

Course Code	TKEE163114											
Course Name	Power System Analysis											
Course Instructors	Avrin Nur Widiastuti, F. Danang Wijaya, Sarjiya, Lesnanto Multa Putranto											
Course Type	Selected Elective											
Course Classification	Engineering Topics											
Credit / Contact Hour per Week	3 / 150 minutes per Week											
Course Description	This course studies the overview of power systems, the concept of modeling system components that include generators, transformers, and transmission lines. In the preliminary section also explained how the description of the role of power flow in solving system problems both at the stage of operation and planning. Further discussed about the methods that can be used in solving the power flow equation. As a basis for the economic operation of power systems, the economic dispatch concept is described. In the next half of the semester, short circuit analysis and the role of the analysis will be provided in the power system.											
Prerequisites Courses												
Covered Student Outcome	Development of Engineering Solution (b) Engineering Design (c) Modern Tools Utilization (e)											
Learning Outcome	<ol style="list-style-type: none"> 1. Students are able to describe the power system component and able to draw the model 2. Students are able to apply and solve the numerical solution for power system problem 3. Students are able to analyze and control the variable related to the power system performance 4. Students are able to simulate and analyze the electrical power system problem using the simulator or software 											
Topic	<ol style="list-style-type: none"> 1. Introduction: Electric power system modeling, three-phase electrical concept, phasor concept, PU calculation 2. Formation of impedant and administrative matrix 3. Power flow analysis 4. Symmetrical components and short-circuit three-phase balanced analysis 5. Asymmetric components and 3 phase short circuit analysis 6. Economic operation of power system 7. Introduction to STL Dynamics and Stability 											
Direct Assessment	<table border="1"> <thead> <tr> <th>Direct Assessment Plan</th> <th>Measured Learning Outcome</th> </tr> </thead> <tbody> <tr> <td>Assignments</td> <td>LO1,LO2</td> </tr> <tr> <td>Mid Exam</td> <td>LO3,LO4</td> </tr> <tr> <td>Final Exam</td> <td>LO4</td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Direct Assessment Plan	Measured Learning Outcome	Assignments	LO1,LO2	Mid Exam	LO3,LO4	Final Exam	LO4		
Direct Assessment Plan	Measured Learning Outcome											
Assignments	LO1,LO2											
Mid Exam	LO3,LO4											
Final Exam	LO4											
Indirect Assesment	Questionnaire (EDOM)											
References	<ol style="list-style-type: none"> [1] Hadi Saadat, Power System Analysis [2] Stevenson W. D., <i>Element of Power System Analysis and System</i> [3] Stevenson W. D., Grainger J. J., <i>Power System Analysis</i> [4] Gonen Turan., <i>Modern Power System Anayisis</i> [5] Arrilaga, <i>Computer Modelling of Electrical Power System</i> [6] Fouad Anderson, <i>Power System Control and Stability</i> [7] Anderson P. M., <i>Analysis of Faulted Power System</i> 											