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Undergraduate Programme in Physics

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MODULE HANDBOOK

Module Name	Analog Electronics
Module level, if applicable	Bachelor
Code, if applicable	FIS414011
Subtitle, if applicable	-
Courses, if applicable	Analog Electronics (Elektronika Analog)
Semester(s) in which the module is taught	2nd (second)
Person responsible for the module	Chair of Instrumentation Interest Area
Lecturer(s)	Rochan Rifai, S.Si., M.Sc.
Language	Indonesia
Relation to curriculum	Conpulsary course in the first year (2nd 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%
Recommended prerequisites	No prerequisites stated on
Module objectives/intended learning outcomes	After completing this course, the students: CO 1 Understanding basic concepts of electric current and voltage, circuit characteristics and applying Ohm's law and Khirchoff's Laws I and II CO 2 Understanding functions and workings of basic electronic components, both active and passive components CO 3 Understandinf characteristics of semiconductor materials in electronic components including diodes and transistors CO 4 Understanding concepts of diode as a rectifier circuit CO 5 Understanding concepts of transistors as amplifiers and switches CO 6 Understanding characteristics of Field Effect Transistors (FET) CO 7 Understand concepts of Operational-Amplifier (Op-Amp)
Content	a. Basic concepts of electric current and voltage, Ohm's law and Khirchoff's Laws I and II, circuit characteristics (Thevenin and Norton) b. Active and passive components (resistors, capacitors, inductors) and their functions. c. Characteristics of semiconductor materials as electronic components (diodes and transistors) d. Diode and rectifier circuit

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<table>
<tr><td></td><td>e. Transistors as amplifiers and switches
f. Field effect transistor (FET)
g. Operational Amplifier (OpAmp)</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. C R Robertson, 2008, Fundamental Electrical and Electronic Principles, Third Edition. Elsevier Ltd
2. K Vasudevan. 2022. Basic Electronic Circuit. Springer
3. Nelson Hibbs. 1972. Basic Electronic Circuit Simplified. Tab Books</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		√	√						