UIN SUNAN KALIJAGA YOGYAKARTA
FACULTY OF SCIENCE AND TECHNOLOGY
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**Undergraduate Programme in Physics**

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**MODULE HANDBOOK**

| | |
|---|---|
| Module Name | Microcontroller and Microcomputer |
| Module level, if applicable | Bachelor |
| Code, if applicable | FIS425048 |
| Subtitle, if applicable | - |
| Courses, if applicable | Microcontroller and Microcomputer (Mikrokontroler dan Mikrokomputer) |
| Semester(s) in which the module is taught | 5th (fifth) |
| Person responsible for the module | Chair of Instrumentation Interest Area |
| Lecturer(s) | Nia Maharani, S.T., M.Eng. and Rochan Rifai, 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%<br>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:<br>CO 1 Understanding the introduction and working system of microcontrollers<br>CO 2 Understanding and apply microcontroller programming<br>CO 3 Understanding and applying microcontroller interfaces with sensors and display devices<br>CO 4 Understanding the introduction and working systems of microcomputers<br>CO 5 Understanding the Operating System (OS)<br>CO 6 Understanding and applying microcomputer programming and General Purpose Input Output (GPIO) pin programming. |
| Content | a. Introduction to microcontrollers.<br>b. Microcontroller programming.<br>c. Microcontroller interface with sensors.<br>d. Microcontroller interface with display device.<br>e. Introduction to microcomputers.<br>f. Operating System (OS).<br>g. Microcomputer programming.<br>h. General Purpose Innput Output (GPIO) pin programming. |
| Study and examination requirements and forms of examination | The final mark will be weighted as follows: |

| NO | Assessment methods (components, activities) | Weight (percentage) |
|---|---|---|

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| | | |
|---|---|---|
| 1 | Final Examination | 35% |
| 2 | Mid-Term Examination | 35% |
| 3 | Class Activities : Quiz, Homework, etc. | 30% |

The final assessment is expressed in the form of a letter value converted from a number value with the following categories:

| NO | Number Value | Letter Value | NO | Number Value | Letter Value |
|---|---|---|---|---|---|
| 1 | ≥ 95 | A | 7 | 65-69.99 | B/C |
| 2 | 90-94.99 | A- | 8 | 60-64.99 | C+ |
| 3 | 85-89.99 | A/B | 9 | 55-59.99 | C |
| 4 | 80-84.99 | B+ | 10 | 50-54.99 | C- |
| 5 | 75-79.99 | B | 11 | 55-34.99 | D |
| 6 | 70-74.99 | B- | 12 | <35 | E |

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| Media employed | White-board, Lcd Projector, e-learning (https://daring.uin-suka.ac.id/) |
| Reading list | 1. Fredrick M. Cady. 2009. Microcontrollers and Microcomputers Principles of Software and Hardware Engineering 2nd Edition. Oxford. United Kingdom.<br>2. A. K. Mukhopadhyay. 2012. Microprocessor, Microcomputer and their Applications. Oxford, United Kingdom |

**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** | | √ | | √ | √ | | | | |