



MODULE HANDBOOK DESCRIPTION

Module designation	<i>Power Quality</i>	
Code	<i>FBA4117</i>	
Semester(s) in which the module is taught	<i>5/third year</i>	
Person responsible for the module	<i>Sabar Nababan, ST., MT.</i>	
Language	<i>Indonesian</i>	
Relation to curriculum	<i>Elective for Electrical Power System Engineering</i>	
Teaching methods	<i>lectures, small group discussion, case base method.</i>	
Workload (incl. contact hours, self-study hours)	<p>Contact minutes every week, each week of the 16 weeks/semester:</p> <ul style="list-style-type: none"> • Lectures: 2 x 50 minutes • Exercises and Assignments: 2 x 60 minutes • Private study: 2 x 60 minutes. <p>total study hours = 5 hours 40 minutes/week</p>	
Credit points	<i>2SKS (~ 3.2 ECTS)</i>	
Required and recommended prerequisites for joining the module	<i>Power System Analysis I</i> <i>Power System Analysis I</i>	
Module objectives/ intended learning outcomes	1. Students are able to master the concept of the phenomenon of electric power quality in 3-phase AC power distribution systems in steady-state/transient and asymmetric/asymmetric conditions.	<i>PLO3, PLO4, PLO5</i>
	2. The student is able to simulate the phenomenon of electric power quality in a 3-phase AC power distribution system in both steady-state/transient and symmetric/asymmetric conditions using simulation software.	<i>PLO4, PLO5</i>
	3. Able to use simulation software to simulate power quality phenomena in electric power distribution systems.,	<i>PLO5</i>

Content	This course discusses the phenomena and simulation of the quality of electrical power in power distribution systems, with topics including: Definition of Electrical Power Quality, Standards, Capacitor Banks for Power Factor Correction, Reactive Power Flow and Power Loss, Voltage Quality, Imbalance, Harmonics, Filter design and simulation using Matlab.
Examination forms	- <i>Essay test on Midterm and final test</i>
Study and examination requirements	<p><i>The final grade in the module is composed of:</i></p> <p><i>Homework = 15%,</i></p> <p><i>Mid Test = 35%,</i></p> <p><i>Final Test = 50%</i></p>
Reading list	<ol style="list-style-type: none"> 1. W. Mielcczarski, G.J. Anders, M.F. Conlon, W.B. Lawrence, H. Khalsa, G. Michalik, "Quality of Electricity Supply & Management of Network Losses", Puma Press, 1997. 2. Roger C. Dugan, Mark F.McGranagan, H. Wayne Beaty, "Electrical Power Systems Quality", McGraw Hill, 1996. 3. Wilson E. Kazibwe, Musoke H. Sendaula, "Electric Power Quality Control Techniques", Van Nostrand Reinhold, 1993 4. Angelo Baggini, "Hand Book of Power Quality", John Wiley and Sons, Ltd, 2008.