



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:	Smart Control Systems
Module level, if applicable:	Postgraduate
Code:	PTI 8210
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	1 th
Module coordinator:	Suprpto, S.Pd., M.T., Ph.D.
Lecturer(s):	Suprpto, S.Pd., M.T., Ph.D.
Language:	Bahasa Indonesia
Classification within the curriculum:	Concentration Courses
Teaching format / class Hours per week during the semester:	100 minutes lectures and 120 minutes structured activities per week
Workload:	Total workload is 97 hours per semester which consists of 100 minutes lectures, 120 minutes structured activities, and 150 minutes self-study per week for 16 weeks.
Credit points:	2
Prerequisites course(s):	-
Course Learning Outcome (CLO):	<p>After taking this course the students have ability to:</p> <p>CLO 1. Develop science and technology in advanced electronics engineering and information Technology Field;</p> <p>CLO 2. Solve latest issues problem on advanced electronics and informatics education or engineering area by applying principles of electronics/ informatics engineering, science, and education;</p> <p>CLO 3. Construct the recommendation based on data analysis in education field using electronics engineering or informatics technology for obtaining precise solutions;</p> <p>CLO 4. Manage research and development in electronics engineering or information technology for education field in term of recognizing nationally and internationally;</p>
Content	This course covers three Artificial Intelligent (AI) methods employed in control system. These three methods are Fuzzy Logic System (FLS) for control System, Neural network (NN) for control system, and Distributed AI (DOI) for control system. To



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	<p>learn AI Control or Intelligent Control, this subject is composed into sixteen main topics as follows:</p> <ol style="list-style-type: none">1) Introduction to Intelligent Systems/Machines and Intelligent Control,2) Review of the classical Control System,3) Fuzzy Logic System,4) Fuzzy Control System,5) Fuzzy T-S Modelling and Control,6) Adaptive Fuzzy Control,7) Type-2 Fuzzy Control,8) Artificial Neural Network,9) Single Neural Network,10) Radial Basis Function Neural Network,11) Multi-Layer Perceptron Neural Network,12) Adaptive RBFNN Control,13) Adaptive MLPNN Control System																				
Study/exam achievements:	<p>Attitude assessment is conducted at the class meeting by observation student's behavior, attending at the class on time, submitted assessment on time, and/or self-assessment techniques using the assumption that basically, every student has a good attitude. The student obtains very good or poor attitude if his/her characteristic shows it significantly compared to other students in general. The result of attitude assessment is separated with the final grades, yet it is one of the requirements to pass the course. To pass of his/her course, student has to achieve at least a good attitude.</p> <table><tr><th>No</th><th>CLO</th><th>Assessment Object</th><th>Assessment Technique</th><th>Weight</th></tr><tr><td>1</td><td>CLO 1, CLO 2, CLO 3, and CLO 4</td><td>Self-Assessment (Quiz, etc.)</td><td>Written test</td><td>20%</td></tr><tr><td>2</td><td>CLO 1, CLO 2, CLO 3, and CLO 4</td><td>Group Assessment</td><td>Written test</td><td>20%</td></tr><tr><td>3</td><td>CLO 1, CLO 2, CLO 3,</td><td>Mid Exam</td><td>Written test</td><td>25%</td></tr></table>	No	CLO	Assessment Object	Assessment Technique	Weight	1	CLO 1, CLO 2, CLO 3, and CLO 4	Self-Assessment (Quiz, etc.)	Written test	20%	2	CLO 1, CLO 2, CLO 3, and CLO 4	Group Assessment	Written test	20%	3	CLO 1, CLO 2, CLO 3,	Mid Exam	Written test	25%
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