


QFO-AP-FI-MO02	اسم النموذج: Course Syllabus	جامعة فيلادلفيا
رقم الاصدار : 1 (Revision)	الجهة المصدرة: كلية تكنولوجيا المعلومات	 Philadelphia University
التاريخ: 2017/11/05	الجهة المدققة: عمادة التطوير والجودة	
عدد صفحات النموذج:		

Course Title: Intelligent systems	Course code: 750350
Course Level: 3	Course prerequisite(s) and/or corequisite(s): 721224+250231
Lecture Time:	Credit hours: 3

Academic Staff Specifics

Name	Rank	Office Number and Location	Office Hours	E-mail Address

Course Description:

The module is the primary introduction to artificial intelligence. Halve of the module material is delivered in-class and the other halve is distant learning using the e-learning module designed at faculty of IT in Philadelphia University.

Course Objectives:

The module aims to present the basic representation and reasoning paradigms used in AI in both theory and practice with careful attention to the underlying principles of logic, search, and probability. It is also designed to show students practical examples of the use of AI in applications and to encourage further reading. The e-learning part enables students to practice self learning. The Assignments aim to give students a sound practical introduction to knowledge based systems and a basic introduction to modern paradigms of knowledge representation and belief networks. The examples classes aim to provide an introduction to the underlying issues in cognitive emulation and to provide an opportunity for practical exercises in logic and probability.

Course Components

- Introduction to AI
- Intelligent agents
- Problem Solving (**search algorithms**)
- Knowledge representation

- Expert System

Text book:

Title: Artificial intelligence a conceptual approach

Author(s)/Editor(s): Anamitra Deshmukh-Nimbalkar

Publisher: New Delhi: Technical Publications, 2014

In addition to the above, the students will be provided with handouts by the lecturer.

Teaching Methods:

Duration: 16 weeks, 48 hours in total.

Lectures: 22 hours (1-2 per week)

E-learning Lectures: 16 hour (1 per week)

Tutorial: 8 hours (1 per 2 weeks)

Learning Outcomes:

A-Knowledge and understanding

A2- Have an understanding of space search and search algorithms, logic based knowledge representation, of issues in reasoning methods.

A3- Have an understanding of the limitations of current symbolic AI paradigm

A4- Have knowledge of Bayes' Rule and its use in Belief Networks and be able to solve problems concerning updating of prior probabilities with evidence using it and to construct belief networks for simple problems.

B- Intellectual Skills.

B1-Be able to select appropriate search paradigms for appropriate problems

B2-Be able to design a simple agent system and associated ontology and justify the design

C- Practical skills.

C5-Be able to design and implement a forward chaining knowledge based system including rule base

Learning Outcomes Achievement

- **Development: A2, B1 and C5 are developed through the lectures.
A3 and A4 are developed through tutorials and home works
B2 is developed through tutorials and lab sessions**
- **Assessment: A1, B1and C5 are assessed by quizzes and written exams, while A3,A4 and C5 are assessed by assignments and labs work.**

Assessment Instruments

<u>Allocation of Marks</u>	
Assessment Instruments	Mark
First examination	20
Second examination	20
Quizzes	10
Final project	10
Final examination:	40
Total	100

** Make-up exams will be offered for valid reasons only with consent of the Dean. Make-up exams may be different from regular exams in content and format.*

Practical Submissions

The assignments that have work to be assessed will be given to the students in separate documents including the due date and appropriate reading material.

Documentation and Academic Honesty

Submit your home work covered with a sheet containing your name, number, course title and number, and type and number of the home work (e.g. tutorial, assignment, and project).

Any completed homework must be handed in to my office (room IT ---) by 15:00 on the due date. After the deadline “zero” will be awarded. You must keep a duplicate copy of your work because it may be needed while the original is being marked.

You should hand in with your assignments:

- 1- A printed listing of your test programs (if any).
- 2- A brief report to explain your findings.
- 3- Your solution of questions.

• Protection by Copyright

1. Coursework, laboratory exercises, reports, and essays submitted for assessment must be your own work, unless in the case of group projects a joint effort is expected and is indicated as such.
2. Use of quotations or data from the work of others is entirely acceptable, and is often very valuable provided that the source of the quotation or data is given. Failure to provide a source or put quotation marks around material that is taken from elsewhere gives the appearance that the comments are ostensibly your own. When quoting word-for-word from the work of another person quotation marks or indenting (setting the quotation in from the margin) must be used and the source of the quoted material must be acknowledged.
3. Sources of quotations used should be listed in full in a bibliography at the end of your piece of work.

• Avoiding Plagiarism.

1. Unacknowledged direct copying from the work of another person, or the close paraphrasing of somebody else's work, is called plagiarism and is a serious offence, equated with cheating in examinations. This applies to copying both from other students' work and from published sources such as books, reports or journal articles.
2. Paraphrasing, when the original statement is still identifiable and has no acknowledgement, is plagiarism. A close paraphrase of another person's work must have an acknowledgement to the source. It is not acceptable for you to put together unacknowledged passages from the same or from different sources linking these together with a few words or sentences of your own and changing a few words from the original text: this is regarded as over-dependence on other sources, which is a form of plagiarism.
3. Direct quotations from an earlier piece of your own work, if not attributed, suggest that your work is original, when in fact it is not. The direct copying of one's own writings qualifies as plagiarism if the fact that the work has been or is to be presented elsewhere is not acknowledged.
4. Plagiarism is a serious offence and will always result in imposition of a penalty. In deciding upon the penalty the Department will take into account factors such as the year of study, the extent and proportion of the work that has been plagiarized, and the apparent intent of the student. The penalties that can be imposed range from a minimum of a zero mark for the work (without allowing resubmission) through caution to disciplinary measures (such as suspension or expulsion).

Course Academic Calendar

Week	Basic and support material to be covered	Homework/reports and their due dates
(1)	Introduction to AI (what is AI? foundations of AI).	
(2)	Intelligent agents (what is an agent? structure of agents).	
(3)	Intelligent agents (types of agents, environments).	Tutorial 1
(4)	Problem Solving (search algorithms, understand the search problems and their algorithms)	Tutorial 2, Assignment 1
(5)	Problem Solving (introduce search algorithms, uninformed search algorithms).	
(6) First Exam	Problem Solving (iterative deepening search, informed search algorithms).	Tutorial 3
(7)	Problem Solving (best-first search, A* search algorithm).	
(8)	Problem Solving (admissibility and dominance, simulated annealing search).	Tutorial 4, Assignment 2
(9)	Knowledge representation (Introduction, history of knowledge representation, semantic networks).	
(10)	Knowledge representation (frames, scripts, conceptual graphs, and conceptual dependency).	Tutorial 5
(11)	Knowledge representation (production rules, logic knowledge representation,	Assignment 3

	propositional logic).	
(12) Second Exam	Knowledge representation (first-order logic, inference rules in first-order logic, Prolog and Lisp).	Tutorial 6
(13)	Expert System (Introduction, components of an expert system).	Tutorial 7
(14)	Expert System (compare between human thinking and computer thinking, rules based systems).	Tutorial 8
(15) Specimen examination (Optional)	Expert System (programs required to develop an expert system, types of expert systems).	
(16) Final Examination	Expert System (examples of well known expert systems, strategies in expert systems develop an expert system).	

Expected workload:

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance Policy:

Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

Module References

- 1- G.F. Luger & W.A. Stubblefield, Artificial Intelligence: Structures and Strategies for Complex Problem Solving, 3rd edition, Addison Wesley, 1998.
- 2- N. J. Nilsson, Artificial Intelligence: A New Synthesis, Morgan Kaufmann Publishers, 1998.
- 3- P.H. Winston, Artificial Intelligence, 3rd edition, Addison Wesley, 1992.
- 4- E. Rich, K. Knight, Artificial Intelligence, 2nd edition, McGraw Hill, 1991.