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 | Robotics |
| Module level, if applicable | Bachelor |
| Code, if applicable | FIS425069 |
| Subtitle, if applicable | - |
| Courses, if applicable | Robotics (Robotika) |
| Semester(s) in which the module is taught | 6th (sixth) |
| Person responsible for the module | Chair of Instrumentation Interest Area |
| Lecturer(s) | Nia Maharani, S.T., M.Eng. |
| Language | Indonesia |
| Relation to curriculum | Elective course in the third year (6th 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 Able to describe robot kinematics, and robotics system components in the form of sensors, actuators and controllers<br>CO 2 Able to design and analyze robot kinematics using software<br>CO 3 Able to build/construct simple microcontroller-based robots |
| Content | a. Introduction to Robots<br>b. Robot Navigation<br>c. Mapping Robot<br>d. Path Planning Robot<br>e. Robot Modeling<br>f. Simple Robot mini project |
| Study and examination requirements and forms of examination | The final mark will be weighted as follows: |

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

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| | <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> |
| Media employed | White-board, Lcd Projector, e-learning (https://daring.uin-suka.ac.id/) |
| Reading list | 1. JohnJ. Craig. 2017. Introduction to Robotics: Mechanics and Control (4th Edition). London, United Kingdom<br>2. D K Pratihar. 2017. Fundamentals of Robotics. India<br>3. R Mittle. 2017. ROBOTICS AND CONTROL. New York, United States |

**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** | | √ | | √ | √ | | | | |