



MODULE HANDBOOK DESCRIPTION

Module designation	<i>Modern Distribution System</i>
Code	<i>FBA3211</i>
Semester(s) in which the module is taught	<i>6 / 3th year</i>
Person responsible for the module	- <i>Supriyatna, ST., MT.</i> .
Language	<i>Indonesian</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	- <i>lectures,</i> - <i>small group discussion,</i> - <i>case based method,</i> - <i>project based method</i>
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 learning: 2 x 60 minutes. total study hours = 5 hours 40 minutes/week
Credit points	<i>2 SKS (~ 3,2 ECTS)</i>
Required and recommended prerequisites for joining the module	- <i>Fundamental of Electrical Power (FBS2126)</i> - <i>Power System Analysis (FBA3101)</i>

<p>Program Learning Outcomes (PLO)</p>	<ol style="list-style-type: none"> 1. Engineering Analysis (PLO3) <i>Able to choose method, make literature reviews, design experiments with simulations, and analyse result to reach the right conclusion, as well as develop guidelines for using tools.</i> 2. Engineering Design (PLO4) <i>Able to design and develop components, systems and/or processes to support engineering activities and create technological innovation by optimally utilizing potential resources.</i> 3. Experiment (PLO5) <i>Able to design and carry out experiments using basic and modern engineering tools as well as analyse and interpret data based on the correct methodology to strengthen engineering assessment</i> 	
<p>Module objectives/intended learning outcomes</p>	<ol style="list-style-type: none"> 1. <i>Student are able to understand of electrical power distribution in the future</i> 	<p><i>PLO2</i></p>
	<ol style="list-style-type: none"> 2. <i>Student are able to analyse load characteristic</i> 	<p><i>PLO3</i></p>
	<ol style="list-style-type: none"> 3. <i>Student are able to analyse the component, types and function of each part of distribution system</i> 	<p><i>PLO3</i></p>
	<ol style="list-style-type: none"> 4. <i>Student are able to analyse the voltage drop and power losses in electrical distribution system</i> 	<p><i>PLO3</i></p>
	<ol style="list-style-type: none"> 5. <i>Student are able to design of voltage regulation</i> 	<p><i>PLO4</i></p>
	<ol style="list-style-type: none"> 6. <i>Student are able to design of distribution system protection</i> 	<p><i>PLO4</i></p>
	<ol style="list-style-type: none"> 7. <i>Student are able to analyse of distribution system reliability</i> 	<p><i>PLO3</i></p>
	<ol style="list-style-type: none"> 8. <i>Student are able to experiment of electrical distribution system using software</i> 	<p><i>PLO5</i></p>
<p>Content</p>	<ol style="list-style-type: none"> 1. <i>Introduction</i> 2. <i>Load Characteristics</i> 3. <i>Distribution System Types and Components</i> 4. <i>Voltage Drops and Power Losses</i> 5. <i>Application of Capacitor</i> 6. <i>Voltage Regulator</i> 7. <i>Protection of Distribution Systems</i> 8. <i>Reliability of Distribution Systems</i> 	

Examination forms	<ul style="list-style-type: none"> - <i>Written case study</i> - <i>Written and oral for case and project study</i> - <i>Essay midterm and final test</i>
Study and examination requirements	<p><i>The final grade in the module is composed of:</i></p> <ul style="list-style-type: none"> <i>a. Case I assessment: 10 %</i> <i>b. Case II assessment: 15 %</i> <i>c. Team-Project assessment: 20 %</i> <i>d. Written Midterm assessment: 20%</i> <i>e. Written Final assessment: 25%</i> <p><i>Students must have a final grade of 65% or higher to pass</i></p>
Reading list	<ol style="list-style-type: none"> <i>1. Gonen, Turan; 1987, Electric Power Distribution System Engineering, McGraw Hill</i> <i>2. Kersting, William H.; 2002; Distribution System Modeling and Analysis, CRC Press</i> <i>3. Abdelhay A. Sallam, Om P. Malik; 2011, Electric Distribution Systems, IEEE Press Series on Power Engineering</i> <i>4. E. Lakervi dan E. J. Holmes; 1989; Electricity Distribution Network Design; Peter Peregrinus Ltd</i> <i>5. Elmore, Walter A.; 1994; Protective Relaying Theory and Applications; ABB-Marcel Dekker.</i> <i>6. Billinton, Roy; Ronald N. Allan; 1996; Reliability Evaluation of Power System 2nd edition; Plenum Press</i>