

Course Code	TKEE165113															
Course Name	Reliability of Power System															
Course Instructors	Yusuf Susilo Wijoyo, Sarjiya, Lesnanto Multa Putranto															
Course Type	Elective															
Course Classification	Engineering Topics															
Credit / Contact Hour per Week	3 / 150 minutes per Week															
Course Description	The purpose of this course is to provide understanding to the students regarding the concept and application of reliability analysis in the operation and planning of electric power system. Students are expected to master the analytical method to determine the reliability index in Hierarchical Level / HL-I (generator), HL-II (transmission-generator) and HL-III (distribution).															
Prerequisites Courses	-															
Covered Student Outcome	Development of Engineering Solution (b)															
Learning Outcome	<ol style="list-style-type: none"> 1. Students are able to understand the basic concepts of probability for modeling the reliability of power systems. 2. Students are able to know the concepts and methods of analysis for the reliability index calculations of HL-I, HL-II, and HLIII 3. Students are able to apply methods to analyze and evaluate the reliability of small-scale power systems 4. Students are able to apply the concept of reliability index calculation to support the activity of system operation analysis. 5. Students are able to apply the concept of reliability index calculation to support the activities of system planning analysis. 															
Topic	<ol style="list-style-type: none"> 1. Purpose and scope of reliability evaluation 2. Application of binomial distribution 3. Network modeling for reliability analysis 4. Markov modeling e. Evaluation of the reliability of HL-I (generator) 5. Evaluate the reliability of HL-II (generatortransmission) 6. Evaluation of reliability of HL-III (distribution) 7. Operating reserve 															
Direct Asessment	<table border="1"> <thead> <tr> <th>Direct Asessment Plan</th> <th>Measured Learning Outcome</th> </tr> </thead> <tbody> <tr> <td>Homework</td> <td>LO1,LO3</td> </tr> <tr> <td>Quiz</td> <td>LO3</td> </tr> <tr> <td>Final Project Assignment</td> <td>LO2,LO3,LO4,LO5</td> </tr> <tr> <td>Presentation</td> <td>LO5</td> </tr> <tr> <td>Mid Exam</td> <td>LO1,LO2,LO3</td> </tr> <tr> <td>Final Exam</td> <td>LO4,LO5</td> </tr> </tbody> </table>		Direct Asessment Plan	Measured Learning Outcome	Homework	LO1,LO3	Quiz	LO3	Final Project Assignment	LO2,LO3,LO4,LO5	Presentation	LO5	Mid Exam	LO1,LO2,LO3	Final Exam	LO4,LO5
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Indirect Assesment	Questionnaire (EDOM)															
References	<p>[1] Roy Billinton and Ronald N Allan, 1992. Reliability Evaluation of Engineering System, Springer-Verlag US</p> <p>[2] Roy Billinton and Ronald N Allan, 1996, Reliability Evaluation of Power System, SpringerVerlag</p> <p>[4] Marco Cepin. 2011. Assessment of Power System Reliability: Methods and Applications, Springer.</p>															