



MODULE HANDBOOK DESCRIPTION

Module designation	EPS Reliability	
Code	FBA0009	
Semester(s) in which the module is taught	6 / third year	
Person responsible for the module	I Made Ari Nrartha, S.T., M.T.	
Language	Indonesian.	
Relation to curriculum	Free elective for Electrical Power System Engineering	
Teaching methods	Lectures, small group discussion, Discovery Learning, Self-Directed Learning, Contextual Learning, Case-based Learning, Collaborative Learning.	
Workload (incl. contact hours, self-study hours)	Contact minutes every week, each week of the 16 weeks/semester: <ul style="list-style-type: none"> • Lectures: 2 x 50 minutes • Exercises and Assignments: 2 x 60 minutes • Private study: 2 x 60 minutes. Total study hours = 5 hours 40 minutes/week	
Credit points	2 SKS (~ 3.2 ECTS)	
Required and recommended prerequisites for joining the module	- Electric Power Transmission (FBA3102) - Modern Distribution System (FBA3211)	
Module objectives/intended learning outcomes	1. Students are able to analyze reliability indicators, characteristics of assessment models (synthesis), characteristics of the main methods used in models for assessing the reliability of facilities and systems in the electric power industry, characteristics of the generalized model of the evaluation of the complex property of reliability, analysis of the impact of operating conditions, and analysis of the impact of forms and accuracy of modeling.	PLO3

	<p>2. Students are able to review models and problems of the analysis of reliability in Electric Power Systems (EPS) in a modern stage. They will also learn about the comprehensive assessment of the reliability of variants for the development of EPS as a proposed method for a more accurate account of reliability in the design of their basic structure. Additionally, they will study the mathematical formulation of the problem on calculation of reliability indices for a complex EPS, the main stages of creating a model for assessing the reliability of electric power systems, specific features of the algorithms and programs for calculation of reliability indices of a complex EPS (such as the "KORALL" and "YANTAR" programs), and investigate the reliability of variants of the perspective structure of power systems.</p>	PLO4
	<p>3. Students are able to summarize technical knowledge in assessing the reliability of electric power systems, for lifelong learning needs as a professional responsibility.</p>	PLO9
Content	<ol style="list-style-type: none"> 1. The current status of solving the issue of accounting for reliability in controlling the development of Electric Power Systems (EPS). 2. Methodology for researching the reliability of complex electric power systems during their design. 3. Programs for analyzing the reliability of EPS, including their conditions and basic provisions for application in design practice. 4. Analysis of the impact of certain factors related to the functioning and development of EPS, as well as methods for representing them in models that calculate reliability indicators. 5. Investigation of the reliability of variants of the perspective structure of power systems. 	
Examination forms	<ul style="list-style-type: none"> - Assignment, - Written case study. 	

<p>Study and examination requirements</p>	<p>The final grade in the module is composed of:</p> <ol style="list-style-type: none"> 1. Assignment : 10 % 2. Case I assessment: 15% 3. Case II assessment: 20% 4. Case III assessment: 20% 5. Case III assessment: 35% <p>Students must have a final grade of 65% or higher to pass</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. Kovalev, G.F., and Lebedeva, L.M., 2019, Reliability of Power System, Springer Nature Switzerland AG. 2. Čepin, M., 2011, Assessment of Power System Reliability: Methods and Applications, Springer-Verlag London.