UNDERGRADUATE PROGRAM IN COMPUTER SCIENCE
DEPARTMENT OF COMPUTER ENGINEERING
FACULTY OF INTELLIGENT ELECTRICAL AND INFORMATICS TECHNOLOGY

Module name	**[Digital Signal Processing]**
Module level	Undergraduate
Code	EC184404
Courses (if applicable)	**[Digital Signal Processing]**
Semester	4 / Spring (Genap)
Contact person	*Prof. Yoyon K Suprapto*
Lecturer	*Prof. Yoyon K Suprapto*
Language	[Indonesia / English]
Relation to curriculum	Undergraduate degree program, *mandatory, 4th* semester. {semester}
Type of teaching, contact hours	Lecture, < 60 students, 170 minutes * SKS
Workload	1. *Lectures: 2 x 50 = 100 minutes (2.5 hours) per week.* 2. *Exercises and Assignments: 2 x 60 = 120 minutes (2 hours) per week.* 3. *Private study: 2 x 60 = 120 minutes (2 hours) per week.*
Credit points	2 credit points (sks).
Requirements according to the examination regulations	A student must have attended at least 75% of the lectures to sit in the exams.
Mandatory prerequisites	
Learning outcomes and their corresponding PLOs	CLO 1 Ability to represent signals and digital systems in time and frequency domain — PLO 3 CLO 2 Ability to analyze and realize time-invariant linear digital system — PLO 3 CLO 3 Ability to explain and analyze the process of sampling and reconstruction of the signal — PLO 3, PLO 4 CLO 4 Ability to explain and apply z-Transformation for discrete signal and systems analysis — PLO 3 CLO 5 Ability to explain, calculate, analyze and simulate FFT on discrete signals and systems — PLO 3, PLO 4 CLO 6 Ability to design and implement FIR and IIR digital filters — PLO 5, PLO 6

Content	In this course, students will learn about signal representation and discrete systems in the time and frequency areas, the process of sampling and reconstruction of signals, planning digital filters and applying discrete systems on digital electronics equipments.
Study and examination requirements and forms of examination	• *In-class exercises* • *Quiz 1 and 2* • *Assignment 1, 2, 3* • *Mid-term examination* • *Final examination*
Media employed	*LCD, whiteboard, websites (myITS Classroom).*
Assessments and Evaluation	*CO-1: Question no 1 in midterm exam (10%)* *CO-2: Question no 2 in midterm exam (10%)* *CO-3: Question no 3 in midterm exam (10%), quiz 1 (5%)* *CO-4: Assignment 1 (5%), question no 4 in midterm exam (10%), Quiz 2 (5%)* *CO-5: Question no 1 in final exam (15%), question no 2 in final exam (10%)* *CO-6: Assignment 2 (5%), question no 3 in final exam (15%)*
Reading List	1. 1. Alan V. Oppenheim, Ronald W. Schafer & John R. Buck, "Discrete-Time Signal Processing," 2nd ed., Prentice Hall, 1999. 2. 2. L.C. Ludeman, "Fundamentals of Digital Signal Processing", Harper & Row, 1986 3. 3. John G. Proakis, Dimitris G. Manolakis, "Digital Signal Processing: Principles, Algorithms, Applications, Prentice Hall, 1996 4. 4. Paulo S.R. Diniz, Eduardo A.B. da Silva, & Sergio L. Netto, "Digital Signal Processing: System Analysis and Design," Cambridge University Press, 2002