**BHARATHIAR UNIVERSITY :: COIMBATORE 641 046**

**M.Sc. Artificial Intelligence Curriculum (University Department)**

*(For the students admitted during the academic year 2024 – 2025 onwards)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Code** | **Title of the Course** | **Credits** | **Hours** | **Maximum Marks** |
| **Theory** | **Practical** | **CIA** | **ESE** | **Total** |
| **First Semester** |
| 24AI1C1 | Advanced Data Structures and Algorithms | 4 | 2 | 4 | 25 | 75 | 100 |
| 24AI1C2 | Foundations in Statistics & Mathematics for AI | 4 | 2 | 4 | 25 | 75 | 100 |
| 24AI1C3 | Foundations of AI | 4 | 4 | - | 25 | 75 | 100 |
| 24AI1C4 | Machine Learning and Its Applications | 4 | 2 | 4 | 25 | 75 | 100 |
| 24AI1C5 | Foundations of Data Science | 4 | 4 | - | 25 | 75 | 100 |
| 24AI1EX | Elective I | 4 | 4 | - | 25 | 75 | 100 |
| 1GS | General Supportive - I | 2 | 2 | - | 12 | 38 | 50 |
| PDC | Industry Literacy | 1 | - | - | 25 | - | 25 |
| 24AI1JOC1 | Job-Oriented course | 2 | - | - | - | - | 50 |
| **Total** | **29** |  |  |  |  | **725** |
| **Second Semester** |
| 24AI2C1 | Computational Intelligence | 4 | 4 | - | 25 | 75 | 100 |
| 24AI2C2 | Deep Learning Techniques | 4 | 2 | 4 | 25 | 75 | 100 |
| 24AI2C3 | Data Engineering | 4 | 2 | 4 | 25 | 75 | 100 |
| 24AI2C4 | Probabilistic Graphical Model | 4 | 4 | - | 25 | 75 | 100 |
| 24AI2C5 | Cloud and Big Data Analytics | 4 | 2 | 4 | 25 | 75 | 100 |
| 24AI2EX | Elective II  | 4 | 4 | - | 25 | 75 | 100 |
| 24AI2MP | Mini Project - I  | 2 | - | - | 50 | - | 50 |
| 2GS | General Supportive - II | 2 | 2 | - | 12 | 38 | 50 |
| 24AI2VAC1 | Value Added Course | 2 | - | - | - | - | 50 |
| **Total** | **30** |  |  |  |  | **750** |
| **Third Semester** |
| 24AI3C1 | Introduction to Speech Processing  | 4 | 2 | 4 | 25 | 75 | 100 |
| 24AI3C2 | Natural Language Processing | 4 | 2 | 4 | 25 | 75 | 100 |
| 24AI3C3 | Reinforcement Learning | 4 | 2 | 4 | 25 | 75 | 100 |
| 24AI3C4 | Multi-Agent Systems | 4 | 2 | 4 | 25 | 75 | 100 |
| 24AI3EX | Elective III | 4 | 4 | - | 25 | 75 | 100 |
| 24AI3MP | Mini Project - II  | 4 | - | - | 25 | 75 | 100 |
| 3GS | General Supportive - III | 2 | 2 | - | 12 | 38 | 50 |
| **PDC** | **Research Review Analysis** | 1 | - | - | 25 | - | 25 |
| 24AI3VAC2 | Value Added course | 2 | - | - | - | - | 50 |
| **Total** | **29** |  |  |  |  | **725** |
| **Fourth Semester** |
| 24AI4PW | Project work  | 12 | - | - | 180 | 120 | 300 |
| 24AI4JOC2 | Job-Oriented Course | 2 | - | - | - | - | 50 |
| **Total** | **14** |  |  |  |  | **350** |
| **Grand Total** | **102** |  |  |  |  | **2550** |

**Note: Students must mandatorily publish or present their Research Review Analysis work in an international journal/conference before attending the viva-voce**

**Online Course**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | SWAYAM – MOOC Course\* | 2 |  |  |  |  |   |

\*Swayam – Mooc online course shall be for at least 4 weeks with at least 2 credits.

 The course shall be mandatory and shall be completed within the third semester (i.e., before the beginning of the fourth semester)

**Elective Papers**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sem** | **Elective** | **Suggested Code** | **Title of the Paper** | **No. of Credits** |
| I | Elective – I | 24AI1E1 | Representation Learning | 4 |
| 24AI1E2 | Data Visualization | 4 |
| 24AI1E3 | AI in IoT  | 4 |
| II | Elective – II | 24AI2E1 | AI for Robotics | 4 |
| 24AI2E2 | AI in Healthcare | 4 |
| 24AI2E3 | Machine Learning for Big Data | 4 |
| III | Elective – III | 24AI3E1 | Computer Vision | 4 |
| 24AI3E2 | Quantum AI | 4 |
| 24AI3E3 | Applied Prediction Analytics | 4 |

**List of Job-Oriented Courses**

1. Data Analysis using Excel

2. Power BI for Data Analytics

3. Mobile Application Development

4. Smart Applications with the Internet of Things

**List of Value-Added Courses**

1. Software Testing Tools

2. Cyber Security and Digital Forensics

3. Remote Sensing and GIS