ARTIFICIAL INTELLIGENCE (M.S. WITH A MAJOR IN AI HARDWARE AND SYSTEMS)

Artificial Intelligence (AI) is an area of study that explores how to endow machines with the ability to learn, make decisions, reason about data, and communicate with humans. In the Wayne State University's Master of Science in Artificial Intelligence (MSAI) program, students learn to apply problem-solving, creative thinking, algorithmic design, and computer programming skills to build modern AI systems.

Students will gain deep technical training and expertise in a selected concentration area, which include AI Hardware and Systems, AI Algorithm and Systems, and Industrial AI. The program prepares students to (1) work as engineers, consults and entrepreneurs in industries where AI can provide a competitive edge, or (2) pursue a Ph.D. degree in computer science, electrical engineering, industrial and systems engineering, or other related fields.

Applicants must meet requirements for admission to the Graduate School (http://bulletins.wayne.edu/graduate/general-information/admission/). Students must have a bachelor's degree or the equivalent in Engineering from an accredited college or university. Students from all science, technology, engineering, and math (STEM) disciplines will be considered for admission.

The proposed program requires 30 credits for graduation, either Plan A (24 credits of coursework plus 6 credits of master's thesis) or Plan C (30 credits of coursework). All courses must be graduate-level courses offered within the College of Engineering. All course work must be completed in accordance with the regulations of the Graduate School (http://bulletins.wayne.edu/graduate/general-information/academic-regulations/) and the College of Engineering (http://bulletins.wayne.edu/graduate/college-engineering/academic-regulations/).

A minimum grade point average of 3.00 for the MSAI program is required to obtain the master's degree. A maximum of one course in which a C has been received may be used to meet graduation requirements, provided this is offset by sufficient A grades to maintain the required 3.00 average.

The co-advisor for each major, in working with students to develop their academic plan, will determine which electives are appropriate for their major.

AI Hardware and Systems Major

Hosted by the Electrical and Computer Engineering (ECE) department.

Degree Requirements

- 9 credit hours from AI Hardware and Systems core
- 3 credit hours from AI Algorithms and Systems core
- 3 credit hours from Industrial AI core
- Plan A: 9 credit hours from AI Program electives, including at least 6 credit hours from AI Hardware and Systems electives, or
- Plan C: 15 credit hours from AI Program electives, including at least 12 credit hours from AI Hardware and Systems electives
- Plan A: 6 credit hours of ECE 8999 master's thesis

Code	Title	Credits
Core courses		
ECE 5995	Special Topics in Electrical and Computer Engineering I *	3
ECE 7500	Artificial Intelligence for Natural Language Processing	3
ECE 7640	Online and Adaptive Methods for Machine Learning	3
Elective courses		
ECE 5560	Analysis and Design of Analog Integrated Circuits	3
ECE 5770	Digital Signal Processing	4
ECE 5995	Special Topics in Electrical and Computer Engineering I *	3
ECE 5690	Introduction to Digital Image Processing	4
ECE 7430	Discrete Event Systems with Machine Learning	4
ECE 7680	Advanced Digital Image Processing and Applications	4
ECE 7995	Special Topics in Electrical and Computer Engineering II *	3

* Contact an advisor for specific topics that can apply to the AI Hardware and Systems major.

AI Algorithms and Systems Major

Hosted by the Computer Science (CSC) department.

Degree Requirements

- 9 credit hours from AI Algorithms and Systems core
- 3 credit hours from AI Hardware and Systems core
- 3 credit hours from Industrial AI core
- Plan A: 9 credit hours from AI Program electives, including at least 6 credit hours from AI Algorithms and Systems electives, or
- Plan C: 15 credit hours from AI Program electives, including at least 12 credit hours from AI Algorithms and Systems electives
- Plan A: 6 credit hours of CSC 8999 master's thesis

Code	Title	Credits
Core courses		
CSC 5825	Introduction to Machine Learning and Applications	3
CSC 6800	Artificial Intelligence I	3
CSC 7760	Deep Learning	3
Elective courses		
CSC 5100	Introduction to Mobility	3
CSC 5272	Principles of Cyber Security	3
CSC 5280	Introduction to Cyber-Physical Systems	3
CSC 5430 & CSC 5431	Game Programming and Design I and Game Programming and Design I: Lab	4
CSC 5800	Intelligent Systems: Algorithms and Tools	3
CSC 5870	Computer Graphics I	3
CSC 5991	Special Topics in Computer Science **	3
CSC 6430 & CSC 6431	Game Programming and Design II and Game Programming and Design II: Lab	4
CSC 6710	Database Management Systems I	3
CSC 6860	Digital Image Processing and Analysis	3
CSC 7710	Database Management Systems II	3
CSC 7800	Artificial Intelligence II	3
CSC 7810	Data Mining: Algorithms and Applications	3
CSC 7825	Machine Learning	3
CSC 7991	Advanced Topics in Computer Science (Not repeatable) **	3

** Contact an advisor for specific topics that can apply to the AI Algorithms and Systems major.

Industrial AI Major

Hosted by the Department of Industrial & Systems Engineering (ISE).

Degree Requirements

- 9 credit hours from Industrial AI core
- 3 credit hours from AI Hardware and Systems core
- 3 credit hours from AI Algorithms and Systems AI core
- Plan A: 9 credit hours from AI Program electives, including at least 6 credit hours from Industrial AI electives, or
- Plan C: 15 credit hours from AI Program electives, including at least 12 credit hours from Industrial AI electives
- Plan A: 6 credit hours of IE 8999 master's thesis

Code	Title	Credits
Core courses		
IE 6010	IoT and Edge AI Programming	3
IE 7860	Intelligent Analytics	3
DSA 6100	Statistical Learning for Data Science and Analytics	3
Elective courses		
DSA 6000	Data Science and Analytics	3
DSA 6200	Operations Research	3
IE 5995	Special Topics in Industrial Engineering ***	3
IE 6000	Digital Automation	3
IE 6040	Simulation in Robotics Using ROS	3
IE 7220	Advanced Statistical Methods	3
IE 7445	Manufacturing Analytics	3
IE 7480	Knowledge-Based Design	3
IE 7995	Graduate Special Topics ***	3

*** Contact an advisor for specific topics that can apply to the Industrial AI major.