Technology Entrepreneur Center

CREATING INNOVATORS, ENTREPRENEURS & LEADERS

tec.illinois.edu
TEC provides students and faculty with the skills, resources and experiences necessary to become successful innovators, entrepreneurs and leaders.
2016-17 Highlights

• 5,000+ participants
• Cozad NVC 125 teams competed for $200K+
• 2016 Cozad winner Amber Ag named top startup of the 2017 Consumer Electronic Show (CES)
• 2016 Cozad finalist Cast21 raised $800K for their waterproof, breathable cast
• 2016 Cozad finalist Reconstruct, a construction drone startup, raised $850K
• Launched Faculty Entrepreneurial Fellows program
• Launched Innovation, Leadership & Engineering Entrepreneurship (ILEE) Degree
• Entrepreneurship-related courses to give students the skills to become successful entrepreneurs
• 20 courses offered in fall and spring
• Taught by a variety of entrepreneurial faculty and industry leaders
• Campus-wide

Learn more at tec.illinois.edu/academics
TEC COURSES

Cultivate Ideas
TE 200: Intro to Innovation
TE 250: From Idea to Enterprise
TE 333: Creativity, Innovation & Vision
TE 360: Lectures in Entrepreneurship

Build
TE 398: Innovation & Engineering Design
TE 401: Developing Breakthrough Projects
  • FEF Program
  • Student Ideas
TE 461: Technology Entrepreneurship
TE 497: Independent Study

Grow
TE 398: Bootstrap to VC: Fund Startup
TE 450: Startups: Inc, Fund, Contracts, IP
TE 466: High-Tech Venture Marketing
TE 566: Finance For Engineering Management
TE 567: Venture Funded Startups
TE 598: Advancing Creativity
ACADEMICS: CERTIFICATES

UNDERGRADUATE

• Innovation
• Innovation, Leadership and Engineering Entrepreneurship (ILEE) – for non-engineers
• Technology Commercialization (TC)

GRADUATE

• Business Management for Engineers (BME)
• Strategic Technology Management (STM)

Learn more at tec.illinois.edu/academics
ILEE Dual Degree

- First degree in ILEE offered by College of Engineering at tier 1 research University

- Student Profile
  - Half of engineering departments are represented in our first group of ILEE degree students
  - Students in every engineering department are taking our TEC/ILEE courses

- Curriculum
  - Dual Degree
  - Core + Technical Electives
  - Experiential credit opportunities

Learn more at go.illinois.edu/ILEE
TEC Programs

5000+ students participate annually in TEC programs

Workshops

- International students: how to start a company & other topics
- Patents and IP workshops
- SocialFuse

Build/Make

- Cozad New Venture Competition
- I-Corps
- Courses (Senior Design, ENG 461)

Recognize & Advocate

- Illinois Innovation Prize
- Innovation Celebration
- Entrepreneurship Forum
Find Teammates at SocialFuse!

• Teams pitch their ideas in front of fellow students to find co-founders and team members for their projects and startups
• Held 4 times/year across campus to encourage interactions among a wide variety of majors
• Students with skills and students with ideas form teams
• 80+ teams pitched last year
• Each event has a sponsor who is interested in reaching innovators and entrepreneurs

Learn more at tech.illinois.edu/socialfuse
COZAD NEW VENTURE COMPETITION

- Founded in 2000
- Collaboration with Entrepreneurship at Illinois
- Mentoring from alumni & community
- Workshops on business plans, financials, pitching, lean startup, and more
- Spans 4 months (Jan. – Apr.)
- 120+ teams, 250+ students
- Prizes include cash funding, legal services, incubator space
- Various innovation tracks

$200,000+ in funding & prizes
Trala
An app that listens and provides real time feedback on pitch and rhythm to violin students. Trala: Learn Violin Faster.

Autonomic Energy Systems
Develops patented microcapsules that prevent fires in and extend the lives of batteries.
2017 Winner: Lucas Frye
MBA Candidate and Co-founder of Amber Agriculture

• Lucas won for his work with Amber Agriculture, a startup focused on automating grain management. Using IoT-enabled wireless sensors and cloud analytics, their technology enables farmers to capture the highest possible price for their crops.

• Students must be nominated by a faculty member, mentor, advisor or similar

Learn more at tec.illinois.edu/iip
TEC OFFERS:

- Academics
- Programs
- Experiences
TEC EXPERIENCES

Real World Experience
- NSF I-Corps at Illinois
- Faculty Entrepreneurial Fellows
- Stay in school startups
- Experiential learning

Immersive Experiences
- ThinkChicago
- Silicon Valley Workshop
- Alternative Spring Break
- Innovation Living-Learning Community

Engage Our Alums
- Sponsorship and education
- Mentoring and networking
• Created in 2010 as a partnership between University Housing and TEC, Innovation LLC provides students with an introduction to the entrepreneurial eco-system on-campus.

• Located in the Illinois Street Residence Halls, Innovation LLC is a dorm for entrepreneurs that provides resources, on-site classes and workshops focusing on the themes of creativity, innovation and entrepreneurship.

• Programs specifically for Innovation LLC students:
  • How I Failed Lecture series (2-3x per semester)
  • Extreme Entrepreneurial Lock-in (1x each semester)
  • The Garage, a dedicated work space within the community, is available for use by residents as they develop their new businesses and projects.

Learn more at go.illinois.edu/innovationLLC
• Faculty proof of concept activity
• Relief from teaching and committee work for 12 months
• $50K For Proof-of-concept Development
• Involving students in the commercialization, exploration and innovation process
• Mentoring from alumni

Learn more at go.illinois.edu/fef
ANNOUNCING OUR SECOND CLASS OF FACULTY ENTREPRENEURIAL FELLOWS, FOR THE 2016-17 YEAR:

Jean Paul Allain, Associate Professor, Nuclear, Plasma & Radiological Engineering
Allain and his team will explore bioactive interfaces with atomic-scale additive plasma nanomanufacturing. Their goal is to disrupt the biosurface and biointerface technology space by introducing a plasma source that enables a synthesis approach that is clean, cheap, versatile, and scalable. This technology could dramatically improve the safety and performance of knee and hip implants, among other procedures. Target customers are large/mid-size biotech companies and outsourced orthopedic manufacturers. The team will also work on market study of the biomedical implant space including dental implants, orthopedic/prosthetic and spinal cord injury implants.

P. Scott Carney, Professor, Electrical and Computer Engineering
Carney and his team provide quantitative phase imaging for confocal microscopy (EM). CM is a means to acquire ultra-high-resolution images while rejecting stray light and other sources of noise and image artifacts. It’s used in biology to study subcellular structure and in precision manufacturing to perform nanometer-scale inspections. They will explore commercialization by developing a universal system extension, demonstrate that with systems on campus, and take their product to the major OEM manufacturers for feedback or to build relationships.

Scott White, Professor, Aerospace Engineering
White and his team are tackling the safety and forgery problems of batteries by creating self-healing batteries. Self-healing batteries will be an enabling technology for electrification of the transportation sector by having autonomous shutdown and fire prevention. Longer battery lifetimes will change the economic model for EVs and open new markets. They will explore cost and benefit analyses, market analysis, and demonstration of battery safety efficacy. Lifetime extension battery prototypes will be created and market analyses for self-healing batteries will be explored.

Andrew Smith, Professor, Bioengineering
Smith and his team are working on the development of brightness-equaled quantum dots (QDs) for biomolecular analysis, which would be an improvement over current products. Brightness-equaled QDs are compact and stable, easy to use, and all colors are bright. In addition, a new enabling capability produces many “hyper-spectral colors” for multiplexing. These brightness-equaled QDs can be used for biomolecular imaging and diagnostics, and eventually prepare the way for personalized medicine through biomolecular analysis. Smith will begin as a Faculty Entrepreneurial Fellow in 2017.

TECHNOLOGY ENTREPRENEUR CENTER
ENGINEERING AT ILLINOIS
A collaboration between Chicago Mayor’s Office, World Business Chicago, 1871 and the University of Illinois

Students take a tour of Chicago’s fast-growing tech scene

Held twice a year: Lollapalooza (Aug), Chicago Ideas Week (Oct)

Learn more at thinkchicago.net
SILICON VALLEY WORKSHOP

180 STUDENTS HAVE PARTICIPATED SO FAR

TECHNOLOGY ENTREPRENEUR CENTER
ENGINEERING AT ILLINOIS
tec.illinois.edu
IVENTURE STUDENT ACCELERATOR

- A Cross-campus Educational Accelerator
- Partnership with College of Business, Research Park, Social Innovation & TEC
- 12-month Accelerator
- Early-stage Financial Support
- Expert Coaches and Advisors
- Co-working Space at Research Park and Grainger Engineering Library

Learn more at go.illinois.edu/iventure
AWARE: Accelerating Women And underRepresented Entrepreneurs

- Offers resources and an enhanced infrastructure that make the current entrepreneurial ecosystem more accessible to all:
  - A dedicated entrepreneur-in-residence familiar with the needs of those from underrepresented groups
  - Small proof-of-concept grants for teams
  - Targeted mentorship, training, and networking opportunities

Learn more at go.illinois.edu/aware
Startup Incubator

EnterpriseWorks is a 43,000 square foot startup business incubator in the Research Park for early stage tech firms. It is operated by the University of Illinois to launch successful startups.

93% OF CLIENTS HAVE FOUNDERS AFFILIATED WITH ILLINOIS

EnterpriseWorks Company Industry Sectors

<table>
<thead>
<tr>
<th>Industry Sectors</th>
<th>Number of Current Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biotechnology</td>
<td>20</td>
</tr>
<tr>
<td>Clean Technology</td>
<td>10</td>
</tr>
<tr>
<td>Information Technology</td>
<td>5</td>
</tr>
<tr>
<td>Materials/Nanotech</td>
<td>12</td>
</tr>
</tbody>
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$911 Million in equity-based capital raised by EnterpriseWorks incubated companies

- Biotechnology: $401,498,914
- Clean Technology: $248,937,581
- Information Technology: $102,738,378
- Materials/Nanotech: $65,276,685
- External: $2,562,160.00

Faculty: 65%
UI Staff: 17%
UI Student: 9%
UI Alumni: 2%
External: 7%
NSF I-CORPS teaches university researchers to get out of the building with a targeted Lean Launchpad curriculum to identify valuable product opportunities that can emerge from academic research.

Team = Faculty + Grad Student + Mentor

NSF I-Corps at Illinois

$25M+ AMOUNT OF OUTSIDE CAPITAL RAISED
120+ TEAMS
67 EMPLOYEES
22 COMPANIES STARTING
13 COMPANIES SHARING PRODUCT
7 COLLEGES ACROSS CAPITOL REPRESENTED
22 DEPARTMENTS ACROSS CAPITOL REPRESENTED
19 SBIRs RECEIVED

Learn more at go.illinois.edu/NSFicorps

Regional I-Corps Node

MWIN MIDWEST I-CORPS NODE

Illinois University of Illinois at Urbana Champaign

University of Michigan

Purdue University

A training program to move ideas out of the lab and into the market

TECHNOLOGY ENTREPRENEUR CENTER ENGINEERING AT ILLINOIS
tec.illinois.edu
I-Corps @ Illinois Impact

• Combined with EnterpriseWorks programs (EIR, I-Start), it has been transformative to tech ecosystem
  • Developing Human – changing mindsets
    • Taking it back to the classroom
    • Educating researchers and grad students to be next great entrepreneurs
    • “I wish I would have had this when I started.”
  • Integrated into the ecosystem
    • Recommended by OTM
    • Recommended by Research Park
    • Recommended by area VCs
    • Integral part of ecosystem
    • SBIRs
I-Corps @ Illinois Challenges / Surprises

• Procurement
• Teams do not spend the money
• Recruiting teams
• Tracking results (teams)
• **PSYONIC’S MISSION** is to deliver advanced, neurally-controlled prosthetic hands with more functionality and lower cost than state-of-the-art prostheses. By employing machine learning algorithms, prostheses are able to recognize different patterns of muscle activity from the user’s residual limb. Has the first commercially available prosthesis capable of sensory feedback. PSYONIC’s innovations will disrupt the status quo of the prosthetics industry and decrease prosthesis rejection and abandonment. [www.psyonic.co](http://www.psyonic.co)

• **HIGHLIGHTS**
  - 2015 Cozad New Venture Competition Winner, $15K
  - 2015 Cozad Samsung Research Innovation Prize, $10K
  - 2015-2016 VentureWell Stage E-Team, $5K
  - 2016 Illinois Innovation Prize Winner, $18K

• **HOW DID THEY PARTICIPATE WITH TEC?**
  - Cozad New Venture Competition,
  - iVenture Accelerator
  - SocialFuse
  - Illinois Innovation Prize
  - NSF I-Corps at Illinois
• **MAKERGIRL’S MISSION** is to trigger social change by inspiring young women to pursue STEM fields. The co-founders vision of the program is to have gender equality in these fields by 2025. Participants get hands-on exposure to technology, and see how fun it can be. Students get to create projects such as 3-D printed bracelets, hair clips and magnets to take home. [Makergirl.us](https://makergirl.us)

• **HIGHLIGHTS**
  • Raised more than $32,000 on Kickstarter

• **HOW DID THEY PARTICIPATE WITH TEC?**
  • SocialFuse
  • Cozad New Venture Competition
  • iVenture Accelerator
CASE STUDY: NARDO TECHNOLOGY

NARDO TECHNOLOGY develops rapid and accurate electrochemical sensors, NardoSensors, for detection of chemical substances in the forensic, food safety and environmental testing markets. The NardoSensor will provide an inexpensive and rapid analysis of complex chemical solutions for instant identification and quantification of unique chemicals within a mixture. [www.nardotec.com](http://www.nardotec.com)

HIGHLIGHTS

- 2016 Cozad New Venture Competition Finalist
- Completed Proof of Concept
- Completed National NSF I-Corps program

HOW DID THEY PARTICIPATE WITH TEC?

- Silicon Valley Workshop
- Cozad New Venture Competition
- SocialFuse
- I-Corps
AMBER AGRICULTURE detects moisture in grain bins and sends updates to smartphones, thereby alerting farmers on potential spoilage so that they can take remedial measures. [www.amber.ag](http://www.amber.ag)

**HIGHLIGHTS**

- 2016 Cozad New Venture Competition Grand Prize Winner
- IllinoisVENTURES Innovation Award
- Cozad Agriculture Startup Award
- I-Start Award
- Accepted into HAX, the world’s largest hardware accelerator

**HOW DID THEY PARTICIPATE WITH TEC?**

- Silicon Valley Workshop, 2016 Cozad winner, SocialFuse, Founders Programming, Ag I-Corps
Six million Americans wear a cast each year. Medical casts trap heat, sweat, and moisture against the patient's skin, causing itchiness, skin breakdown, and even infection. Cast21’s waterproof, lightweight casts overcomes these issues and seamlessly integrates with electrical therapy systems to reduce the overall healing time by 1-4 weeks. [www.cast21.com](http://www.cast21.com)

**HIGHLIGHTS**

- 2016 Cozad New Venture Competition Finalist
- Zeroto510 Accelerator
- 2015 St. Louis University Real Elevator Pitch Competition Winner
- 2016 St. Louis University Pitch and Catch Student Startup Winner
- Featured on WGN News Chicago

**HOW DID THEY PARTICIPATE WITH TEC?**

- Cozad New Venture Competition, iVenture Accelerator, iCorps
CASE STUDY: EXOWEAR

EXOWEAR is creating a wearable device to track 3D movement of the leg for the purposes of monitoring physical therapy. Developing a wearable device that can track 3D motion in space. Using this information, they can determine key medical information like range of motion, daily activity levels, and function tests. The app serves as a platform that connects the patients with their healthcare provider so that physicians can obtain a deeper understanding of their patients condition. www.exowear.co

HIGHLIGHTS

• 2016 Cozad New Venture Competition 3rd Place Winner
• Cross campus collaboration between University of Chicago and Illinois
• Polsky Accelerator
• MATTER

HOW DID THEY PARTICIPATE WITH TEC?

• SocialFuse, Cozad New Venture Competition, iVenture Accelerator, University of Chicago New Venture Challenge
LUMINOUS creates computer vision technology to make projection mapping easier, cheaper, and more powerful in advertising. Company launched by three leading computer science PhD students with expertise and licensing history in computer vision technologies. [http://lumenous.co/](http://lumenous.co/)

HIGHLIGHTS

- Team has experience developing computer vision products for Microsoft, Adobe, and Disney

HOW DID THEY PARTICIPATE WITH TEC?

- 2012 Lemelson-Illinois Student Prize winner
- 2013 Illinois Innovation Prize winners
- 2014 Cozad winner