



MODULE HANDBOOK DESCRIPTION

Module designation	Industrial Electronics
Code	<i>FBB3106</i>
Semester(s) in which the module is taught	<i>5 / third year</i>
Person responsible for the module	<i>Dr. Ir. I Ketut Wiryajati, S.T., M.T., IPU., ASEAN.Eng.</i>
Language	<i>Indonesian</i>
Relation to curriculum	<i>Compulsory on Basic Electronics and Electrical Expertise</i>
Teaching methods	<i>lectures, small group discussion, case base method, team project based method</i>
Workload (incl. contact hours, self-study hours)	<p>Contact minutes every week, each week of the 16 weeks/semester:</p> <ul style="list-style-type: none"> • Lectures: 3 x 50 minutes. • Exercises and assignments: 3 x 60 minutes. • Self-learning: 3 x 60 minutes. <p>total study hours = 5 hours 40 minutes/week</p>
Credit points	<i>3 (~ 4,8 ECTS)</i>
Required and recommended prerequisites for joining the module	<i>- Electrical Circuits, Basic Electronics, Digital Circuits.</i>
Program Learning Outcomes (PLO)	<ul style="list-style-type: none"> - Engineering Analysis (PLO3): <i>Able to choose methods, make literature reviews, design experiments with simulations, and analyze results to reach the right conclusions, as well as develop guidelines for using tools.</i> - Engineering Design (PLO4): <i>Able to design and develop components, systems and/or processes to support engineering activities and create technological innovations by optimally utilizing potential resources.</i> - Experiment (PLO5): <i>Able to design and carry out experiments using basic and modern technical tools and analyze and interpret data based on the correct methodology to strengthen engineering assessments.</i>

Module objectives/intended learning outcomes	<ol style="list-style-type: none"> 1. Student are able to explain General Introduction of Electronic Devices (PLO 3) 1. 2.Student are able to explain Operational Amplifier in Industrial Applications (PLO 3) 2. Student are able to explain Modulation Techniques and Applications on Inverters (PLO 3) 3. Student are able to explain Power Electronics and Their Applications (PLO 4) 4. Student are able to explain and Simulate Power Converter (DC2DC, DC2AC,AC2AC,AC2DC) (PLO 5) 5. Student are able to explain Power Electric and Generation (PLO 3) 6. Student are able to explain and Simulate Artificial Inteligent on Power Electronics (PLO 4) 7. Student are able to explain and Simulated PSpeed Drive and Applications (PLO5) 8. Student are able to explain Digital System and Their Applications (PLO 5)
Content	<ol style="list-style-type: none"> 1. Electronic concepts used in process control in industry, 2. Komponents used in industrial electronics 3. Ppower converters, 4. Sensors and transducers, actuators, 5. Electric motors and 6. Power electronics components. 7. Basic control devices, 8. Semiconductors, Devices 9. Motor control circuits, 10. Digital electronic devices, 11. Amplifiers and Aplications
Examination forms	<ul style="list-style-type: none"> - <i>Written case study</i> - <i>Written and oral project study</i> - <i>Essay midterm and final test</i>
Study and examination requirements	<p><i>The final grade in the module is composed of;</i></p> <ol style="list-style-type: none"> <i>a. Case I assessment : 10 %</i> <i>b. Case II assessment : 15 %</i> <i>c. Team-Project assessment : 35 %</i> <i>d. Written Midterm assessment : 15%</i> <i>e. Written Final assessment : 25%</i> <p><i>Students mush have a final grade of 65% or higher to pass</i></p>
Reading list	<ol style="list-style-type: none"> 1. Industrial Electronics and Robotics, Charles A. Schuler, 1986 McGraw-Hill 2. Sapiie Soedjana, (1976).Pengukuran dan Alat-Alat Ukur Listrik, Jakarta, PT. Pradnya Paramita,Jakarta. 3. Thomas Floyd, David Buchla, 2003, <i>Fundamentals of Analog Circuits, second edition</i>, Prenhall Inc. New Jersey, USA

