MODULE HANDBOOK DESCRIPTION

Module designation	Programmable Logic Control	
Code	FBB3211	
Semester(s) in which the module is taught	6 / third year	
Person responsible for the module	Sudi Mariyanto Al Sasongko, S.T., M.T.	
Language	Indonesian	
Relation to curriculum	Concentration Elective for Electronic Engineering	
Teaching methods	Lectures, 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. ● Self-learning: 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	- Logic Circuit (FBS1107) - Logic Circuit Laboratory (FBS1218) - Basic Programming (FBS1215)	
Module objectives/intended learning outcomes	Students are able to analyze the development process of industrial automation	PLO3
	Students are able to analyze the basis of logic and sequential programming	PLO3
	Students are able to analyze the function of the PLC hardware	PLO4
	Students are able to analyze the function of PLC input components and PLC output components	PLO4

	Students are able to implement and build PLC ladder programming	PLO4
	Students can design programs based on the internal functions of timer, counter, holding, interlock	PLO4
	Students are able to build RTC-based PLC programs	PLO5
	Students are able to build interconnection of input and output module	PLO5
Content	1. Introduction to Industrial Automation 2. Basic Concepts of Logic and Sequential Programming 3. PLC Hardware Components 4. PLC input and output equipment 5. Basic principles of ladder diagram programming 6. PLC Internal Functions (Timer, Counter, Holding, Interlock) 7. Real Time Clock implementation 8. Logic Functions and Arithmetic Functions 9. Application for Interconnection of Digital Input and Output modules 10. Application for Interconnection of Analog Input and Output modules	
Examination forms	- Written case study - Essay midterm and final test	
Study and examination requirements	The final grade in the module is composed of: 1. Attendance assessment : 5 % 2. Case I assessment : 15 % 3. Case II assessment : 15 %Case III assessment : 20 % 4. Written Midterm assessment : 20 % 5. Written Final assessment : 20 % Students mush have a final grade of 65% or higher to pass	
Reading list	1. Bolton, W., 2015, Programmable Logic Controller, Sixth Edition. 2. Hackworth, J.R. and Hackworth Jr. F. D., ___, Programmable Logic Controller: Programming Method and Applications. 3. Uzam, M., 2014, Building Programmable Logic Controller With a PIC16F648A Microcontroller.	