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Undergraduate Programme in Physics

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MODULE HANDBOOK

Module Name	Test Method
Module level, if applicable	Bachelor
Code, if applicable	FIS424050
Subtitle, if applicable	-
Courses, if applicable	Test Method (Metode Uji)
Semester(s) in which the module is taught	5th (fifth)
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 third year (5th 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 why measuring instruments need to be applied as test methods, various test methods, and the importance of validation/verification of test methods. CO 2. Understand and apply validation/verification parameters of test methods CO 3 Understand research examples of the application of measuring instruments as a test method and prepare research plans for the application of measuring instruments as a test method as well as present and put them into practice CO 4 Understand the history of artificial intelligence and its application in instrumentation and measurement CO 5 Understand machine learning and practice it based on Python, as well as presenting the process and results CO 6 Understand and organize research steps for the application of measuring tools combined with machine learning as a discrimination method as well as practice and present it
Content	a. Why measuring instruments need to be applied as test methods, various test methods, and the importance of validation/verification of test methods. b. Validation/verification parameters of test methods c. Research examples of the application of measuring instruments as a test method

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<tr><td></td><td>
d. The history of artificial intelligence and its application in instrumentation and measurement
e. Concept of machine learning
f. Machine learning using Python
g. Research steps for the application of measuring tools combined with machine learning as a discrimination method
</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
4. Nilkita Silaparasettyh. 2020. *Machine Learning Concepts with Python and The Jupyter Notebook Environment Using Tensorflow 2.0*. Apress
</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			√	√	√				