Krishnasamy College of Science, Arts & Management for Women, Cuddalore.
222 - B.Sc. Artificial Intelligence
Under CBCS
(Applicable to the candidates admitted in Affiliated Colleges in the academic year 2023 -2024 ONLY)
Course Objectives and Course Outcome

Programme Outcomes:

On successful completion of the programme the students will be able to

PO1: Disciplinary Knowledge: Possess comprehensive knowledge and understanding of one or more disciplines that are part of a program of study, and apply it effectively.

PO2: Critical Thinking: Demonstrate critical thinking abilities to evaluate evidence, arguments, claims, beliefs, and policies based on empirical evidence, identify assumptions and implications, formulate coherent arguments, and assess theories using a scientific approach to knowledge development.

PO3: Problem Solving: Utilize competencies to solve non-familiar problems and apply learning to real-life situations instead of simply replicating curriculum content knowledge.

PO4: Analytical & Scientific Reasoning: Possess analytical and scientific reasoning skills to evaluate evidence reliability and relevance, identify logical flaws in others' arguments, synthesize data from various sources, draw valid conclusions supported by evidence, and address opposing viewpoints.

PO5: Research related skills: Possess research-related skills to analyze, interpret, and draw conclusions from quantitative/qualitative data, evaluate ideas, evidence, and experiences from an open-minded and reasoned research perspective, formulate hypotheses, test and analyze results, and derive conclusions.

PO6: Self-directed & Lifelong Learning: Possess the ability to work independently, identify and manage a project, acquire knowledge and skills through self-directed learning for personal development, and meet economic, social, and cultural objectives. Possess the ability to learn how to learn and engage in lifelong learning.

Programme Specific Outcomes:

On successful completion of Bachelor of Science in Artificial Intelligence with Cognitive Systems programme, the student should be able to:

PSO1: Disciplinary Knowledge: Develop fundamental knowledge in computing technology and the importance of programming with its different programming paradigms.

PSO2: Critical Thinking: Ability to interpret complex problems, evaluate and synthesize information, apply theoretical concepts to practical situations, formulate and provide rational solution to computer oriented solvable real time problems

PSO3: Problem Solving: Solve problems computationally by applying different mathematical and algorithmic methods and wide range of emerging and newly-adopted technologies to facilitate knowledge discovery

PSO4: Analytical & Scientific Reasoning: Apply scientific methods, collect and analyse data, test hypotheses, evaluate evidence, apply statistical techniques and use computational models

PSO5: Research related skills: Formulate research questions, conduct literature reviews, design and execute research studies, communicate research findings and collaborate in research projects

PSO6: Self-directed & Lifelong Learning: Set learning goals, Manage their own learning, Reflect on their learning, Adapt to new contexts, Seek out new knowledge, Collaborate with others and to continuously improve their skills and knowledge, through on going learning and professional development, contribute to the growth and development of their field and holistically enhance their Personality throughout their life.

Semester – I

Subject Title & Code: Programming For Problem Solving - 23UAICC13

Course Objectives:

LO1 - Recognize the need for programming languages and problem solving techniques.

LO2 - Apply memory management concepts and function based modularization.

LO3 - Recognize the bugs in the C program.

LO4 - Develop simple C programs to illustrate the applications of different data types such as arrays, pointers, functions.

LO5 - Develop programming skills to solve real time computational problems.

Course Outcomes:

CO1 – The Student can understand the fundamentals of computer and program development process.

CO2 - The Student can prepare innovative solution for the problem using branching and looping statements.

CO3 - The Student can decompose a problem into functions and synthesize a complete program using divide and conquer approach.

CO4 - The Student will be able to formulate algorithms and programs using arrays, pointers and Structures.

CO5 - The Student will be able to create a new application software to solve real world problems.

Outcome Mapping:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	2	2	2	3
CO2	3	3	2	2	2	3
CO3	3	3	2	2	2	3
CO4	3	3	2	2	2	3
CO5	3	3	2	2	2	3
Weight age of course contributed to each PSO	15	15	10	10	10	15

S-Strong-3 M-Medium-2 L-Low-1

Subject Title & Code: Problem Solving Using C Lab - 23UAICP14

Course Objectives:

LO1 – Understand the need for programming to solve computational problems.

LO2 - Discover the basic programming constructs to prepare the program.

LO3 - Analyze and interpret data using array, functions and pointers

LO4 - Recognize the bugs in the C program.

LO5 - Apply problem-solving skills to real-world scenarios

Course Outcomes:

CO1 – Translate given algorithms to a working and correct program

CO2 - Identify and correct logical errors encountered at run time

CO3 - Create iterative as well as recursive programs.

CO4 - Represent data in arrays, strings and structures and manipulate them through a program.

CO5 - Declare pointers of different types and use them in defining self-referential structures.

Outcome Mapping:

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	2	2	2	2
CO2	3	2	2	2	2	2
CO3	3	2	2	2	3	3
CO4	3	2	2	2	2	3
CO5	3	2	2	3	2	2
Weight age of course contributed to each PSO	15	11	10	11	11	12

S-Strong-3 M-Medium-2 L-Low-1

Subject Title & Code: Discrete Mathematics - 23UAICE15

Course Objectives:

The course aims to introduce the concepts of recurrence relations and generating functions, Mathematical logic**,** Duality law and Lattices, Boolean Algebra, Boolean Polynomials, Karnaugh Maps.

Course Learning Outcome:

At the end of the course, students will be able to

CO1 – Know the basic concepts of recurrence relations and generating functions

CO2 – Learn to solve the Mathematical logic

CO3 – Know the concepts of Mathematical logic: Functionally complete sets of connectives and Duality law.

CO4 – Understand the concepts of Lattices

CO5 – Know the basic concepts of Boolean Algebra

Outcome Mapping:

CLO/PSO	**PSO1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO1	3	3	3	2	3
CLO2	2	2	3	3	3
CLO3	3	3	3	3	3
CLO4	3	3	3	2	3
CLO5	3	2	3	3	3

S-Strong-3 M-Medium-2 L-Low-1

Subject Title & Code: Fundamentals Of Information Technology - 23UAIEN16

Course Objectives:

LO1 – Understand basic concepts and terminology of information technology.

LO2 - Have a basic understanding of personal computers and their operation

LO3 - Be able to identify data storage and its usage

LO4 - Get great knowledge of software and its functionalities

LO5 - Understand about operating system and their uses

Course Outcomes:

CO1 – Learn the basics of computer,Construct the structure of the required things in computer, learn how to use it.

CO2 - Develop organizational structure using for the devices present currently under input or output unit.

CO3 - Concept of storing data in computer using two header namely RAM and ROM with different types of ROM with advancement in storage basis.

CO4 - Work with different software, Write program in the software and applications of software.

CO5 - Usage of Operating system in information technology which really acts as a interpreter Between software and hardware.

Outcome Mapping:

CO/PSO	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**PSO 6**
CO 1	3	3	3	3	3	3
CO 2	3	3	3	3	3	3
CO 3	3	3	3	3	3	3
CO 4	3	3	3	3	2	3
CO 5	3	3	2	3	3	2
Weight age of course contributed to each PSO	15	15	14	15	14	14

S-Strong-3 M-Medium-2 L-Low-1

Subject Title & Code: Office Automation - 23UAIFC17

Course Objectives:

LO1 – Understand the basics of computer systems and its components.

LO2 - Understand and apply the basic concepts of a word processing package.

LO3 -Understand and apply the basic concepts of electronic spreadsheet software.

LO4 -Understand and apply the basic concepts of database management system.

LO5 -Understand and create a presentation using PowerPoint tool.

Course Outcomes:

CO1 – Possess the knowledge on the basics of computers and its components

CO2 - Gain knowledge on Creating Documents, spreadsheet and presentation.

CO3 -Learn the concepts of Database and implement the Query in Database.

CO4 -Demonstrate the understanding of different automation tools.

CO5 -Utilize the automation tools for documentation, calculation and presentation purpose.

Outcome Mapping:

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**
CO 1	M	S	M			M		L
CO 2	S	M	S			M		
CO 3		S	S		M		L	
CO 4			S	L	M		M	
CO 5				M		S	M	S

S-Strong M-Medium L-Low

SEMESTER – II

Subject Title & Code: Python Programming - 23UAICC23

Course Objectives:

LO1 – Understand the most important libraries of Python, and its recommended programming stylesand idioms.

LO2 - Learn core Python scripting elements such as variables and flow control structures.

LO3 -Develop applications using Python.

Course Outcomes:

CO1 – Describe the datatypes, expressions and type conversions in Python

CO2 - Use functions, control statements, strings, lists and dictionaries in python programming.

CO3 -Demonstrate the concept of object, class inheritance and polymorphism in Python.

CO4 -Write user defined functions, classes in python.

CO5 -Develop programming skills to solve real time computational problems

Outcome Mapping:

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	1	2	1	2
CO2	3	3	2	2	3	3
CO3	3	3	2	3	3	2
CO4	3	2	3	2	2	3
CO5	3	2	2	2	3	3
Weight age of course contributed to each PSO	15	12	10	11	12	13

S-Strong-3 M-Medium-2 L-Low-1

Subject Title & Code: Python Programming Lab - 23UAICP24

Course Objectives:

LO1 – Understand the basics of python programming concepts.

LO2 - Understand the high-performance programs designed to build up the real proficiency

Course Outcomes:

CO1 – Describe the Control statement, String, List, and Dictionaries in Python.

CO2 - Use functions and represent Compound data using Lists, Tuples and Dictionaries

CO3 - Implement Conditionals and Loops for Python Programs

CO4 - Understand and summarize different types of function and File handling operations.

CO5 -Interpret Object programming in Python

Outcome Mapping:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	3	3	2
CO2	3	3	2	3	3	2
CO3	3	3	3	3	3	2
CO4	3	3	2	3	3	2
CO5	3	3	2	3	3	2
Weight age of course contributed to each PSO	15	14	11	15	15	10

S-Strong-3 M-Medium-2 L-Low-1

Subject Title & Code: Discrete Mathematics – II -23UAICE25

Course Objectives:

- Mathematical Logic
- Truth Table
- Relations and Ordering

Subject Title & Code: Introduction To Html - 23UAIEN26

Course Objectives:

LO1 –Insert a graphic within a web page.

LO2 - Create a link within a web page.

LO3 - Create a table within a web page.

LO4 - Insert heading levels within a web page.

LO5 - Insert ordered and unordered lists within a web page. Create a web page.

Course Outcomes:

CO1 – Knows the basic concept in HTML .Concept of resources in HTML.

CO2 - Knows Design concept. Concept of Meta Data. Understand the concept of save the files.

CO3 - Understand the page formatting. Concept of list.

CO4 - Creating Links. Know the concept of creating link to email address.

CO5 - Concept of adding images. Understand the table creation.

Outcome Mapping:

CO/PSO	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**PSO 6**
CO 1	3	3	3	3	3	3
CO 2	3	3	2	3	3	3
CO 3	2	3	3	3	3	3
CO 4	3	3	3	3	3	3
CO 5	3	3	3	2	3	3
Weight age of course contributed to each PSO	14	15	14	14	15	15

S-Strong-3 M-Medium-2 L-Low-1

SEMESTER – III

Subject Title & Code: Object Oriented Programming - 23UAICC33

Course Objectives:

LO1 – Understand the basic concepts of Java.

LO2 - Develop high quality, internally documented, well-structured object oriented program.

LO3 - Adapt object oriented principles such as abstraction and information hiding in software development.

LO4 – Input Output Handling, File Handling, Collection and Generics.

LO5 – Design Patterns, Graphical Programming and Software Development Process.

Course Outcomes:

CO1 – Define the object-oriented programming concepts.

CO2 - Select the relevant object oriented concepts to implement a real time application with design patterns.

CO3 - Demonstrate the application of polymorphism in various ways.

CO4 - Illustrate the use of inheritance, exceptions, generics and collection.

CO5 - Develop applications with event-driven graphical user interface and file management .

Outcome Mapping:

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	3	3	3
CO2	3	3	3	3	3	3
CO3	3	3	3	3	3	3
CO4	3	3	3	3	3	3
CO5	3	3	3	3	3	3
Weight age of course contributed to each PSO	15	14	14	15	15	15

S-Strong-3 M-Medium-2 L-Low-1

Subject Title & Code: Data Structures And Algorithm - 23UAICP34

Course Objectives:

LO1 – Understand the concepts of linear data structures and algorithms.

LO2 - Demonstrate the different searching and sorting techniques.

LO3 - Relate the different non-linear data structures such as trees and graphs.

Course Outcomes:

CO1 – Understand the basics of abstract data type and algorithm analysis.

CO2 - Illustrate the use of array to implement stack and queue.

CO3 - Apply linked list to design stack and queue data structures.

CO4 - Understand the different types of tree data structures and demonstrate the methods for traversing trees.

CO5 - Differentiate the graph representations and traversals.

Outcome Mapping:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	3	3	3
CO2	3	3	3	3	3	3
CO3	3	3	3	3	3	3
CO4	3	3	3	3	3	3
CO5	3	3	3	3	3	3
Weight age of course contributed to each PSO	15	15	15	15	15	15

S-Strong-3 M-Medium-2 L-Low-1

Subject Title & Code: Statistical Methods And Its Application – I - 23USMAE35

Course Objectives:

LO1 - Develop the skill of statistical methods and its representations.

LO2 - Solve by mean ,median and mode

LO3 - Calculate range, deviation and its measures.

LO4 - Solve the skewness and its coefficients.

LO5 - Understand the correlation and regression analysis.

Outcome Mapping

	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	2	2
CO2	1	2	2	3	1
CO3	3	3	3	2	2
CO4	1	2	3	2	2
CO5	1	3	3	3	1

1 – Low, 2 – Moderate, 3 – High (Preferably use 2 or 3 levels)

Subject Title & Code: Organizational Behaviour - 23UAICS36

Course Objectives:

LO1 - To have extensive knowledge on OB and the scope of OB.

LO2 - To create awareness of Individual Benaviour.

LO3 - To enhance the understanding of Group Behaviour

LO4 - To know the basics of Organisaitonal Culture and Organisational Structure

LO5 - To understand Organisational Change, Conflict and Power

Course Outcomes:

CO1 – To define OrganisationalBehaviour, Understand the opportunity through OB.
CO2 – To apply self-awareness, motivation, leadership and learning theories at workplace.

CO3 – To analyze the complexities and solutions of group behaviour.

CO4 – To impact and bring positive change in the culture of the organisaiton.

CO5 – To create a congenial climate in the organization.

Outcome Mapping:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	3	3	3
CO2	3	3	3	3	3	3
CO3	3	3	3	3	3	3
CO4	3	3	3	3	3	3
CO5	3	3	3	3	3	3
Weight age of course contributed to each PSO	15	15	15	15	15	15

S-Strong-3 M-Medium-2 L-Low-1

Subject Title & Code: Php Programming - 23UAICS37

Course Objectives:

LO1 - To provide the necessary knowledge on basics of PHP.

LO2 - To design and develop dynamic, database-driven web applications using PHP version.

LO3 - To get an experience on various web application development techniques.

LO4 - To learn the necessary concepts for working with the files using PHP.

LO5 - To get a knowledge on OOPS with PHP.

Course Outcomes:

CO1 – Write PHP scripts to handle HTML forms
CO2 – Write regular expressions including modifiers, operators, and metacharacters.

CO3 – Create PHP Program using the concept of array.
CO4 – Create PHP programs that use various PHP library functions
CO5 – Manipulate files and directories.

Outcome Mapping:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	3	3	3
CO2	3	3	3	3	3	3
CO3	3	3	3	3	3	3
CO4	3	3	3	3	3	3
CO5	3	3	3	3	3	3
Weight age of course contributed to each PSO	15	15	15	15	15	15

S-Strong-3 M-Medium-2 L-Low-1

SEMESTER – IV

Subject Title & Code: R Programming - 23UAICC43

Course Objectives:
LO1 – Understanding and being able to use basic programming concepts.
LO2 – Automate data analysis.
LO3 – Working collaboratively and openly on code.
LO4 – Knowing how to generate dynamic documents.

Course Outcomes:

CO1 – Demonstration and implement of basic R programming framework and data structures

CO2 – Explain critical R programming language concepts such as control structures and recursion

CO3 – Applying mathematical and statistical operations data in R

CO4 – Examine data-sets to create testable hypotheses and identify appropriate statistical tests

CO5 – Make use of appropriate statistical tests using R and Create and edit visualizations with regression models

Outcome Mapping:

	PO1	PO2	PO3	PO4	PO5

CO1	**3**	**2**	**3**	**2**	**2**
CO2	**1**	**2**	**2**	**3**	**1**
CO3	**3**	**3**	**3**	**2**	**2**
CO4	**1**	**2**	**3**	**2**	**2**
CO5	**1**	**3**	**3**	**3**	**1**

1 – Low, 2 – Moderate, 3 – High (Preferably use 2 or 3 levels)

Subject Title & Code: R Programming Lab - 23UAICP44

Course Objectives:
LO1 – Gain knowledge in developing basic R programs

LO2 – Knowing how to generate dynamic documents

LO3 – Being able to use a continuous test-driven development approach

Course Outcomes:

CO1 – Understand the fundamental concepts in R

CO2 – Acquire programming skills in R

CO3 – be able to use R to solve statistical problems

CO4 – be able to implement and describe Monte Carlo the technology

CO5 – be able to minimize and maximize functions using R

Outcome Mapping:

CO/PSO	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	**PSO6**
CO1	**3**	**1**	**2**	**1**	**1**	**2**
CO2	**2**	**2**	**2**	**2**	**2**	**2**

CO3	**2**	**2**	**2**	**2**	**2**	**2**
CO4	**3**	**2**	**2**	**3**	**2**	**2**
CO5	**3**	**3**	**2**	**3**	**3**	**2**
Weight age of course contributed to each PSO	**13**	**10**	**10**	**11**	**10**	**10**

Subject Title & Code: Statistical Methods And Its Applications –II - 23USMAE45

Course Objectives: To understand and computing statistical Methods by which to develop the programming Skills.

Outcome Mapping:

	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	**2**	**3**	**3**	**3**	**2**
CO2	**1**	**3**	**2**	**2**	**3**
CO3	**3**	**3**	**3**	**2**	**2**
CO4	**3**	**3**	**2**	**2**	**2**
CO5	**1**	**3**	**3**	**3**	**3**

1 – Low, 2 – Moderate, 3 – High (Preferably use 2 or 3 levels)

Subject Title & Code: Software Testing - 23UAICS46

Course Objectives:

LO1 – To study fundamental concepts in software testing

LO2 – To discuss various software testing issues and solutions in software unit test, integration and system testing.

LO3 – To study the basic concept of Data flow testing and Domain testing.

LO4 – To Acquire knowledge on path products and path expressions.

LO5 – To learn about Logic based testing and decision tables

Course Outcomes:

CO1 – Students learn to apply software testing knowledge and engineering methods

CO2 – Have an ability to identify the needs of software test automation, and define and develop a test tool to support test automation.

CO3 – Have an ability understand and identify various software testing problems, and solve these problems by designing and selecting software test models, criteria, strategies, and methods.

CO4 – Have basic understanding and knowledge of contemporary issues in software testing, such as component-based software testing problems

CO5 – Have an ability to use software testing methods and modern software testing tools for their testing

Outcome Mapping:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	3	3	3
CO2	3	3	3	3	3	3
CO3	3	3	3	3	3	3
CO4	3	3	3	3	3	3
CO5	3	3	3	3	3	3
Weight age of course contributed to each PSO	15	15	15	15	15	15

S-Strong-3 M-Medium-2 L-Low-1

Subject Title & Code: Multimedia Systems - 23UAICS47

Course Objectives:

LO1 – Understand the definition of Multimedia

LO2 – To study about the Image File Formats,SoundsAudio File Formats

LO3 – Understand the concepts of Animation and DigitalVideoContainers

LO4 – To study about the Stage of Multimedia Project

LO5 – Understand the concept of Ownership of Content Created for Project Acquiring Talent

Course Outcomes:

CO1 – Understand the concepts, importance, application and the process of developing multimedia

CO2 –To have basic knowledge and understanding about image related processings

CO3 – To understand the framework of frames and bit images to animations

CO4 – Speaks about the multimedia projects and stages of requirement in phases of project.

CO5 – Understanding the concept of cost involved in multimedia planning, designing, and producing

Outcome Mapping:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	3	3	3
CO2	3	3	3	3	3	3
CO3	3	3	3	3	3	3
CO4	3	3	3	3	3	3
CO5	3	3	3	3	3	3
Weight age of course contributed to each PSO	15	15	15	15	15	15

S-Strong-3 M-Medium-2 L-Low-1

Semester - V

Subject Title / Subject Code: Introduction To Machine Learning - 23UAICC51

Course Objectives:

LO1: Understand the human learning aspects and primitives in learning process by computer.

LO2: Analyze the nature of problems solved with machine learning techniques.

LO3: Design and implement suitable machine learning technique for a given application.

LO4: Analyze the nature of problems solved with machine learning techniques with different algorithms.

LO5: Implement suitable machine learning technique for a given application.

Course Outcomes:

CO1: Describe the concepts, mathematical background, applicability, limitations of existing machine learning techniques.

CO2: Identify the performance evaluation criteria of the model developed

CO3: Analyze and design various machine learning based applications with a modern outlook focusing on recent advances.

CO4: Build the learning model for a given task

CO5: Apply some state-of-the-art development frameworks and software libraries for implementation

Outcome Mapping

	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	2	2
CO2	1	2	2	3	1
CO3	3	3	3	2	2
CO4	1	2	3	2	2
CO5	1	3	3	3	1

1 – Low, 2 – Moderate, 3 – High (Preferably use 2 or 3 levels)

Subject Title / Subject Code: Machine Learning Lab - 23UAICP52

Course Objectives:

LO1: Understand the basic statistical and algorithmic concepts in the field of Machine Learning.

LO2: Learn to handle the data.

LO3: Develop data analytics applications especially in the context of current research.

LO4: Learn appropriate Machine Learning algorithms for the given data sets.

LO5: Handle applications using Machine Learning algorithms to solve real world problems

Course Outcomes:

CO1: Identify the most relevant features in a dataset.

CO2: Understand the implementation procedures for the machine learning algorithms.

CO3: Write Python programs for various Learning algorithms.

CO4: Apply appropriate Machine Learning algorithms for the given data sets.

CO5: Develop applications using Machine Learning algorithms to solve real world problems.

Outcome Mapping

	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	2	2
CO2	1	2	2	3	1
CO3	3	3	3	2	2
CO4	1	2	3	2	2
CO5	1	3	3	3	1

1 – Low, 2 – Moderate, 3 – High (Preferably use 2 or 3 levels)

Subject Title / Subject Code: Deep Learning - 23UAICC53

Course Objectives:

LO1: Study the basic concepts of neural networks and deep learning

LO2: Comprehend deep learning techniques

LO3: Explore various applications for deep learning technique.

Course Outcomes:

CO1: Understand the basics of deep learning .

CO2: Implement various deep learning models .

CO3: Realign high dimensional data using reduction techniques

CO4: Analyze optimization and generalization in deep learning

CO5: Explore the deep learning applications.

Outcome Mapping

	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	2	2
CO2	1	2	2	3	1
CO3	3	3	3	2	2
CO4	1	2	3	2	2
CO5	1	3	3	3	1

1 – Low, 2 – Moderate, 3 – High (Preferably use 2 or 3 levels)

Subject Title / Subject Code:Internet of Things and its applications - 23UAICE55

Course Objectives:

LO1: Use of Devices, Gateways and Data Management in IoT

LO2: Design IoT applications in different domain and be able to analyze their performance

LO3: Implement basic IoT applications on embedded platform

LO4: To gain knowledge on Industry Internet of Things

LO5: To Learn about the privacy and Security issues in IoT

Course Outcomes:

CO1: Work with big data tools and its analysis techniques.

CO2: Analyze data by utilizing clustering and classification algorithms.

CO3: Learn and apply different mining algorithms and recommendation systems for large volumes of data.

CO4: Perform analytics on data streams.

CO5: Learn NoSQL databases and management.

Outcome Mapping:

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**
CO 1	S							
CO 2	M	S						
CO 3				S		S		
CO 4				S	S	M		
CO 5			S					S

S-Strong M-Medium L-Low

Subject Title / Subject Code: Artificial Neural Networks - 23UAICE56

Course Objectives:

LO1: Understand the basics of artificial neural networks, learning process, single layer and multi-layer perceptron networks.

LO2: Understand the Error Correction and various learning algorithms and tasks.

LO3: Identify the various Single Layer Perception Learning Algorithm.

LO4: Identify the various Multi-Layer Perception Network.

LO5: Analyze the Deep Learning of various Neural network and its Applications.

Course Outcomes:

CO1: Students will learn the basics of artificial neural networks with single layer and multi-layer perception networks.

CO2: Learn about the Error Correction and various learning algorithms and tasks.

CO3: Learn the various Perception Learning Algorithm.

CO4: Learn about the various Multi-Layer Perception Network.

CO5: Understand the Deep Learning of various Neural network and its Applications.

Outcome Mapping:

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**
CO 1	**S**							
CO 2	**S**	**S**						
CO 3				**S**		**S**		
CO 4				**S**	**S**	**S**		
CO 5			**S**					**S**

S-Strong M-Medium L-Low

Semester - VI

Subject Title / Subject Code: Natural Language Processing - 23UAIC61

Course Objectives:

LO: Introduce to some of the problems and solutions of NLP and their relation to linguistics and statistics.

Course Outcomes:

CO1: Show sensitivity to linguistic phenomena and an ability to model them with formal grammars.

CO2: Understand and carry out proper experimental methodology for training and evaluating

empirical NLP systems

CO3: Able to manipulate probabilities, construct statistical models over strings and trees, and estimate parameters using supervised and unsupervised training methods.

CO4: Able to design, implement, and analyze NLP algorithms.

CO5: Able to design different language modeling Techniques.

Outcome Mapping:

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	3	2	2
CO2	2	3	2	3	2	2
CO3	2	3	2	2	3	1
CO4	1	2	2	1	3	2
CO5	2	2	2	1	3	3
Weightageof coursecontributedto each PSO	10	12	10	10	13	10

Subject Title / Subject Code: Intelligent Systems - 23UAICC62

Course Objectives:

LO1: To acquire knowledge on various intelligent system techniques and methodologies.

LO2: Learn about Knowledge representation, problem solving, and learning methods in solving engineering problems.

Course Outcomes:

CO1: Outline the applicability, strength and weakness of artificial intelligence in solving computational problem.

CO2: Demonstrate the role of knowledge representation, problem solving and learning in Intelligent-system engineering.

CO3: Identify the characteristics of AI, Knowledge representation, Experts systems and its variants with ANN and robotics.

CO4: Analyze a comprehensive background in both software and hardware to work with the future of robotics and adaptive systems.

CO5: Assess the scientific background through various real time examples.

Outcome Mapping:

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	1	2	1	2
CO2	3	3	2	2	3	3
CO3	3	3	2	3	3	2
CO4	3	2	3	2	2	3
CO5	3	2	2	2	3	3
Weightage ofcoursecontributedto eachPSO	15	12	10	11	12	13

Subject Title / Subject Code: Computer Vision - 23UAICC63

Course Objectives:

LO1: Describe the concepts of image processing in computer vision.

LO2: Understand the model for application of image analysis to computer vision.

LO3: Apply knowledge in developing applications using computer vision techniques.

Course Outcomes:

CO1: Define image formation models and light effects in computer vision.

CO2: Identify the feature extraction methodology suitable for computer vision applications.

CO3: Apply the segmentation approaches in image analysis.

CO4: Analyze the motion detection and estimation techniques.

CO5: Explain the computer vision techniques used for real time applications.

Outcome Mapping:

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	1	2	1	2
CO2	3	3	2	2	3	3
CO3	3	3	3	3	3	2
CO4	3	2	3	2	2	2
CO5	3	2	2	2	3	3
Weightage ofcoursecontributedto eachPSO	15	12	11	11	12	12

Subject Title / Subject Code: Robotics and Its Applications - 23UAICE64-1

Course Objectives:

LO1: To understand the robotics fundamentals.

LO2: Understand the sensors and matrix methods

LO3: Understand the Localization: Self-localizations and mapping

LO4: To study about the concept of Path Planning, Vision system

LO5: To learn about the concept of robot artificial intelligence

Course Outcomes:

CO1: Describe the different physical forms of robot architectures.

CO2: Kinematically model simple manipulator and mobile robots.

CO3: Mathematically describe a kinematic robot system

CO4: Analyze manipulation and navigation problems using knowledge of coordinate frames, kinematics, optimization, control, and uncertainty.

CO5: Program robotics algorithms related to kinematics, control, optimization, and uncertainty.

Outcome Mapping:

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**
CO 1	S							
CO 2	M	S						
CO 3				S		S		
CO 4				S	S	M		
CO 5			S					S

S-Strong M-Medium L-Low

Subject Title / Subject Code: Big Data Analytics - 23UAICE64 - 2

Course Objectives:

LO1: Understand the Big Data Platform and its Use cases, Map Reduce Jobs

LO2: To identify and understand the basics of cluster and decision tree

LO3: To study about the Association Rules,Recommendation System

LO4: To learn about the concept of stream

LO5: Understand the concepts of NoSQL Databases

Course Outcomes:

CO1: Work with big data tools and its analysis techniques.

CO2: Analyze data by utilizing clustering and classification algorithms.

CO3: Learn and apply different mining algorithms and recommendation systems for large volumes of data.

CO4: Perform analytics on data streams

CO5: Learn NoSQL databases and management.

Outcome Mapping:

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**
CO 1	S							
CO 2	M	S						
CO 3				S		S		
CO 4				S	S	M		
CO 5			S					S

S-Strong M-Medium L-Low

Subject Title / Subject Code: Introduction to Data Science - 23UAICE65-1

Course Objectives:

LO1: To learn about basics of Data Science and Big data.

LO2: To learn about overview and building process of Data Science.

LO3: To learn about various Algorithms in Data Science.

LO4: To learn about Hadoop Framework.

LO5: To learn about case study about Data Science.

Course Outcomes:

CO1: Understand the basics in Data Science and Big data.

CO2: Understand overview and building process in Data Science.

CO3: Understand various Algorithms in Data Science.

CO4: Understand Hadoop Framework in Data Science.

CO5: Case study in Data Science.

Outcome Mapping:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	**S**							
CO 2	**S**	**S**						
CO 3				**S**		**S**		
CO 4				**S**	**S**	**S**		
CO 5			**S**					**S**

S-Strong M-Medium L-Low

Subject Title / Subject Code: Agile Project Management - 23UAIC65-2

Course Objectives:

LO1: Learning of software design, software technologies and APIs.

LO2: Detailed demonstration about Agile development and testing techniques

LO3: Learning about Agile Planning and Execution.

LO4: Learning of Agile Management Design and Quality Check.

LO5: Detailed examination of Agile development and testing techniques.

Course Outcomes:

CO1: Understanding of software design, software technologies and APIs using Agile Management.

CO2: Understanding of Agile development and testing techniques.

CO3: Understanding about Agile Planning and Execution using Sprint.

CO4: Understanding of Agile Management Design, scope , Procurement, managing Time and Cost and Quality Check.

CO5: Analysing of Agile development and testing techniques.

Outcome Mapping:

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**
CO 1	**S**							
CO 2	**S**	**S**						
CO 3				**S**		**S**		
CO 4				**S**	**S**	**S**		
CO 5			**S**					**S**

S-Strong M-Medium L-Low

Subject Title / Subject Code: Simulation and Modeling - 23UAICF66

Course Objectives:

LO1: Generates computer simulation technologies and techniques, lays the groundwork for students to comprehend computer simulation requirements, and implements and tests a variety of simulation and data analysis libraries and programmes. This course focuses on what is required to create simulation software environments rather than just simulations using pre-existing packages.

LO2: Discuss the concepts of modelling layers of critical infrastructure networks in society.

LO3: Create tools for viewing and controlling simulations and their results.

LO4: Understand the concept of Entity modelling, Path planning.

LO5: To learn about the Algorithms and Modelling.

Course Outcomes:

CO1: Introduction To Modeling & Simulation, Input Data Analysis and Modeling.

CO2: Random Variate and Number Generation. Analysis of Simulations and methods.

CO3: Comparing Systems via Simulation

CO4: Entity Body Modeling, Visualization, Animation.

CO5: Algorithms and Sensor Modeling.

Outcome Mapping:

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**
CO 1	S							
CO 2	M	S						
CO 3				S		S		
CO 4				S	S	M		
CO 5			S					S

S-Strong(3) M-Medium (2) L-Low (1)