

UNDERGRADUATE PROGRAM IN COMPUTER SCIENCE
DEPARTMENT OF COMPUTER SCIENCE AND ELECTRONICS
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
UNIVERSITAS GADJAH MADA

Module name	Expert System
Module level	Undergraduate
Code	MIK-4453
Courses (if applicable)	Expert System
Semester	Spring (Genap)
Contact person	Aina Musdholifah, S.Kom., M.Kom., Ph.D Anifudin Aziz, S.Si., M.Kom.
Lecturer	Aina Musdholifah, S.Kom., M.Kom., Ph.D Anifudin Aziz, S.Si., M.Kom.
Language	Bahasa Indonesia and English
Relation to curriculum	1. Undergraduate degree program, elective, 6 th semester. 2. International undergraduate program, elective, 6 th semester.
Type of teaching, contact hours	1. Undergraduate degree program: lectures, < 60 students, 2. International undergraduate program: lectures, < 30 students.
Workload	1. Lectures: 3 x 50 = 150 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 75% of the lectures to sit in the exams.
Recommended prerequisites	Artificial Intelligence

<p>Learning outcomes and their corresponding PLOs</p>	<table border="1"> <thead> <tr> <th data-bbox="391 254 475 331">LO</th> <th data-bbox="475 254 1304 331">Description</th> <th data-bbox="1304 254 1498 331">Supported PLO</th> </tr> </thead> <tbody> <tr> <td data-bbox="391 331 475 451">LO1</td> <td data-bbox="475 331 1304 451">Understand the basic concepts of expert systems and the relationship between the Artificial Intelligence and Expert System</td> <td data-bbox="1304 331 1498 451">PLO3</td> </tr> <tr> <td data-bbox="391 451 475 571">LO2</td> <td data-bbox="475 451 1304 571">Be able to identify what the Expert System, how expert systems work and How to build</td> <td data-bbox="1304 451 1498 571">PLO3</td> </tr> <tr> <td data-bbox="391 571 475 611">LO3</td> <td data-bbox="475 571 1304 611">Ability to represent and manipulate knowledge in a computer</td> <td data-bbox="1304 571 1498 611">PLO4</td> </tr> <tr> <td data-bbox="391 646 475 766">LO4</td> <td data-bbox="475 646 1304 766">Understand the forms of inference and reasoning processes in expert systems</td> <td data-bbox="1304 646 1498 766">PLO4</td> </tr> <tr> <td data-bbox="391 766 475 844">LO5</td> <td data-bbox="475 766 1304 844">Understand the architecture and main components of Expert System</td> <td data-bbox="1304 766 1498 844">PLO4</td> </tr> <tr> <td data-bbox="391 844 475 963">LO6</td> <td data-bbox="475 844 1304 963">Ability to make steps in developing an expert system application using a tool</td> <td data-bbox="1304 844 1498 963">PLO5</td> </tr> <tr> <td data-bbox="391 963 475 1121">LO7</td> <td data-bbox="475 963 1304 1121">Able to work in a team and have a soft skill in working together and better prepared to pursue further research on Expert System</td> <td data-bbox="1304 963 1498 1121">PLO9</td> </tr> </tbody> </table>	LO	Description	Supported PLO	LO1	Understand the basic concepts of expert systems and the relationship between the Artificial Intelligence and Expert System	PLO3	LO2	Be able to identify what the Expert System, how expert systems work and How to build	PLO3	LO3	Ability to represent and manipulate knowledge in a computer	PLO4	LO4	Understand the forms of inference and reasoning processes in expert systems	PLO4	LO5	Understand the architecture and main components of Expert System	PLO4	LO6	Ability to make steps in developing an expert system application using a tool	PLO5	LO7	Able to work in a team and have a soft skill in working together and better prepared to pursue further research on Expert System	PLO9
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<p>Content</p>	<p>Expert System course includes topics include representation knowledge, inference, rule based expert systems, inexact reasoning, fuzzy logic, and rule-based programming. Overall, subjects in one semester Expert System will discuss and explore key concepts and methods of expert systems as well as how to design and development. Furthermore, the objectionves of this course introduces students to the Expert System in general as well as specific rule-based expert system and case-based expert systems. Thus, students can learn how to build expert systems in various fields of application. In addition, students are also given the opportunity to demonstrate his understanding of the technology used to build expert systems to solve real world problems.</p>																								
<p>Study and examination requirements and forms of examination</p>	<p>Exercises in class, Mid-terms examination, Final Project, and Final examination.</p>																								

Media employed	LCD, blackboard, websites, and e-learning.				
Assessments and Evaluation	LO	Metode	Jenis	Persentase	Jumlah
	LO1	Exercise 1	Formatif	5%	10%
	Problem 1 in Midterm	Summatif	5%		
	LO2	Exercise 2	Formatif	7,5 %	22,5%
	Problem 2 and 3 in Midterm	Summatif	15 %		
	LO3	Exercise 3	Formatif	10%	30%
	Problem 4 in Midterm	Summatif	5%		
	Problem 1 and 2 in Finalterm	Summatif	15%		
	LO4	Tugas 2	Formatif	5%	10%
	Problem 3 in Finalterm	Summatif	5%		
	LO5	Exercise 4	Formatif	5%	12,5%
	Problem 4 in Finalterm	Summatif	7,5%		
	LO6	Exercise 5	Formatif	5%	5%
	LO-7	Final Project	Formatif	10%	10%
	Reading List	<p>Joseph Giarratano, Expert Systems: Principles and Programming, Brooks Cole, 3rd Edition, 1998</p> <p>Efraim Turban, Decision Support and Expert Systems: Management support system, Prentice-Hall, 4th edition, 1995</p> <p>Ivan Bratko, Prolog-Programming for Artificial Intelligence, Addison Wiley, 3rd Edition, 2001</p> <p>Joseph Giarratano and Gary Riley, Expert Systems: Principles and Programming, PWS, 2nd Edition, 1994.</p>			