



UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Department of Computer Science and Electronics

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Bachelor in Computer Science

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MODULE HANDBOOK

Module name	Artificial Intelligence
Module level	Undergraduate
Code	MII21-2401
Courses (if applicable)	Artificial Intelligence
Semester	Fall (Odd)
Contact person	Prof. Dra. Sri Hartati, M.Sc., Ph.D.
Lecturer	<ol style="list-style-type: none">1. Prof. Dra. Sri Hartati, M.Sc., Ph.D2. Retantyo Wardoyo, Drs., M.Sc., Ph.D.3. Aina Musdholifah, S.Kom., M.Kom., Ph.D.4. Diyah Utami Kusumaning, S.Kom., M.Sc., M.Cs.5. Dzikri Rahadian Fudholi, S.Kom., M.Comp.
Language	Bahasa Indonesia & English
Relation to curriculum	<ol style="list-style-type: none">1. Undergraduate degree program, compulsory, 3rd semester.2. International undergraduate program, compulsory, 3rd semester.
Type of teaching, contact hours	<ol style="list-style-type: none">1. Undergraduate degree program: lectures, < 60 students,2. International undergraduate program: lectures, < 30 students.
Workload	<ol style="list-style-type: none">1. Lectures: 3 x 50 = 150 minutes per week.2. Exercises and Assignments: 2 x 50 = 100 minutes per week.3. Private study: 1 x 50 = 50 minutes per week.
Credit points	3 credit points (sks).
Requirements according to the Examination regulations	A student must have attended at least 75% of the lectures to sit in the exams.
Recommended prerequisites	Logic for Computer Science

<p>Learning outcomes (course outcomes) and their corresponding PLOs</p>	<p>After completing this module, a student is expected to:</p> <p>CO1. Be able to explain research trend of artificial intelligence and intelligent agent</p> <p>CO2. Be able to formulate problems using solution searching approach and be able to use the searching methods to solve the problems</p> <p>CO3. Be able to identify knowledge and represent that knowledge correctly, and also able to do unification process when inferring the knowledge.</p> <p>CO4. Be able to explain the architecture of expert system</p> <p>CO5. Be able to explain the architecture of natural language processing system</p> <p>CO6. Be able to explain the architecture of pattern recognition system and machine learning methods</p> <table border="1" data-bbox="467 642 1395 865"> <thead> <tr> <th colspan="2">PLO</th> <th>CO1</th> <th>CO2</th> <th>CO3</th> <th>CO4</th> <th>CO5</th> <th>CO6</th> </tr> </thead> <tbody> <tr> <td>Program</td> <td>PLO1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Learning</td> <td>PLO2</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> </tr> <tr> <td>Outcome</td> <td>PLO3</td> <td></td> <td></td> <td>√</td> <td>√</td> <td>√</td> <td></td> </tr> <tr> <td>(PLO)</td> <td>PLO4</td> <td></td> <td>√</td> <td></td> <td></td> <td></td> <td>√</td> </tr> <tr> <td></td> <td>PLO5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>√</td> </tr> </tbody> </table>	PLO		CO1	CO2	CO3	CO4	CO5	CO6	Program	PLO1							Learning	PLO2	√	√	√	√	√	√	Outcome	PLO3			√	√	√		(PLO)	PLO4		√				√		PLO5						√
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<p>Contents</p>	<ol style="list-style-type: none"> 1. Introduction to Artificial Intelligence 2. Intelligent Agent 3. Concept and Application of Problem Solving by Searching: Informed Search 4. Concepts and Applications of Problem Solving by Searching: Uninformed Search 5. Knowledge Representation 6. Introduction, Architecture and Agenda of Expert System 7. Introduction of Natural Language Processing Systems 8. Introduction of Pattern Recognition Systems and Machine Learning 																																																
<p>Study and examination requirements and forms of examination</p>	<p>The evaluation is done in 3 forms, namely:</p> <ol style="list-style-type: none"> 1. Exam, including midterm or final exam, 2. Four individual tasks, 3. Two group assignments to be completed within a certain timeframe, and <p>Assessment is done using benchmark assessment, with the aim of measuring the level of student understanding related to the target and class rank.</p>																																																
<p>Media employed</p>	<p>e-learning Platform (ELOK), LCD, blackboard, and websites.</p>																																																

Assessments and Evaluation	<table border="1"> <thead> <tr> <th>Type</th> <th>Percentage</th> <th>CO1</th> <th>CO2</th> <th>CO3</th> <th>CO4</th> <th>CO5</th> <th>CO6</th> </tr> </thead> <tbody> <tr> <td>Individual Task 1</td> <td>5</td> <td>√</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Individual Task 2</td> <td>5</td> <td></td> <td>√</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Group Task 1</td> <td>10</td> <td></td> <td></td> <td>√</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Midterm Exam</td> <td>30</td> <td>√</td> <td>√</td> <td>√</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Individual Task 3</td> <td>5</td> <td></td> <td></td> <td></td> <td>√</td> <td></td> <td></td> </tr> <tr> <td>Individual Task 4</td> <td>5</td> <td></td> <td></td> <td></td> <td></td> <td>√</td> <td></td> </tr> <tr> <td>Group Task 2</td> <td>10</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>√</td> </tr> <tr> <td>Final Exam</td> <td>30</td> <td></td> <td></td> <td></td> <td>√</td> <td>√</td> <td>√</td> </tr> <tr> <td>Total</td> <td>100</td> <td>15</td> <td>20</td> <td>15</td> <td>15</td> <td>15</td> <td>20</td> </tr> </tbody> </table>								Type	Percentage	CO1	CO2	CO3	CO4	CO5	CO6	Individual Task 1	5	√						Individual Task 2	5		√					Group Task 1	10			√				Midterm Exam	30	√	√	√				Individual Task 3	5				√			Individual Task 4	5					√		Group Task 2	10						√	Final Exam	30				√	√	√	Total	100	15	20	15	15	15	20
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Reading List	<ul style="list-style-type: none"> • WA: Russell, S. and Norvig, P., 2020, Artificial Intelligence: A Modern Approach, 4th Edition, Pearson, US. • WB: George F. Luger, 2008, Artificial Intelligence: Structures and Strategies for Complex Problem Solving, 6th Edition, Addison-Willy • AA: Michael Negnivitsky, 2004, Artificial Intelligence: A Guide to Expert Systems, 2nd Edition, Addison Willy • AB: W. Firebaugh, 2000, Artificial Intelligence: A Knowledge-Based Approach, Boyd & Fraser, Boston 																																																																																							

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