# Innovation, Leadership & Engineering Entrepreneurship (ILEE)

## GRAINGER ENGINEERING
## BS DUAL DEGREE

**&**

# Technology Entrepreneurship

## COURSES & CERTIFICATES

# ILEE DEGREE

## INNOVATION LEADERSHIP & ENGINEERING ENTREPRENEURSHIP

The Innovation, Leadership, and Engineering Entrepreneurship (ILEE) degree in The Grainger College of Engineering isn't just for students who want to create a startup—it helps create entrepreneurial-minded leaders which are in demand by large companies as well. The ILEE degree accelerates engineering students' understanding of the innovation ecosystem and processes involved in identifying complex technical problems, and then leading efforts to developing value-creating solutions. This degree is currently offered as a dual bachelor's degree to students in Grainger Engineering.

### IMPACT

- Adds value to your primary engineering degree by adding an entrepreneurial and leadership skillset.
- Strong emphasis on hands-on experiential learning with opportunities for students to earn credit working on their own startup or other extracurricular project.
- Close cross-campus collaboration with courses taught by faculty from Engineering, Business, Art & Design, and others.

## ELIGIBILITY

- Have a desire to develop or build upon your existing innovation, leadership, and entrepreneurial skills.

- Have completed at least one semester in Grainger Engineering by December of this year *(includes Chemical Engineering, LAS)*.

- Have a minimum cumulative and specialized UIUC GPA of 2.25 when applying for the ILEE Dual Degree. *(The cumulative GPA will be pulled from the system once the current semester ends. This is what's taken into consideration for applications)*.

- Be confident that graduation certification by Grainger Engineering will occur within 10 semesters of the ILEE degree starting date.

- Students must apply in the 2nd, 3rd, or 4th semester at the University, have taken at least one required TE course (or if in the 2nd semester, be enrolled in a required TE course), and have worked out a plan in collaboration with advisors to obtain both their primary engineering degree and the ILEE degree in a timely fashion.

# ILEE DEGREE

## REQUIREMENTS

- Complete all requirements specified for the primary engineering degree, and an additional **31** hours of required coursework for the second (ILEE) degree, for a minimum of 158 credit hours. *(Students may work towards the ILEE degree at the same time as the primary degree, OR take the additional 31 credit hours after completing the requirements for the primary degree).*

- Additional hours for the ILEE degree must be completed on the Urbana-Champaign campus, as noted in University policies, and must be completed over at least one year/two additional semesters (10 semesters to complete both degrees).

- Plan carefully—courses counting towards the ILEE degree cannot be used in meeting primary engineering degree requirements.

- Students must remain in good standing in both the primary degree and the ILEE degree.

*To apply and learn more, visit:*
go.illinois.edu/ILEE

## ILEE CURRICULUM
### TOTAL CREDITS: 31

**TE 100/TE 200** | 1 CREDIT HR.
**Introduction to Innovation, Leadership, & Engineering Entrepreneurship**

**TE 230 *(FALL)*** | 3 CREDIT HRS.
**Design Thinking/Need-Finding**

**TE 250** | 2 CREDIT HRS.
**High-Tech Ventures: From Idea to Enterprise**

**TE 333** | 4 CREDIT HRS.
**Creativity, Innovation, Vision**

**TE 360** | 1 CREDIT HR.
**Lectures in Engineering Entrepreneurship**

**SE 361 *(FALL)*** | 3 CREDIT HRS.
**Emotional Intelligence Skills**

**TE 398** | 2 CREDIT HRS.
**Innovation & Engineering Design**

**TE 401** | 4 CREDIT HRS.
**Developing Breakthrough Projects**

**TE 450** | 3 CREDIT HRS.
**Startups: Incorporation, Funding, Contracts, & Intellectual Property**

**TE 461** | 3 CREDIT HRS.
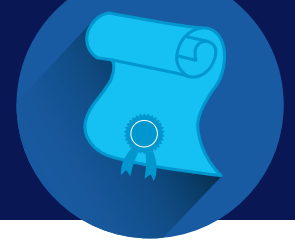**Technology Entrepreneurship**

**TE 462 *(SPRING)*** | 3 CREDIT HRS.
**Leading Sustainable Change**

**TE 466** | 2 CREDIT HRS.
**High Tech Venture Marketing**

*Visit Course Explorer for more details:*
courses.illinois.edu

# **TEC** CERTIFICATES

TEC offers four certificates that allow students to gain the skills and resources necessary to become a successful innovator, entrepreneur, and leader in a more specific area. Each certificate requires students to take one or two core classes and a combination of elective courses or experiences within TEC and the University.

## INNOVATION

This certificate program is designed for students whose interests and abilities are in entrepreneurship, innovative product design, and transformative technical products and services. The program consists of a set of courses that have been designed to encourage students to become more innovative and to generate ideas that have the potential to be breakthrough new products.

UNDER GRAD

## TECHNOLOGY COMMERCIALIZATION

With an emphasis on creativity and innovation, this certificate program provides students with the knowledge base needed to explore various options for commercializing technology, which is becoming increasingly important for engineers and scientists to understand. The courses allow students to gain a general understanding of the technology commercialization landscape, and how to apply that knowledge.

UNDER GRAD

## BUSINESS MANAGEMENT FOR ENGINEERS

This certificate is a graduate level program designed for students with an engineering or technology background who aspire to rise in management, make higher level strategic business decisions, and hone leadership skills. This certificate will provide students with the tools necessary in proposing and managing initiatives and evaluating technology innovation from a business standpoint. These courses are applicable to students who are or want to be entrepreneurial in starting a company, working for a startup, or bringing business management skills into their career at an existing company.

GRAD

## STRATEGIC TECHNOLOGY MANAGEMENT

This certificate is a graduate level program for students with an engineering background who aspire to lead a venture, make higher level strategic technology/business decisions, and develop leadership skills. This certificate will help students understand how to incubate new ventures, and participate in the process of innovation and market adoption within corporate environments. These courses are applicable to students who are or want to be entrepreneurial in starting a company, working for a startup, or bringing strategic technology management skills into their career at an existing company.

GRAD

*To learn more about TEC Certificates, visit:*
go.illinois.edu/certificates

# TEC COURSES

## TE 100 | Introduction to Innovation, Leadership, & Engineering Entrepreneurship

**1 CREDIT HR.**

Students will learn about innovation, identify key attributes of innovation leadership, and practice innovation leadership personally and professionally. Students will identify opportunities and work in teams to address them, practicing leadership and followership and honing their written and verbal presentation skills. Students also complete a personal plan for continuing to develop their innovation leadership skills. *Open to all majors.*

## TE 110 | Communicating & Presenting in Engineering

**2 CREDIT HRS. | SAME AS ENG 110**
*Restricted to Engineering majors*

This course focuses on presentation techniques. Both didactic and hands-on training in tailoring presentation content, visual aids, delivery, and team dynamics.

## TE 200 | Introduction to Innovation, Leadership, & Engineering Entrepreneurship

**1 CREDIT HR. | *Restricted to Innovation LLC students***

Students will learn about innovation, identify key attributes of innovation leadership, and practice innovation leadership personally and professionally. Students will identify opportunities and work in teams to address them, practicing leadership and followership and honing their written and verbal presentation skills.

## TE 230 | Design Thinking/Need-Finding

**3 CREDIT HRS. | *Fall Only* | SAME AS ARTD 230**

Students develop detailed concepts and models of authentic new products and services. Our focus is on user-oriented, collaborative approaches to design and seeking holistic solutions integrating user and functional perspectives. Students observe and engage people to develop a deep understanding of their values and the patterns of their lives. They work collaboratively in a studio environment to create a shared understanding of the people they design for (and with) and the product ideas they develop. Topics covered include design thinking, ethnographic methods, concept development and interaction design. This course offers an intensive design and team work experience, focused on understanding customer needs.

## TE 250 | From Idea to Enterprise

**2 CREDIT HRS.**

Examines the fundamentals of technology entrepreneurship and addresses critical areas of the entrepreneurial process such as: problem and solution identification; validation of product-market fit; market assessment; team formation; product development; intellectual property; financing a technology-based startup. This class combines lecture, discussion & case studies, and is built around a hands-on group project leveraging the lean startup methodology from the National Science Foundation I-Corps program. The class is intended for all students of all disciplines interested in technology entrepreneurship.

## TE 298 | Communication for Tech Innovators

**1 CREDIT HR.**

This class explores the common characteristics of messages that influence people to change their behavior. It follows the framework in the book *Made to Stick*, by Chip & Dan Heath and consists of brief and fund exercises designed to hone those skills. This course is valuable to everyone, but especially useful for innovators who must pitch their ideas to partners, investors and customers.

# TEC COURSES

### TE 333 | Creativity, Innovation, Vision



**4 CREDIT HRS.**

Personal creativity enhancement via exploration of the nature of creativity, how creativity works, and how to envision what others may not. Practice of techniques and processes to enhance personal and group creativity and to nurture a creative lifestyle. Application to a major term project providing the opportunity to move an idea, product, process or service from vision to reality.

### TE 360 | Lectures in Engineering Entrepreneurship

**1 CREDIT HR.** | *Undergrad only*

Hear from a different guest speaker each week! Entrepreneurs and innovators will speak about a variety of topics including evaluation of technologies and business ideas in general; commercializing new technologies; financing through private and public sources; legal issues; product development; marketing; and more.

### TE 398 | Innovation & Engineering Design

**2 CREDIT HRS.**

Harness your creative capabilities, and explore the engineering design process. Learn how to identify needs, problems, and potential engineering solutions, and how to ideate and foster innovation.

### TE 398 | Startup City Scholars

**2 CREDIT HRS.**

Through the Startup City Scholars program, students spend a semester as a Grainger Engineering City Scholar and participate in the prestigious College New Venture Challenge (CNVC) hosted by the Polsky Center for Entrepreneurship and Innovation at the University of Chicago. Applicants may be eligible for a $5,000 scholarship to spend the semester working on a student-led venture. UIUC-led teams must include a University of Chicago student on their team. Accepted teams are eligible to win prizes in the form of SAFE funds from a pool of up to $100,000. Learn more at **go.illinois.edu/startupcityscholars**.

### TE 401-F | Augmented Listening Technology

**1-4 CREDIT HRS.**

This project-based experiential course is for students interested in audio, signal processing, hearing aids and listening tech, embedded hardware and software, industrial design, VR/AR, and more. Students can pursue individual research in a variety of fields in this project based course.

### TE 401 | Developing Breakthrough Projects

**1-4 CREDIT HRS.** | *May be repeated*

Typically viewed as an independent study project, TE 401 is a project-based exploration in an entrepreneurial context. Development of innovative, leadership, and entrepreneurial skill sets, including financing, marketing, sales, operations, business plans, and management is encouraged.

### TE 450 | Startups: Incorporation, Funding, Contracts, & Intellectual Property

**3 CREDIT HRS.** | *Undergrad/Grad*

Explores how legal tools may be used in the construction and successful operation of your company to deliver the next great product to market. Topics covered in the class include: issues with business formation, funding, intellectual property, non-disclosure agreements, contracts, and other corporate legal issues particularly impacting startups.

### TE 460 | Lectures in Engineering Entrepreneurship

**1 CREDIT HR.** | *Undergrad/Grad*

Hear from a different guest speaker each week! Entrepreneurs and innovators will speak about a variety of topics including evaluation of technologies and business ideas in general; commercializing new technologies; financing through private and public sources; legal issues; product development; marketing; and more.

# TEC COURSES

## TE 461 | Technology Entrepreneurship

**3 CREDIT HRS.** | *Undergrad/Grad*

Critical factors affecting technology-based ventures: opportunity assessment; the entrepreneurial process; founders and team building; preparation of a business plan including market research, marketing and sales, finance, and manufacturing considerations. Students must have an idea for a new venture to participate in the course, and must be prepared to develop this new venture idea as part of the course.

## TE 462 | Leading Sustainable Change

**3 CREDIT HRS.** | *Spring Only*

Learn how change can be sustained within an organization by exploring the theories and processes of change, systems thinking and the consequences of change, and how to implement and manage projects to effect change successfully.

## TE 466 | High Tech Venture Marketing

**2 CREDIT HRS.** | *Undergrad/Grad*

Cornerstone marketing concepts for innovators and engineers to enable analysis of products and technologies from a marketing perspective: engineering product development and adoption life cycle; objectives and strategies; marketing management; communication skills; sales process and tactics; special considerations for new high-tech engineering products and innovations.

## TE 498 | Illinois Deep Tech Accelerator

**4 CREDIT HRS.**
*Undergrad/Grad*

Receive funding for customer discovery and minimum viable product development, get expert mentoring, and receive course credit for taking innovative technology you've been working on and learning how to commercialize it.
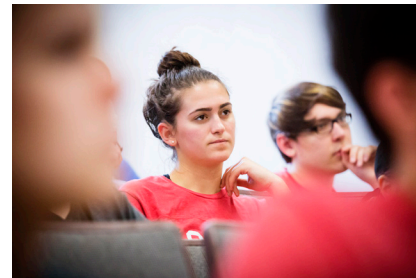
## TE 565 | Technology, Innovation, & Strategy

**2 CREDIT HRS.** | *Grad Only*

Concepts and frameworks for analyzing how firms can create, commercialize and capture value from technology-based products and services. Business, commercialization, and management aspects of technology. Emphasis on reasons that existing firms or startups which have successfully commercialized products or services fail to sustain their success as technology changes and evolves.

## TE 566 | Finance for Engineering Management

**2 CREDIT HRS.** | *Grad Only*

Cornerstone financial concepts for engineering management to enable analysis of engineering projects from a financial perspective: income statements, the balance sheet, cash flow statements, corporate organization, the time value of money, net present value, discounted cash flow analysis, portfolio theory, and so forth.

## TE 567 | Venture Funded Startups

**1 CREDIT HR.** | *Grad Only*

Concepts, tools, and language used by venture capitalists. Venture-scale opportunity assessment and articulation, venture capital financing and valuation, deal structure, term sheets, financial plans for startups, customer development and marketing, product iterations, and sales execution.

# TEC PROGRAMS



## COZAD NEW VENTURE CHALLENGE

Cozad is designed to encourage students to create new businesses. The campus-wide competition provides mentoring to teams through the phases of venture creation, and holds workshops on idea validation, pitching skills, and customer discovery. In 2021, more than $200k in cash and in-kind prizes was awarded.



## SOCIALFUSE

SocialFuse is a recurring pitching and networking event. Attendees pitch their startup ideas, find teammates, improve presentation skills, and get feedback on their ideas.



## SILICON VALLEY ENTREPRENEURSHIP WORKSHOP

This annual, week-long educational trek to Silicon Valley features corporate leaders, venture capitalists, and entrepreneurial alumni in various stages of the startup lifecycle that share lessons learned about entrepreneurship. Students have visited companies like Yelp, Tesla, Andreessen Horowitz, and Y Combinator.



## ILLINOIS INNOVATION AWARD

This $20,000 award is given annually to a creative, passionate, and entrepreneurially minded student on campus who is working on a novel innovation with the potential to create a positive impact.

***Learn about these and other TEC programs:***
tec.illinois.edu

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**Get the latest news on the ILEE degree, certificates, courses, and entrepreneurial programs and events from the Technology Entrepreneur Center.**
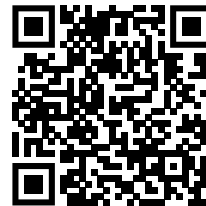


**go.illinois.edu/TECsignup**

*Questions? Please contact us:*
tec-ilee@illinois.edu

## QUICK LINKS

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go.illinois.edu/ILEE

**TEC Certificates**
go.illinois.edu/
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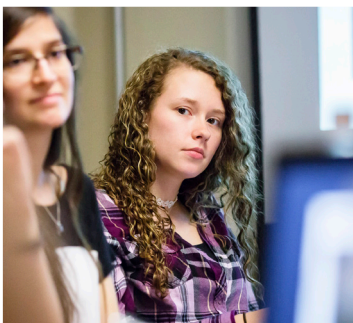
# Technology Entrepreneur Center

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**tec.illinois.edu**

**Grainger College of Engineering**
UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

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