21B33C307 – Artificial Intelligence

Module designation	Artificial Intelligence (Undergraduate)
Semester(s) in which the module is taught	3rd
Person responsible for the module	Dyah Darma Andayani, S.T, M.Tel.Eng
Language	Indonesia – English
Relation to curriculum	This course is a compulsory course
Teaching methods	Lecture, Presentation, Practical
Workload (incl. contact hours, self-study hours)	CH: 09.00-17.00 Face to face: 3x50 minutes / week Independent Study: 3x50 minutes / week Structured assignment: 3x50 minutes / week
Credit points	3 SKS (equivalent 5.1 ECTS)
Required and recommended prerequisites for joining the module	Discrete Mathematics, Algorithms and Programming
Module objectives/intended learning outcomes	**Program Learning Outcomes (PLO)** PLO 3: Students demonstrate a responsible attitude towards work in their field of expertise independently PLO 7: Students are able to apply logical, critical, creative, systematic and innovative thinking in the context of developing or implementing science and technology that pays attention to and applies humanities values appropriate to their field of expertise; PLO 8: Students are able to demonstrate independent, quality, measurable and responsible performance. PLO 7: Students are able to apply mathematics, science and engineering principles to solve complex engineering problems in the fields of informatics and computer engineering; PLO 5: Students are able to design, engineer and implement software **Course Learning Objectives (CLO)** This course will study the basic concepts of artificial intelligence which consists of several intelligence abilities such as searching, prediction, reasoning and learning. Apart from that, this course will discuss several

	applications of artificial intelligence and several problem solving techniques implemented in intelligent systems such as expert systems, fuzzy logic, artificial neural networks, and genetic algorithms. **Sub CLO:** Sub-CLO 1: Students are able to explain the meaning of artificial intelligence, examples of the application of artificial intelligence and applications of artificial intelligence in everyday life based on the goals and approaches of artificial intelligence. Sub-CLO 2: Students are able to determine problems and problem spaces based on the concept of artificial intelligence. Sub-CLO 3: Students are able to differentiate between two search processes and control strategies. Sub-CLO 4: Students are able to analyze problem solving based on proportional logic reasoning. Sub-CLO 5: Students are able to analyze problem solving based on first order logic reasoning. Sub-CLO 6 Students are able to construct rule-based problems to solve problems based on expert system criteria. Sub-CLO 7 Students are able to analyze problems using the concept of fuzzy logic. Sub-CLO-8 Students are able to analyze problems using the concept of Artificial Neural Networks. Sub-CLO 9 Students are able to analyze problems using the concept of Genetic Algorithms.
Content	Students will learn about: ● Introduction to Artificial Intelligence ● Problems, and Problem Spaces ● Search and Control strategy ● Informed (Heuristic) Search ● Reasoning: First Order Logic & Proportional Logic ● Expert Systems ● Fuzzy Logic ● Artificial Neural Networks ● Genetic Algorithms
Examination forms	Assessment Techniques: Exam, Presentation, Case Based Learning Assessment Forms: Assignment, Presentation Assessment
Study and examination requirements	● Students have to inform the lecturer when they are not able to attend the class due to sickness etc ● Active in making projects by showing participation in making projects in class ● Able to present and answer questions that exist during project presentations
Reading List	● Russel, Stuart, Artificial Intelligence : A Modern Approach, Pearson, 2011 ● Suyanto, Artificial Intelligence revisi kedua – informatika Bandung, 2014 ● Sri Kusumadewi, 2003. Artificial Intelligence (Teknik dan Aplikasinya) : Edisi Pertama.

	● Anita desiani dan muhamad arhami. 2006. Konsep Kecerdasan buatan: Edisi Pertama. Yogyakarta: Andi. ● Widodo dan Derwin, 2014. Artificial Intelligence konsep dan penerapannya: Edisi Pertama.Yogyakarta: Andi.