



Undergraduate Programme In Physics

Module Handbook

Module Name :	<i>Elektronika Lanjut</i> Electronics (Advanced)
Module level :	Bachelor degree/Undergraduate Programme
Course Code :	4520103043
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	5/Third Year
Module coordinator(s)	Drs. Imam Sucahyo, M.Si
Lecturer(s):	Drs. Imam Sucahyo, M.Si Endah Rahmawati, S.T, M.Si
Language:	<i>Bahasa Indonesia</i> (Indonesian Language)
Classification within the curriculum:	Compulsory/ Elective
Teaching format/class hours per week during the semester:	2 contact hours of lectures (sks or credit unit*)
Workload :	Lecture: 2 x 50 minutes lectures, 2 x 60 minutes structured activity, 2 x 60 minutes individual activity, 14 weeks per semester. 79.33 total hours per semester ~ 3.18 ECTS **
Credit Point:	2 sks (3.18 ECTS)
Requirements:	Basic Electronics I Basic Electronics II
Learning goals/competencies:	<ol style="list-style-type: none"> 1. Students are able to think critically and use appropriate concepts to qualitatively analyze problems or situations involving good signal conditioning and according to needs 2. Students are able to use signal conditioning concepts and appropriate mathematical/computing methods to get solutions to quantitative problems in signal conditioning that are good and according to their needs 3. Students have the ability to present data from signal conditioning experiments and their analysis 4. Students are able to implement higher order thinking processes (critical, creative, logical, and problem solving) in studying processes and symptoms to display data digitally based on a digital signal conditioning circuit that has been designed



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Content	The Electronics (Advanced) course covers the electronics required to condition analog and digital signals. Signal conditioning includes analog signal conditioning using various op-amp circuits, instrumentation amplifiers and filters. Digital signal conditioning includes a digital to analog signal converter (DAC) and an analog to digital signal converter (ADC).										
Attribute Soft skill:	Scientific report, public speaking, and team work										
Study/exam achievements:	<p>Students are considered to complete the course and pass if they obtain at least 40% of maximum final grade. The final grade (NA) is calculated based on the following ratio:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Assessment Components</th> <th style="text-align: left;">Percentage of contribution</th> </tr> </thead> <tbody> <tr> <td>Participation</td> <td style="text-align: center;">20%</td> </tr> <tr> <td>Assignment</td> <td style="text-align: center;">30%</td> </tr> <tr> <td>Mid-semester test</td> <td style="text-align: center;">20%</td> </tr> <tr> <td>Final semester test</td> <td style="text-align: center;">30%</td> </tr> </tbody> </table>	Assessment Components	Percentage of contribution	Participation	20%	Assignment	30%	Mid-semester test	20%	Final semester test	30%
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Learning Methods :	Student-centered approach, lecture and discussion, and presentations (structured activities)										
Form of Media:	<i>Power Point</i> slides, e-book file, and multimedia.										
Literature (primary references):	<ol style="list-style-type: none"> 1. Rahmawati, E., Sucahyo, I. 2016. Hand-out dan LKM Elektronika Lanjut. 2. Sutrisno. 1978. Elektronika 2. Teori dan Penerapannya. Penerbit ITB Bandung. 3. Sutrisno. 1990. Elektronika Lanjut, Penerbit ITB Bandung. 4. Jung, Walt. 2005. Op-Amps Application Handbook. Elsevier. 5. Zumbahlen, H. 2008. Linear Circuit Design Handbook. Analog Devices. Elsevier. 6. Gray, N. 2006. ABCs of ADCs. Analog-to-Digital Converter Basics. National Semiconductor. 										
Notes:	<p>*1 credit unit or <i>sks</i> in learning process = three periods consist of: (a) scheduled instruction in a classroom or laboratory (50 minutes); (b) structured activity (60 minutes); and (c) individual activity (60 minutes) according to the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 44 Year 2015 jo. the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 50 Year 2018.</p> <p>**1 credit unit or <i>sks</i> = 1.59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2019</p>										