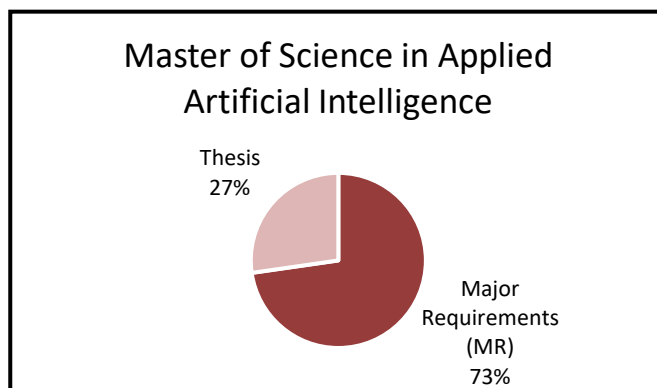# Master of Science in Applied Artificial Intelligence 2025

Program Components

Master of Science in Applied Artificial Intelligence	
Course Type	CRD
Major Requirement (MR)	24
Thesis	9
Total Credit (CRD)	33

Master of Science in Applied Artificial Intelligence

Thesis 27%

Major Requirements (MR) 73%

Teaching Language: English

Year 1 - Semester 1

Course Code	Course Title	Course Hours			Course Type	Pre-requisite	Major GPA
		LEC	PRAC	CRD			
ITAAI601	Computer Programming and Data Science	4	0	4	MR	-	Yes
ITAAI602	Networked Systems and Information Security	4	0	4	MR	-	Yes
ITAAI603	Professional Issues and Research Methodology	4	0	4	MR	-	Yes

Year 1 – Semester 2

Course Code	Course Title	Course Hours			Course Type	Pre-requisite	Major GPA
		LEC	PRAC	CRD			
ITAAI604	Big Data Applications and Analytics	4	0	4	MR	ITAAI601	Yes
ITAAI605	Artificial Intelligence Concepts and Applications	4	0	4	MR	ITAAI601	Yes
ITAAI611	Selected Topics in Applied Artificial Intelligence	4	0	4	MR	Department Approval ITAAI601	Yes

Year 2 - Semester 3

Course Code	Course Title	Course Hours			Course Type	Pre-requisite	Major GPA
		LEC	PRAC	CRD			
ITAAI690	MSc. Thesis	0	27	9	MR	Completion of 20 Credits	Yes

Course Descriptions

Major Requirement (MR)

Course Code: ITAAI601   **Course Title:**   Computer Programming and Data Science

This course equips students with essential knowledge and proficiency in computer programming, with a strong emphasis on data science methodologies for solving real-world problems. Students will learn to develop and implement data-driven software solutions, preparing them for data science tasks in both academic research and professional practice. Key topics include programming techniques, data structures, algorithms, and efficient problem-solving strategies for data science tasks. The course emphasizes on the practical application of programming skills to real-world data science challenges.

Course Code: ITAAI602   **Course Title:**   Networked Systems and Information Security

This course examines the core concepts, strategic design, implementation, and governance of networked systems in evolving digital landscapes. Topics include: communication architecture, cybersecurity frameworks, AI tools, case studies related to data integrity, system resilience, and global security standards.

Course Code: ITAAI603   **Course Title:**   Professional Issues and Research Methodology

This course provides a foundation for independent research and development in applied AI. Students will gain advanced research techniques, develop critical evaluation skills, and apply various methods effectively. Topics include: ethical and professional considerations in research, research or development problem definitions, literature reviews, research methodology, and research planning. This course prepares students to undertake meaningful research/systems development projects and the MSc. Thesis.
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Course Code: ITAAI604   **Course Title:**   Big Data Applications and Analytics

This course covers a deep dive into the architecture of big data systems and the analytical techniques for managing and leveraging big data. Students will gain expertise in performing sophisticated data analysis. Topics covered include: Characteristics of big data, Advanced applications of big data, Big data systems architecture, Collection of data, Data preparation, Types of data analysis: Descriptive analytics, Diagnostic, Predictive, and Prescriptive Analytics, Relational databases vs NoSQL databases. Distributed Data Storage: HDFS Architecture, Batch analysis: Hadoop and MapReduce. Real time analysis, Interactive querying, Data visualization.

Course Code: ITAAI605   **Course Title:**   Artificial Intelligence Concepts and Applications

This course covers advanced Artificial Intelligence concepts and their complex real-world applications across various domains. Topics include: Artificial Intelligence methodologies, Artificial Intelligence impact analysis and contemporary Artificial Intelligence challenges in diverse sectors.

Course Code: ITAAI611   **Course Title:**   Selected Topics in Intelligent Informatics

This course offers an in-depth look at current and specialized topics within the field of applied artificial intelligence not covered in the other courses. The proposed topics are to be approved by the department.

Course Code: ITAAI690   **Course Title:**   MSc. Thesis

This course is designed to guide students through the process of conducting original research or system development in their field of study. Students will formulate research questions, conduct a literature review, design and implement a research methodology/system, conduct data/systems analysis, and present their findings in a well-structured thesis. The course will emphasize critical thinking, scientific writing, and the ethical considerations of research/system development. Students will work closely with a faculty supervisor and participate in regular seminars to discuss progress, challenges, and methodologies.