MINISTRY OF EDUCATION, CULTURE, RESEARCH, AND TECHNOLOGY
UNIVERSITAS NEGERI SURABAYA
FACULTY OF MATHEMATICS AND NATURAL SCIENCE
UNDERGRADUATE PROGRAM OF MATHEMATICS
Ketintang Campus, C8-C9 Buildings of FMIPA, Surabaya
Email: s1-mat@unesa.ac.id

Module Handbook

Module Name :	*Pengantar Kecerdasan Buatan* Introduction of Artificial Intelligence
Module level :	Bachelor degree/Undergraduate Program
Course Code :	4420103096
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	7th/ fourth year
Module coordinator(s)	Dr. Atik Wintarti, M.Kom.
Lecturer(s):	Dr. Atik Wintarti, M.Kom. Dr. Elly Matul Imah, M.Kom.
Language:	Bahasa Indonesia (Indonesian Language)
Classification within the curriculum:	~~Compulsory~~/ Elective
Teaching format/class hours per week during the semester:	3 contact hours of lectures (*sks* or credit unit*)
Workload :	3 x 50 minutes lectures, 3 x 60 minutes structured activity, and 3 x 60 minutes individual activity per week, 14 weeks per semester 119 total hours per semester ~ 4.77 ECTS**
Credit Unit:	3 credit unit (4.77 ECTS)
Requirements:	Data Structure and Algorithm, Linear Algebra, Discrete Mathematics and Mathematical Statistics

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Learning goals/competencies:	**Knowledge (KNO-1):** Demonstrating mathematical knowledge and mathematical insight.
	CLO-1: Able to explain the basic concept of artificial intelligence
	CLO-2: Able to explain the basic concept of knowledge representation (logic proportional and predicate logic)
	CLO-3: Able to explain knowledge representation based on rules
	CLO-4: Able to explain knowledge representation (Slot-and-Filler Structures)
	CLO-5: Able to explain expert system concept, algorithm of Artificial Neural Network, supervised learning, reinforcement learning dan unsupervised learning.
	Skill (SKI-2): Applying the basic principles of mathematics to solve simple* mathematical problems.
	CLO-1: Able to solve problems using state space based on artificial intelligence
	Skill (SKI-4): Implementing simple mathematical procedures in computer programs.
	CLO-4: Able to implement Symbolic Reasoning under Uncertainty & Statistical Reasoning in artificial intelligence
	Competence (COM-3): Solving mathematical problems using technology
	CLO-4: Able to implement Support Vector Machine (SVM) in computer programs in a dataset on certain problems
	Attitude and Social (SOC-1): Working collaboratively and having social sensitivity (obligations as citizens and towards religion) and being able to bring change to a techno-ecopreneurship community.
	CLO-4: Able to analyze a problem and solve it with artificial intelligence concepts and collaborate with teams.
Content	This course is primarily aimed at teaching the concepts of artificial intelligence and rational agents, state-space search, heuristic search, local search, logical approaches to knowledge representation and reasoning, probability approaches in decision making, machine learning, and artificial neural networks. Lecture

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	activities are carried out in a student center with discussions, observations, project assignments, and presentations.

Attribute Soft skill:	Active communication; Discipline; Collaboration; Responsibility; and Argumentation in class.
Study/exam achievements:	The final grade (*NA*) is calculated based on the following ratio:

Assessment Components	Percentage of contribution
Participation	20%
Assignment	30%
Mid-semester test	20%
Final semester test	30%

Grade conversion of 0-100 scale into 0-4 scale is set as below:

Letter	Number	Grade Interval
A	4,00	$85 \leq A \leq 100$
A-	3,75	$80 \leq A- < 85$
B+	3,50	$75 \leq B+ < 80$
B	3,00	$70 \leq B < 75$
B-	2,75	$65 \leq B- < 70$
C+	2,50	$60 \leq C+ < 65$
C	2,00	$55 \leq C < 60$
D	1,00	$40 \leq D < 55$
E	0,00	$0 \leq E < 40$

Learning Methods :	Student-centered approach; project-based learning; lecturer and discussion; and presentations (structured activities)
Form of Media:	Power point slides; video; worksheets, and textbooks

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Literature (primary references):	1. Russell, Stuart & Norvig, Peter. 2010. Artificial Intelligence: A Modern Approach. 3rd Edition. New York: Prentice Hall. 2. Turban, Efraim. 1992. Expert Systems and Applied Artificial Intelligence. New York: Macmillan Publishing Company. 3. Rich, Elaine & Kevin, Knight. 1991. Artificial Intelligence: second edition. New York: McGraw-Hill Publishing Company. 4. Stumbblefield, W. and Luger, G. 1990. Artificial Intelligence and the Desian of Expert Sytems. New York: The Benyamin Cumming Pub. Co. 5. Fausett, Laurene. 1994. Fundamental of Neural Network: architectures, algorithms, and applications. New York: Prentice-Hall.
Notes:	*1 credit unit or *sks* in learning process = three periods consist of: (a) scheduled instruction in a classroom or laboratory (50 minutes); (b) structured activity (60 minutes); and (c) individual activity (60 minutes) according to the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 44 Year 2015 jo. the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 50 Year 2018.
	**1 credit unit or *sks* = 1.59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2019