Course Code	TKEE165111
Course Name	Power System Dynamics and Stability
Course Instructors	Sasongko Pramono Hadi, 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 students regarding the concept and application of dynamics analysis and stability of electric power system. Students are expected to master dynamic modeling of electric power system of single machine and plural machine, then able to analyze system stability, steady state stability, dynamic and transient stability. Students are also expected to be able to do the design of the control system
Prerequisites Courses	-
Covered Student Outcome	**Development of Engineering Solution (b)** **Engineering Design (c)** **Modern Tools Utilization (e)**

Learning Outcome	1. Students are able to describe the dynamic event and model in power system 2. Students are able to apply and analyze the linear system modelling for power system dynamic 3. Students are able to describe, apply and analyze the method for improving stability performance 4. Students are able to apply the power system stability software for analyzing the stability phenomena 5. Students are able to apply and compose the control and optimization method for stability improvement
Topic	1. Dynamic system, model of linear differential equation 2. State equation model 3. Dynamic response system 4. Dynamic model of synchronous machine and Park transformation 5. Excitation system and AVR 6. Turbine and governor 7. Model power system with single machine and plural machine 8. Power system stabilizer (PSS) 9. Analysis of system stability with PSS 10. Modern control techniques
Direct Asessment	

Direct Asessment Plan	**Measured Learning Outcome**
Homework	
Quiz	LO1,LO2,LO3
Final Project Assignment	LO4,LO5
Presentation	LO4,LO5
Mid Exam	LO1,LO2
Final Exam	LO3,LO4,LO5

Indirect Assesment	Questionnaire (EDOM)
References	[1] Anderson, P.M., and Fouad, A.A., 1977, Power System Control and Stability, IOWA State.University Press, IOWA, USA [2] Yao Nan Yu, 1983, Power System Dynamics and Control, Academic Press. [3] Kundur, Prabha, 1994, Power System Stability and Control, McGraw-Hill