

Course specification

(3204 Logic Programming)

Faculty: HICIT- Higher Institute for Computers & Information Technology

Programme(s) on which the course is given: Under graduate program in Computer Science

Major or minor element of programme: Compulsory

Department offering the programme: Department of Computer Science

Department offering the course: Department of Computer Science

Year / Class: 3rd Year – 2nd semester

Date of specification approval: 22/2/2016

A- Basic Information

Title: Logic Programming

Code: 3204

Weekly Hours:

Lecture : 3

Exercise: -

Practical : 3

Total: 6

B- Professional Information

1- Course Objectives:

This course aims to teach students the theory and practice of logic programming. It introduces the basic syntax and semantics of the Prolog programming language. It covers the basic techniques of logic programming, the built-in features of the language, and describes its application to some typical AI topics. Topics covered include: Prolog as a logic programming language; Prolog syntax; Prolog execution; List processing; Prolog and logic; Backtracking and the cut; Prolog programming schemas; Database manipulation.

2- Program ILOs Covered by Course

Program Intended Learning Outcomes

Knowledge and understanding	Intellectual Skills	Professional and practical skills	General and Transferable skills
a2, a13, a20	b3, b4, b18	c1, c5, c10, c16	

3 - Intended learning outcomes of course (ILOs)

a. Knowledge and Under-Standing:

a1- understand of the fundamental principles of logic programming.

a2- understand a non-procedural logic programming language such as Prolog.

a3 - Understand list processing and recursive programming techniques and be able to apply them appropriately in typical programming tasks.

a4 - explain the skills for programming logic.

b. Intellectual Skills:

b1- analyze the problem using logic programming..

b2- illustrate differing approaches to implementation.

c- Professional and practical skills

c1- design a program using conventional Prolog syntax, making appropriate use of built in control features.

c2- design and implement a small Prolog applications demonstrating competence in the above.

d- General and transferable skills

d1. Work effectively as an individual and as a member of a team.

d2. Write Structural Report.

4- Contents

Topic	Hours	Lec.	Exc/Lab
An overview of Prolog: Facts, Relations, Objects, Rules.	6	3	3
Recursion, Predicates, Queries.	6	3	3
Syntax and meaning of Prolog programs.	6	3	3
Lists, operators, arithmetic.	12	6	6
Using structures.	6	3	3
Controlling backtracking.	6	3	3
Input and output.	6	3	3
Built-in procedures.	6	3	3
Programming style and technique.	6	3	3
Operations on data structures	6	3	3
Advanced tree representations.	6	3	3
Basic problem-solving strategies.	6	3	3

5- Teaching and learning methods

5.1 Lectures

5.2 Tutorial Exercises

5.3 Practical Lab

5.4 Discussions.

6 -Student assessment methods

6.1 Midterm Exam: To assess the knowledge and understanding achieved by the student during the previous weeks.

6.2 Final Exam: To evaluate what the student gain at the end of the course, and to assess: the knowledge and understanding, general skills, and intellectual skills.

6.3 Course Work & Quizzes: To keep the student always in the course, and to evaluate knowledge, understanding, intellectual, and transferable skills.

6.4 Practical Exam: to measure the ability of students to design and implement a software program.

Assessment Schedule

Assessment	Week #
Mid Term Exam	8
Final Exam	16
Course Work & Quizzes	2-14
Practical Exam	15

Assessment Weight

Assessment	Weight %
Mid Term Exam	5%
Final Exam	70%
Course Work & Quizzes	5%
Practical Exam	20%
Total	100

Course Work & Quizzes: (Short Exams, Assignments, Researches, Reports, Presentations, Class/Project discussion)

7 -List of references

7.1 Text Books

- **PROLOG programming for artificial intelligence, second edition, by Ivan Bratko**
- **Prolog Programming for Artificial Intelligence (4th Edition) by [Ivan Bratko](#)**

7.2 Internet Location :

8- Required Facilities

8.1 Tools/Software

- Prolog PL

9-Course Matrices

9.1-Course Content/ILOs Matrix

Course Contents	a1	a2	a3	a4	b1	b2	c1	c2	d1	d2
An overview of Prolog: Facts, Relations, Objects, Rules.	x			x						
Recursion, Predicates, Queries.	x	x	x	x	x	x	x	x		
Syntax and meaning of Prolog programs.	x	x	x	x	x	x	x	x		
Lists, operators, arithmetic.	x	x	x	x	x	x	x	x		
Using structures.	x	x	x	x	x	x	x	x		
Controlling backtracking.	x		x	x	x	x	x	x		
Input and output.	x	x	x	x	x	x	x	x		
Built-in procedures.	x	x	x	x	x	x	x	x		
Programming style and technique.	x		x	x	x		x	x		
Operations on data structures	x		x	x	x	x	x	x		
Advanced tree representations.	x		x	x	x	x	x	x		
Basic problem-solving strategies.	x			x	x		x	x		

9.2-Learning Method /ILOs Matrix

Learning Methods	a1	a2	a3	a4	b1	b2	c1	c2	d1	d2
Lectures	x	x	x	x	x	x	x	x		
Tutorial Exercises					x	x	x	x		
Practical Lab					x	x	x	x		

Discussions.					x	x	x	x	x	x
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9.3-Assessment Methods /ILO Matrix

Assessment Methods	a1	a2	a3	a4	b1	b2	c1	c2	d1	d2
Mid Term Exam	x	x	x	x	x	x	x	x		
Final Exam	x	x	x	x	x	x	x	x		
Course Work &Quizzes	x	x	x	x	x	x	x	x	x	x
Practical Exam	x	x	x	x	x	x	x	x		

Course Coordinator: Dr Mohamed Moustafa ()

Head of Department: Dr. Farouk Shabaan ()

Date: 22/2/2016