

Information for **IST STUDENTS** interested in the
Engineering Entrepreneurship (E-SHIP) Minor

The College of Engineering, in cooperation with the Smeal College of Business, launched the new Engineering Entrepreneurship Minor in Spring 2002. This interdisciplinary minor supports technology entrepreneurship development for all students, especially those majoring in engineering, business and IST (Information Sciences and Technology).

To be involved in technology startups or to be "intrapreneurial" in existing corporation, students should have basic knowledge of business finance, marketing, and intellectual property law. Likewise, non-technical students need a working knowledge of the engineering design process, basic engineering principles, graphics, and computer-aided design. The E-SHIP Minor is structured to provide the needed "cross-training" to have IST, engineering and business students work effectively on product development teams. In addition, all students must develop solid skills in leadership, creativity and innovation in order to conceive, produce and promote creative product designs and solutions.

Courses in the E-SHIP Minor use problem-based learning, case studies and new product prototyping. Core course content include business model development, leadership, dealing with (and maybe even thriving with) ambiguity, creativity and open-ended product design. The Minor consists of 18 credits, defined as 12 "core" credits and at least 6 additional supporting courses. For more information on the E-SHIP Minor, check the web at <http://e-ship.psu.edu>. To complete the E-SHIP Minor, an IST student must complete the four core courses below, 3 credits each, listed in the suggested sequence. Courses can be taken concurrently, such as ENGR310 and ENGR411, or ENGR411 and ENGR407.

<u>Core Course Number</u>	<u>Course title</u>	<u>Normal Semesters Offered</u>
ENGR310	Entrepreneurial Leadership	Fall and Spring
ENGR411	Entrepreneurship Business Basics	Fall and Spring
ENGR407	Technology-based Entrepreneurship	Fall and Spring
ENGR497x/ENTR430	Entrepreneurship and New Product Development	Spring Only

IST students select from the following list for 6 additional supporting credits:

- STS200 (3) Critical Issues in Science, Technology and Society
- STS420 (3) Energy and Modern Society
- STS470 (3) Technology Assessment and Transfer
- ACS410 (3) General Acoustics
- AERSP055 (3) Space Science and Technology
- AERSP200 (3) Principles of Aviation
- AE200 (3) Introduction to Structures
- ECON351 (3) Money and Banking
- ECEEM100 (3) Minerals and Resources and the Global Economy
- ECEEM483 (3) Materials Policy and Markets
- EGEE120 (3) Oil: International Evolution
- EMCH11 (3) Statics
- EMCH12 (3) Dynamics
- IE302 (3) Engineering Economy
- ACCTG211 (4) Financial and Managerial Accounting for Decision Making
- FIN100 (3) Introduction to Finance
- MGMT100 (3) Survey of Management
- BLAW 243 (3) Legal Environment of Business
- MKTG 221 (3) Contemporary American Marketing
- BA250 (3) Problems of Small Business
- ENGR497B (3) Stage II E-SHIP Projects
- QMM492 (3) Introduction to Engineering Design Principles
- [MGMT/IST/ENGR425 \(3\) New Venture Creation](#)
- [MGMT/IST/ENGR426 \(3\) Invention Commercialization](#)

Other courses can be approved as supporting credit that meet the technology and business orientation of this list.

QUESTIONS? Contact Liz Kisenwether, Director, E-SHIP Minor at 863-1531 or exk13@psu.edu