

Course Code	TKIE 162102
Course Name	Signals and Systems
Course Instructors	Samiadji Herdjunto (SHD); Bondhan Winduratna (BDW); Adha Imam Cahyadi (AIC); Igi Ardiyanto (IGA); Oyas Wahyunggoro (OWN); Donysius Doni A. (DDA)
Course Type	Required
Course Classification	Engineering Topics
Credit / Contact Hour per Week	4 / 200 minutes per Week
Course Description	This course will discuss signals transformations and systems characters that applicable to solve complex program in engineering. <i>(Matakuliah ini membahas transformasi isyarat dan watak sistem untuk solusi program kompleks dalam bidang teknik)</i>
Prerequisites Courses	-
<b>Covered Student Outcome</b>	<b>Fundamental Engineering Knowledge (a)</b> <b>Development of Engineering Solution (b)</b>

Learning Outcome		
No	Learning Outcome	Study Program Student Outcome
1.	Students are able to know and understand the concept of signal and system, system stability, and apply convolution to get the system response. <i>(Mahasiswa dapat memahami konsep isyarat dan sistem, stabilitas sistem, dan menerapkan konvolusi untuk mendapatkan tanggapan sistem)</i>	Fundamental Engineering Knowledge
2.	Students are able to know and understand the system modelling using differential equation and state variable, applying Laplace transform and Fourier transform to solve the problem of LTI system. <i>(Mahasiswa dapat memahami pemodelan sistem menggunakan persamaan diferensial, variabel ruang, dan menerapkan transformasi Laplace dan transformasi Fourier untuk solusi masalah sistem LTI)</i>	Development of Engineering Solution
3.	Students are able to convert the continuous LTI system to LTI discrete-time system, and apply Z-transform in solution to LTI discrete-time system <i>(Mahasiswa dapat mengkonversi sistem LTI kontinyu ke sistem diskrit LTI, dan menerapkan transformasi Z untuk solusi masalah sistem diskrit LTI)</i>	Development of Engineering Solution
4.	Students are able to apply concept of state variable to examine the characteristics of a linear time invariant system <i>(Mahasiswa dapat menerapkan konsep variabel ruang untuk menentukan karakteristik sistem tak-ubah waktu linier)</i>	Fundamental Engineering Knowledge

Topic	<ol style="list-style-type: none"> <li>1. Signals and Characteristic of Systems (<i>Isyarat dan Karakteristik Sistem</i>)</li> <li>2. System Modelling and Solving the Problem of LTI System (<i>Pemodelan Sistem dan Pemecahan Masalah Sistem LTI</i>)</li> <li>3. Discretization of LTI System (<i>Diskritisasi Sistem LTI</i>)</li> <li>4. Discrete-Time System Stability and System Analogy (<i>Stabilitas Sistem Diskrit dan Analogi Sistem</i>)</li> </ol>
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Direct Assessment	<b>Direct Assessment Plan</b>		<b>Measured Learning Outcome</b>	
	Group Task (10%)		LO1; LO2; LO3; LO4	
	Quiz (10%)		LO1; LO2; LO3; LO4	
	Mid Exam (40%)		LO1; LO2	
	Final Exam (40%)		LO2; LO3; LO4	
Indirect Assessment	Questionnaire (EDOM)			
References	<p>[1] Oppenheim, Allan V.; Willsky, Ian, 1987, <i>Signals and Systems</i>, New Delhi, Prentice Hall of India</p> <p>[2] Kamen, Edward W. ; Heck, Bonnie S., 1997, <i>Fundamentals of Signals and systems using Matlab</i>, New Jersey, Printice Hall</p> <p>[3] Web</p>			