

Course Code	TKEE163122P													
Course Name	Advanced Telecommunication System Lab Work													
Course Instructors	Budi Setiyanto													
Course Type	Required													
Course Classification	Engineering Topics													
Credit / Contact Hour per Week	1 / 150 minutes per Week													
Course Description	In this Lab Work, the students learn about digital modulation techniques, digital communication systems, sampling theory and the related concept, advanced analogue communication systems, antennas and wave propagations, as well as data communications using RS-232-C cable													
Prerequisites Courses														
Covered Student Outcome	Data and Experiment (d) Modern Tools Utilization (e) Multidisciplinary Teamwork (h)													
Learning Outcome	<ol style="list-style-type: none"> The students are able to explain several digital communications techniques, such as binary phase shift keying, quadrature phase shift keying, quadrature amplitude modulation keying etc, and the impact of noise on the resulting digital modulated signals The students are able to explain several important concepts in digital communication systems including pulse shaping, pulse code modulations, as well as error detection and corrections techniques The students are able to explain important concepts related to sampling theory, including sampling, aliasing, pulse amplitude modulation, pulse width modulation, and pulse position modulation The students are able to explain advanced concept in analog modulation theory, including amplification, distortion, gain control, and balance modulator The students are able to show and demonstrate how to perform antennas configurations and examine the wave radiated from the antennas The students are able to show and demonstrate data communications using RS-232-C serial cable and explain the functionality of all pins within the cable 													
Topic	<ol style="list-style-type: none"> Digital Modulation Digital Communications Pulse Communication Advanced Analog Communications Antenna and Propagation Data Communication with RS-232-C Serial Cable 													
Direct Assessment	<table border="1"> <thead> <tr> <th>Direct Assessment Plan</th> <th>Measured Learning Outcome</th> </tr> </thead> <tbody> <tr> <td>Lab Work Report</td> <td>LO1 LO2 LO3 LO4 LO5 LO6</td> </tr> <tr> <td>Pretest</td> <td>LO1 LO2 LO3 LO4 LO5 LO6</td> </tr> <tr> <td>Post Test</td> <td>LO1 LO2 LO3 LO4 LO5 LO6</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Direct Assessment Plan	Measured Learning Outcome	Lab Work Report	LO1 LO2 LO3 LO4 LO5 LO6	Pretest	LO1 LO2 LO3 LO4 LO5 LO6	Post Test	LO1 LO2 LO3 LO4 LO5 LO6				
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Indirect Assessment	Questionnaire (EDOM)													
References	<ol style="list-style-type: none"> B. Setiyanto, 2010, Dasar-dasar Telekomunikasi, Sakti L. W. Couch, 2012, Digital and Analog Communication Systems, Pearson 													