**WHY SYSTEMS SCIENCE**

Systems science provides you with the concepts, principles and methods for understanding the nature of systems problems and proficiency in actual systems problem solving.

You’ll delve into problem classes such as systems modeling and simulation, systems analysis and synthesis, as well as various problems associated with the simplification of overly complex systems to make them manageable.

The program emphasizes the complementary use of mathematical, computational and heuristic approaches to solving systems problems. Students learn to analyze assumptions under which various methods are applicable, with the aim of selecting methods that best fit the problem.

**RESEARCH AREAS**

- Fuzzy Logic
- Data Analysis and Knowledge Discovery
- Uncertainty Theories
- Generalized Information Theory
- Soft Computing
- Intelligent Control and Robotics
- Decision Making
- Complex Systems

**REQUIREMENTS**

**Master’s in Systems Science (MS SS)**

Students must complete the required courses while maintaining at least a B average.

**Curriculum**

- SSIE 501, Introduction to Systems Science
- SSIE 505, Introduction to Applied Probability and Statistics
- SSIE 506, Systems Problem Solving
- SSIE 520, Modeling and Simulation

**Thesis option**: 4 electives* plus 6 credits of thesis work followed by oral presentation and defense.

**Non-thesis option**: 6 electives* plus a project of at least 3 credits.

*At least one elective must be at the 600 level.

**PhD in Systems Science (PhD SS)**

Degree requirements include:

- satisfaction of the learning contract, including proficiency in teaching and residence requirements
- satisfaction of the comprehensive qualifying requirement
- presentation of a colloquium on proposed research
- acceptance of a prospectus outlining dissertation research
- submission of a dissertation, and
- defense of a dissertation at oral examination

Course descriptions are available in the University Bulletin at bulletin.binghamton.edu.

**MS SS**:

A health systems concentration is also available. Contact the graduate director to learn more about this track.

An executive program with a health systems concentration, in Manhattan, is also available.
ABOUT THE SSIE DEPARTMENT

The Department of Systems Science and Industrial Engineering has 10 faculty members and approximately 211 undergraduate, 95 master’s and 72 doctoral students. We offer the BS degree in industrial and systems engineering (ISE), MEng degree in industrial engineering (IE), MEng degree in systems engineering (SE) and MS and PhD degrees in both systems science and ISE.

FACULTY AND RESEARCH

The SSIE department has secured more than $2.9 million in research funding in 2011-12. Our faculty works collaboratively with more than 24 sponsors from industry and federal agencies. The department’s reputation is rapidly expanding. We have already gained international recognition in the electronics manufacturing and packaging area and are now gaining rapid growth in health systems, working with such major hospital systems as United Health Services, Virtua Health, Upstate University Hospital and Montefiore Medical Center. In addition, Binghamton University, as part of its five-year strategy, has identified natural sciences, healthcare systems and smart energy as major areas of interest.

EARN YOUR GRADUATE DEGREE REMOTELY

EngiNet, the Watson School’s Graduate Distance Learning Program, uses software to digitally capture both classroom lectures and presentation materials. The lectures are posted on the course management system. Students use the online media in conjunction with course materials posted on each course website. Online files are usually posted within 24 hours of being recorded.

For additional information about courses, tuition or registration, send an e-mail to jkinzer@binghamton.edu or call 607-777-4965 (toll free 1-800-478-0718).

FOR MORE INFORMATION

SS Graduate Director, Dr. Hal Lewis: hlewis@binghamton.edu

ABOUT THE WATSON SCHOOL

With an innovative curriculum and real-world approach, the Thomas J. Watson School of Engineering and Applied Science at Binghamton University prepares engineering and computer science students to embrace new challenges and create the future.

The Watson School offers bachelor’s, master’s and doctoral programs in eight fields of study including bioengineering, biomedical engineering, computer science, computer engineering, electrical engineering, industrial and systems engineering, mechanical engineering and systems science. For all students, the Watson School experience is characterized by a special blend of creative thinking, professional opportunities and a focus on finding solutions to real problems.

Located in Binghamton, N.Y., we’re ideally situated in the high-tech heart of the state. Industry partnerships, class projects and internship opportunities provide a wealth of hands-on experience for graduate and undergraduate students alike.

Our faculty brings considerable industry and research expertise to the classroom, where they mentor students as individuals in small classes. In the lab, they encourage student involvement and make breakthrough discoveries.

Students come to the Watson School from all over the country and the world, and they represent a wide range of backgrounds and interests. They graduate with broad-based skills and the entrepreneurial spirit to succeed in a variety of fields. We’re eager to tell you more about the Watson School experience. Contact us for more information, or apply today!

STUDENT CLUBS AND ORGANIZATIONS

Alpha-Pi-Mu Honor Society
Institute of Industrial Engineers (IIE)
Society of Hispanic Professional Engineers

A full listing of student groups is available at binghamton.edu/watson/about/clubs-and-orgs.html.