

## Burapha University International College Course Syllabus

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### 1. General Information

1.1 Subject Code	975352
1.2 Subject Name	Introduction to Artificial Intelligence
1.3 Credit	3(3-0-6)
1.4 Total Hours	Lecture 45 Hrs per Semester
1.5 Semester	Fall 2009
1.6 Student	BUU International Collage, 3 <sup>rd</sup> year
1.7 Department	International Collage, Burapha University.
1.8 Course Type	Core Course
1.9 Instructor	Assist.Prof.Krisana CHINNASARN, Ph.D. ckrisana@gmail.com
1.10 Lecturer Place	BUUIC-711
1.11 Meeting Day	Friday / 1 – 4 pm.

### 2. Course Objectives

1. To understand concepts in the meaning and purpose of artificial intelligence.
2. To understand nature and background of visual processing.
3. To learn robots and expert systems, knowledge substitution, evaluation and design.
4. To program AI programming such as Prolog and Lisp
5. To see how various AI applications. And
6. To be able to make an informed comparison among AI competing architectures for a given purpose

### 3. Course Details

#### 3.1 Course Description

Concepts in the meaning and purpose of artificial intelligence. Nature and background of visual processing. Robots and Expert systems. Knowledge substitution, evaluation and design. Computer programming languages such as Prolog and Lisp.

#### 3.2 Class Schedule

Week	Chapter	Lecture Topic	Laboratory	Class Activities
1	1	Introduction to knowledge-based intelligent systems Questions for review	–	– Introduction to AI – Detail Discussion – Concluding remark
2-3	2	Rule-based expert systems Questions for review	– Rule-based Programming	– Detail Discussion – Concluding remark
4-5	3	Uncertainty management in rule-based expert systems Questions for review	– Rule-based programming with uncertainty conditions	– Detail Discussion – Concluding remark
6-7	4	Fuzzy expert systems Questions for review	– Fuzzy-Logic programming	– Detail Discussion – Concluding remark
Mid-term Examination				
8-9	5	Frame-based expert systems Questions for review	–	– Detail Discussion – Concluding remark
10-11	6	Artificial neural networks Questions for review	– Back-propagation Neural Network programming	– Detail Discussion – Concluding remark

Week	Chapter	Lecture Topic	Laboratory	Class Activities
12-13	7	Evolutionary computation Questions for review	– Genetic Programming	– Detail Discussion – Concluding remark
14	8	Hybrid intelligent systems Questions for review	– Neuro-Fuzzy Programming	– Detail Discussion – Concluding remark
15		Computer programming for AI Prolog Lisp	–	– Final Conclusions
Final Examination				

4. Reference website: The class website can be entered from the instructor's homepage: <http://www.cs.buu.ac.th/~krisana/975352>. Copies of lecture notes/slides, homeworks, answers, exam study materials, and other reference materials are offered on website. Check website regularly for essential information such as extensions on due dates or changes in exam dates. Materials posted on the website are considered official notices.

5. Required Textbook: Michael Negnevitsky, *Artificial Intelligence: A Guide to Intelligence System*.

2<sup>nd</sup> edition, Addison Wesley, 2005, ISBN: 978-0-321-204660

6. Required Software: Prolog, Matlab and C Language. Programming assignments will start at about week 3.

7. Homework: Written assignments will be graded on a of 0-10 point basis for each assignment. Programming assignments are graded on a 0-5 point scale. Written homework will be 0.6 of the 10% of the course grade from homeworks. The graded programs will make up the remainder (0.4 of 10%). ***Failure to submit required work may result in an unauthorized incomplete for the course grade.*** Students are expected to read the listed chapters from the text before attending a given class. Homework is due by the beginning of class. **Absolutely no late homework.** Submit the work even if not complete or program not working. Partial credit will be given on assignments. A number of the class assignments are Matlab, Prolog or C Language programming. You must have access to a computer (or use the campus labs) to do the required coursework. Requirements for programs will be detailed in a separate document.

8. Grading:

Homework	10%	
Programming laboratory I		10%
Programming laboratory II		10%
Midterms	35%	
Final (Comprehensive)	35%	

9. Attendance: You are expected to attend every class session. You must sign the sign-in sheet to be counted as present.

10. Discussion Section: A discussion section is available on Thursday from 4pm-5pm. This session will include in-depth questions and answers, homework discussions, exam reviews, program design and implementation suggestions, and other topics of interest related to the course material.