SYSTEMS ENGINEERING (ENSE)

Graduate Degree Program
College: Engineering

Abstract

Students in the broadly-based, cross-disciplinary Master of Science in Systems Engineering (ENSE) program at ISR benefit both academically and professionally by:

- Being exposed to a wide range of systems engineering principles and software tools tailored toward support for visual modeling of systems, requirements engineering, system-level modeling, optimization and trade-off analysis, and human factors engineering.
- Becoming familiar with the financial and management issues associated with complex engineering systems.
- Acquiring a deep understanding of one particular application area.
- Becoming familiar for opportunities for leadership within the systems engineering profession.
- Designed with substantial industry input, the ENSE curriculum represents the University of Maryland's first multi-college graduate degree program involving the A. James Clark School of Engineering.

In addition to the technical management of systems projects, the ENSE program covers a wide range of topics, from systems definition, requirements and specifications, to systems design, implementation, and operation. Students specialize in one technical area, selected from computer and software systems, communication and networking systems, signal processing systems, control systems, manufacturing systems, operations research, transportation systems, and robotics. The ENSE program draws upon the extensive engineering, computer science and management experience of the faculty of University of Maryland faculty. The program makes optimum use of the university's advanced facilities, including extensive libraries of numerical, symbolic, and visualization software, engineering workstations, and wireless communication networks.

Financial Assistance

Prospective and current students may seek support for their studies through graduate research assistantships with ISR faculty or graduate fellowships. Students currently working in industry, the military, or the government, who plan to pursue their graduate studies part-time, might ask their employers about tuition assistance. All applicants are encouraged to explore sources of external funding; a number of comprehensive Internet sites, such as fastweb.com, offer detailed information and application instructions.

Contact

Master of Science in Systems Engineering (ENSE) Program
Institute for Systems Research
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8223 Paint Branch Drive
University of Maryland
College Park, MD 20742
Telephone: 301.405.4419
Fax: 301.314.9920

Email: jmaccharts@umd.edu
Website: http://www.isr.umd.edu/education/systems-engineering-education

Courses: ENSE


Admissions

GENERAL REQUIREMENTS

- Statement of Purpose
- Transcript(s)
- TOEFL/IELTS/PTE (international graduate students (https://gradschool.umd.edu/admissions/english-language-proficiency-requirements))

PROGRAM-SPECIFIC REQUIREMENTS

- GRE General highly recommended for applicants seeking financial support
- 3 Letters of Recommendation
- CV/Resume

For more admissions information or to apply to the program, please visit our Graduate School website: www.gradschool.umd.edu/admissions

Application Deadlines

<table>
<thead>
<tr>
<th>Type of Applicant</th>
<th>Fall Deadline</th>
<th>Spring Deadline</th>
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<tbody>
<tr>
<td>Domestic Applicants</td>
<td>Priority: 15 Dec / Final: 28 Sep</td>
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<tr>
<td>US Citizens and Permanent Residents</td>
<td>15 Mar</td>
<td></td>
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<td>International Applicants</td>
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</table>
F (student) or J (exchange visitor) visas; A,E,G,H,J and L visas and immigrants

Other Deadlines: Please visit the program website at http://www.isr.umd.edu/education/systems-engineering-education

Requirements

- Systems Engineering, Master of Science (M.S.) (https://academiccatalog.umd.edu/graduate/programs/systems-engineering-ense/systems-engineering-ms)

Facilities and Special Resources

Modern laboratory, computation, and networking environments play an indispensable role in both the development and day-to-day operation of the research and education programs at the Institute for Systems Research. In all of the ISR laboratories, real-life experiments and associated research studies are enabled through the integrated design of automation and information engineering systems. Computational environments support advanced numerical simulation, sensing and control, and automated design of complex heterogeneous engineering systems. Networking environments play an indispensable role in enabling of interdisciplinary teams of faculty and students to work together. Prototype designs in both hardware and software have led to technological discoveries and patentable inventions.

ISR was established in 1985 as one of the first six National Science Foundation Engineering Research Centers (ERCs). Now a self-sustaining ERC, it is a permanent state-supported institute of the University of Maryland, within the A. James Clark School of Engineering. ISR faculty and graduate students perform basic and applied research with an emphasis on six major research directions: systems engineering methodologies and tools, global communications systems, sensor-actuated networks, next generation product-realization systems, societal infrastructure systems, and cross-disciplinary systems engineering education. ISR seeks a cohesive and balanced approach to the modeling, design, and control of large heterogeneous systems, bringing together a diversified team of outstanding engineers, scientists, and students to research, develop, and implement advances in systems engineering.

Faculty

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First/Middle Name</th>
<th>Graduate Faculty Status</th>
<th>Academic Credentials</th>
<th>Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abed</td>
<td>Eyad</td>
<td>Full Member</td>
<td>B.S., Massachusetts Institute of Technology, 1979; M.S., University of California-Berkeley, 1981; Ph.D., 1982. GCEN Academic Advisor for Systems Engineering</td>
<td>Professor, Electrical and Computer Engineering Professor, Systems Engineering</td>
</tr>
<tr>
<td>Adomaitis</td>
<td>Raymond A.</td>
<td>Full Member</td>
<td>B.S., Illinois Institute of Technology, 1984; Ph.D., 1988.</td>
<td>Professor, Systems Engineering</td>
</tr>
<tr>
<td>Ball</td>
<td>Michael O.</td>
<td>Full Member</td>
<td>B.E.S., Johns Hopkins University, 1972; M.S.E., 1972; Ph.D., Cornell University, 1977.</td>
<td>Professor, Systems Engineering</td>
</tr>
</tbody>
</table>

Abshire  Pamela  Full Member  B.S., California Institute of Technology, 1992; M.S., The Johns Hopkins University, 1997; Ph.D., The Johns Hopkins University, 2001.  Associate Professor, Systems Engineering |

Adomaitis Raymond A. Full Member B.S., Illinois Institute of Technology, 1984; Ph.D., 1988. Professor, Systems Engineering |


Ball Michael O. Full Member B.E.S., Johns Hopkins University, 1972; M.S.E., 1972; Ph.D., Cornell University, 1977. Professor, Systems Engineering |

Baras John S. Full Member B.S., National Technical University of Athens, 1970; S.M., Harvard University, 1971; Ph.D., 1973. Professor, Systems Engineering |
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Full Member</th>
<th>Education</th>
<th>Current Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barg</td>
<td>Alexander</td>
<td>Full Member</td>
<td>Ph.D., Moscow, Russia, 1983-1987; Moscow Computer Engineering Professor, 1983-1987</td>
<td>Professor, Electrical and Computer Engineering</td>
</tr>
<tr>
<td>Barua</td>
<td>Rajeev K.</td>
<td>Full Member</td>
<td>B.S., Indian Institute of Technology-Delhi, 1992; M.S., Massachusetts Institute of Technology, 1994; Ph.D., 2000.</td>
<td>Professor, Electrical and Computer Engineering</td>
</tr>
<tr>
<td>Bergbreiter</td>
<td>Sarah E.</td>
<td>Full Member</td>
<td>B.E., Princeton University, 1999; M.S., University of California-Berkeley, 2004; Ph.D., University of California, 2007</td>
<td>Associate Professor, Mechanical Engineering</td>
</tr>
<tr>
<td>Chopra</td>
<td>Nikhil</td>
<td>Full Member</td>
<td>Bachelor of Technology Honors Mechanical Engineering, Indian Institute of Technology, Kharagpur, India, 2001; Ph.D., Systems and Entrepreneurial Engineering, University of Illinois at Urbana-Champaign, 2006.</td>
<td>Associate Professor, Mechanical Engineering</td>
</tr>
<tr>
<td>Cleaveland</td>
<td>Walter Rance</td>
<td>Full Member</td>
<td>B.S., Duke University, 1982; M.S., Cornell University, 1985; Ph.D., Cornell University, 1987.</td>
<td>Professor, Systems Engineering, Computer Science</td>
</tr>
<tr>
<td>Cukier</td>
<td>Michel</td>
<td>Full Member</td>
<td>Ph.D., National Polytechnic Institute of Toulouse, France, 1996</td>
<td>Associate Professor, Mechanical Engineering</td>
</tr>
<tr>
<td>Ephremides</td>
<td>Anthony</td>
<td>Full Member</td>
<td>B.S., National Technical University of Athens, 1967; M.A., 1969; Ph.D., Princeton University, 1971.</td>
<td>Distinguished University Professor, Electrical and Computer Engineering</td>
</tr>
</tbody>
</table>
Fu Michael C. Full Member S.B., Massachusetts Institute of Technology, 1985; S.M., Harvard University, 1986; Ph.D., 1989.


Ghodssi Reza Full Member B.S., University of Wisconsin-Madison, 1990; M.S., 1992; Ph.D., 1996.

La Richard Full Member B.S., University of Maryland-College Park, 1994; M.S., University of California-Berkeley, 1997; Ph.D., 2000.

Gupta Satyandra K. Full Member B.E., University of Roorkee, 1988; M. Technology, Indian Institute of Technology-Delhi, 1989; Ph.D.,University of Maryland-College Park, 1994.


Herrmann Jeffrey W. Full Member B.S., Georgia Institute of Technology, 1990; Ph.D., University of Florida, 1993.

Makowski Armand M. Full Member B.S., Universite Libre de Bruxelles-Belgium, 1975; M.S., University of California-Los Angeles, 1976; Ph.D., University of Kentucky, 1981.
Marcus Steven I. Full Member B.A., Rice University, 1971; S.M., Massachusetts Institute of Technology, 1972; Ph.D., 1975. Professor, Electrical and Computer Engineering Professor, Applied Mathematics & Statistics, and Scientific Computation Professor, Systems Engineering

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Nau Dana S. Full Member B.S., University of Missouri-Rolla, 1974; A.M., Duke University, 1976; Ph.D., 1979. Professor, Mechanical Engineering

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Srivastava  Ankur  Full Member
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Zhang  Guangming  Full Member
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