

Module designation	CE529 Digital Signal Processing										
Semester(s) in which the module is taught	4										
Person responsible for the module	Nabila Husna Shabrina, S.T, M.T. Aminuddin Rizal, S.T., M.Sc										
Language	Indonesian										
Relation to curriculum	Compulsory										
Didactic Methods	Lecture, Problem Based, Collaborative, Demonstration, Hands-On, Interactive Multimedia, Independent Learning										
Workload (incl. contact hours, self-study hours)	Total workload: 90.72 hours - 23.34 hours of synchronous lecture. - 56.04 hours of self-study and assignments in the form of mini projects. - 11.34 hours related to exam and self study										
Credit points	2 SKS (3.36 ECTS)										
Required and recommended prerequisites for joining the module	CE421 Linear Signal and System										
Module objectives/intended learning outcomes	<table border="1"> <tr> <td>D</td> <td>D1</td> <td>Ability to operate and coordinate (if necessary) on technical working tasks in a team.</td> <td>Students will be able to give solution to factual problem related to digital signal processing as individual or team (C5)</td> </tr> <tr> <td>F</td> <td>F2</td> <td>Ability to design computer-based solutions to solve actual problems.</td> <td> Students will be able to analyze type and characteristic of signals (C2) Students will be able to employ discrete signal reconstruction method (C3) Students will be able to employ time domain digital signal processing method (C3) Students will be able to employ frequency domain digital signal processing method (C3) Students will be able to employ digital filter (C3) Students will be able to operate signal processing method using software simulation (C3) </td> </tr> </table>			D	D1	Ability to operate and coordinate (if necessary) on technical working tasks in a team.	Students will be able to give solution to factual problem related to digital signal processing as individual or team (C5)	F	F2	Ability to design computer-based solutions to solve actual problems.	Students will be able to analyze type and characteristic of signals (C2) Students will be able to employ discrete signal reconstruction method (C3) Students will be able to employ time domain digital signal processing method (C3) Students will be able to employ frequency domain digital signal processing method (C3) Students will be able to employ digital filter (C3) Students will be able to operate signal processing method using software simulation (C3)
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Content	This course provides an understanding of signal processing in discrete time (digital) systems that can be performed in the time										

	domain (by performing various operations on signals including convolution and correlation), as well as in the frequency domain. Furthermore the course providing knowledge of discrete system analysis-synthesis includes designing IIR and FIR digital filters with various methods.
Assessment Instrument	Written Test, Performance, Product Based
Study and examination requirements	The total average score for this subject : assignments&quiz (30%), midterm exam (30%), final exam (40%). Final score must be more than or equal to 55 (C).
Reading list	<ol style="list-style-type: none"> 1. Ifeachor, E.C., and Jervis, B.W., "Digital Signal Processing: A Practical Approach", 2nd Ed., Prehall, Essex, 2002. [I&J] 2. Ingle, V.K., and Proakis, J.G., "Digital Signal Processing Using Matlab", 4th ed., Cengage Learning, Stamford, 2017. [I&P] 3. A. V. Oppenheim, Willsky, A. S., and Nawab, S. H., "Signals and Systems", 2nd Edition, Prentice Hall, New Jersey, 2015. [O&S] 4. Proakis, J.G., and Manolakis, D.K., "Digital Signal Processing: Principles, Algorithms, and Applications", 5th Ed., Prehall, 2021. [P&M]