COURSE PLAN

NAME OF THE DEPARTMENT: BCA/IT

NAME OF THE FACULTY: Prof. Satoj Kumari,

Prof. Partha Sarathi Chattaraj,

Prof. Abhishek Kumar Vishwakarma &

Prof. Priyanka Kumari

ACADEMIC SESSION: 2023-24

YEAR: 2024

PROGRAMME: B.Sc(CA) & B.Sc(IT)

SEMESTER: VI

COURSE TYPE: Core

COURSE NAME: BCA/IT

COURSE CODE: C13

TOTAL CREDIT: 6

PROGRAMME OUTCOMES (PO):

PO1: Scientific & Computational Knowledge: - Apply the information on scientific & computational ideas, software engineering and innovation basics.

PO2: Problem Analysis, Design & Implementation: - Identify, formulate and analyze real world problem. Design solution for Software, Hardware & Networking problems and implementation using Software & Network tools.

PO3: Modern tool usage: - Ability to select modern computing tools, skills and techniques necessary for innovative software solutions.

PO4: Project Management: -Comprehend Software Engineering and Technology standards and apply these to prepare own project and system as a part and pioneer in a group.

PO5: Career Development & Entrepreneurship: Classify opportunities, private enterprise dream and use of original thoughts to build worth and means for the betterment of the human being and the world.

PO6: Communication: Communicate effectively on computational & information Technology activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO7: Ethics: Ability to apply and commit professional Ethics, cyber regulations & control on software piracy in a global economic environment.

PO8: Preparing students for future aspects: Building and improving their creativity, social awareness, and general knowledge.

PO9: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological changes.

PROGRAMME SPECIFIC OUTCOMES (PSO):

PSO1: An ability to apply technical comprehension in varied areas of Computer Applications and experience a conducive environment in cultivating skills for thriving career and higher studies.

PSO2: Understand the concept of Programing logic, Web designing logic, Signal processing, Image processing, Mobile Applications, Multimedia Media.

PSO3: Develop competencies in various disciplines of technologies such as Server-side Web applications, computer networking, software engineering, database concepts and programming

A.   COURSE OUTCOMES (COs):

CO1: Understand basic of AI technique, importance, Task domains of Artificial intelligence, Intelligent System.

CO2: Ability to design and defining the problem as a State Space search, Strategies for State Space Search, Implementation for Graph Search, Production System-Characteristics, Components, Advantages, Applicability, Learning - Definition and classification.

CO3: Understand Representation and mappings, approaches to knowledge representation, Knowledge representation using Predicate logic, Representing simple facts in logic, Representing instance and IS-A relationships, Knowledge Representation using Rules- Procedural Versus Declarative Knowledge and knowledge Acquisition.

CO4: Applying, Generate and Test Heuristic Search Techniques (Hill-climbing Heuristic, Best-first Search), Admissibility, Monotonicity, and Informed-ness and Heuristic Classification.

CO5: Applying Features, characteristics, Architecture, goals, advantages, Difference between Expert system and conventional method, Stages in the Development of an Expert System.

CO6: Learn and Analyze Crisp Sets, Fuzzy sets, Basic terms and operation, Fuzzy Relations, Arithmetic Operations of Fuzzy Numbers, Linguistic Descriptions, Fuzzification.

CO7: Remembering Artificial Neural Networks Architecture, Features of Artificial Neural Networks, Back propagation Training Algorithms.

CO8: Remembering the History of R, Getting Help, Data Types, Sub-setting, Vectorized Operations, Reading and Writing Data. Control Structures, Functions.

COURSE TEACHING AND LEARNING ACTIVITIES

A. PEDAGOGY
    i.   **Whiteboard**   √
    ii.   **Flipped Class**   √
    iii.   **PPT**   √

B. COURSE COMPLETION PLAN

UNIT	NO. OF LECTURES		TEST	QUIZ	ASSIGNMENT
	THEORY	PRACTICAL/TUTORIAL			
1	10		√		√
2	7	5	√		√
3	15	10	√		√
4	4	6	√		√
5	6	2	√		√
6	8	2	√		√
7	8	2	√		√
8	10	15	√		√

B. COURSE DELIVERY PLAN:

UNIT	TOPIC/SUBTOPIC	LECTURE REQUIRED (Theory & Practical)	CO ADDRESSED	ASSIGNMENT/ TEST/ QUIZ
1	AI technique, importance, Task domains of Artificial intelligence, Intelligent System.	10	CO1	√

2	Defining the problem as a State Space search, Strategies for State Space Search, Implementation for Graph Search, Production System-Characteristics, Components, Advantages, Applicability, Learning - Definition and classification.	12	CO2	√
3	Representation and mappings, approaches to knowledge representation, Knowledge representation using Predicate logic, Representing simple facts in logic, Representing instance and ISA relationships, Knowledge Representation using Rules- Procedural Versus Declarative Knowledge and knowledge Acquisition.	25	CO3	√
4	Generate and Test, Heuristic Search Techniques (Hill-climbing Heuristic, Best-first Search), Admissibility, Monotonicity, and Informedness and Heuristic Classification.	10	CO4	√
5	Introduction, Features, characteristics, Architecture, goals, advantages, Difference between Expert system and conventional method, Stages in the Development of an Expert System.	8	CO5	√
6	Introduction, Crisp Sets, Fuzzy sets, Basic terms and operation, Fuzzy Relations, Arithmetic Operations of Fuzzy Numbers, Linguistic Descriptions, Fuzzification.	10	CO6	√
7	Introduction Artificial Neural Networks Architecture, Features of Artificial Neural Networks, Back propagation Training Algorithms.	10	CO7	√
8	Introduction: Overview and History of R, Getting Help, Data Types, Subsetting, Vectorized Operations, Reading and Writing Data. Control Structures, Functions.	25	CO8	√

C. COURSE OUTCOME ASSESSMENT PLAN

a. DIRECT ASSESSMENT

(Please tick the appropriate column)

COURSE OUTCOME	ASSESSMENT				REMARKS
	QUIZ	TEST	MID SEMESTER	END SEMESTER	
CO1			√	√	
CO2		√	√	√	
CO3			√	√	
CO4		√	√	√	
CO5			√	√	
CO6		√	√	√	
CO7			√	√	

b. INDIRECT ASSESSMENT (STUDENT SURVEY)

Rate the following aspects of course outcomes. Use the scale 1-3

S. No	Course Outcome	1	2	3
1.	CO1			√
2.	CO2			√
3.	CO3		√	
4.	CO4			√
5.	CO5			√
6.	CO6		√	
7.	CO7			√
8.	CO8			√

1. Average
2. Good
3. Very Good

D. SUGGESTED READINGS

a. TEXT BOOKS

➢ Russell &Norvig, Artificial Intelligence-A Modern Approach, LPE, Pearson Prentice Hall, 2nd edition, 2005

b. REFERENCE BOOKS

➢ DAN.W. Patterson, Introduction to A.I and Expert Systems – PHI, 2007
➢ Rich & Knight, Artificial Intelligence – Tata McGraw Hill, 2nd edition, 1991

c. VIDEO RESOURCE

➢ https://www.youtube.com/watch?v=kmeaG_BQZ7M&list=PLrjkTql3jnm_yol-ZK1QqPSn5YSg0NF9r&index=1

➢ https://www.youtube.com/watch?v=uB3i-qV6VdM&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI

d. WEB RESOURCES
➢ https://www.tutorialspoint.com/artificial_intelligence/index.htm
➢ https://www.javatpoint.com/artificial-intelligence-ai

e. E-RESOURCES
➢ Notes in the form of PDF share to the Students WhatsApp group.