

## Module Description

<b>Module name</b>	Course Module
<b>Module level, if applicable</b>	Bachelor of Electrical Engineering
<b>Code, if applicable</b>	5115-055-3
<b>Subtitle, if applicable</b>	-
<b>Course, if applicable</b>	Mesin Arus Bolak Balik (Alternating Current Machine)
<b>Semester(s) in which the module is taught</b>	5 <sup>th</sup> semester (odd semester)
<b>Person responsible for the module</b>	Lecturer of Course
<b>Lecturer</b>	Massus Subekti, S.Pd., M.T.
<b>Language</b>	Indonesian
<b>Relation to Curriculum</b>	This course is a compulsory course and offered in the 5 <sup>th</sup> semester (odd semester).
<b>Type of teaching, contact hours</b>	<p>Teaching methods used in this course are:</p> <ul style="list-style-type: none"> <li>- Lecture (i.e., group investigation, small group discussion, case study, and video based learning)</li> <li>- Structured assignments (i.e., essays and case study)</li> <li>- Practice (Project)</li> </ul> <p>The class size for lecture is 30 students. Contact hours for lecture is 40 hours, assignments (structured tasks) is 48 hours and learn individually 48 hours</p>
<b>Workload</b>	<p>For this course, students are required to meet a minimum of 131 hours in one semester, which consist of :</p> <ul style="list-style-type: none"> <li>- 35 hours for lecture</li> <li>- 48 hours for structured assignments</li> <li>- 48 hours for learn individually</li> </ul>
<b>Credit points</b>	3 credit points (equivalent with 4.5 ECTS)
<b>Requirements according to the examination regulations</b>	Students must have attended all classes and submitted all class assignments that are scheduled before the final tests.
<b>Recommended prerequisites</b>	The Alternating Current Machine course is a continuation of the Direct Current Machine course, so that students have completed the Direct Current Machine course and obtained a minimum grade of C which is a prerequisite to be able to take the Alternating Current Machine course.

<b>Module objectives/intended learning outcomes</b>	After completing the course and given with this case: <b>Course Learning Objectives :</b> 1. Explain the basic principles and characteristics of alternating current machines (15) 2. Explain the planning stages of alternating current machine (15) 3. Analyze the equivalent circuit of single-phase motors, single-phase and 3-phase generators, synchronous motors and commutators (30) 4. Prove the theory of the characteristics of alternating current machines (40)
<b>Content</b>	<b>Students will learn about:</b> provide the basic principles and characteristics of ABB machines, windings and induction emf of ABB machines, induction motors, equivalent circuits, pie charts, single phase motors, 1 and 3 phase generators, synchronous motors, ABB commutator machines, alternating current machine planning
<b>Forms of Assessment</b>	Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Structured tasks: 40% ; Mid Test: 20% ; Final Project : 40%
<b>Study and examination requirements and forms of examination</b>	<b>Study and examination requirements:</b> - Students must attend 15 minutes before the class starts. - Students must switch off all electronic devices. - Students must inform the lecturer if they will not attend the class due to sickness, etc. - Students must submit all class assignments before the deadline. - Students must attend the exam to get final grade. <b>Form of examination:</b> Written exam: Essay
<b>Media employed</b>	Direct Whiteboard and Power Point Presentation.
<b>Reading list</b>	1. Stephen J. Chapman, (2012), Electric Machinery Fundamentals, Fifth Edition, McGraw-Hill, New York. 2. A.E. Fitzedgerald, Charles Kingley Jr, Stephen D. Umans, Djoko Achyanto, (1990), Mesin-Mesin Listrik, Edisi 4, Penerbit Erlangga, Jakarta 3. I.J. Nagarath, DP Kothari, (2004), Electric Machines, Third Edition, Tata McGraw-Hill Education. 4. Donald V. Richardson, Arthur J. Caisse Jr., (1996), Rotating Electric Machinery and Transformer Technology, 4th Edition, Reston Publishing Company, Inc, A Prentice Hall Company, Reston, Virginia. 5. Slobodan N Vukosavic, (2013), Electrical Machines, Springer-Verlag, New York