

Course Code	TKEE164223													
Course Name	High Frequency Electronics and Microwaves													
Course Instructors	Prapto Nugroho													
Course Type	Elective													
Course Classification	Engineering Topics													
Credit / Contact Hour per Week	3 / 150 minutes per Week													
Course Description	Explain the basic principles of microwave and radio frequency (RF) and its applications and design of RF circuits: LNA, oscillator, and mixer.													
Prerequisites Courses	-													
Covered Student Outcome	Development of Engineering Solution (b) Engineering Design (c)													
	<ol style="list-style-type: none"> 1. Students are able to solve the problem of microwave network analysis 2. Students are able to solve Impedance Matching and Tuning problems 3. Students are able to design various series of RF & Microwave electronics 													
Topic	<ol style="list-style-type: none"> 1. Introduction to RF & Microwave Electronics 2. Two port RF Microwave Network 3. Smith Chart and Its Application 4. Design of Matching Network 5. Filter Design 6. Low Noise Amplifier Design 7. Oscillator Design 8. Detector and Mixer Design 													
Direct Assessment	<table border="1"> <thead> <tr> <th>Direct Assessment Plan</th> <th>Measured Learning Outcome</th> </tr> </thead> <tbody> <tr> <td>Homework</td> <td>LO2</td> </tr> <tr> <td>Projects</td> <td>LO3</td> </tr> <tr> <td>Mid Exam</td> <td>LO1,LO2</td> </tr> <tr> <td>Final Exam</td> <td>LO3</td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Direct Assessment Plan	Measured Learning Outcome	Homework	LO2	Projects	LO3	Mid Exam	LO1,LO2	Final Exam	LO3		
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Homework	LO2													
Projects	LO3													
Mid Exam	LO1,LO2													
Final Exam	LO3													
Indirect Assesment	Questionnaire (EDOM)													
References	<p>[1] Matthew M. Radmanesh, 2001, "Radio Frequency and Microwave Electronics Illustrated", Prentice hall PTR, NJ, USA</p> <p>[2] Devandra K Misra, "Radio Frequency and Microwave Communication Circuits, Analysis and Design, 2nd edition", Willey and son, 2004</p> <p>[3] John Rogers, Calvin Plett, " Radio Frequency Integrated Circuit Design", Artech House, 2003</p> <p>[4] Behzad Razai, "RF microelectronics", Prentice Hall, 1998</p>													