

HANDBOOK

**BACHELOR OF INFORMATICS PROGRAM
DEPARTMENT OF INFORMATICS
FACULTY OF INTELLIGENT ELECTRICAL AND
INFORMATICS TECHNOLOGY
INSTITUT TEKNOLOGI SEPULUH NOPEMBER**

Module name	Artificial Intelligence
Module level	Undergraduate
Code	IF184403
Courses (if applicable)	Artificial Intelligence
Semester	Even
Contact person	Dr. Eng. Nanik Suciati, S.Kom, M.Kom
Lecturer	Prof.Ir.Handayani Tjandrasa, M.Sc, Ph.D. Dr. Eng. Nanik Suciati, S.Kom, M.Kom Dr. Eng. ChastineFatichah, S.Kom, M.Kom Dini Adni Navastara, S.Kom., M.Sc.
Language	Bahasa Indonesia and English
Relation to curriculum	1. Undergraduate degree program; mandatory; 4 th , 6 th , or 8 th semester. 2. International undergraduate program; mandatory; 4 th , 6 th , or 8 th semester.
Type of teaching, contact hours	1. Undergraduate degree program: lectures, < 60 students, 2. International undergraduate program: lectures, < 40 students
Workload	1. Lectures: 3 x 50 = 150 minutes (2 hours 30 minutes) per week. 2. Exercises and Assignments: 3 x 60 = 180 minutes (3 hours) per week. 3. Private study: 3 x 60 = 180 minutes (3 hours) per week.
Credit points	3 credit points (sks).
Requirements according to the examination regulations	A student must have attended at least 80% of the lectures to sit in the exams.
Mandatory prerequisites	Data Structure

Learning outcomes and their corresponding PLOs	After completing this module, a student is expected to:	
	CO1 Students are able to comprehend concepts of artificial intelligence, intelligent agent and identify the problems that can be solved by using intelligent agent	PLO3
	CO2 Students are able to explain, identify, design and apply the intelligent agent by using searching algorithm including uninformed search, informed search, heuristic search, adversarial search and searching algorithm for Constraint Satisfaction Problem	PLO3
	CO3 Students are able to explain, design and apply knowledge-based intelligent agent representing from knowledge-based to propositional logic or first order logic and use resolution algorithm, forward and backward chaining to process the inference.	PLO3
	CO4 Students are able to explain, design and apply the first order logic to represent the action aspect, space, time dan mental event using ontology and appropriate reasoning	PLO3
	CO5 Students are able to explain, design and apply the intelligent agent for the problem that exists in uncertain condition using bayesian network and probabilistic reasoning.	PLO4
	CO6 Students are able to explain, design and apply the intelligent agent using statistical learning algorithm.	PLO4
	CO7 Students are able to apply Artificial Intelligence in some cases.	PLO5
Content	<p>Knowledge:</p> <p>Mastering concept and principles of Intelligent System such as representation and reasoning techniques, searching technique, intelligent agent, data mining, machine learning, and development of intelligent application in various fields, and also mastering concept and principles of computation science such as manage information, multimedia data processing, and numerical analysis</p> <p>Specific Skill:</p> <p>Able to desain and develop applications using principles of intelligent systems and computing science to produce intelligent applications in various fields</p>	
Study and examination requirements and forms of examination	Mid-terms examination and Final examination.	
Media employed	LCD, whiteboard, websites, books (as references), etc.	

Assessments and Evaluation	CO1: Problem 1 in mid-term exam (5%) and exercise 1 (5%) - 10% CO2: Problem 2 in mid-term exam (5%) and exercise 2 (5%) - 10%
	CO3: Problem 3 in mid-term exam (5%); problem 4 in mid-term exam (5%); assignment 1: make an algorithm and computer program (5%); and exercise 3 (5%) - 20% CO4: Problem 5 in mid-term exam (5%); problem 1 in final exam (5%) and exercise 4 (5%) - 15% CO5: Problem 2 in final exam (5%); assignment 2: make a function and recursive (5%); and exercise 5 (5%) - 15% CO6: Problem 3 in final exam (5%) and exercise 6 (5%) - 10% CO7: Problem 4 in final exam (5%) and exercise 7 (5%) - 10% CO8: Problem 5 in final exam (5%) and assignment 3: make a program based on a real-life problem (5%) - 10%
Reading List	Russel & Norvig, Artificial Intelligence : A Modern Approach R.O. Duda, P.E.Hart, D.G.Stork, Pattern Classification, John Wiley & Sons, Inc., 2001 Amit Konar, Computational Intelligence, Springer, 2005. C. H. Bishop, Pattern Recognition and Machine Learning, Springer Science, 2006