



MODULE HANDBOOK DESCRIPTION

Module designation	Electrical Circuits I	
Code	FBS1213	
Semester(s) in which the module is taught	2 / first year	
Person responsible for the module	I Nyoman Wahyu Satiawan, ST, MSc., Ph.D.	
Language	Indonesian	
Relation to curriculum	Compulsory for all majors	
Teaching methods	Lectures, small group discussion, case base method.	
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 • Private study: 3 x 60 minutes. <p>total study hours = 8 hours 30 minutes/week</p>	
Credit points	3 SKS (~ 4.8 ECTS)	
Required and recommended prerequisites for joining the module	- No requirement	
Module objectives/intended learning outcomes	1. Students can understand the passive and active elements in an Electrical Circuit, the basic laws of the Electrical Circuit (Ohm's law and Kirchhoff's law), the analysis methods of the electrical circuit, the characteristic of inductors and capacitors, the response of electrical circuit comprises of inductor and capacitor with/without DC sources, the response of an RLC circuit with/without DC sources, and the response of an RLC circuit with/without AC sources.	PLO2
	2. Students can analyze the electrical circuit with RLC elements with/without DC and AC sources.	PLO3

	3. Students can conclude the best way to solve electrical circuits with RLC elements with/without DC and AC sources.	PLO4
Content	<ol style="list-style-type: none"> 1. System unit and elements in electrical circuit 2. Basic law in electrical circuit (Ohm and Kirchhoff Laws) 3. Methods of analysis electrical circuit (Mesh analysis, node analysis, superposition, source transformation technique, Norton and Thevenin equivalent circuit) 4. Inductor and Capacitor 5. Response of resistor – inductor circuit and resistor – capacitor circuit (RL and RC circuits) without source 6. Response of resistor – inductor circuit and resistor – capacitor circuit (RL and RC circuits) with DC source 7. Response of electrical resistor-inductor-capacitor circuit (RLC) with DC sources 8. Response of electrical resistor-inductor-capacitor circuit (RLC) with AC sources 	
Examination forms	<ul style="list-style-type: none"> - Collecting a portfolio after finishing each topic, in the form of voice recordings and working on practice assignments - Midterm and final test 	
Study and examination requirements	<p>The final grade in the module is composed of:</p> <ol style="list-style-type: none"> a. The portfolio of 6 topics is 11,67% each, for a total of 70% b. Midterm assessment: 15% c. Final assessment: 15% <p>Students must have a final grade of 70% or higher to pass</p>	
Reading list	<ol style="list-style-type: none"> 1. Hyatt, W.H., Kemmerly, J.E, Durbin, S. M., 2007, “Engineering Circuit Analysis”, 7th edition, Mc. Graw Hill 2. Alexander, C.K., Sadiku, M.N.O., 2011, “Fundamental of Electric Circuits”, 6th edition, Mc. Graw Hill 3. Edminister, J.A., “Rangkaian Listrik (Buku Schaum Series)” 4. Budiono, M, “Rangkaian Listrik”, ITB Bandung. 5. Naeem, W., 2009, “Concepts in Electrics Circuit”, Ventus Publishing Aps 6. Nilsson, J.W., Riedel, S.A., 2015, “Electric Circuits” 10th edition, Prentice Hall 	