MODULE HANDBOOK DESCRIPTION

Module designation	EPS Dynamic and Stability
Code	FBA0001
Semester(s) in which the module is taught	7 / fourth year
Person responsible for the module	Dr. I Made Ginarsa, ST., MT.
Language	Indonesian/English
Relation to curriculum	Free elective for Electrical Power System Engineering
Teaching methods	Lectures, small group discussion, case base method.
Workload (incl. contact hours, self-study hours)	Contact Hours every week, each week of the 16 weeks/semester: (per week includes) ● 2 x 50 minutes: Lecture ● 2 x 60 minutes: Exercise and Assignment ● 2 x 60 minutes: Self-learning Total study hours = 5 hours 40 minutes/week.
Credit points	2 SKS (~ 3.2 ECTS)
Required and recommended prerequisites for joining the module	- Power System Analysis I (FBA3101) - Power System Analysis II (FBA3208)
Module objectives/intended learning outcomes	1. Students are able to analyze the stability of the rotor angle (power angle) and voltage stability, the performance of the Power System Stabilizer (PSS) to increase dynamic stability for single machines and multi-machines.	PLO3
	2. Students are able to create a model for power system simulation to test the stability of the rotor angle (power angle) and voltage stability and design a PSS to improve dynamic stability for single and multi-engine machines	PLO4
	3. Students are able to recognize needs and have the ability to engage in lifelong independent learning regarding the dynamics and stability of power systems as part of professional responsibility.	PLO9

Content	This course equips students with knowledge about structures divided into two major groups: rotor angle stability (power angle) and voltage stability. Synchronous machine (generator) operation in supplying power to the system, frame reference, basic STL stability equation, classical model representation and machine detail model, state space model, excitation system, power system stabilizer (PSS), load frequency control (LFC), response frequency, automatic generation control (AGC), stability, small signal stability and increased stability using PSS for single machine and multi-machine.
Examination forms	- Assignment - Written case study - Midterm and final test
Study and examination requirements	The final grade in the module is composed of: 1. Assignment: 10 % 2. Case I assessment: 15% 3. Case II assessment: 15% 4. Midterm assessment: 30% 5. Final assessment: 30% Students must have a final grade of 65% or higher to pass
Reading list	1. P. S. Kundur, Power System Stability and Control, McGraw-Hill, 1994. 2. K. R. Padiyar, Power System Dynamics: Stability and Control, John Wiley, 1996. 3. P. W. Sauer, M. A. Pai, Power System Dynamics and Stability, Prentice Hall,1998.