Course Code	TKEE163244
Course Name	Telecommunications Transmissions
Course Instructors	Budi Setiyanto; Dyonisius Dony Arianandа; Iswandi;
Course Type	Selected Elective
Course Classification	Engineering Topics
Credit / Contact Hour per Week	2 / 100 minutes per Week
Course Description	This course discusses some important concepts and techniques in telecommunication transmission system along with few examples of transmission media and technologies Some of the latest technologies in communication systems are also discussed.
.Prerequisites Courses	-
Covered Student Outcome	**Fundamental and Engineering Knowledge (a)** **Development of Engineering Solution (b)**

Learning Outcome	1. Students are able to explain the concept of Pulse Code Modulation (PCM) system, higher order digital multiplexing technique (both synchrnous and asynchronous), as well as statistical multiplexing technique. 2. Students are able to explain multiple access concepts which include channelization multiple access and random multiole access. 3. Students are able to explain communication system using guided media such as cooper cable and fiber optic. 4. Students are able to explain the basic concept of microwave communication system (terrestrial) and its constraints, few important principle with regards to antenna system, as well as their analysis on radio link budget. 5. Students are able to explain the basic concepts of modern communication techniques, which include orthogonal frequency division multiplexing techniques and multiple input multiple output (MIMO) systems. 6. Students are able to explain the basic concepts of satellite communication system.
Topic	1. Digital Multiplexing - Sampling, Quantization, Pulse Code Modulation 2. Digital Multiplexing - Plesiochronous Digital Hierarchy 3. Digital Multiplexing - Synchronous Digital Hierarchy 4. Statistical Multiplexing 5. Multiple Access: Channelization 6. Multiple Access; Random Multiple Access 7. Fundamentals of Optical Fiber Communication 8. Antenna and Wave Propagation at a glance 9. Terrestrial Communication (Digital Microwave) 10. Satellite Communication System 11. Multicarrier Modulation and OFDM 12. Multiple Input Multiple Output System
Direct Asessment	

Direct Asessment Plan	**Measured Learning Outcome**
Mid Exam	LO1, LO2, LO3
Exam	LO4, LO5, LO6
Presentation	LO1, LO2, LO3, LO4, LO5, LO6

Indirect Assesment	Questionnaire (EDOM)
References	[1] Telecommunication Transmission System (Robert G. Winch, 2nd edition) [2] Communication Networks (Leon Garcia Wijaya, 2004) [3] Dasar-Dasar Telekomunikasi (Budi Setiyanto, 2010) [4] Digital and Analog Communication Systems (Leon W. Couch)