



UNIVERSITAS NEGERI YOGYAKARTA  
FACULTY OF MATHEMATICS AND NATURAL SCIENCES  
DEPARTMENT OF PHYSICS EDUCATION  
**PHYSICS STUDY PROGRAM**

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**Bachelor of Physics**

**MODULE HANDBOOK**

Module name:	Microcontroller
Module level, if applicable:	Bachelor Program
Code:	FSK6341
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	5
Module coordinator:	Denny Darmawan, M.Sc.
Lecturer(s):	Denny Darmawan, M.Sc., Dr. Sukardiyono
Language:	Bahasa Indonesia
Classification within the curriculum:	Elective Course
Teaching format / class hours per week during the semester:	Lecture and Labwork (100 minutes lectures, 120 minutes structured activities and 170 minutes laboratory work per week).
Workload:	Total workload is 136 hours in one semester which consists of 100 minutes of lectures, 120 minutes of structured activities, 120 minutes of individual study and 170 minutes of laboratory work per week for 16 weeks.
Credit points:	3 SKS (4.86 ECTS)
Prerequisites course(s):	-
Course Outcomes	Students graduating from this course will be able to:

	<p>CO1. Explain the basic concepts of microcontroller (architecture, timing system, communication bus and interrupt system)</p> <p>CO2. Master the programming of one microcontroller available in the marketplace and apply it in the measurement system</p>
Content:	This course discusses the basic concepts of microcontroller (architecture, timing system, communication bus and interrupt system) and how to program one of the microcontroller available in the marketplace. The focus of microcontroller application in this course is on physics measurement system
Study / exam achievements:	<p>The final grade will be weighted as follow:</p> <ul style="list-style-type: none"> <li>a. Case study : 20%</li> <li>b. Group project : 30%</li> <li>c. Midterm exam: 20%</li> <li>d. Final exam : 30%</li> </ul>
Forms of media:	Board, LCD Projector, Laptop/Computer
Reference:	<p>Barrett &amp; Pack, 2006, Microcontroller Fundamentals for Engineers and Scientists, Morgan &amp; Claypool</p> <p>Hughes, J.M., 2016. Arduino: A Technical Reference, O'Reilly</p> <p>Banzi, M. &amp; Shiloh, M., 2022, Getting Started with Arduino 4<sup>th</sup> ed, Make Community</p>

### PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CO1						✓		
CO2						✓		