Technical Entrepreneurship (TE)

Courses

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 303 Methods in Prototyping, Modeling and Testing 3 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. Appropriate use of technology as applied to new product development (no programming required).

TE 310 (ME 310) Directed Study 1-3 Credits
Project work on any aspect of technical entrepreneurship, performed either individually or as a member of a team made up of students, possibly from other disciplines. Project progress is reported in the form of several planning and project reports. Direction of the project may be provided by faculty from several departments (possibly interacting with outside consultants, communities and industries). Consent of the Technical Entrepreneurship program director is required.
Repeat Status: Course may be repeated.

TE 400 Technical Entrepreneurship Projects 1 1 Credit
An introduction to technical entrepreneurship projects, customer discovery in selected industry segments, research of target technologies, industries and markets.

TE 401 Integrated Product Development (IPD) Process -1 3 Credits
An integrated and interdisciplinary approach to engineering design, concurrent engineering, design for manufacturing, industrial design and the business of new product development. Topics include design methods, philosophy and practice, the role of modeling and simulation, decision making, risk, cost, material and manufacturing process selection, platform and modular design, mass customization, quality, planning and scheduling, business issues, teamwork, group dynamics, creativity and innovation. Case studies and semester-long team projects.

TE 402 Integrated Product Development (IPD) Process-2 3 Credits
Continuation of TE 401, the parallel development of the product, the development of the marketing and manufacturing system, manufacturing and marketing launch, sales, service and customer support. Case studies and semester-long team projects.
Prerequisites: TE 401

TE 403 Entrepreneurial Startup Process-1 3 Credits
Key aspects surrounding company startups, including feasibility analysis, business model development and evaluation, formation of new venture teams, financial forecasts, sources of financing. Readings, financial templates, live case studies and guest entrepreneurs.

TE 404 Entrepreneurial Startup Process-2 3 Credits
Continuation of TE 403, integration of key business components to form and launch your venture: industry analysis, marketing plan and sales strategy; mobilization of the new venture team; operations, including space, legal and insurance consideration; and financial management. Selected topics related to respective venture types (i.e. social entrepreneurship, family business, franchising, immigrant entrepreneurs). Lectures, workshops and guest entrepreneurs.
Prerequisites: TE 403

TE 405 Entrepreneurial Startup Projects-1 1 Credit
Applying the concepts and processes developed in parallel with TE 403. Developing your business platform including business model, start-up team, and financial plan to launch and grow your venture.
Prerequisites: TE 400

TE 406 Entrepreneurial Startup Projects-2 3 Credits
Applying the concepts off entrepreneurial startup process, building upon the business model, entrepreneurial team and financing plan developed in TE 405. Developing a comprehensive business plan and investor’s pitch, finalize the steps necessary to launch the company and start operations.
Prerequisites: TE 400 and TE 461

TE 407 Intellectual Property (IP) Creation and Management 2 Credits
Intellectual property issues: confidentiality, nondisclosure, agreement not to compete, founders agreements, patents, copyrights, trademarks, trade secrets both domestic and international.

TE 450 Special topics 1-3 Credits
An intensive study of some aspect of technical entrepreneurship not covered in other general courses. Consent of the program director is required.
Repeat Status: Course may be repeated.

TE 461 Integrated Product Development (IPD) Projects-1 3 Credits
Technical and economic feasibility study of new products. Developing your business platform including business model, startup team, and financial plan to launch and grow your venture. Visualization techniques, visual thinking and envisioning information as taught by Edward Tufte and others, multimedia tools and methods. Selection and content of the project is determined by the faculty project advisor in consultation with the student. Progress report, final report, oral and poster presentations.
Prerequisites: TE 400

TE 462 Integrated Product Development (IPD) Projects-2 3 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 400 and TE 461