Exploration Systems Design (Sensor Networks), MS

LAESDSNMS

Combine your interests in exploration systems design and sensor networks with the strengths of science and engineering to prepare for a professional or academic career. Study computer networks, Earth systems engineering, multidimensional signal processing, and information and random signal theory with faculty who specialize in the natural sciences and instrumentation design.

Program description

Degree awarded: MS Exploration Systems Design (Sensor Networks)
The MS program in exploration systems design with a concentration in sensor networks promotes the development and growth of engineering-literate scientists and science-literate engineers interested in the use of robotics, data science and other computational tools applied to science problems in Earth and space sciences.

Its distinct curriculum combines science applications with engineering knowledge and skills through engineering and science courses focused on Earth science, space science and astrophysics. The concentration program trains students to use modern computational tools to solve some of the most complex science problems humanity faces.

At a glance

- **College/School:** The College of Liberal Arts and Sciences
- **Location:** Tempe

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:

Aerospace Engineering (Aeronautics), BSE

Aerospace Engineering (Astronautics), BSE

Aerospace Engineering (Autonomous Vehicle Systems), BSE

Earth and Space Exploration, BS

Earth and Space Exploration (Astrobiology and Biogeosciences), BS

Earth and Space Exploration (Astrophysics), BS

Earth and Space Exploration (Exploration Systems Design), BS

Earth and Space Exploration (Geological and Planetary Sciences), BS

Electrical Engineering, BSE

Electrical Engineering (Electric Power and Energy Systems), BSE

Mechanical Engineering, BSE

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 including the required capstone course (SES 511)

Required Core (5 credit hours)
SES 501 SESE Colloquium (1)
SES 502 Exploring SESE Research (1)
SES 510 Graduate Exploration Project I (3)

Concentration (9 credit hours)
CEN 571 Hardware Acceleration and FPGA Computing (3)
EEE 507 Multidimensional Signal Processing (3)
EEE 511 Artificial Neural Computation (3)
EEE 515 Machine Vision and Pattern Recognition (3)
EEE 551 Information Theory (3)
MAE 547 Modeling and Control of Robots (3)

Electives or Research (13 credit hours)

Culminating Experience (3 credit hours)
SES 511 Graduate Exploration Project II (3)

Additional Curriculum Information

Students select three courses from the available concentration coursework.

For elective coursework, students select from the AST, GLG, SES or engineering courses in consultation with their faculty advisor. Six credit hours must be science coursework approved by the faculty advisor. Other courses can be used with academic unit approval.

Admission requirements

Applicants must fulfill the requirements of both the Graduate College and The College of Liberal Arts and Sciences.

Applicants are eligible to apply to the program if they have earned a bachelor's or master's degree in engineering, physical science or a related field from a regionally accredited institution.

Applicants must have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in the last 60 hours of their first bachelor's degree program, or applicants must have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in an applicable master's degree program.

All applicants must submit:

1. graduate admission application and application fee
2. official transcripts
3. written statement
4. three letters of recommendation
5. 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.

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.

Application deadlines

Fall

Spring   expand

                              expand

Career opportunities

The U.S. Department of Labor predicts the economy will add an additional 63,000 jobs in engineering fields related to systems engineering and exploration systems design (involving electrical and electronics, aerospace and mechanical engineering). This is in addition to the 900,000 jobs already existing in the economy in these fields. https://www.bls.gov/ooh/architecture-and-engineering/home.htm

The state of Arizona has a considerable number of aerospace and other technology companies with high demand for skilled labor. In particular, local aerospace companies have a need for those with direct experience and training in the space sector. The concentration in sensor networks is particularly positioned to provide this training.

Contact information

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