Human Systems Engineering (Intelligent Systems), MS

ESHSEISMS

Program description

Degree awarded: MS Human Systems Engineering (Intelligent Systems)

Intelligent technologies have seen rapid growth in the last decade. These technologies are now seen within public sector industries such as military and space exploration, private sectors such as medical manufacturing, and the education sector. The rise of learning engineering focuses on interactive e-learning environments and the use of learning technology within classrooms and training settings. The real change will be the way humans can interact with the new robotic and AI assistant technologies.

The MS program in human systems engineering with a concentration in intelligent systems provides students with a deep understanding of the science of human performance and experience in the engineering of intelligent systems, robotics and autonomous systems industries.

Students in this program participate in courses focusing on methods and tools in applied cognitive science and foundations of human systems engineering, including uses of simulation and robotics, among other topics.

This concentration prepares students for facilitating the future of work when humans will work closely with technology in the military, space exploration, education, manufacturing, medicine and agriculture.

At a glance

- **College/School:** [Ira A. Fulton Schools of Engineering](#)
- **Location:** [Polytechnic](#)

Accelerated program options

This program allows students to obtain both a bachelor's and master's degree in as little as five years. It is offered as an accelerated bachelor's plus master's degree with:

Engineering (Robotics), BSE

Information Technology, BS

Technological Leadership, BS

Acceptance to the graduate program requires a separate application. Students typically receive approval to pursue the accelerated master's during the junior year of their bachelor's degree program. Interested students can learn about eligibility requirements and how to apply.

Degree requirements

30 credit hours and a portfolio, or
30 credit hours and a thesis, or
30 credit hours including the required applied project course (HSE 593)

Required Core (12 credit hours)
HSE 520 Methods and Tools in Applied Cognitive Science (3)
HSE 530 Intermediate Statistics for Human Systems Engineering (3)
HSE 531 Data Analytics: Modeling Human Subjects Data (3)
HSE 542 Foundations of Human Systems Engineering (3)

Concentration (9 credit hours)

Electives and Research (3 or 9 credit hours)

Culminating Experience (0 or 6 credit hours)
HSE 593 Applied Project (6) or
HSE 599 Thesis (6) or
portfolio (0)

Additional Curriculum Information
For electives and research coursework, enrollment in HSE 592 Research for three credit hours is required for students completing a thesis and optional for students completing the applied project or portfolio culminating experience. Students in all culminating experience options should contact the academic unit for an approved electives list.

Students completing a portfolio for the culminating experience must complete nine credit hours of electives and research coursework.

Admission requirements

Applicants must fulfill the requirements of both the Graduate College and the Ira A. Fulton Schools of Engineering.

Applicants are eligible to apply to the program if they have earned a bachelor's or master's degree in engineering, robotics engineering, mathematics or a related field from a regionally accredited institution. Students must have sufficient mathematics background for this concentration, including up to calculus III and linear algebra.

Applicants must have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in their first bachelor's degree program or in the last 60 hours of their first bachelor's degree program; or a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in nine semester hours of graduate coursework from a U.S. institution; or a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in an applicable conferred master's degree program from a regionally accredited college or university.

All applicants must submit:

1. graduate admission application and application fee
2. official transcripts
3. curriculum vitae or professional resume
4. professional statement
5. research summary
6. three letters of recommendation
7. proof of English proficiency

Additional Application Information
An applicant whose native language is not English must provide proof of English proficiency regardless of their current residency.

Global Launch at ASU offers an online alternative to standardized testing for international students who are seeking admission to ASU but need proof of English proficiency.

Unofficial transcripts may be submitted at time of application. If admitted, applicants must then submit official transcripts to ASU Graduate Admission Services.

The letters of recommendation should be from college professors, employers (in a human factors or intelligent systems-related field), or a combination of both academic and professional references.

Tuition information

When it comes to paying for higher education, everyone's situation is different. Students can learn about ASU tuition and financial aid options to find out which will work best for them.

Program learning outcomes

Program learning outcomes identify what a student will learn or be able to do upon completion of their program. This program has the following program outcomes:

- Apply the appropriate statistical analysis, address violations of assumptions (e.g., sphericity), & conduct analyses using SPSS to answer Intelligent Systems-based questions.
- Apply the methods of human systems engineering create hypothesis or solve an applied problem related to Intelligent Systems.
- Conduct independent research to address problems in the space of intelligent systems

Career opportunities

Graduates skilled in human interactions with robots, artificial intelligence agents and autonomous systems are needed to design the future of work. To do this, graduates are equipped to join teams of human and nonhuman agents who interact safely and effectively with a positive impact on society and human well-being. The individuals who design those interactions and who decide what tasks to allocate to AI need to understand human capabilities and limitations and be able to work on multidisciplinary teams to ensure human considerations are accounted for.

Contact information

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