Course Code	TKEE165213
Course Name	Direct Current Transmissions
Course Instructors	Harnoko; T Haryono; F Danang Wijaya;
Course Type	Elective
Course Classification	Engineering Topics
Credit / Contact Hour per Week	3 / 150 minutes per Week
Course Description	Direct Current Transmission Courses examine the various equipment and circuitry of power electronics used in the delivery / distribution of electrical power in large capacity
Prerequisites Courses	-
Covered Student Outcome	**Development of Engineering Solution (b)** **Modern Tools Utilization (e)**

Learning Outcome	1. Students are able to explain the use of 3-phase rectifier circuit and 3-phase inverter in direct current electric power distribution system, comparison of DC transmission system and AC. 2. Students are able to describe methods of operation / configuration of direct current transmissions under normal circumstances and or in fault conditions: bipolar, monopolar, back-to-back. 3. Students are abe to perform calculation of power flow in direct current transmission. 4. Students are able to explain and calculate the voltage settings on the rectifier side and the inverter side. 5. Students are able to explain the kinds of disturbances and security systems in direct current transmission. 6. Students are able to explain the coordination of isolation in the direct current and ground transmission system.
Topic	1. Introduction 2. Unidirectional Current Transmission / Configuration 3. Power Flow 4. Voltage Settings 5. More Flow Protection 6. Coordinate Isolation 7. Harmonics 8. HVDC Multitermals
Direct Asessment	

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

Indirect Assesment	Questionnaire (EDOM)
References	[1] Mohan, 1998, Power Electronic, Devive and Aplications, McGraw-Hill, New York [2] Rao, 1998, Direct Current Transmission, TataMcGraw-Hill, New Delhi. [3] Weedy, 1979, Electric Power Systems, John Wiley & Sons Inc., New York. [4] http://papirus2.jteti.ugm.ac.id/elektronikadaya [5] http://papirus2.jteti.ugm.ac.id/transmisi_arus_searah