

# MSc in Applied Artificial Intelligence (NEW)

## Program Overview

The MSc in Applied Artificial Intelligence (AAI) at Alfaisal University offers a comprehensive, four-semester graduate program that prepares students to pioneer advancements in AI. The curriculum provides a robust foundation in the core disciplines of AI, with an emphasis on both theoretical and practical knowledge. By combining theory with hands-on practice, the program facilitates active learning through collaborative projects that reflect real-world challenges.

## Perspective Professional Occupations

1. Data Analyst / Data Scientist
2. AI Systems Architect
3. Data Visualization Expert
4. AI Developer
5. Machine/Deep Learning Engineer
6. AI Solutions Architect
7. Healthcare Data Analyst
8. AI Product Manager
9. Business Intelligence Analyst
10. AI Consultant
11. AI Research Scientist

## Program Objectives

Capacity development for technologists to advance the applied AI industry in the Kingdom.

To prepare distinguished, high-caliber manpower with special skills and capabilities in the area of research, creativity, and innovation to develop AI products of national and strategic significance.

## Program Objectives

The MSc in AAI program consists of a core component plus a set of electives through which students may concentrate on a particular area or diversify their knowledge in the field. Students in the AAI MSc program have the choice between a thesis and a non-thesis (project) option.

### Thesis Option

Students opting for the thesis track are required to complete four core and four electives in addition to their thesis work. The thesis is valued at 18 credits, with a total of 24 credit hours of coursework. This option is ideal for those interested in research or academic careers in AI.

### Non-thesis (Project) Option

Students who choose the non-thesis track are required to complete four core and six elective courses in addition to completing a project. This path totals 30 credit hours of coursework and 12 credits for the project. This option is suited to those aiming for a practical, hands-on approach in their AI career.

## Tracks

**Applied Artificial Intelligence:**

**Intelligent Robotic Systems:**

**Artificial Intelligence in Healthcare:**

**Business Intelligence:**



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**Alfaisal University**  
**MSc in Applied Artificial Intelligence | Study Plan Summary | Effective Fall 2024**

Credit Hours Required for MSc in Applied Artificial Intelligence			
Thesis Option			
Type of	Compulsory	Elective	Total
Core	12	-	12
Elective	-	12	12
Thesis	18	-	18
Total	30	12	42

Summary	
Courses	Credit Hours
Core and elective courses	24
Thesis I (MAI 600)	9
Thesis II (MAI 601)	9
Total credit hours required	42

Year One - Fall semester		
Course Code	Course Title	Credit Hours
MAI 551	Machine Learning	3
MAI 552	Probability and Statistics for AI	3
MAI 553	Trustworthy and Ethical AI Systems	3

Year One - Spring semester		
Course Code	Course Title	Credit Hours
MAI 554	Deep Learning	3
MAI 5xx	Elective I	3
MAI 5xx	Elective II	3

Year Two - Fall semester		
Course Code	Course Title	Credit Hours
MAI 5xx	Elective III	3
MAI 600	Thesis I	9

Year Two - Spring semester		
Course Code	Course Title	Credit Hours
MAI 5xx	Elective IV	3
MAI 601	Thesis II	9

Credit Hours Required for MSc in Applied Artificial Intelligence			
Project Option			
Type of	Compulsory	Elective	Total
Core	12	-	12
Elective	-	18	18
Thesis	12	-	12
Total	24	18	42

Summary	
Courses	Credit Hours
Core and elective courses	30
Project I (MAI 595)	6
Project II (MAI 596)	6
Total credit hours required	42

Year One - Fall semester		
Course Code	Course Title	Credit Hours
MAI 551	Machine Learning	3
MAI 552	Probability and Statistics for AI	3
MAI 553	Trustworthy and Ethical AI Systems	3

Year One - Spring semester		
Course Code	Course Title	Credit Hours
MAI 554	Deep Learning	3
MAI 5xx	Elective I	3
MAI 5xx	Elective II	3

Year Two - Fall semester		
Course Code	Course Title	Credit Hours
MAI 5xx	Elective III	3
MAI 5xx	Elective IV	3
MAI 595	Project I	6

Year Two - Spring semester		
Course Code	Course Title	Credit Hours
MAI 5xx	Elective V	3
MAI 5xx	Elective VI	3
MAI 596	Project II	6

List of Elective Courses		
Course code	Course Name	CHrs
MAI 555	Computer Vision and Pattern	3
MAI 556	Generative AI	3
MAI 561	Advanced Artificial Intelligence	3
MAI 562	Human-Centered AI	3
MAI 563	Artificial Intelligence: Principles and Techniques	3
MAI 564	Systems and Tool Chains for AI	3
MAI 565	Software Testing and Quality Assurance in AI Systems	3
MAI 566	Principles and Engineering Applications of AI	3
MAI 567	AI in Cybersecurity	3
MAI 568	Natural Language Processing and Large Language Models	3

List of Elective Courses		
Course code	Course Name	CHrs
MAI 569	Information Theory in AI Systems	3
MAI 570	Speech Recognition and Understanding	3
MAI 571	AI in Robotics	3
MAI 572	AI-Driven Data Science Techniques	3
MAI 573	Embedded Systems for Robotics	3
MAI 574	Autonomous Robots	3
MAI 575	Health Informatics	3
MAI 576	Clinical Decision Support Systems	3
MAI 577	Data Management and Big Data	3
MAI 578	Business Analytics and Decision-	3
MAI 579	Data Visualization and Dashboard	3