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# Master of Science in Advanced Technology (MSAT)

## Coordinator's Message

The Master of Science in Advanced Technology (MSAT) is an interdisciplinary program with an emphasis on practical applications. It is offered jointly by the Civil, Electrical, Industrial and Mechanical Engineering Technology Departments and incorporates the demonstrated strengths in these technologies.

The eleven full-time and three part-time faculty members in this program represent a wide range of academic, research and applied specialties. The faculty work closely with outside organizations with related interests. For example, the ongoing Educational Partnership Agreement between SUNY Institute of Technology and Air Force Research Laboratory, Rome, N. Y. afford both students and faculty a variety of opportunities for collaborative research projects and personnel exchanges. These relationships also provide for mutual sharing of computing, research and library facilities. Electrical Engineering Technology faculty are involved in research sponsored by the U.S. Air Force Office of Scientific Research and other external funding agencies. Faculty in the Mechanical Engineering Technology Department have established a working relationship with the Advanced Computing Architectures/Micro-Electro Mechanical System (MEMS) group at the Air Force Research Lab (AFRL), Rome, NY. These collaborative efforts give students in this discipline, opportunities for joint projects and idea exchanges with other professionals working in these fields.

The MSAT program is designed for students interested in a high-quality multidisciplinary program that will facilitate career advancement in advanced technology areas. To that end students are helped to develop a plan of study to match their individual educational needs. Students are able to take courses in business, telecommunications, the computer sciences, and information design and technology as part of their degree.

*F. Andrew Wolfe, Ph.D., P.E.*  
*Program Coordinator*

## The Program

The Master of Science in Advanced Technology (MSAT) is an interdisciplinary practice-oriented program that provides a seamless path to a Master of Science degree for students who have earned an engineering, engineering technology, physics, mathematics or similar baccalaureate degree. It will be of value to individuals interested in upgrading their academic credentials and seeking career advancement in advanced technology. The American Society for Engineering Educa-

tion (ASEE) has endorsed the concept of practice-oriented masters programs.

## Degree Requirements

The MSAT is a well-rounded, 33-credit program that provides the student with knowledge and practical applications. Each student, in consultation with an advisor, develops a plan of study to satisfy the degree requirements. There is a project to culminate the effort in lieu of a thesis. The six-credit project may be completed concurrently with the course work or may occur after the ninth course is taken. Additional coursework may be substituted for the project on an individual basis.

Courses ( 3 credits each).

Required Courses – Take at least three (9 credits)

MST-503 Special Topics in Advanced Technology

MST-520 Network Technology for Multimedia Systems

MST-510 Engineering & Society

MST-673 System Simulation

MST-680 Reliability & Quality Assurance

Electives – 24 credits

A. Designated Electives: (minimum 12 credits)

Courses selected from the designated graduate electives of MSAT or courses designated by the MSAT program coordinator as appropriate equivalents to MSAT courses.

B. General Electives: (Up to 12 credits) May be chosen from among MSAT courses or any of the graduate offerings at SUNYIT. Transferred credits count as general electives.

If students decide to take MST-690 Project they must complete 6 credits of project work to receive credit for the course.

Concentrations: Students can develop a program of study which will allow them to concentrate in the following areas: General MSAT, Electrical, Industrial, Mechanical or Transportation.

## Admissions Criteria

1. A baccalaureate degree with an upper division major in engineering, engineering technology, physics, mathematics or a related area from an accredited college or university. Students who have earned a baccalaureate degree in a discipline other than mentioned above, but who possess significant work

experience (3-5 years) in an engineering/manufacturing area will be considered for admission on an individual basis.

2. An average of B or better for the last 30 credit hours of undergraduate or graduate coursework (a GPA of 3.0 on a 4.0 point scale). Applicants with GPA below 3.0 for the last 30 credit hours may be considered if they can demonstrate graduate potential via other means.
3. Official scores on the Graduate Record Examination (GRE) within the past five years. The score required for acceptance into the program would vary depending upon the student's academic background, professional experience and letter of recommendation. Applicants without GRE scores are evaluated on an individual basis and may be admissible pending receipt of scores at a later date.
4. Applicants should have submitted evidence of personal and professional qualifications via one to three professional references.
5. Applicants should have submitted a narrative statement of professional objectives for graduate study.
6. Applicants with deficiencies may be required to take appropriate additional coursework above the 33 credit hour program total as recommended by an MSAT graduate faculty advisor. These courses will be identified at the time of admission and will be built into the student's official program of study.

## Laboratory Facilities

SUNYIT supports a practice-oriented learning environments in all primary areas of academic offerings. The Master of Science in Advanced Technology is supported by several state-of-the-art laboratories containing a wide variety of equipment including a laboratory which is interconnected with an optical network. The laboratories are also supported with the latest software including AUTOCAD, ALGOR, SMARTCAM, MINITAB, MATLAB/SIMULINK, ProE, LabVIEW, OPNET, SYNCHRO, CORSIM, and HCS. In addition, SUNYIT maintains extensive library holdings in support of the Master of Science in Advanced Technology program.

## Faculty

**Daniel S. Benincasa, Associate Professor, Ph.D., RPI.** Audio and speech processing, digital and analog communication systems, information assurance and intelligent signal processing.

**Timothy E. Busch, Assistant Professor, Ph.D.** Binghamton University. Adversarial modeling, operationally focused simulation, multi-resolution modeling, control system reconfigurability.

**William Confer, Assistant Professor, Ph.D.** Auburn University. Embedded/wireless systems, architecture simulation, software engineering, and artificial intelligence.

**Digendra Kumar Das, Professor, Ph.D.** University of Manchester Institute of Science and Technology. CAD/CAM/CIM, fluid/prognostics, turbomachinery and thermal sciences and MEMS.

**Heather M. B. Dussault, Research Assistant Professor, Ph.D.** RPI. Semiconductor and electronic system reliability, digital design and forensics, programmable microsystems, biological analogies for processing information.

**Atlas Hsie, Associate Professor, CmfGE, CQE, CRE, M.S.** University of Michigan. M.S., University of Akron. Quality & Reliability Engineering, engineering economics, production management, CAM & robotics.

**Naseem Ishaq, Associate Professor, Ph.D.** London University. Vision, VLSI and networking

**Daniel K. Jones, Associate Professor, Ph.D., P.E.** University of Pittsburgh. Rehabilitation engineering and assistive technology, experimental fluid mechanics, industrial instrumentation, and signal processing.

**John Marsh, Associate Professor, Ph.D.** Carnegie Mellon University. Routing in complex networks, wireless communications systems, statistical mechanics, signal analysis, passive and active integrated optics, and fiber optic networks.

**Michael J. Medley, Assistant Professor, Ph.D.** RPI. Adaptive signal processing, digital communications, wireless information assurance, and integrated systems.

**Salahuddin Qazi, Professor, Ph.D.** Loughborough University of Technology. Fiberoptics, optical and wireless communications.

**Mohamed Rezk, Associate Professor, D.Eng.** Concordia University. Circuit theory, computer-aided circuit design and digital filters.

**Anglo-Kamel Tadros, Associate Professor Emeritus, Ph.D.** University of Bradford. Mechanics of sheet metal forming, computer-aided engineering, finite element analysis.

**F. Andrew Wolfe, Associate Professor, Ph.D., P.E.** RPI. Traffic flow, transportation planning, engineering interaction with society, Erie Canal archeology.