Syllabus for Bachelor of Science
AI & ML , AI & DS

Subject Code: 01AL0702

Subject Name: Major Project-1

BS. AI & ML, BS AI & DS Year – 4 Semester - 7

Objective: The objective of this course is to enable students to identify, analyze, design, and develop AI/ML/DS-based solutions for real-world problems through research-oriented and industry-relevant projects. The course emphasizes innovation, critical thinking, ethical AI practices, teamwork, and professional documentation.

Credits Earned: 4 Credits

Course Outcomes: After completion of this course, student will be able to:

- Identify and formulate real-world problems suitable for AI/ML/DS solutions.
- Conduct literature survey and critically evaluate existing research and technologies.
- Design system architecture, data pipelines, and experimental methodologies.
- Evaluate project outcomes using suitable performance metrics and validation methods.
- Prepare professional technical reports and effectively present project progress.

Pre-requisite of course: Basic Programming

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	IA	CSE	Viva(V)	Term work(TW)	
0	0	8	4	0	0	0	50	50	100

Contents:

Unit	Topics	Contact Hours
1	Problem Identification, Requirement Analysis, Project Planning	10
2	Literature Review, Gap Analysis, Research Methodology	15
3	Dataset Collection, Data Cleaning, Data Governance & Ethics	15

4	System Design, Architecture Design, Tool Selection	20
5	Prototype Development, Model Building, Experimental Setup	35
6	Testing, Validation, Documentation and Presentation	33
	Total Hours	**128**

Bloom's Taxonomy Distribution

Distribution of course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
0%	5%	25%	20%	20%	30%

Suggested List of Activities/Experiments

1. Identification of a real-world problem.
2. Preparation of Project Charter and Scope Document.
3. Literature review using IEEE/Scopus indexed papers.
4. Dataset acquisition and preprocessing.
5. Design of AI/ML solution architecture.
6. Development of baseline model.
7. Performance evaluation using suitable metrics.
8. Comparative analysis with existing approaches.
9. Prototype deployment using cloud/web/mobile platform.
10. Preparation of technical report and presentation.

Recommended Evaluation

The evaluation of Major Project–I shall be based on the student's ability to identify and analyze a real-world problem, conduct a literature review, design an appropriate solution, and develop a functional prototype. Assessment shall be carried out through project proposal presentations, progress reviews, design evaluations, prototype demonstrations, technical documentation, and viva voce examinations. The evaluation will consider innovation, technical depth, research methodology, implementation quality, testing, documentation, presentation skills, and overall project outcomes. This approach encourages practical learning, critical thinking, creativity, and effective communication skills.