



Syllabus

1. Course name: Signals and Systems

2. Course code: SISY330164

3. Credits: 3 credits (3:0:8) (3 lecture periods, 0 lab period, 6 self-study periods per week)

4. Instructors

- Chief lecturer: MEng. Lê Minh Thành
- Co-lecturers: MEng. Đặng Phước Hải Trang
- Co-lecturers: Assoc. Prof. Phan Văn Ca

5. Course Requirements:

Prerequisite course(s): None

Previous course(s): Calculus 1

6. Course Description

This course provides fundamental knowledge and application about the continuous time signal and systems and applications. Topics include communication, continuous -time LTI signals and systems, difference equations, The Laplace Transform and convolution to Continuous-Time System Analysis, Continuous Time Fourier Series(CTFS), Continuous Time Fourier Transform (CTFT), modulation and demodulation system classification and filter system.

7. Learning Outcomes (CLOs)

CLOs	Descriptions <i>On successful completion of this course students will be able to:</i>	ELO(s) /PI(s)	Competency
CLO1	An ability to classify signals and systems, to describe the differences between continuous time signals and systems versus discrete time signals and systems, to determine the signal energy and correlation.	ELO1/PI1.1-2	R
CLO2	An ability to determine the response of a linear time-invariant (LTI) system to any input signal by using the convolution in time-domain.	ELO1/PI1.1-2	R
CLO3	An ability to apply the properties of Fourier transform, Laplace transform and other basis methods to mathematically transform signals between the time and frequency domains	ELO1/PI1.1-2	R
CLO4	An ability to determine the response of a linear time-invariant (LTI) system to any input signal by using Fourier transform and inverse Fourier transform in frequency domain, to design the signal filter and modulation.	ELO1/PI1.1-2 ELO7/PI7.2	I

8. Content outline

- Introduction of the continuous time signal and system
- Time domain analysis of continuous time signal;
- Response of LTI system in time domain;
- The Laplace Transform and its applications;
- Frequency Domain Analysis of continuous Time Systems;
- Response of LTI system in time domain;
- Modulation - demodulation system, filter system;

9. Teaching Methods

- Powerpoint presentation)
- Teamwork

10. Assessment(s)

- Grading scale: 10
- Assessment plan:

No.	Content	CLOs	Competency	Assessment methods	Assessment tools	Weighting %
Formative assessment						50
1	Problems in Signals and systems classification, signal energy and power, signals correlation	CLO1	3	Midterm Test	Score sheet	15
2	Problems in systems impulse response and convolution implementation in time domain	CLO2	3	Midterm Test	Score sheet	15
3	Attendance Quiz	CLO1-4	3	Quiz Test	Score sheet	5
4	Problems in systems response by using Fourier transform in frequency domain	CLO3,4	3	Midterm Test	Score sheet	15
Summative assessment						50
5	Problems in signals and system analysis in time and frequency domains.	CLO1-4	3	Final Examination	Score sheet	50

11. Learning Materials

a. Textbook:

Richard Baraniuk, *Signals & Systems*, Richard Baraniuk, 2008.

b. References:

1. Hwei P. Hsu, *Schaum's Outlines of Signals & Systems*, The McGraw-Hill Companies, 2009.
2. Phạm Thị Cư, Lý thuyết tín Hiệu, Nhà Xuất bản Giáo Dục, 2000.

12. General Information

Academic Integrity

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13. Approval Date: <dd/mm/yyyy>

14. Endorsement:

Dean	Head of Department	Chief Lecturer
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Assoc. Prof. Dr. Nguyen Minh Tam	Assoc. Prof. Dr. Phan Văn Ca	<i><Full Name></i>
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15. Revision History:

1st Revision: <i><dd/mm/yyyy></i>	Lecturer: Head of Department: Assoc. Prof. Phan Văn Ca
2nd Revision: <i><dd/mm/yyyy></i>	Lecturer: Head of Department: