

iMata Kuliah (MK)	Course Name	: Digital Signal Processing
	Code	: EE184403
	Credits	: 3
	Semester	: IV

Description of Course

Digital Signal Processing course discusses discrete signals and discrete time LTI system concepts, how a series of discrete time system is realized based on different equations, signal frequency analysis and discrete time systems, the concept of converting continuous time signals into discrete time signals with sampling techniques, Nyquist theory and aliasing, signal analysis and discrete time systems use Z transforms, DFT-IDFT algorithms, and FFT-IFFT for computational signal and system analysis, Finite Impulse Response (FIR) and Infinite Impulse Response (IIR) filters.

Learning Outcomes

KNOWLEDGE

(P02) Mastering the concepts and principles of engineering, and implementing them in the form of procedures for analysis and design in power systems, control systems, multimedia telecommunications, or electronics Mastering the concepts and principles of engineering, and implementing them in the form of procedures for analysis and design in power systems, control systems, multimedia telecommunications, or electronics

SPECIFIC SKILL

(KK01) Able to formulate engineering problems in power systems, control systems, multimedia telecommunications, or electronics.

GENERAL SKILL

(KU12) Able to implement information and communication technology (ICT) in the context of implementation of his/her work

ATTITUDE

(S09) Demonstrating attitude of responsibility on work in his/her field of expertise independently
(S12) Working together to be able to make the most of his/her potential.

Course Learning Outcomes

KNOWLEDGE

Mastering the concepts of discrete signals and systems in the time domain, complex frequency and frequency domains and digital filter design IIR and FIR.

SPECIFIC SKILL

Able to analyze discrete signals and systems in time domain, complex frequency and frequency domains as well as digital filter design IIR and FIR

GENERAL SKILL

Able to use Matlab / Simulink software to visualize and experiment signal concepts and discrete time

linear systems and design digital filters IIR and FIR.

ATTITUDE

Demonstrate the attitude of being responsible for work in his area of expertise independently.

Working together to be able to make the most of his/her potential.

Main Subjects

1. Concept of Signal and System of Discrete Time
2. Linear Time Invariant Discrete Time
3. Frequency Analysis of Signal and Linear Time Invariant System in Discrete Time
4. Sampling and Reconstruction Sampling dan Rekonstruksi
5. Z Transform
6. DFT-IDFT and FFT-IFFT
7. FIR Digital Filter Design
8. IIR Digital Filter Design

Reference(s)

- [1] John G Proakis and Dimitris G, Manokalis, Digital Signal Processing: Principles, algoritms and applications, 4th Edition, Pearson International Edition, Pearson Prentice-Hall, NewJersey, 2007.
- [2] Monson H Hayes, Digital Signal Processing, Schaum's Outline Series, McGraw-Hill Companies, Inc., USA, 1999
- [3] Lonnie C Ludeman, Fundamentals of Digital Signal Processing, Wiley, 1986.
- [4] Viney K Ingle and John G Proakis, Digital Signal Processing using Matlab, 3rd Ed., CENGAGE Learning, USA, 2012.

Prerequisite(s)

EE184305 Signal and Systems