The Technical Entrepreneurship (TE) program helps students develop the entrepreneurial mindset needed to create, refine and commercialize new products and services, whether in an established company or a start-up. Students enrolled in TE courses learn by experiencing the idea-to-venture process in an education environment that is hard-wired to support the development of novel, innovative, and commercially-viable technologies. The TE programs are based on our 20 years of experience with Lehigh’s award-winning Integrated Product Development (IPD) program. In 2012 IPD was recognized by the National Academy of Engineering for providing real-world entrepreneurial experiences to our students. In 2015 the IPD named courses were replaced by TE 211 and TE 212.

TE Undergraduate Program
At the undergraduate level the technical entrepreneurship program offers introductory skill building courses, such as TE 250: Creativity Methods, and TE 304: Software Ventures, as well as capstone projects courses such as TE 211/212: Capstone Design Projects I/II. While the capstone projects courses satisfy ABET requirement for many engineering majors, TE 211/212 are open to all junior level students from any undergraduate major.

UNDERGRADUATE TE COURSES

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Graduate TE Program: See Masters of Engineering in Technical Entrepreneurship

Courses
TE 212 Capstone Design Projects-2 2 Credits
Students work in cross disciplinary teams students on the detailed design, including fabrication and testing of a prototype following industrial, business and engineering standards for the new products or processes designed in Capstone Design Experiences-1. Additional deliverables include a detailed production plan, marketing plan, and base-case financial models. Teams typically work on projects from industry or entrepreneurial start-ups. Oral presentations and written reports.

Prerequisites: TE 211
Attribute/Distribution: ND

TE 250 (ENTP 250) Systematic Creativity Techniques 3 Credits
ENTP 250/TE 250 – Systematic creativity methods including anthropological research, painstorming, bisociation, the Kano model, trimming technique, DeBono’s Six Hats technique, biomimicry, lateral benchmarking, Blue Ocean Strategy, & the art of tinkering, along with other innovation methods. This course includes hands-on labs, individual & team projects, & the creation of a creativity portfolio. Open to students in any college and major. (ND).

Attribute/Distribution: ND

TE 301 Creativity and Systematic Innovation Methods 3 Credits
Creativity methods, anthropological research, painstorming, bisociation, the Kano model, axiomatic design, the trimming technique, parameter analysis, decomposition, nonlinear design, Taguchi’s method, DeBono’s Six Hats technique, biomimicry, TRIZ, lateral benchmarking, Blue Ocean Strategy, the art of tinkering and other innovation methods. Hands-on labs, individual and team projects.

TE 302 Methods in Visual Thinking 2 Credits
Visualization techniques, visual thinking and envisioning information as taught by Edward Tufte and others, multimedia tools and methods. Appropriate use of technology as applied to new product development, no programming required.

TE 303 Methods in Prototyping, Modeling and Testing 2 Credits
Generation of mock-ups and looks-like prototypes, electro-mechanical-optical bread-boards design, fabricate, build and test multiple generations of prototypes, computer modeling methods, shop methods, testing, sensors and data collection.
TE 461 Integrated Product Development (IPD) Projects-1 2
Credits
Technical and economic feasibility study of new products. Selection and content of the project is determined by the faculty project adviser in consultation with the student, progress and final reports, oral and posters presentations. Consent of the program director and faculty project adviser required.
Prerequisites: TE 401 and TE 302 and TE 303

TE 462 Integrated Product Development (IPD) Projects-2 2
Credits
Detailed design specification, fabrication, building and testing prototype new products and plan for production, selection and content of the project is determined by the faculty project advisor in consultation with individual students or student teams. Progress and final reports, oral and poster presentations. Consent of program director and faculty project adviser required.
Prerequisites: TE 461 and TE 402