

Course Specifications

Programme(s) on which the course is given M.Sc. of Computer Science

Major or minor element of programs	Major
Department offering the program	Mathematics
Department offering the course	Mathematics
Academic year / Level	Post-graduate studies
Semester	
Date of specification revision	September 2008
Date of specification approval	September 2008

A- Basic Information

Title: Expert System	Code: M638
Credit Hours: 2	Total: 2 hr.
Lecture: 2 Tutorial: -	Practical: - Other: -

B- Professional Information

1 – Overall Aims of Course

- **Design and implementation of expert systems, in areas such as diagnosis, expert reasoning, planning, robotics, problem solving and learning. Students will design their own versions of an ES, and complete one substantial design project. Programming will be done primarily in Prolog, which will be covered at the beginning of the course.**

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

The student should be able to

- a1-** Revision on knowledge can be represented and acquired.
- a2-** Have the knowledge about the essential characteristics of ES.
- a3-** Understand the main technology behind ES (i.e. search techniques, inferencing, explanation ... etc.)

b- Intellectual Skills

- b1-** Understand how common sense can be represented in a computer.
- b2-** Knowing the different knowledge representation techniques available.

b3- Understanding the difficulty of such algorithms and the type of problems that can be represented and manipulated in ES.

c- Professional and Practical Skills

c1- Apply the knowledge representation techniques to different problems, while discussing the pros and cons.

c2- Differentiating between problems that are solvable and that are not.

c3- Getting to know Prolog programming language.

d- General and Transferable Skills

d1- The Prolog programming language.

d2- The use of ES and factors to build ES.

3- Contents

Topics	No. of hours	Lecture	Tutorial/Practical
Revision of knowledge representation and knowledge acquisition and applications of AI .	4	2	
Understand Knowledge representation as decision rules.	4	2	-
Requirements to build and ES and human involvement, introduction to the PROLOG language.	6	3	-
Components of ES and essentials to build an ES.	6	3	-
Inferencing in ES.	4	2	-
Explanation facility of ES.	4	2	-

4- Teaching and learning methods

4.1- Lectures

4.2- Working on hand in assignments

4.3- Project and report knowledge collection

5- Student assessment methods

5.1 Mid term written exam to assess understanding competencies

5.2 Programming Project to assess programming skills

5.3 Oral Exam to assess attendance and interesting.

5.4 Semester hand in assignments to assess understanding professionalism.

5.5 Final term written Exam to assess comprehension.

Assessment schedule

Assessment 1	Mid term	Week 4 and 7
Assessment 2	semester activities	Week 5 and 8
Assessment 3	Final Project/report	Week 13
Assessment 4	Final term written exam	Week 14

6- Weighting of assessments

Mid-Term Examination	20%
Semester Work (homework assignments + quizzes)	10%
Project	10%
Final-term written Examination	60%
Total	100%

Any formative only assessments

7- List of references

7.1- Course notes

Collected and prepared notes that cover the main topics in the course content

7.2- Essential books (text books)

Elementary text books under the title: *Artificial Intelligence a modern approach*.

7.3- Recommended books : Artificial Intelligence techniques

7.4- Periodicals, Web sites, ... etc

Non.

8- Facilities required for teaching and learning

Lecture: PC's - packages for ready made scientific programs. - Data Show, instrumentation, and packages.

Names of professors/lecturers contributing to the design and delivery of the course

i Dr. P El-Kafrawy

ii Dr. Hani

Course coordinator:

Head of Department: Mohamed A. Ramadan

Date: / /