31. Signals and Systems Laboratory (PH033IU)

Module designation	*This course covers the following topics: Experimental exercises via simulation using MATLAB to get an understanding of frequency and time domain analysis of linear dynamic systems and corresponding signals. Finding the response of continuous-time and discrete-time linear systems via simulation*
Semester(s) in which the module is taught	1, 2
Person responsible for the module	Dr. Huỳnh Võ Trung Dũng
Language	English
Relation to curriculum	Compulsory
Teaching methods	Laboratory, Exercises.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 55 Contact hours (please specify whether lecture, exercise, laboratory session, etc.): lecture: 25 Private study including examination preparation, specified in hours: 30
Credit points/ECTS	1 credit/2 ECTS
Required and recommended prerequisites for joining the module	Parallel course: Introduction to Signals and Systems (PH032IU)

Module objectives/intended learning outcomes	Upon the successful completion of this course students will be able to:	
	Competency level	**Course learning outcome (CLO)**
	Knowledge	CLO1. Review the fundamentals of signals and systems.
	Skill	CLO2. Design and conduct experiment, analyze results CLO3. Use MATLAB software to write programs about some signals and systems topics and know how to write lab report
	Attitude	CLO4. Understand the professional and ethical responsibility as an engineer

<table>
<tr><td>Content</td><td>The description of the contents should clearly indicate the weighting of the content and the level.
Weight: laboratory session (4 hours)
Teaching levels: I (Introduce); T (Teach); U (Utilize)
<table>
<tr><th>Topic</th><th>Weight</th><th>Level</th></tr>
<tr><td>Introduction to MATLAB</td><td>1</td><td>I, T,U</td></tr>
<tr><td>Elementary Signals</td><td>1</td><td>I, T,U</td></tr>
<tr><td>Mathematical Description of Signals</td><td>1</td><td>I, T,U</td></tr>
<tr><td>Systems</td><td>1</td><td>I, T,U</td></tr>
<tr><td>Fourier Series</td><td>1</td><td>I, T,U</td></tr>
<tr><td>Time-Domain System Analysis and Laplace Transform</td><td>1</td><td>I, T,U</td></tr>
<tr><td>Fourier Transform and Fourier Analysis Discrete-Time Signals</td><td>1</td><td>I, T,U</td></tr>
<tr><td>Review and Final Examination</td><td>1</td><td>I, T,U</td></tr>
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<tr><td>Examination forms</td><td>Exam</td></tr>
<tr><td>Study and examination requirements</td><td>Attendance: A minimum attendance of 80 percent is compulsory for the class sessions. Students will be assessed on the basis of their class participation. Questions and comments are strongly encouraged.
Assignments/Examination: Students must have more than 50/100 points overall to pass this course.</td></tr>
<tr><td>Reading list</td><td>Textbook:
[1] Laboratory Manual supplied by the instructor.
Reference:
[2] Z. Gajic, Linear Dynamic Systems and Signals, Prentice-Hall, 2003</td></tr>
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