



UNIVERSITI TEKNOLOGI MARA

CSC563: ARTIFICIAL INTELLIGENCE PROGRAMMING PARADIGMS

Course Name (English)	ARTIFICIAL INTELLIGENCE PROGRAMMING PARADIGMS APPROVED
Course Code	CSC563
MQF Credit	3
Course Description	This course will expose students to the goals and methods of artificial intelligence programming. The overview techniques of logic programming will be made in four stages: declarative, procedural, advanced and meta-programming. One programming language used in artificial intelligence will be taught.
Transferable Skills	At the end of the course, students should be able to: 1. Describe and differentiate four problem solving paradigm of Logic Programming. 2. Explain and apply logic programming techniques to handle AI Computer problems. 3. Trace and develop program using AI programming language.
Teaching Methodologies	Lectures, Lab Work
CLO	CLO1 a. Describe and differentiate four problem solving paradigm of Logic Programming. CLO2 b. Explain and apply logic programming techniques to handle AI Computer problems. CLO3 c. Trace and develop program using AI programming language.
Pre-Requisite Courses	No course recommendations
Topics	
1. Introduction to Prolog 1.1) AI programming language 1.2) History of Prolog 1.3) What is a Prolog program	
2. Syntax and Meaning of Prolog Programs 2.1) Defining relations by facts 2.2) Defining relations by rules	
3. Matching, Unification and Instantiation 3.1) Data objects 3.2) Matching	
4. Recursion and Tail Recursion 4.1) Recursive rules 4.2) Order of clauses and goals	
5. Concept of List 5.1) Representation of lists	
6. Operation in List 6.1) Some operations on lists 6.2) Operator notation 6.3) Arithmetic	
7. Using Structure : Example Programs 7.1) Retrieving structured information from database 7.2) Data abstraction	
8. Controlling Backtracking 8.1) Preventing backtracking 8.2) Using cut 8.3) Negation as failure	

9. Input and Output

- 9.1) Communication with files
- 9.2) Processing files of terms
- 9.3) Manipulating characters

10. Built-in Predicates

- 10.1) Constructing and decomposing atoms
- 10.2) Control facilities

11. Programming Style and Technique

- 11.1) Programming style
- 11.2) Improving efficiency

12. Project Presentation

- 12.1) General principles of good programming
- 12.2) Prolog programs

Assessment Breakdown	%
Continuous Assessment	40.00%
Final Assessment	60.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Group Project	3-4 students per group	10%	CLO3
	Lab Exercise	Lab work / exercise / assignments	10%	CLO1 , CLO2 , CLO3
	Test	Test 1	10%	CLO1 , CLO2
	Test	Test 2	10%	CLO2 , CLO3

Reading List	Recommended Text	Ivan Bratko 2011, <i>Prolog Programming for Artificial Intelligence</i> , 4th Ed., Addison-Wesley Professional [ISBN: 0321417461]
	Reference Book Resources	<ul style="list-style-type: none"> • Michael Negnevitsky 2011, <i>Artificial Intelligence</i>, 3rd Ed., Addison-Wesley [ISBN: 1408225743] • Stuart Jonathan Russell, Peter Norvig 2010, <i>Artificial Intelligence</i>, 3rd Ed., Prentice Hall [ISBN: 0136042597] • George F. Luger 2009, <i>Artificial Intelligence</i>, 6th Ed., Addison-Wesley [ISBN: 0321545893] • Max Bramer 2013, <i>Logic Programming with Prolog</i>, 2nd Ed., Springer [ISBN: 144715486X] • William Clocksin, Christopher S. Mellish 2013, <i>Programming in Prolog</i>, 5th Ed., Springer Science & Business Media [ISBN: 3540006788]
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	