MODULE HANDBOOK
Master Program in Computer Science
Department of Computer Science and Electronics
Faculty of Mathematics and Natural Sciences
Universitas Gadjah Mada

Robotics

<table>
<tr><td>Module name</td><td>Robotics</td></tr>
<tr><td>Module level</td><td>Master</td></tr>
<tr><td>Code</td><td>MII-6893</td></tr>
<tr><td>Courses
(if applicable)</td><td>Robotics</td></tr>
<tr><td>Semester</td><td>Odd</td></tr>
<tr><td>Contact person</td><td>Dr. Danang Lelono, S.Si., MT.</td></tr>
<tr><td>Lecturer</td><td>Dr. Danang Lelono, S.Si., MT.
Dr. Andi Dharmawan, S.Si., M.Cs.</td></tr>
<tr><td>Language</td><td>Bahasa Indonesia</td></tr>
<tr><td>Relation to curriculum</td><td>Master program, compulsory, 1st semester.</td></tr>
<tr><td>Type of teaching, contact hours</td><td>Master program: lectures, 12 students,
Thursday, 07:30 – 10:00</td></tr>
<tr><td>Workload</td><td>1. Lectures: 3 × 50 = 150 minutes (2.5 hours) per week.
2. Exercises and Assignments: 3 × 60 = 180 minutes (3 hours) per week.
3. Private study: 3 × 60 = 180 minutes (3 hours) per week.</td></tr>
<tr><td>Credit points</td><td>3 credit points.</td></tr>
<tr><td>Requirements according to the examination regulations</td><td>A student must have attended at least 75% of the lectures to sit in the exams.</td></tr>
<tr><td>Recommended prerequisites</td><td>-</td></tr>
<tr><td>Learning outcomes and their corresponding PLOs</td><td>After completing this module, a student is expected to:
<table>
<tr><th>CO</th><th>Description</th><th>Supported PLO</th></tr>
<tr><td>CO-1</td><td>Able to analyze basic concepts of Robotics</td><td>PLO-2</td></tr>
<tr><td>CO-2</td><td>Able to analyse and design Robotics systems</td><td>PLO-2, PLO-3, PLO-4</td></tr>
<tr><td>CO-3</td><td>Able to apply the Robotics system</td><td>PLO-4, PLO-5, PLO-6</td></tr>
<tr><td>CO-4</td><td>Able to classify components and improve the ability of simple robots</td><td>PLO-5, PLO-6</td></tr>
<tr><td>CO-5</td><td>Able to manipulate the performance or properties of robots</td><td>PLO-8, PLO-9</td></tr>
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<tr><td>Content</td><td>This Robotics Course provides students with an understanding of how the robot moves and how to control the robot. In this course, we will present kinematics which is divided into forward-kinematics and inverse-kinematics. By getting knowledge about these things, students are expected to be able to explain, analyse, design, select components, and improve robot capabilities</td></tr>
<tr><td>Study and examination requirements and forms of examination</td><td>Middle Examination and Final Examination</td></tr>
<tr><td>Media employed</td><td>Projector, glass board, and e-learning websites.</td></tr>
<tr><td>Assessments and Evaluation</td><td>
<table>
<tr><th>CO</th><th>Methods</th><th>The supported PLO</th><th>Type</th><th>Percentage</th><th>Total</th></tr>
<tr><td rowspan="2">CO-1</td><td>Problem 1 in Midterm Exam</td><td>PLO-2</td><td>Summative</td><td>5%</td><td rowspan="2">10%</td></tr>
<tr><td>Task-1</td><td>PLO-2</td><td>Formative</td><td>5%</td></tr>
<tr><td rowspan="2">CO-2</td><td>Problem 2 in Midterm Exam</td><td>PLO-2, PLO-3, PLO-4</td><td>Summative</td><td>5%</td><td rowspan="2">20%</td></tr>
<tr><td>Task-2</td><td>PLO-2, PLO-3, PLO-4</td><td>Formative</td><td>5%</td></tr>
<tr><td rowspan="2">CO-3</td><td>Problem 3 in Midterm Exam</td><td>PLO-4, PLO-5, PLO-6</td><td>Summative</td><td>5%</td><td rowspan="2">20%</td></tr>
<tr><td>Task-3</td><td>PLO-4, PLO-5, PLO-6</td><td>Formative</td><td>5%</td></tr>
<tr><td rowspan="2">CO-4</td><td>Problem 1 in Final Exam</td><td>PLO-5, PLO-6</td><td>Summative</td><td>5%</td><td rowspan="2">20%</td></tr>
<tr><td>Task-4</td><td>PLO-5, PLO-6</td><td>Formative</td><td>5%</td></tr>
<tr><td rowspan="4">CO-5</td><td>Problem 2 in Final Exam</td><td>PLO-8, PLO-9</td><td>Summative</td><td>5%</td><td rowspan="4">30%</td></tr>
<tr><td>Problem 3 in Final Exam</td><td>PLO-8, PLO-9</td><td>Summative</td><td>5%</td></tr>
<tr><td>Task-5</td><td>PLO-8, PLO-9</td><td>Formative</td><td>5%</td></tr>
<tr><td>Task-6</td><td>PLO-8, PLO-9</td><td>Formative</td><td>5%</td></tr>
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		Task-7	PLO-8, PLO-9	Formative	20%	
Reading List	1. Jazar, R., N., 2006, Theory of Applied Robotics, Kinematics, Dynamics and Control, Springer New York 2. Kajita, S., Hirukawa, H., Harada, K., Yokoi, K., 2014, Introduction to Humanoid Robotics, Springer New York 3. Angeles Jorge, 2007, Fundamentals of Robotic Mechanical Systems, Theory, Methods and Algorithms, Springer New York					