



INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)  
FAKULTAS TEKNOLOGI ELEKTRO DAN INFORMATIKA CERDAS  
DEPARTEMEN TEKNIK ELEKTRO  
Program Studi Sarjana (S1) Teknik Telekomunikasi

1	<b>Nama Mata Kuliah/ Course Name</b>	:	Pengantar Teknik Telekomunikasi/ Introduction to Telecommunication Engineering
2	<b>Kode Mata Kuliah/ Course Code</b>	:	EL234202
3	<b>Kredit/ Credits</b>	:	2 SKS
4	<b>Semester/ Semester</b>	:	2

#### Deskripsi Mata Kuliah/ Course Description

Mata Kuliah Pengantar Teknik Telekomunikasi membahas tentang konsep dasar Sistem Telekomunikasi, klasifikasi sistem dan sejarah perkembangan. Klasifikasi sinyal informasi, representasi data, dan teknik modulasi. Klasifikasi media transmisi, dan potensi gangguan transmisi data yang mungkin terjadi. Konsep jaringan telekomunikasi, multiplexing dan multiple access.

*The introductory telecommunications engineering course discusses the basic concepts of telecommunications systems, system classification and history of development. Information signal classification, data representation, and modulation techniques. Classification of transmission media, and potential data transmission interruptions that may occur. Telecommunication network concept, multiplexing and multiple access.*

#### Capaian Pembelajaran Lulusan (CPL) Yang Dibebankan Mata Kuliah/ Program Learning Outcomes Charged to The Course

1. (CPL-04) Mampu menerapkan ilmu pengetahuan alam dan matematika serta teknologi dan rekayasa informasi untuk memperoleh pemahaman komprehensif pada bidang Teknik Telekomunikasi.  
*(PLO-04) Able to apply knowledge of sciences, mathematics, and information technology to acquire comprehensive understanding of engineering principles in Telecommunication Engineering.*
2. (CPL-08) Mampu mengetahui dan mengaplikasi metode dan keahlian sesuai perkembangan terkini di bidang ilmu pengetahuan dan teknologi untuk menyelesaikan permasalahan di bidang Teknik Telekomunikasi dengan mengedepankan nilai-nilai universal.

(PLO-08) *Able to know and apply methods, skills according to the latest developments in the field of science and technology to solve electrical engineering problems by prioritizing universal values.*

#### **Capaian Pembelajaran Mata Kuliah/ Course Learning Outcomes**

1. Mengenal konsep Dasar Sistem Telekomunikasi, Klasifikasi Sistem dan Sejarah Perkembangan/ *Get to know the basic concepts of Telecommunication Systems, System Classification and History of Development*
2. Mengenal klasifikasi Sinyal Informasi, representasi data, dan Teknik modulasi/ *Get to know the classification of Information Signals, data representation, and modulation techniques*
3. Mengenal klasifikasi media transmisi dan potensi gangguan transmisi data yang mungkin terjadi/ *Recognize the classification of transmission media and potential data transmission disturbances that may occur*
4. Mengenal konsep jaringan telekomunikasi, multiplexing dan multiple access/ *Know the concept of telecommunication network, multiplexing and multiple access*

#### **Pokok Bahasan/ Contents**

1. Dasar Sistem Telekomunikasi (p1)/ *Basic Telecommunication Systems (p1)*
2. Sinyal Informasi (p2)/ *Information Signal (p2)*
3. Representasi sinyal (p3)/ *Signal representation (p3)*
4. Teknik modulasi (x)/ *Modulation technique (x)*
5. Media transmisi (p4)/ *Transmission Media (p4)*
6. Gangguan transmisi data (p5)/ *Data transmission interruption (p5)*
7. Jaringan telekomunikasi (x) --> jaringan komunikasi data / *Telecommunications network (x) --> data communication network*
8. Multiplexing dan Multiple Access (optional)/ *Multiplexing and Multiple Access (optional)*

#### **Prasyarat/ Pre-requisite**

Pengantar Teknik Elektro/ *Introduction to Electrical Technology*

#### **Pustaka/ Reference**

Utama/ *Primary :*

1. Roger L. Freeman, *Fundamental of Telecommunications*, Second Edition, John Wiley & Sons, 2005
2. Stallings, W., *Data and Computer Communications*, 10th Edition. Upper Saddle River, NJ, USA, Prentice Hall, 2014
3. Gupta, Prakash C., *Data Communications and Computer Networks*, Prentice Hall of India, New Delhi, 2006.
4. Andrew S. Tanenbaum, David J. Wetherall, *Computer Networks*, Fifth Edition, Pearson, 2013
5. Simon Saunders, Alejandro Aragón-Zavala, *Antennas and Propagation for Wireless Communication Systems*, 2nd Edition, John Wiley & Sons Ltd., 2007.

Pendukung/ *Support :*

1. Shanmugam, K.Sam, Digital and Analog Communication, John Wiley and Sons (WIE), International Edition, 1979.