UNIVERSITAS NEGERI YOGYAKARTA
POSTGRADUATE DEPARTMENT OF ELECTRONICS AND INFORMATICS ENGINEERING EDUCATION
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Master of Education in Electronics and Informatics Engineering **MODULE HANDBOOK**

Module name:	Robotics
Module level, if applicable:	Postgraduate
Code:	PTI 8217
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	2th
Module coordinator:	Dr. phil. Ir. Mashoedah, S.Pd., M.T.
Lecturer(s):	Dr. phil. Ir. Mashoedah, S.Pd., M.T.
Language:	English
Classification within the curriculum:	Elective Course
Teaching format / class Hours per week during the semester:	100 minutes lectures and 120 minutes structured activities per week; (2) Field work; (3) 150 minutes lectures and 180 minutes structured activities per week
Workload:	Total workload is 136hours per semester, consists of works 5hours/day in26weekdaysand 6 hours for writing the report; (2) Total workload is 90,67 hours per semester which consists of 100 minutes lectures, 120 minutes structured activities, and 120 minutes self-study per week for 16 weeks
Credit points:	2
Prerequisites course(s):	-
Course Learning Outcome (CLO):	After taking this course the students have ability to: CLO 1. able to distinguish the types of actuators and controllers.; CLO 2. able to create a modelling of robot. CLO 3. able to solve the kinematic equation CLO 4. Students are able to analyze the kinematics and dynamics of robots as well as mobile robots taking into account experiments and simulations. CLO 5. able to determine a sensor and transducer as a need of the robotics system. CLO 6. are able to design a robotics System.
Content	This course has aims â€“to describe the concept of robotics, to make a model of robot., to solve the kinematic equation, to solve the dynamic equation, to determine a sensor and transducer as a need of the robotics system, and to design a robotics System
Study/exam achievements:	Learning assessment is carried out based on the predetermined course learning outcomes. At least one item in the assessment measures the predetermined course outcome. Several types of

assessment are used in this course, such as observation, performance tests, work results / products and portfolios.

No	CLO	Assessment Object	Assessment Technique	Weight
1	CLO1, CLO2, CL03, CLO4, CLO5	works result, paper	Assignment, quiz	80%
2	CLO6	product, prototype, performance	Presentation	20%

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Forms of media:	LCD Projector, Laptop / Computer, White Board, video
Literature	1) Angeles, Jorge. 2007. Fundamentals of Robotic Mechanical Systems,Theory methode and algorithm 3rd. Mpntreal: Springer. 2) Bergren, Charles M. 2003. Anatomy of A Robots. New York: McGraw-Hill 3) Gogu, grigoru. 2009. Structural Syntesis of Pararell Robot. Â© Springer Science + Business Media B.V. 4) Castelli, V.P., 2010, Robot Design, Dynamic and Control, New York: Springer 5) Oleg Gusikhin, Kurosh Madani; 2020; Informatics in Control, Automation and Robotics: 14th International Conference, ICINCO 2017 Madrid, Spain, July 26-28, 2017 Revised Selected Papers; Springer International Publishing; 6) Roman Szewczyk, Cezary Zieliński, Małgorzata Kaliczyńska; 2020; Automation 2019: Progress in Automation, Robotics and Measurement Techniques; Springer International Publishing; 7) Michele Moro, Dimitris Alimisis, Luca Iocchi; 2020; Educational Robotics in the Context of the Maker Movement; Springer International Publishing; 8) Antoni Grau, Yannick Morel, Ana Puig-Pey, Francesca Cecchi; 2020; Advances in Robotics Research: From Lab to Market: ECHORD++: Robotic Science Supporting Innovation; Springer International Publishing; 9) Adrià Colomé, Carme Torras; 2020; Reinforcement Learning of Bimanual Robot Skills; Springer International Publishing;

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PLO and CLO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10
CLO1					✓	✓				✓
CLO2					✓	✓				✓
CLO3					✓	✓				✓
CLO4					✓	✓				✓
CLO5					✓	✓				✓
CLO6					✓	✓				✓