COURSE OUTCOMES

Department of ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

SEMESTER I

Course Description: Mandatory-I

Course Name: Introduction to Artificial Intelligence

Course Code: USC1AII

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To provide a strong foundation of fundamental concepts in Artificial Intelligence.

• To understand heuristic search with time and space complexities.

• To study the distinction between optimal reasoning and human-like reasoning.

• To understand the concepts of state space representation.

• To understand exhaustive search with time and space complexities.

Course Outcomes:

- Understand the foundational concepts, history, and evolution of Artificial Intelligence.
- Analyse AI problems and recognize their applications and significance in various domains.
- Identify different approaches and types of AI, along with their advantages and disadvantages.
- Apply uninformed search strategies like breadth-first search and depth-first search. Implement informed (heuristic) search strategies, including A* search.
- Implement informed (heuristic) search strategies, including hill-climbing search.

Course Description

Mandatory-I

Semester I

Course Name: Introduction to Artificial Intelligence Practical

Course Code USC1AIP

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• Students will be able to implement programs demonstrating simple decision-making using conditional logic.

• Students will be able to apply basic string manipulation techniques for text processing.

• Students will be able to utilize fundamental search algorithms to locate data efficiently.

• Students will be able to incorporate probabilistic concepts for basic prediction tasks.

• Students will be able to develop simple utility applications based on AI principles.

Course Outcomes:

- Students will be able to design and implement simple rule-based systems using conditional statements and loops to simulate decision-making processes.
- Students will be able to utilize basic probability concepts to create predictive models for tasks such as random number prediction.
- Students will be able to implement and compare the efficiency of fundamental search algorithms, including linear and binary search, for data retrieval in AI contexts.

Course Description

Mandatory-II

Semester I

Course Name: Python Programming Fundamentals

Course Code: USC1PPF

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To introduce students to fundamental programming concepts using Python.

• To develop problem-solving skills through algorithm design and implementation.

• To understand core programming constructs such as data types, control structures, and Functions.

• To apply programming concepts to solve real-world problems.

• To introduce the basics of file handling, exception handling, and libraries in Python.

Course Outcomes:

- Understand basic programming concepts, including syntax, variables, and data types.
- Design and implement algorithms using Python programming constructs.
- Use conditional statements, loops, and functions to control program flow.
- Apply basic data structures such as lists, tuples, and dictionaries in Python.
- Implement file handling operations and error management in Python programs.

Course Description

Mandatory-II

Semester I

Course Name: Python Programming Laboratory

Course Code: USC1PPP

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To provide hands-on experience with Python programming concepts.

• To develop and enhance problem-solving and algorithmic skills using Python.
• To practice core programming constructs such as control structures, functions, and data Structures.

• To apply Python programming to solve practical problems.

• To introduce basic file handling and exception handling through laboratory assignments.

Course Outcomes:

- Understand and execute Python programs covering basic concepts like syntax, Variables, and data types.
- Design and implement algorithms using Python programming constructs.
- Use control statements, loops, and functions effectively in real-world scenarios.
- Apply data structures such as lists, tuples, sets, and dictionaries to solve problems.
- Implement file handling and error handling mechanisms in Python programs.

Course Description
Mandatory-III
Semester I
Course Name: C Programming
Course Code: USC1CP
Eligibility for the Course H.S.C.
Credit 2
Hours 30 Hrs.

Course Objectives:

- To provide a strong foundation in programming concepts using the C language.
- To enable students to understand problem-solving techniques and algorithmic thinking.
- To introduce core programming constructs such as variables, control structures, and loops.
- To develop skills to create functions, arrays, and strings.
- To apply C programming concepts to solve real-world problems.

Course Outcomes

- Remember the structure, syntax, and semantics of the C programming language.
- Understand and explain key programming concepts such as data types, operators, and control structures.
- Apply loops, functions, arrays, and strings to solve basic programming problems.
- Analyse algorithms and programs by evaluating code for correctness and efficiency.
- Create algorithms to solve problems and implement them using C programming.

Course Description

Mandatory-III

Semester I

Course Name: C Programming Laboratory

Course Code: USCAI1CPP

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To provide hands-on experience with C programming concepts.

• To enhance problem-solving and algorithmic thinking through programming tasks.

• To practice core programming constructs such as control structures, loops, and functions.

• To develop skills to work with arrays and strings through practical implementation.

• To apply C programming techniques to solve real-world problems in laboratory settings.

Course Outcomes

- Remember and apply basic C programming syntax and semantics in programs.
- Understand key programming concepts such as data types, operators, and control structures.
- Apply loops, functions, arrays, and strings to solve basic programming problems.
- Analyse algorithms for correctness and performance in C programs.
- Create programs using arrays, strings, and functions to solve practical problems.

Course Description

SEC I

Semester Course: Name Hands on Training in Office Automation: Basics
Course Code: USEC1OA

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To provide hands-on experience with basic office automation tools using MS Word and MS PowerPoint.

• To enable students to create, format, and enhance professional documents using advanced MS Word features.

• To develop skills in designing impactful presentations with multimedia and graphic elements in MS PowerPoint.

• To introduce automation techniques such as Mail Merge for generating personalized documents efficiently.

• To equip students with the ability to visualize and present data effectively using charts, tables, and SmartArt.

Course Outcomes:

- Create and format professional documents using MS Word, including applying text styles, adjusting margins, inserting borders, watermarks, and customizing page layout.
- Design structured content such as timetables and resumes using tables, table auto formatting, and layout tools.
- Use automation features in MS Word such as Mail Merge to generate personalized communication like interview call letters.
- Demonstrate creativity and clarity in designing invitations and other documents using text boxes, page colors, indents, and paragraph spacing features.
- Utilize proper file handling practices such as naming conventions and saving files in appropriate folders with correct formats.

Course Description

Mandatory-I

Semester I

Course Name: English for Communication – I

Course Code: UAEC1CSE

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To improve students' English language skills for effective communication.

• To develop listening, speaking, reading, and writing (LSRW) skills.

• To enhance vocabulary, grammar, and sentence construction for academic and professional

• To build confidence in verbal and non-verbal communication.

• To introduce basic techniques for comprehension and communication in various contexts.

Course Outcomes

- Understand and apply fundamental grammar and vocabulary in communication.
- Demonstrate improved listening and speaking skills for effective interaction.
- Apply reading strategies to comprehend and interpret texts accurately.
- Write grammatically correct and coherent sentences for different purposes.
- Develop verbal and non-verbal communication skills for academic and social contexts.

Course Description

VEC

Semester I

Course Name: Environmental Studies

Course Code: UVEC1EVS

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To create awareness among students about environmental issues and the importance of ecological balance for sustainable development.

• To introduce the fundamentals of ecology, ecosystems, biodiversity, and environmental pollution.

• To educate students about the relationship between humans and the environment, including the impact of human activities on natural resources.

• To promote sustainable practices by understanding the need for conservation of air, water, soil, and forests.

• To encourage environmental responsibility and active participation in environmental protection efforts at the individual and community level

Course Outcomes:

- Explain the basic concepts of ecology, ecosystems, and biodiversity and their importance in maintaining environmental balance.
- Identify major types of environmental pollution (air, water, soil, noise) and describe their causes, effects, and control measures.
- Analyse the use and misuse of natural resources and demonstrate the need for sustainable resource management.
- Evaluate the impact of human activities on the environment and propose strategies for environmental protection and conservation.

Course Description

Indian Knowledge System

Semester I

Course Name: Indian Knowledge System

Course Code: UIKS1G

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To introduce students to the foundational aspects of the Indian Knowledge System (IKS).

• To explore various disciplines of Indian heritage including philosophy science, and literature.

• To understand ancient Indian contributions to education, arts, and science.

• To promote awareness of India's cultural diversity and traditional knowledge systems.

• To develop an appreciation for the relevance of IKS in modern contexts.

Course Outcomes

- Understand the foundational concepts and importance of the Indian Knowledge System.
- Demonstrate knowledge of India's contributions to fields such as science, technology, and arts.
- Analyze the relevance of ancient Indian texts and philosophies in contemporary society.
- Explore Indian cultural diversity and heritage through case studies and examples.
- Apply learnings from IKS to promote sustainable development and cultural preservation.

Course Description

CC

Semester I

Course Name: Fundamentals of writing skills and formal Correspondence
Course Code: UCC1WS1

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives

• To introduce students to the fundamentals of creative and formal writing.

• To develop basic writing skills including grammar, punctuation, spelling, and sentence structure.

• To familiarize students with different traditional forms of creative writing.

• To equip students with the ability to draft various formal correspondences required in professional contexts.

• To encourage students to participate in literary events and express themselves through writing.

Course Outcomes:

- Communicate their thoughts clearly and effectively through written expression.
- Compose formal correspondences like job application letters, complaint letters, and letters to editors.
- Apply the writing process from idea generation to final revision.
- Participate confidently in co-curricular and literary writing activities.
- Read and write texts that may involve multilingual or multicultural perspectives

SEMESTER II

Course Description

Mandatory-I

Semester II

Course Name -Applied Machine Learning

Course Code -USC2AML

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To understand the application of machine learning in solving practical problems.

• To implement machine learning models using real-world datasets and popular libraries.

• To learn techniques for improving model performance and accuracy.

• To analyze and validate machine learning models using appropriate metrics.

• To explore domain-specific applications of machine learning.

Course Outcomes

- Understand the application areas and workflow of applied machine learning.
- Apply machine learning models using libraries such as Scikit-learn and TensorFlow.
- Utilize data preprocessing techniques for effective model performance.
- Evaluate machine learning models using suitable metrics and cross-validation Techniques.
- Explore case studies and domain-specific use cases of applied machine learning.

Course Description

Mandatory-I

Semester II

Course Name Applied Machine Learning Practical

Course Code USC2AMP

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To Understand how ML solves practical problems.

• To Implement models with real-world datasets and libraries.

• To Improve model performance and accuracy.

• To Analyze models using appropriate evaluation metrics.

• To Explore ML in various domains (healthcare, finance, NLP, etc.).

Course Outcomes

- Understand ML workflows and applications.
- Implement models using Scikit-learn and TensorFlow.
- Apply data preprocessing techniques.
- Evaluate models using proper metrics and validation methods.
- Analyze real-world ML case studies.

Course Description

Mandatory-II

Semester II

Course Name Advanced Programming (OOP with C++)

Course Code USC2APC

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To understand the principles of Object-Oriented Programming (OOP) using C++.

• To learn the concepts of encapsulation, inheritance, and polymorphism.

• To develop skills for designing and implementing OOP-based solutions in C++.

• To explore advanced programming features such as operator overloading, templates, and Exceptions.

• To apply OOP principles to real-world problem-solving scenarios.

Course Outcomes

- Understand the key concepts of object-oriented programming, including classes and Objects.
- Implement C++ programs using encapsulation, inheritance, and polymorphism.
- Apply advanced programming features such as operator overloading and templates.
- Develop error-handling mechanisms using exceptions in C++.
- Design and implement OOP-based applications for real-world problems.

Course Description

Mandatory-II

Semester II

Course Name C++ Programming Laboratory

Course Code USC2APP

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To provide hands-on experience with object-oriented programming (OOP) concepts using C++.

• To develop problem-solving and algorithmic thinking through practical programming Tasks.

• To practice core OOP concepts such as classes, inheritance, and polymorphism.

• To implement advanced C++ features such as operator overloading, templates, and Exceptions.

• To apply OOP principles in real-world problem-solving through laboratory assignments.

Course Outcomes:

- Understand and apply fundamental C++ programming concepts, including OOP Principles.
- Implement classes, objects, and other OOP features in practical C++ programs.
- Apply advanced C++ features such as operator overloading, templates, and exception Handling.
- Analyze and debug C++ programs to evaluate their correctness and performance.
- Create OOP-based applications to solve real-world problems using C++ Programming.

Course Description

Mandatory-III

Semester II

Course Name Database Management Systems (DBMS)

Course Code USC2DMS

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To understand the fundamentals of database systems and data models.

• To learn relational database design principles and normalization techniques.

• To develop skills to write and optimize SQL queries.

• To understand data storage and indexing techniques.

• To explore real-world applications of database management systems.

Course Outcomes

- Understand the concepts of database systems, data models, and schema design.
- Apply the principles of relational databases and normalization techniques.
- Write, execute, and optimize SQL queries for data manipulation and retrieval.
- Analyze and design relational databases for various applications.
- Explore data storage and indexing techniques used in database systems.

Course Description

Mandatory-III

Semester II

Course Name Database Management Systems (DBMS) Laboratory

Course Code USC2DMP

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To provide practical exposure to the concepts of database design and management.

• To develop skills to implement and manipulate relational databases using SQL.

• To enhance problem-solving abilities through database queries and schema creation.

• To explore techniques for data manipulation, indexing, and optimization.

• To apply database concepts to solve real-world problems in laboratory settings.

Course Outcomes:

- Design and implement relational databases using appropriate schema and constraints.
- Develop and execute SQL queries for data manipulation and retrieval.
- Demonstrate the use of joins, sub queries, and aggregate functions in queries.
- Implement indexing and integrity constraints to improve data organization and Performance.
- Apply database design principles to solve practical database problems.

Course Description

OE

Semester II

Course Name -Stress and Anxiety Management

Course Code UOE2SAM

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To develop essential communication and interpersonal skills for professional success.

• To enhance problem-solving, critical thinking, and decision-making abilities.

• To build teamwork, leadership, and time management skills.

• To prepare students for professional environments through resume writing, interviews, and Presentations.

• To improve adaptability and lifelong learning skills for career growth.

Course Outcomes:

- Understand the concept, sources, types, and effects of stress on individuals and organizations.
- Identify symptoms and consequences of stress including physiological, psychological, and behavioral aspects.
- Apply stress management techniques and therapies effectively to reduce workplace stress
- Utilize tools and methods for stress assessment and conduct stress audits.
- Implement holistic approaches including relaxation, meditation, and lifestyle modifications to maintain eustress and prevent distress

Course Description

SEC

Semester II

Course Name: Full-Stack Development (HTML5 & CSS3 Basics)

Course Code: USEC2FSD

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To develop hands-on skills in HTML and CSS for web development.

• To learn the practical implementation of structured web pages using HTML elements.

• To apply CSS for styling and formatting web content.

• To create responsive and visually appealing websites.

• To apply best practices in web design and development.

Course Outcomes

- Understand and apply HTML and CSS concepts in practical scenarios.
- Create structured web pages using HTML elements and attributes.
- Style and enhance web pages using CSS properties and layout techniques.
- Implement responsive design techniques for web pages.
- Develop a static website project by integrating HTML and CSS concepts.

Course Description

AEC

Semester II

Course Name- English for Communication – II

Course Code UAEC2CSE

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To strengthen students' advanced English communication skills for academic and professional contexts.

• To further enhance listening, speaking, reading, and writing (LSRW) skills.

• To refine grammar, vocabulary, and comprehension for effective communication.

• To build confidence in presenting and debating ideas in formal settings.

• To improve writing techniques for reports, essays, and business communication.

Course Outcomes:

- Demonstrate proficiency in advanced grammar and vocabulary usage.
- Apply listening strategies to understand complex spoken information.
- Deliver structured presentations and participate in group discussions.
- Develop reading comprehension for academic and professional texts.
- Write reports, proposals, and other formal documents effectively.

Course Description

VEC

Semester II

Course Name- Constitution Of India

Course Code UVEC2C

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs.

Course Objectives:

• To provide an understanding of the Indian Constitution and its features.

• To explore the structure and functioning of democratic institutions in India.

• To explain the fundamental rights, duties, and directive principles.

• To understand the roles of various branches of government.

• To create awareness of the electoral process, governance, and political responsibilities.

Course Outcomes

- Remember the key features of the Indian Constitution and democracy.
- Understand the role of fundamental rights, duties, and directive principles.
- Apply knowledge of constitutional provisions in governance and legal contexts.
- Analyze the roles and powers of democratic institutions in India.
- Evaluate the effectiveness of the electoral process and government functions.

Course Description

CC

Semester II

Course Name- Creative Writing and Editorial Skills

Course Code UCC2WS2

Eligibility for the Course H.S.C.

Credit 2

Hours 30 Hrs**.**

Course Objectives

• To introduce learners to modern forms and platforms of creative writing.

• To develop the ability to write content suitable for newspapers, blogs, websites, and marketing materials.

• To equip students with the skills to craft effective emails, flyers, CVs, and brochures.

• To build professional editorial skills, including proofreading, headline writing, punctuation, and word choice.

• To enhance students' ability to revise content for clarity, conciseness, and correctness.

Course Outcomes

- Compose various forms of creative content including articles, blogs, flyers, and emails.
- Apply copywriting techniques for professional communication and branding.
- Demonstrate proficiency in proofreading, editing, and formatting written content.
- Use correct punctuation, spelling, and linking devices to enhance textual coherence.
- Edit content effectively by eliminating redundancy and improving word choice.