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

The College of Engineering, in cooperation with the Smeal College of Business Administration, is launching a new Engineering Entrepreneurship (E-SHIP) Minor. 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 "intraprenuerial" in existing corporation, business students should have a working knowledge of the engineering design process, basic engineering principles, graphics, and computer-aided design. Engineering and IST students should have basic knowledge of business finance, marketing, and intellectual property law. The E-SHIP Minor is structured to provide the needed "cross-training" to have business, engineering and IST 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 products and solutions.

Courses in the E-SHIP Minor use problem-based learning, case studies and new product prototyping. Core courses include business plan presentations and competitions, and open-ended design problems. The Minor consists of 18 credits, defined as 12 "core" credits and 6 additional supporting credits. For more information on the E-SHIP Minor, check the web at http://e-ship.psu.edu

To complete the E-SHIP Minor, a Business Student must complete these four core courses, 3 credits each, listed in the suggested sequence. Any two adjacent courses in the list below can be taken concurrently, such as ENGR310 and QMM492, or QMM492 and ENGR407.

Core Course Number	**Course title**	**Normal Semesters Offered**
ENGR310	Entrepreneurial Leadership	Fall and Spring
QMM492	Intro. to Engineering Design Principles	Fall Only
ENGR407	Technology-based Entrepreneurship	Fall, Spring, Summer
ENGR497x/ENTR430	E-ship and New Product Development	Spring Only

Business students select from the following list for at least additional 6 supporting credits. Semester shown is the suggested offering. IST110 has preferential admission to first-year and sophomore students.

- STS200 (3) Critical Issues in Science, Technology and Society (Social and Behavioral Science)
- STS420 (3) Energy and Modern Society
- STS470 (3) Technology Assessment and Transfer
- IST110 (4) Introduction to Information Sciences and Technology; Spring } Forms a 7-credit Course Set
- IST210 (3) Organization of Data; Fall
- IST 220 (3) Networking and Telecommunications; Fall
- ACS410 (3) General Acoustics
- STS055 (3) or AERO055 (3) Space Science and Technology (Natural Science)
- AERSP200 (3) Principles of Aviation
- AE200 (3) Introduction to Structures
- CHE301 (3) Principles of Chemical Engineering
- ECON351 (3) Money and Banking
- ENNEC100 (3) Energy and Resources and the Global Economy (Social and Behavioral Science)
- ENNEC 483 (3) Materials Policy and Markets
- IE302 (3) Engineering Economy
- ENGR497x (3) Stage II E-SHIP Team Projects. Teams from the core E-Ship courses can continue product prototyping, business planning, or work as product team on industry-defined project
- New cross-listed courses: **New Venture Creation** (MGMT/IST/ENGR425) and **Invention Commercialization** (MGMT/IST/ENGR426); can be used to meet the new two-course sequence requirement in the College of Business and fulfill the supporting course requirement in the E-SHIP Minor.

Some General Arts, Humanities and Science courses can also be used as supporting courses!

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