Faculty

David L. Ferguson, Distinguished Service Professor, Ph.D., University of California, Berkeley: Quantitative methods; computer applications (especially intelligent tutoring systems and decision support systems); mathematics, science, and engineering education. Recipient of the State University Chancellor’s Award for Excellence in Teaching, 1992, President’s Award for Excellence in Teaching, 1992.

Joseph S. Hogan, Associate Professor Emeritus, Ph.D., New York University: Planetary atmospheres; environmental satellites; climate change.

Herbert F. Lewis, Lecturer, Ph.D. Stony Brook University: Operations research/management science; operations management; decision support systems; productivity efficiency.


Lester G. Paldy, Distinguished Service Professor, M.S., Hofstra University: Nuclear arms control; science policy.

Emil J. Piel, Professor Emeritus Ed.D, Rutgers University: Decision making; technology-society issues; human-machine systems.

Sheldon J. Reaven, Associate Professor, Ph.D., University of California, Berkeley: Science and technology policy; energy and environmental issues; environmental and waste management, risk analysis and life-cycle analysis; nuclear, chemical, and biological threats; technology assessment.

Lori Scarlatos, Associate Professor, Ph.D., Stony Brook University: Computer-human interaction; multimedia and education; computer graphics.

Karen Sobel-Lojeski, Visiting Assistant Professor, Ph.D., Stevens Institute of Technology: Interdisciplinary research on the impact of information and communication technology on human behavior, cognition, innovation, leadership and industrial and organizational psychology.

Guodong Sun, Assistant Professor, Ph.D., Carnegie Mellon University: Energy-technology innovation; global climate change; energy, environmental policy, environmental management, and regulatory reform in China.

Tian-Lih Teng, Visiting Professor, Ph.D., University Of Pittsburgh: Electrical engineering; computer science; management of information systems; electronic commerce.

David J. Tonjes, Assistant Professor, Ph.D., Stony Brook University: Technology and environmental impact assessments; solid waste and impacts of alternative energy.

John G. Truxal, Distinguished Teaching Professor Emeritus. Sc.D., Massachusetts Institute of Technology: Control systems; technology-society issues.

Marian Visich, Jr., Professor Emeritus. Ph.D., Polytechnic Institute of Brooklyn: Aerospace engineering; technology-society issues.

Affiliated Faculty

William F. Collins, Neurobiology and Behavior
Gary Halada, Materials Science and Engineering
Gary Mar, Philosophy
Miriam Rafailovich, Materials Science and Engineering
Henry White, Materials Science and Engineering

Adjunct Faculty

Estimated number: 23
Teaching Assistants
Estimated number: 10

The Department of Technology and Society offers the major in Technological Systems Management leading to the Bachelor of Science degree. The program integrates a foundation in the natural sciences, engineering, applied sciences, or environmental studies with applications in technology systems, assessment, and management. The Department also offers a minor in Technological Systems Management.

The major prepares students for careers in government, industry, or education in positions such as manager of computer network systems, manager of information systems, quality control specialist, systems or environmental analyst, technical sales representative, or technology trainer/educator—in short, all professions and business ventures that are dependent on technological applications and implementation and in which project management is key to success. Students are also prepared for advanced study in areas such as business, law, education, policy analysis, and industrial or environmental management.

The Department’s focus is on technological advances that shape every facet of modern life. Students develop understanding of the characteristics, capabilities, and limitations of current and emerging technologies. Successful practices in government, industry, education, and personal life depend on such understanding. The Department applies engineering concepts that underlie technological change and that form the bridge from engineering to other disciplines. In this multidisciplinary approach, the Department provides one of the vehicles by which Stony Brook interacts with other universities and colleges, pre-college institutions, professional schools, government, and industry. Effective management of modern technologies requires use of tools from many domains: science and engineering, information technologies, economics, legal and regulatory practice, psychology and sociology, design and assessment.

Courses Offered in Technology and Society

See the Course Descriptions listing in this Bulletin for complete information.

EST 100 Computer Literacy in a Digital Era
EST 102-E Weather and Climate
EST 104 Projects in Technology and Society
EST 102 Introduction to Modern Engineering
EST 194C Patterns of Problem Solving
EST 201-H Technological Trends in Society
EST 202 Introduction to Science, Technology, and Society Studies
EST 210 Learning to Learn New Technologies
### Sample Course Sequence for the Major in Technological Systems Management

<table>
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<tr>
<th>Freshman</th>
<th>Credits</th>
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<tr>
<td>First Year Seminar 101</td>
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<td>EST 192</td>
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<tr>
<td>AMS 151</td>
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<tr>
<td>Natural Science 1</td>
<td>4</td>
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<tr>
<td>D.E.C. A</td>
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<th>Credits</th>
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<tbody>
<tr>
<td>EST Elective</td>
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<tr>
<td>AMS 102*</td>
<td>3</td>
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<tr>
<td>EST 202</td>
<td>3</td>
</tr>
<tr>
<td>PHI 108 * (D.E.C. B)</td>
<td>3</td>
</tr>
<tr>
<td>Specialization course</td>
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<tr>
<td><strong>Total</strong></td>
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<tr>
<th>Junior</th>
<th>Credits</th>
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<td>EST Elective</td>
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<tr>
<td>AMS 102*</td>
<td>3</td>
</tr>
<tr>
<td>EST 202</td>
<td>3</td>
</tr>
<tr>
<td>PHI 108 * (D.E.C. B)</td>
<td>3</td>
</tr>
<tr>
<td>Specialization course</td>
<td>3</td>
</tr>
<tr>
<td>D.E.C.</td>
<td>3</td>
</tr>
<tr>
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<tr>
<th>Senior</th>
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<td>Specialization course 300/400 level</td>
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<tr>
<td>D.E.C.</td>
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<td><strong>Total</strong></td>
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</tbody>
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* recommended course

### Requirements for the Major in Technological Systems Management (TSM)

Students must complete a specialization in one of the following: natural science, engineering, and applied science, or environmental studies. (For those students who have a major in one of those areas and who pursue Technological Systems Management as a second major, the first major will serve as the specialization.)

Completion of the major requires approximately 79 credits.

#### A. Mathematics

AMS 151, 161 Applied Calculus I, II
Note: The following alternate calculus course sequences may be substituted for AMS 151, 161:

MAT 125, 126, 127
or MAT 131, 132
or MAT 141, 142
or MAT 171

B. Natural Sciences
One of the following sequences:
1. PHY 131/133 and PHY 132/134
   Classical Physics I, II and Laboratories
   Note: The following alternate physics course sequences may be substituted for PHY 131/133 and 132/134:
   - PHY 121/123 and 122/124
   - or PHY 125, 126, 127
   - or PHY 141, 142
2. BIO 150 The Living World and BIO 201 Fundamentals of Biology: Organisms to Ecosystems
3. CHE 131, 132/133 General Chemistry I, II and lab
   or CHE 141, 142/143 Honors Chemistry I, II and Laboratories
4. GEO 102, 112 The Earth/Physical Geology Lab and GEO 309 Structural Geology
5. BIO 201 Principles of Biology: Organisms to Ecosystems and one of the following:
   - GEO 101 Environmental Geology
   - MAR 104 Oceanography
   - ATM 102 Weather and Climate
   - ENS 101 Prospects for Planet Earth

C. Study in Related Areas: Specialization
A cluster of seven related courses, totaling at least 21 credits, in one area of natural science, engineering, applied science, or environmental studies from a single department or program. At least three courses, totaling at least nine credits, must be at the 300 or 400 level, or equivalent as approved by the undergraduate program director.

D. Technological Systems Management
1. Required courses (11)
   - EST 192 Introduction to Modern Engineering
   - EST 194 Patterns of Problem Solving
   - EST 202 Introduction to Science, Technology, and Society Studies
   - EST 305 Applications Software for Information Management
   - EST 326 Management for Engineers
   - EST 327 Marketing for Engineers
   - EST 391 Technology Assessment
   - EST 392 Engineering and Managerial Economics
   - EST 393 Project Management
   - EST 440 Interdisciplinary Research Methods
   - EST 441 Interdisciplinary Senior Project
2. Electives
   - EST 213 Studies in Nanotechnology
   - EST 304 Communication for Engineers and Scientists
   - EST 310 Design of Computer Games
   - EST 320 Communication Technology Systems
   - EST 323 Human Computer Interaction
   - EST 331 Ethics and Intellectual Property
   - EST 341 Treatment Technologies

Note: Students may take other 300 or 400 level courses in their area of specialization with the approval of the Undergraduate Program Director.

E. Upper-Division Writing Requirement
All degree candidates must demonstrate skill in written English at a level acceptable for Technological Systems Management majors. To satisfy this requirement, a TSM major must submit a paper written for an upper-division EST course for review. Students whose writing does not meet the required standard are referred for remedial help. The requirement may also be met by earning a letter grade of C or higher in a writing-intensive course approved by the Department or, if the student has a double major, by satisfying the upper-division writing requirement in the other major.

Grading
All courses taken to satisfy requirements A through D above must be taken for a letter grade. A grade of C or higher is required in all.

Requirements for the Minor in Technological Systems Management (TSM)
All students must complete six or more of the following EST electives (minimum 18 credits) with a g.p.a. of 2.50 or higher. No grade less than C may be used to meet the requirements for the minor. EST courses counted toward the requirements for a student’s major may not be counted towards the requirements for the TSM minor.

All students must complete six or more of the following EST courses (minimum 18 credits) with a g.p.a. of 2.50 or higher. No grade less than C may be used to meet the requirements for the minor. EST courses counted toward the requirements for a student’s major may not be counted towards the requirements for the TSM minor.

- EST 192 Introduction to Modern Engineering
- EST 303 Crisis Communication
- EST 304 Communication for Engineers and Scientists
- EST 305 Applications Software for Information Management
- EST 320 Communication Technology Systems
- EST 323 Human Computer Interaction
- EST 331 Ethics and Intellectual Property
- EST 341 Treatment Technologies

Another EST course with permission of the Undergraduate Program Director

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