UNITED INTERNATIONAL UNIVERSITY
Department of Computer Science and Engineering (CSE)
Course Syllabus

1	**Course Title**	Artificial Intelligence
2	**Course Code**	CSE 3811
3	**Trimester and Year**	Spring 2025
4	**Pre-requisites**	CSE 2217
5	**Credit Hours**	3.00
6	**Section**	D
7	**Class Hours**	Sat,Tue 09.50 PM – 11.10 PM
8	**Classroom**	#603
9	**Instructor's Name**	Shihab Ahmed
10	**Email**	shihab@cse.uiu.ac.bd
11	**Office**	Room #319(A)
12	**Counseling Hours**	(see table below)

Sunday	09:50-11:10
Tuesday	09:50-01:50
Wednesday	09:50-11:10

13	**Text Book**	Artificial Intelligence - A Modern Approach (3rd edition) by Stuart Russel and Peter Norvig
14	**Reference**	None
15	**Course Contents (approved by UGC)**	Survey and concepts in Artificial Intelligence; Problem-solving agents; Uninformed and Informed search techniques; Local Search Techniques; Game playing; Constraint Satisfaction Problems; Bayesian learning; Supervised Learning: Classification, Perceptrons; Stationary processes and Markov assumptions; Hidden Markov Models; Human Aware AI Systems.
16	**Course Outcomes (COs)**	(see table below)

COs	Description
CO1	Understand the role of decision-making strategies in simulating intelligence, and gain familiarity with approaches towards such.
CO2	Analyze and apply search strategies for solutions to problems with complete information.
CO3	Understand and apply reasoning strategies for inference in the presence of incomplete information.

17	**Teaching Methods**	Lecture, Case Studies.

| 18 | **CO with Assessment Methods** | |

CO	Assessment Method	(%)
-	Attendance	5
-	Assignments	5
-	Class Tests	20
CO1, CO2	Midterm exam	30
CO3, CO4	Final exam	40

19	**Mapping of COs and Program outcomes**

COs	Program Outcomes(POs)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	X											
CO2		X										
CO3		X										
CO4	X											

20	**Lecture Outline**

Class	Topics/Assignments	COs	Reading Reference	Lecture Outcomes/Activities
1	Introduction to Artificial Intelligence; Agents and Environments	1	1.1, 1.4, 2.1	Lecture
2	Problem-solving agents; Example problems; Searching for solutions	1, 2	3.1, 3.2, 3.3	Lecture
3	Uninformed search strategies	2	3.4	Lecture
4	Informed search strategies	2	3.4, 3.5	Lecture
5	Informed search strategies; Heuristic functions	2	3.5, 3.6	Lecture
6	Heuristic functions;	2	3.6	Class Test; Lecture
7	Local search algorithms and optimization problems	2	4.1	Lecture
8	Local search algorithms and optimization problems	2	4.1	Lecture
9	Adversarial Search: Games, Optimal decisions in games	2	5.1, 5.2	Lecture

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| | | CO4 | Demonstrate familiarity with approaches to exploiting regularity in data and areas of application. |

10	Adversarial Search: Alpha-Beta Pruning	2	5.3	Lecture
11	Constraint satisfaction problems; Backtracking search for CSPs	2	6.1, 6.3	Class Test; Lecture
12	Backtracking search for CSPs; Local search for CSPs;	2	6.2, 6.4	Lecture
	MIDTERM EXAM			
13	Basic probability notation; Inference using full joint distribution	3	13.2, 13.3	Lecture
14	Probabilistic independence; Bayes' rule and its use	3	13.4, 13.5	Lecture
15	Semantics of Bayesian networks; Exact inference in Bayesian networks	3	14.2, 14.4	Lecture
16	Exact inference in Bayesian networks;	3	14.4	Lecture
17	Exact inference in Bayesian networks;	3	14.4	Lecture
18	Naive Bayes Model	3	20.2	Class Test; Lecture
19	Stationary processes and Markov assumptions	3	15.1	Lecture
20	Stationary processes and Markov assumptions; Hidden Markov models	3	15.1, 15.3	Lecture
21	Decision Tree Learning	4	18.3	Lecture
22	Decision Tree Learning	4	18.3	Lecture
23	Single Layer Perceptrons	4	18.7	Class Test; Lecture
24	Multilayer Perceptrons	4	18.7	Lecture

Appendix 1: Assessment Methods

Assessment Types	Marks
Attendance	5%
Assignments	5%(1 out of 2)
Class Tests	20%(2 out of 4)
Mid Term	30%
Final Exam	40%

Appendix 2: Grading Policy

Letter Grade	Marks %	Grade Point	Letter Grade	Marks%	Grade Point
A (Plain)	90-100	4.00	C+ (Plus)	70-73	2.33
A- (Minus)	86-89	3.67	C (Plain)	66-69	2.00
B+ (Plus)	82-85	3.33	C- (Minus)	62-65	1.67
B (Plain)	78-81	3.00	D+ (Plus)	58-61	1.33
B- (Minus)	74-77	2.67	D (Plain)	55-57	1.00
			F (Fail)	<55	0.00

Appendix-3: Program outcomes

POs	Program Outcomes
PO1	An ability to apply knowledge of mathematics, science, and engineering
PO2	An ability to identify, formulate, and solve engineering problems
PO3	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
PO4	An ability to design and conduct experiments, as well as to analyze and interpret data
PO5	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
PO6	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
PO7	A knowledge of contemporary issues
PO8	An understanding of professional and ethical responsibility
PO9	An ability to function on multidisciplinary teams
PO10	An ability to communicate effectively
PO11	Project Management and Finance
PO12	A recognition of the need for, and an ability to engage in lifelong learning