, Spectrum of temporal and special signals response and application of linear filters.

6- Course Topics/Timeline

Topic		No. of Weeks
Topic (1)	Signal and their functional representation	1
Topic (2)	System classification and representation	2
Topic (3)	Convolution and impulse response and Correlation	2
Topic (4)	Fourier series and Fourier transform	2
Topic (5)	Laplace transform and Z-Transform	2
Topic (6)	Spectrum of temporal and special signals response	2
Topic (7)	linear filters design	1
Total		12

7- Course Topics / Competencies

Competencies	Course Topics						
	Topic (1)	Topic (2)	Topic (3)	Topic (4)	Topic (5)	Topic (6)	Topic (7)
a8.1	X	X					
a8.2	X						
a10.1							X
a10.2			X				
b2.1				X	X		
b2.2			X				
b2.3						X	
b4.1				X			
b4.2					X		
c1.1						X	
c1.2							X
c1.3							X

8- Teaching and Learning Methods

Competencies	Teaching and Learning Methods												
	Lecture	Presentations	Discussions	Tutorials	Lab experiments	Problem solving	Brain storming	Projects	Site visits and scientific trips	Reporting	Group working	Self-reading	Distance Learning
a8.1	X	X	X			X	X			X	X	X	X
a8.2	X	X	X			X	X			X	X	X	X
a10.1	X	X		X		X	X			X	X	X	X
a10.2	X	X		X		X	X			X	X	X	X
b2.1	X	X		X		X				X			X
b2.2	X	X		X		X				X			X
b2.3	X	X		X		X				X			X
b4.1	X		X	X						X	X	X	X
b4.2	X		X	X						X	X	X	X
c1.1	X	X	X							X	X	X	X
c1.2	X	X	X							X	X	X	X
c1.3	X	X	X							X	X	X	X

9- Assessment Methods

Competencies	Assessment Methods									
	Written Exams	Oral Exam	Projects	Report	Quiz	Presentation	Practical Test	Observations	Dissertation	Online quiz
a8.1				X				X		
a8.2				X				X		
a10.1	X							X		
a10.2	X							X		
b2.1	X			X						
b2.2	X			X						
b2.3	X			X						
b4.1	X			X				X		
b4.2	X			X				X		
c1.1	X			X						
c1.2	X			X						
c1.3	X			X						

10- Assessment Methods Weight

Assessment Method	Percentage
Final Exam	40 %
Mid-term Exam	40 %
Semester Work	20 %
Total	100 %

Course Notes	Lecture presentations used for data show and explanation to students during lecture sessions.
Essential Books	1- "Schaum's outlines of theory and problems of signals and systems", by Hwei P. Hsu, First edition, 1995. Published by: McGraw-Hill Companies, Inc. 2- "Signals and systems", by Hwei P.HSU, 2 nd edition, 2008. Published by: Tata McGraw Hill Education
Recommended Books	3- "Introduction to signal processing" ,by Sophocles J. Orfanidis, 2009. Published by: Prentice Hall 4- "System analysis and design", by Alan Dennis, Barbara Haley Wixom & Roberta M. Roth, 2012. Published by: John Wiley & Sons 5- "System analysis and design", by Roberta M. Roth, Barbara Haley Wixom & Alan Dennis, 2012. Published by: John Wiley & Sons
Websites	1. http://www.saigontech.edu.vn/faculty/huynq/SAD/Systems_Analysis_Design_UML_5th%20ed.pdf 2. https://www.researchgate.net/publication/269105794_Fundamentals_of_System_Analysis_Design

We certify that all of the information required to deliver this course is contained in the above specification and will be implemented.

Course Coordinator

Name: Dr. Mohammed Morad Salama

Signature: *Dr. Mohammed Morad Salama*

Date: 5/9/2022

Head of Electrical Engineering and Computers Engineering Department

Name: Dr. Omar Makram Kamel

Signature: *O.M. Kamel*

Date: 5/9/2022