**Course Objective and Outcome Form**

Department of Electrical and Computer Engineering

School of Engineering and Physical Sciences

North South University, Bashundhara, Dhaka-1229, Bangladesh

1. **Course Number and Title:** CSE 440
2. **Number of Credits:** 3
3. **Type:** Elective
4. **Prerequisites:** CSE 225 (Data Structures and Algorithms)

CSE 232 (Computer Organization and Design)

1. **Contact Hours:** 3 hours (theory)
2. **Course Summary:** An introductory description of the major subjects and directions of research in artificial intelligence; topics include all languages (LISP and PROLOG), basic problem solving techniques, different search algorithms, knowledge representation and machine learning, decision trees and neural networks.
3. **Course Objectives:** The objectives of this course are to
4. learn fundamental knowledge on artificial intelligence and its applications in different areas.
5. learn back-tracking search to solve constraint satisfaction problems.
6. know various AI search algorithms such as uninformed or blind search, heuristic search, local search, game playing with adversarial search.
7. understand the fundamentals of knowledge representation (logic-based), inference and theorem proving in propositional logic and first order logic.
8. know how to build simple knowledge-based systems using CLISP or Prolog.
9. ability to apply machine learning techniques to real-world problems
10. **Course Outcomes (COs):**

Upon Successful completion of this course, students will be able to:

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| --- | --- | --- |
| Sl. | **CO Description** | **Weightage (%)** |
| 1. | **explain** what constitutes "Artificial" Intelligence and how to identify systems with Artificial Intelligence. | 5 |
| 2. | **master** classical Artificial Intelligence techniques, such as search algorithms, minimax algorithm, decision trees, neural networks. | 70 |
| 3. | **apply** Artificial Intelligence techniques for problem solving. | 25 |

1. **Mapping of CO-PO:**

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| --- | --- | --- | --- | --- | --- |
| **Sl.** | **CO Description** | **Program Outcome** | **Bloom’s taxonomy**  **domain/level**  *(C: Cognitive*  *P: Psychomotor*  *A:Affective)* | **Delivery methods**  **and activities** | **Assessment**  **tools** |
| 1. | **explain** what constitutes "Artificial" Intelligence and how to identify systems with Artificial Intelligence. | **PO-a** | C2 | Lectures, Notes | Quiz |
| 2. | **evaluate** classical Artificial Intelligence techniques, such as search algorithms, minimax algorithm, decision trees, neural networks. | **PO-b** | C5 | Lectures, Notes | Exams |
| 3. | **master** Artificial Intelligence techniques for problem solving. | **PO-c** | P3 | Lectures, Notes | Assignments |

1. **Resources**

**Text books:**

Stuard Russell and Peter Norvig, Artificial Intelligence. A Modern Approach, 3-rd edition, Prentice Hall, Inc., 2010 (required).

Ben Copin, Artificial Intelligence Illuminated.

1. **Weightage Distribution among Assessment Tools:**

**Theory**

|  |  |
| --- | --- |
| **Assessment Tools** | **Weightage (%)** |
| Class Performance | 5 |
| Quizzes | 20 |
| Assignments | 15 |
| Project | 10 |
| Midterm | 20 |
| Final Exam | 30 |