



MINISTRY OF EDUCATION AND CULTURE
UNIVERSITAS NEGERI SURABAYA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF PHYSICS

Ketintang Campus, Jalan Ketintang, C3 Building, Surabaya 60231
Website: <https://pendidikan-fisika.fmipa.unesa.ac.id/>, email: s1-pfis@unesa.ac.id

Undergraduate Programme of Physics Education

Module Handbook

Module Name :	<i>Sistem Pengukuran Fisika</i> Physics Measurement System
Module level :	Bachelor degree/Undergraduate Programme
Course Code :	8420302188
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	1/First Year
Module coordinator(s)	Setyo Admoko, M.Pd
Lecturer(s):	Setyo Admoko, S.Pd, M.Pd Abu Zainuddin, M.Pd Nurita Apridiana Lestari, M.Pd.
Language:	<i>Bahasa Indonesia</i>
Classification within the curriculum:	Compulsory/ Elective
Teaching format/class hours per week during the semester:	2 contact hours of lectures (Indonesia credit semester or sks*)
Workload :	2 x 50 minutes lectures, 2 x 60 minutes structured activity, 2 x 60 minutes individual activity, 14 weeks per semester, 90 total hours per semester ~ 3.18 ECTS**
Credit Point:	2 sks (3.18 ECTS)
Requirements:	
Learning goals/competencies:	<ol style="list-style-type: none">1. Have the ability to utilize learning source and learning media based on ICT in analyzing physics measurement system.2. Have the knowledge of physics measurement system and master its concepts.3. Have the skills for analyzing physics measurement system including its application in measuring instruments.4. Have a responsible attitude which is reflected in the results of the critical and thorough analysis of the physical measurement system material.
Content	This course describes the application of measurement technique and measurement error analysis, the application of direct current indicating instruments for solving various electrical problems, the applications of inductance and capacitance measurement concept also the explanation of CRO (Cathode Ray Oscilloscope) and its application in daily life. Lecturing is undertaken using group discussion, presentation, questions and answers, and also assignment.
Attribute Soft skill:	Scientific report, public speaking, and team work



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Study/exam achievements:	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:										
	<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. Bell, D. A. 2004. Electronics Instrumentation and Measurement. USA: Springer. 2. Fornasini, P. 2008. The Uncertainty in Physical Measurements an Introduction to Data Analysis in The Physics Laboratory. New York: Springer. 3. Gupta, S.V. 2012. Measurement Uncertainties Physical Parameters and Calibrations of Instruments. New York: Springer. 4. Keithley. 2004. Low Level Measurement Handbook Precision DC Current, Voltage, and Resistance Measurements. USA: Keithley Instruments Inc. 5. Moris, A. S. 2001. Measurement and Instrumentation Principles, Third Edition. Butterworth Heinemann 6. www.eee.metu.edu.tr/~ee231/documents/NotesOnOscilloscopes.pdf 										
Notes:	<p>*1 sks 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 sks = 1,59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/Un38/Hk/Ak/2019</p>										