

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

The College of Engineering, in cooperation with the Smeal College of Business and College of IST, has established the Engineering Entrepreneurship Minor. This interdisciplinary minor supports technology entrepreneurship development for all undergraduate students from all majors.

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. In addition, students should have a working knowledge of the product design process, graphics, and computer-aided design. The E-SHIP Minor provides this needed "cross-training" so students work effectively on product development and new venture teams. Also, 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, business model development, and new product prototyping. Core courses include business plan presentations and competitions, and open-ended product design and innovation problems. 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>.

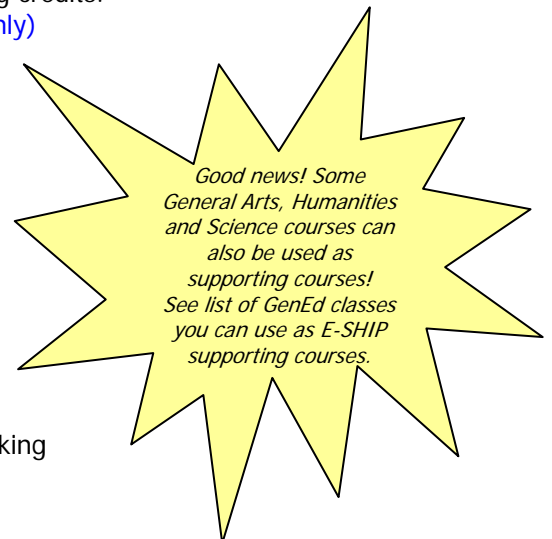
To complete the E-SHIP Minor, non-business students must complete the four core courses below, 3 credits each, listed in the suggested sequence. Courses can be taken concurrently.

<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	E-Ship Capstone	Spring Only

***NOTE:** Students should consider taking QMM492 – Introduction to Engineering Design Principles. This course provides hands-on product design projects, teamwork skill development and introduction to computer-aided design. If you have not taken any business classes, taking ENGR411 should be the priority.*

Students can select from the following sample list for 6 additional supporting credits.

- [QMM492 \(3\) – Introduction to Engineering Design Principles \(Fall only\)](#)
- 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
- STS055 (3) Space Science and Technology
- AERSP200 (3) Principles of Aviation
- AE200 (3) Introduction to Structures
- ECON351 (3) Money and Banking
- EGEE100 (3) Minerals and Resources and the Global Economy
- EGEE483 (3) Materials Policy and Markets
- EGEE120 (3) Oil: International Evolution
- 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
- ENGR496 (3) Stage II E-SHIP Projects [Independent Study]
- [MGMT/IST/ENGR425 \(3\) New Venture Creation](#)
- [MGMT/IST/ENGR426 \(3\) Invention Commercialization](#)



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