



Program in Entrepreneurship Requirements (9 credit hours)

The Program in Entrepreneurship is an academic program that provides U-M students an opportunity to explore entrepreneurship through an academic program. All students that successfully complete the program will be recognized by the Center for Entrepreneurship (CFE). Students participating in the Program are required to take at least one course from each of the following categories resulting in at least 9 credit hours of courses focused on entrepreneurship. Students are *encouraged* to petition the CFE to have other U-M courses (not listed below) included as potential core and elective course.

Currently, successful completion of the program will be annotated on the student's transcript for all College of Engineering undergraduate and graduate students. The CFE is happy to work with non-engineering students to petition for this action by their home school. Please contact the CFE for further information.

There is no fee involved. Students merely need to contact Susan Hill at hillsj@umich.edu to declare their intention to participate in the Program or select "I Declare" at <http://cfe.engin.umich.edu/program>.

Required Course

ENGR 407 - Distinguished Innovator Speaker Series

Prerequisite: None. I (1 credit)

Individual or group study of topics of current interest selected by the faculty. Innovative speakers present their business stories to students.

Instructors: Saitou / Zurbuchen

Core Courses: (choose 1)

EECS 406 (ENGR 406) - High-Tech Entrepreneurship

Prerequisite: None. I (4 credits)

Four aspects of starting high-tech companies are discussed: opportunity and strategy, creating new ventures, functional development, and growth and financing. Also, student groups work on reviewing business books, case studies, and elevator and investor pitches.

Instructor: Islam

EECS 498 - Special Topics

(3 credits)

This seminar will be a project-oriented, software construction-focused course. We will design and build applications for the iPhone and/or the Android phone. Students will form project teams for the design and development effort. To better inform the design and development efforts, we will review key resources such as websites, blogs, articles, and books. In particular, to help contextualize the construction effort, we will use "The Art of the Start" by Guy Kawasaki as the core

textbook in the course. The intent of the course is to produce commercially viable applications for either the iPhone or the Android phone.

Instructor: Soloway

ES 715: Innovative New Business Design

(3 credits)

This synthesis-focused, project-based course integrates elements of various business school and engineering courses into a high-level process for determining how to capture value from an innovation source—specifically a new technology. Designing a new business from an innovation source is the first step in creating a new business from a technological discovery. This course is focused on the design of the business: formulating a sound, detailed, market-driven, value-capturing business concept from a new technology. In this course the product offering (including its sustainable differentiation), a specific target market, and the company's core business model will all be specifically defined.

Instructor: Faley

ENGR 520 - Business Fundamentals Special Topics in Engineering

Prerequisite: Graduate standing or permission of Instructor. (3 credits)

Students are taught entrepreneurial business development screening tools necessary to translate opportunities into businesses with focus on: strategy, finance, and market positioning.

Instructors: Faley / Adriaens

ENGR 521 – Clean Tech Entrepreneurship

Prerequisite: Senior and Graduate Standing (3 credits)

This course teaches the students how to screen venture opportunities in various cleantech domains. Venture assessments are approached through strategic, financial, and market screens, and consider the impact of policy and regulatory constraints on the business opportunity. A midterm, final project, and six homework assignments are required.

FIN/ES 629/329 Research Commercialization Practicum

Prerequisite: None (3 credits)

This course is a practicum, offering an opportunity to apply collective team work of a student/mentor alliance to building a launch pad for a technology-based venture. This course is open to Ross School MBA and BBA students as well as all UM graduate students. Student teams will work with mentors and principal investigators (PI) from UM faculty in the Medical School, College of Engineering and other divisions to build a business and marketing plan for a new technology or invention. Projects are based upon disclosures made to UM Office of Technology Transfer, other universities and industrial companies. Cross-listed with: Fin 329.

Instructor: Brophy

IOE 422 - Entrepreneurship

Prerequisite: Senior Standing. Not for graduate credit (3 credits)

Engineering students will explore the dynamics of turning an innovative idea into a commercial venture in an increasingly global economy. Creating a business plan originating in an international setting will: challenge students to innovate; manage risk, stress and failure; confront ethical problems; question cultural assumptions; and closely simulate the realities of life as an

entrepreneur.

Instructor: Ludwig

Elective Courses (choose at least 1)

EECS 495 - Patent Fundamentals for Engineers

Prerequisite: Junior, senior, or graduate standing. (4 credits)

Fundamentals of patents for engineers: Rules and codes, claim drafting and amendment writing, litigation, ethics, and licensing are covered.

Instructor: Islam

SI 663-1 - Entrepreneurship in the Information Industry

Prerequisite: Graduate Student. (3 Credits)

Prepares students to start businesses in the information industry or to work effectively in new start-up businesses. Discusses aspects of creating a business and expects students to develop an idea into a business plan that could be used to either guide the creation of the business or secure funding for a new business. Instructor: Rosenberg

ENGR 409 - Intro to Venture Capital

Prerequisite: Upperclassman by application. (1 Credit)

This course will prepare students to identify and evaluate commercial opportunities for emerging technologies. The emphasis will be on the design and evaluation of business models and on the methods necessary for rapid yet rigorous analysis of these models. Projects will span multiple disciplines and markets. Students will work in interdisciplinary teams; yet are also expected to contribute to the success of the other teams.

Instructor: Weiser

ENGR 408 - Patent Law

Prerequisite: None. I (1 Credit)

Inventors and entrepreneurs have four concerns related to patent law: protecting their inventions in the very early stages of product development, determining the patentability of their invention, avoiding infringement of a competitor's patent, and leveraging their patent as a business asset. This course will address each of these concerns through the application of case law and business cases to an invention of the Student's choice.

Instructor: Schox

IOE 548 - Integrated Product Development

Prerequisite: Graduate Standing & Permission of Tauber Institute. (3 credits)

This is a Tauber Institute-sponsored graduate elective. Students form multi-disciplinary teams of four/five; teams span business, engineering and art/architecture. A product category is announced, and each team acts as an independent firm competing in that product market performing market research, product design, product development and manufacturing, pricing, demand forecasting, and inventory control. Market share of each team is determined through both a web-based competition and a physical trade show.

Instructor: Lovejoy

ENGR 521 - Clean Tech Entrepreneurship

Prerequisite: Graduate standing or permission of Instructor. (3 credits)

This course teaches the students how to screen venture opportunities in various cleantech domains. Venture assessments are approached through strategic, financial and market screens, and consider the impact of policy and regulatory constraints on the business opportunity.

Instructors: Faley / Adriaens

Practicum:**ENGR 490 - Practicum**

Prerequisite: By application prior to semester (3 credits)

Individual or group study of topics of current interest selected by the faculty.

Instructor: Huang-Saad

ENGR 590 - Independent Study

Prerequisite: Arranged with permission of instructor. (3 credits)

Individual or group study of topics of current interest selected by the faculty.

Instructor: TBA

ENGR 480 - Global Synthesis Project

Prerequisite: Admitted to Tauber Institute. (4 credits)

Students will work on global operations or industry-relevant projects. Students will work on multi-disciplinary teams with business students, under faculty supervision.

Instructor: TBA