MUSLIM ARTS COLLEGE

(Accredited by NAAC with B+ grade & Affiliated to ManonmaniamSundaranar University, Tirunelveli; Recognized US 2(f) 12 (B) of UGC Act.)

Thiruvithancode, Kanyakumari District, Tamil Nadu - 629174.

DEPARTMENT OF ARTIFICIAL INTELLIGENCE

CBCS SYLLABUS

Learning Outcome-based Curriculum Framework for

ARTIFICIAL INTELLIGENCE (B.Sc.)

Applicable for students admitted from June 2026 as per the Resolutions of the Academic Council Meeting held on 01.06.2026

Vision

- To achieve excellence in quality education and innovation by using advanced technologies, fostering collaboration, and contributing to academia, industry, and society.

Mission

- To develop skilled professionals in Artificial Intelligence and Data Science
- To provide quality and value-based education
- To promote innovation in computing, expert systems, and data-driven technologies
- To apply advancements in high-performance computing and modern technologies
- To enhance the learning experience and meet the expectations of stakeholders

Academic and Professional Attributes of the Graduates

1. **Strong Foundation in Artificial Intelligence and Computing**
   Demonstrate comprehensive knowledge of Artificial Intelligence, computer science, mathematics, programming, machine learning, data science, and emerging intelligent technologies.
2. **Analytical and Problem-Solving Skills**
   Apply logical reasoning, computational thinking, and AI techniques to analyze complex problems and develop effective, data-driven solutions.
3. **Programming and Technical Competence**
   Develop proficiency in programming languages, algorithms, software development, databases, web technologies, and AI frameworks for real-world applications.
4. **Research and Innovation**
   Exhibit research aptitude, creativity, and innovation in designing intelligent systems, conducting experiments, interpreting data, and developing AI-based solutions.
5. **Ethical and Responsible AI Practice**
   Demonstrate professional ethics, integrity, fairness, transparency, and social responsibility while designing and deploying Artificial Intelligence systems.
6. **Communication and Teamwork**
   Communicate technical concepts effectively through oral, written, and digital media, and collaborate efficiently in multidisciplinary teams.
7. **Leadership and Professional Competence**
   Display leadership qualities, project management skills, entrepreneurial mindset, and professional competence to contribute effectively in academia, industry, and society.
8. **Digital Literacy and Technological Adaptability**
   Adapt to emerging technologies, modern software tools, cloud computing, data analytics, and intelligent automation in a rapidly evolving technological environment.
9. **Global Perspective and Societal Contribution**
   Understand the societal, environmental, legal, and global implications of Artificial Intelligence and contribute responsibly towards sustainable development.
10. **Lifelong Learning and Career Readiness**
    Engage in continuous learning, higher education, professional certifications, and skill enhancement to remain competent in the rapidly advancing field of Artificial Intelligence.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEOs	Upon completion of the B.Sc. Artificial Intelligence Degree Programme, graduates are expected to	Mapping with Mission
PEO1	Demonstrate strong foundational knowledge in Artificial Intelligence, Computer Science, Mathematics, Programming, and Data Science to address real-world computing challenges.	M1 & M2
PEO2	Design, develop, and apply Artificial Intelligence techniques, machine learning models, and intelligent computing solutions with analytical and problem-solving skills.	M3 & M4
PEO3	Exhibit ethical values, professional competence, leadership, teamwork, and effective communication while contributing responsibly to society and the AI profession.	M2 & M5
PEO4	Pursue lifelong learning, research, innovation, entrepreneurship, and continuous professional development to adapt to emerging technologies and global industry needs.	M4 & M5

Programme Outcomes (POs)

POs	Upon completion of the B.A. English Degree Programme, students will be able to:	Mapping with PEOs
PO1: Disciplinary Knowledge	Demonstrate comprehensive knowledge of Artificial Intelligence, Computer Science, Mathematics, Data Science, Machine Learning, Programming, and related computing disciplines to solve real-world problems.	PEO1
PO2: Communication Skills	Communicate technical concepts, project outcomes, and research findings effectively through oral, written, and digital media, while working efficiently in multidisciplinary teams.	PEO1, PEO3
PO3: Critical thinking	Analyze complex computing problems, evaluate alternative AI techniques, and apply critical thinking to develop innovative and evidence-based solutions.	PEO2, PEO3
PO4: Problem solving	Design, develop, and implement intelligent systems using appropriate algorithms, programming tools, and AI techniques to address practical and societal challenges.	PEO2
PO5: Analytical reasoning	Apply computational, mathematical, and analytical reasoning to interpret data, evaluate AI models, optimize system performance, and support informed decision-making.	PEO2, PEO4
PO6: Modern Tool Usage	Select and apply modern programming languages, AI frameworks, software development tools, cloud platforms, and data analytics technologies for intelligent application development.	PEO2, PEO4
PO7: Ethics and Professional Responsibility	Demonstrate ethical practices, professional integrity, fairness, accountability, and awareness of legal and societal issues in the development and deployment of AI systems.	PEO3

PO8: Environment and Sustainability	Understand the environmental, social, and economic impact of Artificial Intelligence and develop sustainable and responsible technology solutions.	PEO3
PO9: Individual and Team Work	Function effectively as an individual, team member, or leader in multidisciplinary and multicultural environments to accomplish shared goals.	PEO3
PO10: Lifelong Learning	Engage in lifelong learning, research, innovation, entrepreneurship, and continuous professional development to adapt to rapidly evolving Artificial Intelligence technologies.	PEO4

Programme Specific Outcomes (PSOs)

PSOs	Upon completion of the B.Sc. Artificial Intelligence Degree Programme, students will be able to:	Mapping with POs
PSO1	Apply fundamental concepts of Artificial Intelligence, Computer Science, Mathematics, Data Science, and Programming to design and develop intelligent computing solutions for real-world problems.	PO1, PO3, PO4, PO5
PSO2	Design, implement, and evaluate Machine Learning, Deep Learning, Data Analytics, and Intelligent Systems using modern programming languages, AI frameworks, and software development tools.	PO1, PO4, PO5, PO6
PSO3	Develop AI-enabled applications in domains such as healthcare, finance, agriculture, education, robotics, computer vision, and natural language processing with ethical and socially responsible practices.	PO2, PO4, PO6, PO7, PO8
PSO4	Demonstrate professional competence, leadership, teamwork, project management, and effective communication skills while working in multidisciplinary and multicultural environments.	PO2, PO7, PO9, PO10
PSO5	Engage in research, innovation, entrepreneurship, and lifelong learning to adapt to emerging Artificial Intelligence technologies and contribute to sustainable technological development.	PO3, PO5, PO8, PO10

Mapping of Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

POs / PSOs	PSO1	PSO2	PSO3	PSO4	PSO5
PO1: Disciplinary Knowledge	3	3	1	3	3
PO2: Communication Skills	3	3	3	3	3
PO3: Critical thinking	2	3	2	3	2
PO4: Problem solving	3	3	3	3	3
PO5: Analytical reasoning	1	3	3	3	3
PO6: Modern Tool Usage	3	3	3	1	3
PO7: Ethics and Professional Responsibility	3	2	3	2	3
PO8: Environment and Sustainability	3	2	2	1	1
PO9: Individual and Team Work	3	2	2	2	2
PO10: Lifelong Learning	3	2	1	3	2

•3 – High Correlation •2 – Moderate Correlation •1 – Low Correlation

COURSES OFFERED

SEMESTER I

Part	Course Code	Title of the Course	Credits	Hours / Week
Part I	AGTL11/ AGMY11/ AGAB11	Language: Tamil /Malayalam/Arabic	3	6
Part II	AGEN11	English	3	6
Part III	AMAI11	Core Course I: Programming with C++	5	5
	AMAIP1	Core Practical - C++ Programming Laboratory	4	5
	AEAI11/ AEAI12	Elective EC1/EC2- Numerical Methods/ Applied Mathematics	4	4
Part IV	ASAI11	SEC 1 Practical -PHP Scripting Laboratory	2	2
	AFAI11	Foundation Course: Introduction to Artificial Intelligence	2	2
Total			**23**	**30**

SEMESTER I

CORE COURSE I: PROGRAMMING WITH C++

Subject Code	Category	L	T	P	S	Credits	Inst. Hours	Marks		
								CIA	External	Total
AMAI11	**Core**	Y	Y	-	Y	5	5	25	75	100

Pre-requisite

Basic idea of the fundamentals and the concepts of object-oriented C++ programming.

Learning Objectives

The course aims to:

1. Inculcate knowledge on Object-oriented concepts and programming using C++.
2. Demonstrate the use of various OOPs concepts with the help of programs.

Course Outcomes (COs)

Upon successful completion of the course, students will be able to:

CO No.	Course Outcomes	BT Level
CO1	Outline the C++ programming fundamentals and the concepts of object-oriented programming like object and class, Encapsulation, inheritance and polymorphism.	K1
CO2	Classify the control structures, types of constructors, inheritance and different type conversion mechanisms.	K2
CO3	Analyze the importance of object oriented programming features like polymorphism, reusability, generic programming, data abstraction and the usage of exception handling.	K3,K4
CO4	Determine the use of object oriented features such as classes, inheritance and templates to develop C++ programs for complex problems.	K5
CO5	Create a program in C++ by implementing the concepts of object oriented programming.	K6

Bloom's Taxonomy Levels

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyse, K5 – Evaluate, K6 – Create

Course Content

Units	Contents	No. of Hours
I	OOP Paradigm – Concepts of OOP – Benefits of OOP - Object Oriented Languages – Applications of OOP – OOP Design: Using UML as a Design Tool Beginning with C++	**15**
II	Tokens, Expressions and Control Structures - Functions in C++ : Function Prototyping – Call by Reference - Return by Reference – Inline Function – Default Arguments – Const Arguments – Recursion – Function Overloading – Classes and Objects	**15**

III	Constructors and Destructors: Constructors – Parameterized Constructors – Multiple Constructors – Constructor with default Arguments – Copy Constructors – Dynamic Constructor – Destructors – Operator Overloading and Type Conversions: Operator Overloading – Overloading Unary Operators – Overloading Binary operators – Rules for Operator Overloading – Type Conversions	**15**
IV	Inheritance: Introduction – Types of Inheritance – Virtual Base Classes – Abstract Classes – Pointers - Virtual Function - Polymorphism	**15**
V	Templates: Class Templates – Function Templates – Overloading of template Function – Exception Handling	**15**
	Total	**75**

S. No.	Text Book
1	E. Balaguruswamy, (2013), "Object Oriented Programming using C++", 6th Edition, Tata McGraw Hill.

S. No.	Reference Books
1	Bjarne Stroustrup, "The C++ Programming Language", Fourth Edition, Pearson Education.
2	Hilbert Schildt, (2009), "C++ - The Complete Reference", 4th Edition, Tata McGrawHill

S. No.	Web Resources
1	http:/fahad.cprogramming.blogspot.com/p/c-simpleexamples.html
2	http://www.sitesbay.com/cpp/cpp-polymorphism

Mapping with Programme Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	2	3	2	2	2	2	3	3
CO2	2	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	2	3	2	1
CO5	3	3	3	3	3	2	3	3	3	3

3 – Strong, 2 – Medium, 1 - Low

Mapping with Programme Specific Outcomes

CO /PO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage of Course Contribution to POs	3.0	3.0	3.0	3.0	3.0

Core Practical 1: C++ Programming Laboratory

Subject Code	Category	L	T	P	S	Credits	Inst. Hours	Marks		
								CIA	External	Total
AMAIP1	Core	-	-	Y	Y	4	5	25	75	100

Learning Objectives

The course aims to:

1. Inculcate knowledge on Object-oriented concepts and programming using C++.
2. Demonstrate the use of various OOPs concepts with the help of programs.

Course Outcomes

Upon successful completion of the course, students will be able to:

CO No.	Course Outcomes	BT Level
CO1	Understand the fundamentals of C++ programming structure	K2
CO2	Identify the basic features of OOPS such as classes, objects, polymorphism, inheritance	K2
CO3	Analyze the concept of inheritance with the understanding of early and late binding, usage of exception handling, constructors, destructors, generic programming and type conversions	K4
CO4	Determine the use of various data structures such as stacks, queues and lists to solve various computing problems in C++ by incorporating OOP	K5
CO5	Develop a program in C++ with the concepts of object oriented programming to solve real-world problems.	K6

Bloom's Taxonomy Levels

K1 – Remember, **K2** – Understand, **K3** – Apply, **K4** – Analyse, **K5** – Evaluate, **K6** – Create

Course Content

List of Exercises
1. Working with Classes and Objects 2. Using Constructors and Destructors 3. Using Function Overloading 4. Using Operator Overloading 5. Using Type Conversions 6. Using Inheritance 7. Using Polymorphism 8. Using Console I/O 9. Using Templates 10. Using Exceptions

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	3	3	3	3	2	3	3	3
CO2	2	3	3	3	2	2	3	1	3	3
CO3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	2	3	3	3	3	3	3	3	3

Mapping with Programme Specific Outcomes

CO /PO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	14	14	15	15
Weighted percentage of Course Contribution to PSOs	3.0	2.8.	2.8	3.0	3.0

3 – Strong, 2 – Medium, 1 – Low

EC1: Elective Course: NUMERICAL METHODS

Subject Code	Category	L	T	P	S	Credits	Inst. Hours	Marks		
								CIA	External	Total
AEAI11	Core	Y	-	-	Y	3	4	25	75	100

Learning Objectives

The course aims to:

1. To introduce the concept of solving equations using different methods .
2. To understand the use of Assignment and Transportation problems

Course Outcomes

Upon successful completion of the course, students will be able to:

CO No.	Course Outcomes	BT Level
CO1	Obtain numerical solutions of algebraic and transcendental equations	K2
CO2	Solve system of linear equations numerically using direct and iterative methods	K5
CO3	Solve ordinary differential equations	K2,K5
CO4	Compute integration using Simpson‟s & Trapezoidal Rule	K4
CO5	Apply numerical methods in real life problems	K3

Bloom's Taxonomy Levels

K1 – Remember, **K2** – Understand, **K3** – Apply, **K4** – Analyse, **K5** – Evaluate, **K6** – Create

Course Content

Unit	Contents	No. of Hours
I	Curve Fitting: Introduction, Method of Least squares, Curve Fitting, Fitting a Straight Line	12
II	Solution of Algebraic and Transcendental Equations: Bisection method, Regula Falsi method, Newton Raphson Method	12

III	Solution of Simultaneous Linear Equations: Solution of Simultaneous Linear Equations: Gauss Elimination method, Gauss-Jordan method, Gauss Seidel Method, Jacobi‟s method	**12**
IV	Numerical Differentiation & Integration: Differentiation: Using Newton‟s Forward Difference, Newton‟s Backward Difference, Newton‟s Divided Difference (First Order Differentiation only) Integration: Using Trapezoidal rule, Simpson‟s 1/3 & Simpson‟s 3/8 rules	**12**
V	Solution of Ordinary Differential Equations: Runge-Kutta 2nd Order and 4th Order methods, Predictor-Corrector Methods: Milne and Adam‟s methods.	**12**
	Total	**60**

S. No.	Text Books
1	B.S. Grewal, "Numerical Methods in Engineering & Science", Khanna Publishers, Fifth Edition, April 1999.
2	M.K. Venkataraman, “Numerical Methods in Science & Engineering”, National Publishing Co., 2005'

Mapping with Programme Outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	3	3	3	3	3	2	3	3	2
CO2	2	3	3	3	2	3	1	3	3	3
CO3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	2	3	2	3	3
CO5	3	2	3	3	3	3	2	3	3	2

3 – Strong, 2 – Medium, 1 - Low

Mapping with Programme Specific Outcomes

CO /PO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	2	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	14	15
Weighted percentage of Course Contribution to POs	3.0	3.0	3.0	2.8	3.0

EC2: Elective Course: APPLIED MATHEMATICS

Subject Code	Category	L	T	P	S	Credits	Inst. Hours	Marks		
								CIA	External	Total
AEAI12	Core	Y	-	-	Y	3	4	25	75	100

Learning Objectives

The course aims to:

1. Assemble and evaluate research resources and develop new knowledge and skills as needed.
2. Design and solve mathematical models for real world problems in a broad range of intellectual domains.

Course Outcomes

Upon successful completion of the course, students will be able to:

CO No.	Course Outcomes	BT Level
CO1	Acquire knowledge of processing using octave	K2
CO2	Statistically analyse data	K5
CO3	Compute solutions of linear equations and system of equations	K2
CO4	Understand the basic concepts of Data Visualization	K4
CO5	Understand matrices	K2

Bloom's Taxonomy Levels

K1 – Remember, **K2** – Understand, **K3** – Apply, **K4** – Analyse, **K5** – Evaluate, **K6** – Create

Course Content

Unit	Contents	No. of Hours
I	Linear Algebra: Matrix, Representation, Examples of matrix Data, Vectors, examples, Representation, Matrix Addition, Scalar Multiplication, Matrix Multiplication properties, Matrix Vector Multiplication, Matrix Multiplication, Inverse and Transpose.	12
II	Applications of Matrix operations on Real Time Data, Parallel Matrix Multiplication, Dimensionality Reduction by Principal Component Analysis and Eigen Values, Eigen Vectors.	12
III	Basic operations of Octave: Installation of Octave, Logical & Arithmetic Operations, Assignment of Different Variables, Assigning Matrices, Vector Representation, Histogram of matrices, Diagonal Matrices.	12
IV	Data Visualization and Processing using Octave: Finding the size of a Matrix, Loading Data into Octave, Viewing the Workspace of Octave, Accessing the elements of Matrix, Arithmetic operations on matrices- Addition, Multiplication, log, exponentiation, Transpose, Maximum and Minimum Value of a Matrix	12

V	Control Statements in Octave, Visualizing Data in Octave-Plotting Data, giving labels, axes and titles, Victimization, Vector implementation, Advantages.	**12**
	Total	**60**

S. No.	**Text Books**
1	Jason Lachniet, "Introduction to GNU Octave"
2	Lectures of Professor Dr. Andrew Ng, Stanford University, Coursera.
S. No.	**Reference Books**
1	Gene H.Golub, Charles F.Van Loan, "Matrix Computations", John Hopkins University Press.
2	Randolf H. Reiss, B.S, "Eigen Values and Eigen Vectors in Data dimension Reduction for Regression", San Marcos, Texas.
3	Gilbert Strang, "Linear Algebra and its Applications", Thomson Learning Inc., 4th Edition
S. No.	**WEB SOURCES**
1	https://skymind.ai/wiki/eigenvector
2	https://www.cs.utah.edu/~jeffp/M4D/M4D-v0.4.pdf

Mapping with Programme Outcomes

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	3	3	3	3	3	3	3	3	3	3
CO2	2	3	3	3	2	2	3	3	3	3
CO3	3	3	3	2	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	3	2	3
CO5	3	2	3	3	3	3	3	3	3	2

3 – Strong, 2 – Medium, 1 - Low

Mapping with Programme Specific Outcomes

CO /PO	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	3	3	3	3	3
CO2	3	3	3	2	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	14	15
Weighted percentage of Course Contribution to POs	3.0	3.0	3.0	2.8	3.0

PHP SCRIPTING LABORATORY

Subject Code	Category	L	T	P	S	Credits	Inst. Hours	Marks		
								CIA	External	Total
ASAI11	Core	-	-	Y	Y	2	2	50	50	100

Learning Objectives

The course aims to:

1. To enable the students to understand, analyze and build dynamic web pages using PHP and jQuery with MySql database.

Course Outcomes

Upon successful completion of the course, students will be able to:

CO No.	Course Outcomes	BT Level
CO1	Demonstrate simple programs using PHP	K2
CO2	Apply the interface setup, styles&themesforthegiven application	K3
CO3	Analyzetheproblemandaddnecessaryuserinterfacecomponents, multimedia componentsand webdatasourceintothe application	K3
CO4	Evaluatethe resultsbyimplementingthe correcttechniques onthe webform	K4
CO5	Constructwebapplicationswith thefacilitatedcomponentsin PHP	K3

Bloom's Taxonomy Levels

K1 – Remember, **K2** – Understand, **K3** – Apply, **K4** – Analyse, **K5** – Evaluate, **K6** – Create

Course Content

Unit	Contents	No. of Hours
I	Introduction to PHP: Embedding PHP in Web Pages 1. Working with Forms.	5
II	2. String Manipulations 3. Functions 4. Sorting	10
III	5.Classes and Objects 6. Cookies and Sessions 7. Graphics	10
IV	Working with MySQL Database: Select data from a single table – Select data from multiple tables- Performing DML operations 8. Working with multiple table	5
	Total	30

S. No.	Text Book
1	Kevin Tatroe, Peter MacIntyre, RasmusLerdorf, “Programming PHP”,O,,Reilly Publications,Third Edition
2	Joel Murach, Ray Harris (2010), “PHP and MySQL”, Shroff Publishers & Distributors
3	CesarOtero, RobLorsen (2012), “Professional jQuery”, John WileySons &Inc

S. No.	Reference Books
1	W.Jason Gilmore(2010), “BeginningPHP&MySql”,Apress
2	Larry Ullman (2008), “PHP6 and MySQL5”, Pearson Education
3	John Coggeshall(2006), “PHP5”,Pearson Education
4	MichaleC.Glass(2004),“BeginningPHP,Apache, MySQLWebDevelopment”,Wiley DreamTechPress
5	Robin Nixon (2013),“LearningPHP,MySQL, JavaScript &CSS”, O,,Reilly, 2ndEdition
NOTE: Latest Edition of Textbooks May be Used	

S. No.	Web Resources
1	http://www.w3schools.com/jquery/
2	http://www.ccc.commnet.edu/faculty/sfreeman/cst%20250/jQueryNotes .pdf
3	http://www.w3schools.com/php/
4	http://www.tutorialspoint.com/php/
5	http://www.tutorialspoint.com/mysql/

MAPPING OF COURSE OUTCOMES WITH PROGRAMME OUTCOMES (POs)

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	2	1	1	1	2	1	1	2	1
CO2	2	2	3	2	1	2	1	2	2	1
CO3	1	2	3	2	1	2	1	1	3	2
CO4	2	2	3	2	1	2	1	3	2	1
CO5	1	2	2	1	1	2	2	2	3	3

3 – Strong Correlation, **2** – Moderate Correlation, **1** – Low Correlation.

MAPPING OF COURSE OUTCOMES WITH PROGRAMME SPECIFIC OUTCOMES (PSOs)

CO / PO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	1	1	1
CO2	2	2	3	2	1
CO3	1	2	3	2	1
CO4	2	2	3	2	1

CO5	1	2	2	1	1
Weightage	**8**	**10**	**12**	**8**	**5**
Weighted Percentage of Course Contribution to POs	**1.6**	**2.0**	**2.4**	**1.6**	**1.0**

3 – Strong Correlation, **2** – Moderate Correlation, **1** – Low Correlation

FOUNDATION COURSE- Introduction to Artificial Intelligence

Subject Code	Category	L	T	P	S	Credits	Inst. Hours	CIA	External	Total
AFAI11	Foundation Course	Y	-	-	Y	2	2	25	75	100

Learning Objectives

The course aims to:

1. To introduce the fundamentals and history of Artificial Intelligence.
2. To understand various AI techniques, search methods, and knowledge representation.
3. To familiarize students with machine learning, expert systems, and AI applications.
4. To create awareness about ethical issues and future trends in AI.

Course Outcomes

Upon successful completion of the course, students will be able to:

CO No.	Course Outcomes	BT Level
CO1	Explain the fundamentals, history, and importance of Artificial Intelligence	K1
CO2	Apply intelligent search techniques and problem-solving methods.	K3
CO3	Demonstrate knowledge representation and reasoning techniques	K4
CO4	Apply search algorithms for problem solving and compare informed and uninformed search methods.	K3
CO5	Understand the basics of machine learning and neural networks.	K2
CO6	Analyze AI applications, ethical issues, and emerging trends in Artificial Intelligence.	K4

Bloom's Taxonomy Levels

K1 – Remember, **K2** – Understand, **K3** – Apply, **K4** – Analyse, **K5** – Evaluate, **K6** – Create

Course Content

Unit	Contents	No. of Hours
I	**Fundamentals of Artificial Intelligence :**Introduction to Artificial Intelligence ,Definition, Goals, and Characteristics of AI ,History and Evolution of AI, Types of AI , Applications of AI, AI vs Human Intelligence, Advantages and Limitations of AI, AI Career Opportunities.	**6**
II	**Intelligent Agents and Problem Solving :** Intelligent Agents ,Types of Agents, Agent Environment, Problem Formulation, State Space Representation, Problem Solving by Searching ,Uninformed Search Techniques, Heuristic Search, Best First Search, A* Search Algorithm.	**6**

III	**Knowledge Representation and Reasoning :** Introduction to Knowledge Representation ,Knowledge-Based Systems, Logic in AI,Propositional Logic ,Predicate Logic, Semantic Networks ,Frames, Rule-Based Systems, Inference Mechanism, Forward Chaining, Backward Chaining.	**6**
IV	**Machine Learning Fundamentals** : Introduction to Machine Learning, AI vs Machine Learning vs Deep Learning, Types of Machine Learning, Data Collection and Preprocessing, Training and Testing Data ,Basic Classification and Regression Concepts, Introduction to Neural Networks	**6**
V	**AI Applications, Ethics and Future Trends :** Natural Language Processing (NLP), Computer Vision, Robotics ,Expert Systems, Chatbots and Virtual Assistants, AI in Healthcare, AI in Education, AI in Agriculture, AI in Banking and Finance,Ethical Issues in AI, Bias and Fairness, Privacy and Security, Future Trends in AI, Generative AI.	**6**
	Total	**30**

S. No.	**Text Books**
1	Stuart Russell & Peter Norvig (2021). *Artificial Intelligence: A Modern Approach* (4th Edition). Pearson.

S. No.	**Reference Books**
1	George F. Luger (2018). *Artificial Intelligence: Structures and Strategies for Complex Problem Solving* (6th Edition). Pearson.
2	David L. Poole & Alan K. Mackworth (2023). *Artificial Intelligence: Foundations of Computational Agents* (3rd Edition). Cambridge University Press.
3	Nils J. Nilsson. *Artificial Intelligence: A New Synthesis*. Morgan Kaufmann.

S. No.	**Web Resources**
1	Pearson – Artificial Intelligence: A Modern Approach (4th Edition)
2	McGraw-Hill – Artificial Intelligence by Rich, Knight & Nair
3	Pearson – Artificial Intelligence: Structures and Strategies for Complex Problem Solving

MAPPING OF COURSE OUTCOMES WITH PROGRAMME OUTCOMES (POs)

CO / PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**

CO1	3	2	2	1	1	3	3	3	3	3
CO2	3	2	2	2	1	3	3	3	3	3
CO3	2	2	3	2	1	3	3	3	3	3
CO4	2	2	3	2	1	3	3	3	3	3
CO5	2	2	2	2	1	2	3	3	3	3
CO6	3	3	3	3	3	3	3	3	3	3

Mapping Scale

3 – Strong Correlation, **2** – Moderate Correlation, **1** – Low Correlation

MAPPING OF COURSE OUTCOMES WITH PROGRAMME SPECIFIC OUTCOMES (PSOs)

CO / PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	1	1	2	1
CO2	3	2	1	1	2	1
CO3	2	3	2	1	3	1
CO4	2	3	3	1	3	2
CO5	2	3	2	2	3	2
Weightage	**12**	**13**	**9**	**6**	**13**	**7**
Weighted Percentage of Course Contribution to PSOs	**2.4**	**2.6**	**1.8**	**1.2**	**2.6**	**1.4**

Mapping Scale

3 – Strong Correlation, **2** – Moderate Correlation, **1** – Low Correlation