



45. Digital Signal Processing Laboratory (EE093IU)

Module designation	<i>This course is an introduction to the basic principles, methods, and applications of digital signal processing, emphasizing its algorithmic, computational, and programming aspects.</i>
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	Lecture, Experiment, assignment
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 55 Contact hours (please specify whether lecture, exercise, laboratory session, etc.): laboratory: 25 Private study including examination preparation, specified in hours: 30
Credit points/ECTS	1 credits/2 ECTS
Required and recommended prerequisites for joining the module	Parallel course: Digital Signal Processing (EE092IU)



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. Design and implement digital signal processing algorithms in MATLAB software.
	Skill	CLO2. Optimize the programming code for having better performance of DSP projects. CLO3. Solve the problems efficiently by individual and by group. CLO4. Present the application of DSP algorithms in signal processing filed
Attitude	CLO5. Confidence and fluency in discussing digital signal processing in English	



Content	<p><i>The description of the contents should clearly indicate the weighting of the content and the level.</i></p> <p>Weight: laboratory session (4 hours)</p> <p>Teaching levels: I (Introduce); T (Teach); U (Utilize)</p>		
	Topic	Weight	Level
	Sampling and reconstruction of analog signals	1	T, U
	Sampling, Quantizing and Coding	1	T, U
	Z transform	1	T, U
	Z transform and Transfer Function	1	T, U
	Fourier Analysis of Discrete-Time Signals	1	T, U
	Frequency Response	1	T, U
	Review and Final Exam	2	T, U
Examination forms	Written Exam		
Study and examination requirements	<p>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.</p> <p>Assignments/Examination: Students must have more than 50/100 points overall to pass this course.</p>		
Reading list	<p>Textbooks:</p> <p>[1] S J.Orfanidis, <i>Introduction to Signal Processing</i>, Prentice–Hall, 1996, ISBN 0-13-209172-0</p> <p>[2] M. D. Lutovac, D. V. Tošić, B. L. Evans, <i>Filter Design for Signal Processing Using MATLAB and Mathematica</i>, Prentice Hall, 2001</p> <p>[3] Lab manual</p>		