MODULE HANDBOOK DESCRIPTION

Module designation	Power Electronics	
Code	FBA3106	
Semester(s) in which the module is taught	5 / third year	
Person responsible for the module	I Made Ari Nrartha, S.T., M.T.	
Language	Indonesian	
Relation to curriculum	Compulsory for electrical power systems	
Teaching methods	Lecture, small group discussion, case base method.	
Workload (incl. contact hours, self-study hours)	Contact minutes every week, each week of the 16 weeks/semester : • Lectures: 2 x 50 minutes • Exercises and Assignments: 2 x 60 minutes • Private study: 2 x 60 minutes. Total study hours = 5 hours 40 minutes/week	
Credit points	2 (~ 3,2 ECTS)	
Required and recommended prerequisites for joining the module	- Basic Electronics (FBS2125)	
Module objectives/intended learning outcomes	1. Students are able to explain the classification of converters, electronic switches and the selection of types of electronic switches based on switching frequency. 2. Students are able to calculate power and energy for sinusoidal ac and non-sinusoidal ac circuits.	PLO3

	3. Students are able to analyse half-wave rectifier circuits with various loads (R, L, DC sources and their combinations). 4. Students are able to analyse full-wave and three-phase rectifier circuits for various loads (R, L, DC sources and their combinations). 5. Students are able to analyse the AC to AC converter circuit (cyclo-converter) for three-phase loads. 6. Students are able to analyse the DC to DC converter circuit (DC chopper). 7. Students are able to analyse the DC to AC converter circuit (inverter).	PLO3, PLO4 and PLO5
Content	Introduction to power electronics, power calculation, half wave rectifier, full wave rectifier and three phase rectifier, AC to AC converter/AC voltage control (cyclo-converter), DC to DC converter (DC chopper) and DC to AC converter (inverter).	
Examination forms	- Homework, - Written case study, - Présentation case study, - Midterm and final test.	
Study and examination requirements	The final grade in the module is composed of: a. Exercise Report/ Homework/Portofolio = 15% b. Projects: 55% c. Midterm assessment: 15% d. Final assessment: 15% Students must have a final grade of 70% or higher to pass	
Reading list	1. Hart, D., W., 2011, Power Electronics, Prentice-Hall International, Inc., USA. 2. Shaffer, R., 2007, Fundamentals of Power Electronics with MATLAB, Charles River Media, Boston Massachusetts. 3. Dewan, SB., and Sraughen, A., 1975, Power Semiconductor Circuit, John Willey, New York. 4. Rashid, M., 1989, Power Electronics, Prentice Hall. 5. Articles from the journals of the last 5 years on semiconductor technology and its application to power converters.	