UIN SUNAN KALIJAGA YOGYAKARTA
FACULTY OF SCIENCE AND TECHNOLOGY
Jl. Marsda Adisucipto Yogyakarta 55281, Telp:+62274519739, Fax:+62274540971,
E-mail: fst@uin-suka.ac.id, website: http://saintek.uin-suka.ac.id/

Undergraduate Programme in Physics

Telp : +62274 519739
Email : fisika@uin-suka.ac.id
Website : https://fisika.uin-suka.ac.id/

MODULE HANDBOOK

Module Name	Evaluation and Calibration of Measuring Instruments
Module level, if applicable	Bachelor
Code, if applicable	FIS424047
Subtitle, if applicable	-
Courses, if applicable	Evaluation and Calibration of Measuring Instruments (Evaluasi dan Kalibrasi Alat Ukur)
Semester(s) in which the module is taught	4th (fourth)
Person responsible for the module	Chair of Instrumentation Interest Area
Lecturer(s)	Frida Agung Rakhmadi, S.Si., M.Sc
Language	Indonesia
Relation to curriculum	Elective course in the second year (4th semester) Bachelor Degree
Type of teaching, contact hours	150 minutes lectures and 180 minutes structured activities per week.
Workload	Total workload is 136 hours per semester, which consists of 150 minutes lectures per week for 14 weeks, 180 minutes structured activities per week, 180 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam
Credit points	3
Requirements according to the examination regulations	Minimum attendance 75% All assignments must be submitted before the exam
Recommended prerequisites	No prerequisites stated on
Module objectives/intended learning outcomes	After completing this course, the students: CO 1. Understand the philosophy of measuring instrument evaluation CO 2. Understand the static characteristics of measuring instruments CO 3. nderstand the dynamic characteristics of measuring instruments CO 4. evelop a plan for the evaluation stages of measuring instruments and implement it CO 5. Prepare evaluation reports of measuring instruments and present them CO 6. Understand metrology and its scope CO 7. Understand the position and role of measuring instruments in strengthening metrology CO 8. Manage measuring instruments and prepare reports. CO 9. Understand the position and role of measuring instrument calibration in strengthening metrology. CO 10. Calibrate measuring instruments and prepare reports.
Content	a. Philosophy of measuring instrument evaluation b. Static and dynamic characteristics of measuring instruments c. Stages of evaluating measuring instruments d. Metrology and its scope e. The position and role of measuring instruments in strengthening metrology f. Stages of using measuring instruments

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<table>
<tr><td></td><td>g. The position and role of measuring instrument calibration in strengthening metrology
h. Stages of measuring instrument calibration</td></tr>
<tr><td>Study and examination requirements and forms of examination</td><td>The final mark will be weighted as follows:
<table>
<tr><th>NO</th><th>Assessment methods (components, activities)</th><th>Weight (percentage)</th></tr>
<tr><td>1</td><td>Final Examination</td><td>35%</td></tr>
<tr><td>2</td><td>Mid-Term Examination</td><td>35%</td></tr>
<tr><td>3</td><td>Class Activities : Quiz, Homework, etc.</td><td>30%</td></tr>
</table>
The final assessment is expressed in the form of a letter value converted from a number value with the following categories:
<table>
<tr><th>NO</th><th>Number Value</th><th>Letter Value</th><th>NO</th><th>Number Value</th><th>Letter Value</th></tr>
<tr><td>1</td><td>≥ 95</td><td>A</td><td>7</td><td>65-69.99</td><td>B/C</td></tr>
<tr><td>2</td><td>90-94.99</td><td>A-</td><td>8</td><td>60-64.99</td><td>C+</td></tr>
<tr><td>3</td><td>85-89.99</td><td>A/B</td><td>9</td><td>55-59.99</td><td>C</td></tr>
<tr><td>4</td><td>80-84.99</td><td>B+</td><td>10</td><td>50-54.99</td><td>C-</td></tr>
<tr><td>5</td><td>75-79.99</td><td>B</td><td>11</td><td>55-34.99</td><td>D</td></tr>
<tr><td>6</td><td>70-74.99</td><td>B-</td><td>12</td><td><35</td><td>E</td></tr>
</table></td></tr>
<tr><td>Media employed</td><td>White-board, Lcd Projector, e-learning (https://daring.uin-suka.ac.id/)</td></tr>
<tr><td>Reading list</td><td>1. Alan S Morris dan Reza Langari. 2016. *Measurement and Instrumentation: Theory and Application, Second Edition*. Academic Press.
2. Riyanto.. 2014. Validasi dan Verifikasi Mtode Uji. Deepublish Publisher
3. Didah Nur Faridah, Dede Erawan, Komar Sutriah, Anwar Hadi, dan Fajarina Budiantari, 2014. Implermentasi SNI ISO/IEC 17025-2017. Badan Standardisasi Nasional</td></tr>
</table>

PLO and CO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CO 1			√						
CO 2			√	√	√				
CO 3			√						
CO 4			√	√	√				
CO 5			√	√	√				
CO 6			√						
CO 7			√						
CO 8			√	√	√				
CO 9			√						
CO 10			√	√	√				