# ASSUMPTION UNIVERSITY

FACULTY OF SCIENCE AND TECHNOLOGY,

**DEPARTMENT OF COMPUTER SCIENCE**

**COURSE OUTLINE 2/2020**

**Course : SC6360 Artificial Intelligence**

**Course status :** Basic 3 credits

**Day & Time**  **:** Tuesday; 18:30 –21:30, **A62**

**Course material :**  http://portal.scitech.au.edu/anilkumar/

**Instructor** **:**  Asst. Prof. Dr. Anilkumar K.G,

**Mobile:** 0891351711

**E-mail**: anil@scitech.au.edu

**Text book:**

**Artificial Intelligence: Foundations of Computational Agents**, 2nd Edition, David L Poole, Alan K Mackworth, Cambridge University Press, 2018

**References:**

1. **Artificial Intelligence: A Guide to Intelligence Systems**, Michael Negnevitsky, Addison Wesley, 2011
2. **Artificial Intelligence: A Modern Approach,** Stuart Russell, Peter Norvig, Prentice Hall, 2009
3. **Computational Intelligence – Concept to Implementations**, Russell Eberhart, Yuhui Shi, Elsevier Morgan Kaufmann, 2009
4. **Probabilistic Methods for Bioinformatics with an Introduction to Bayesian Networks**, Richard E. Neapolitan, Morgan Kaufmann Publishers, ISBN: 978-0-12-370476-4 (2009)

**Course Objective:**

The main objective of this course is to let students be able to understand: Concepts and techniques used for solving NP type problems, Intelligent Agent Architectures and Control, Reasoning, Planning, and Learning with Certainty, Reasoning, Learning, Planning and Acting with Uncertainty, Reasoning, Learning and Acting with Individuals and Relations. Moreover, the students will be able to do research based on the existing research papers related to topics which are covered under Artificial Intelligence.

**Lecture Schedule:**

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| --- | --- | --- |
| **Week** | **Topic** | **Chapter** |
| **1** | **Artificial Intelligence and Agents** | **1** |
| **2** | **Agent Architectures and Hierarchical Control** | **2** |
| **3** | **Searching for Solutions.** | **3** |
| **4** | **Propositions and Inference** | **5** |
| **5** | **Planning with Certainty** | **6** |
| **6** | **Reasoning with Uncertainty** | **8** |
| **7** | **Topic Presentation1** |  |
| **8** | **Midterm examination** |  |
| **9** | **Reasoning with Uncertainty (Continued)** | **8** |
| **10** | **Planning with Uncertainty** | **9** |
| **11** | **Learning Uncertainty** | **10** |
| **12** | **Supervised Machine Learning** | **7** |
| **13** | **Supervised Machine Learning (continued)** | **7** |
| **14** | **Topic Presentation2** |  |
| **15** | **Project Presentation** |  |
| **16** | **Final Examination** |  |

**Mark Allocation:**

## Mid term 20%

Assignments & presentations 10% + 10%

Project 20%

Final (Comprehensive) 40%

**TOTAL 100%**

**\*Topic presentation (10%):**

Each student must study and present an existing research paper (either from a reputed conference or a journal) related to the field of AI. Before the presentation, the student should submit his/her self study report of the selected paper.

* *Marking criteria* are based on the depth of the knowledge and the research concept acquired from the paper (before the presentation each student should thoroughly understand the concept and research methodology of the selected paper and must be able to answer questions related to the topic).

**Project Description:**

Each student must design and present an **Agent application** (for example, game agent, expert system, scheduling agent, medical agent, troubleshooting agents, or any) based on the AI concepts that have covered through this course..

**Project Evaluation:** Project evaluation is based on the following criteria:

Design (implementation) and presentation: 15%

Report (including description, algorithm/ flow chart, source code, etc): 5%