APPROVED BY SENATE
04/22/2019

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Proposal to the Senate Educational Policy Committee

PROPOSAL TITLE: Establish a Graduate Concentration in Entrepreneurship and Innovation in the Technology Entrepreneur Center in the College of Engineering

SPONSOR: Andy Singer, Associate Dean for Innovation and Entrepreneurship, 217-244-9263, acsinger@illinois.edu

COLLEGE CONTACT: Harry Dankowicz, Associate Dean for Graduate, Professional and Online Programs, 217-244-1231, danko@illinois.edu

BRIEF DESCRIPTION:

This proposal requests the establishment of a transcriptable graduate concentration in Entrepreneurship and Innovation in the College of Engineering. This concentration will be housed in the Technology Entrepreneur Center (TEC) and is designed to provide graduate students in engineering graduate programs the skills and resources necessary to become successful innovators, entrepreneurs, and leaders in industry positions. This concentration comprises12 graduate credit hours organized as follows (see Appendix A for details):

- 7 credit hours of core coursework
- 5 credit hours of TE elective coursework
- at least 4 credit hours at the 500 level

The Entrepreneurship and Innovation Concentration will be open to current graduate students in relevant degree programs within the College of Engineering: MEng in Bioengineering, MEng in Electrical and Computer Engineering, MEng in Mechanical Science and Engineering, and the MEng in Engineering. Additional expansion within the college will be added as identified. Participating departments will be responsible for defining how credits from this concentration apply to the student's major. See Appendix C for departmental approvals.

JUSTIFICATION: *(Please provide a brief but complete rationale for your request.)*

The TEC was founded in 2007 to help faculty and students develop an entrepreneurial mindset to improve the world. The TEC offers courses, certificates and a bachelor's degree for students interested in engineering innovation and commercializing technology.

This transcriptable concentration in Entrepreneurship and Innovation will help the College of Engineering stay competitive with our peer institutions and allow eligible graduate students to enhance their skills and knowledge in the field of business. Many of our competitors, like Stanford, Penn State, Purdue, Cornell, MIT, and University of California Berkeley, offer either a professional master's degree or a specialized concentration in this area.

This concentration will allow students to build a solid foundation of business practices and gain an entrepreneurial mindset. Students will build knowledge in, for example, financial structuring, business planning, new product development, leadership, legal and ethical issues. As a result, graduates will be able to account for both the technical and business aspects when addressing industry-relevant problems. These are the types of skills companies like Google, Intel, Microsoft, and Boeing are looking for in employees they hire.

BUDGETARY AND STAFF IMPLICATIONS:

1) **Resources**

a. How does the unit intend to financially support this proposal?

There is no additional support needed. The proposed curriculum for this concentration uses courses already being taught by the TEC. No new courses are being proposed to support this transcriptable concentration. Any funds that may be required to meet future capacity demands for this concentration will be covered by TEC budget funds received by the College of Engineering.

b. How will the unit create capacity or surplus to appropriately resource this program? If applicable, what functions or programs will the unit no longer support to create capacity?

No changes are necessary to existing functions or programs. This transcriptable, graduate concentration will use current courses already taught in TEC and currently available to students completing a graduate degree. The existing capacity and controlled enrollments will ensure the overall quality of the experience for students in the concentration.

c. Will the unit need to seek campus or other external resources? If so, please provide a summary of the sources and an indication of the approved support.

No campus or other external resources are needed.

d. Please provide a letter of acknowledgment from the college that outlines the financial arrangements for the proposed program.

N/A

2) **Resource Implications**

a. Please address the impact on faculty resources including the changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc.

The proposed concentration is built from existing courses taught by TEC instructors. These courses are currently available to enrolled students. The changes in class size will initially be modest without significant impact faculty resources.

b. Please address the impact on course enrollment in other units and provide an explanation of discussions with representatives of those units.

There is no impact on course enrollment in other units. Students eligible for this concentration are already enrolled in existing degree programs.

c. Please address the impact on the University Library.

Students admitted into this concentration are already existing graduate students. Therefore, there will be no additional impact.

d. Please address the impact on technology and space (e.g. computer use, laboratory use, equipment, etc.)

No impact on research labs and minimal impact on engineering workstations labs are expected.

For new degree programs only:

3) Briefly describe how this program will support the University's mission, focus, and/or current priorities. Include specific objectives and measurable outcomes that demonstrate the program's consistency with and centrality to that mission.

This is not a new degree program and therefore not applicable.

4) Please provide an analysis of the market demand for this degree program. What market indicators are driving this proposal? What type of employment outlook should these graduates expect? What resources will be provided to assist students with job placement?

This is not a new degree program and therefore not applicable.

5) If this is a proposed graduate program, please discuss the programs intended use of waivers. If the program is dependent on waivers, how will the unit compensate for lost tuition revenue?

This is not a new degree program and therefore not applicable.

DESIRED EFFECTIVE DATE: Fall 2019

STATEMENT FOR PROGRAMS OF STUDY CATALOG: See Appendix B

CLEARANCES: *(Clearances should include signatures and dates of approval.* ***These signatures must appear on a separate sheet.*** *If multiple departments or colleges are sponsoring the proposal, please add the appropriate signature lines below.)*

Signatures:

Ted Taylor
Unit Representative:

9/21/18
Date:

College Representative:

12/5/18
Date:

Graduate College Representative:

12/19/18
Date:

Council on Teacher Education Representative:

Date:

Appendix A:

Proposed Coursework Requirements for the Concentration in Entrepreneurship and Innovation

The concentration in Entrepreneurship and Innovation requires students to complete 12 credit hours from a list of select courses and to earn a B or higher in each course. Participating departments will be responsible for defining how credits from this concentration apply to the student's major.

- 7 credit hours of core coursework from an approved list
- 5 credit hours of TE elective coursework from an approved list
- At least 4 hours must be at the 500-level.

Approved List of Core Coursework

- TE 460, Lectures in Engineering Entrepreneurship (1hr)
- TE 461, Technology Entrepreneurship (3hrs)
- TE 550, From Idea to Enterprise (3hrs)
  Note: TEC is submitting a new course proposal for TE 550, which will be available starting in Fall 2019. Please see attached syllabus for course content in Appendix D.

Approved List of Elective Coursework

- TE 450, Startups: Inc., Fund, Contracts, IP (3hrs)
- TE 466, High-Tech Venture Marketing (2hrs)
- TE 565, Technology Innovation & Strategy (2hrs)
- TE 566, Finance for Engineering Management (2hrs)

Students may select a different elective course in consultation with TEC Assistant Director of Academic Programs & Academic Advisor. Please contact Terry Cole twcole@illinois.edu for assistance.

Program Administration

Each participating department has a graduate coordinator. The graduate coordinator will work with their students who are interested in participating in this transcriptable concentration to ensure they are eligible for the concentration. The coordinators will assist their students with the Graduate College petition to add the concentration to their student record. The graduate coordinator will work with the TEC Assistant Director of Academic Programs & Academic Advisor to ensure students are on track for completing the concentration requirements and will answer questions about the required coursework. The graduate coordinator in the student's home department will be responsible for ensuring the concentration requirements are met at the time of graduation.

Enrolled students must complete the concentration requirements before or at the same time as they complete their major requirements. Students must meet the scheduled time-to-degree as set by the student's home department.

Appendix B:
Program of Study

Entrepreneurship and Innovation Concentration

The Entrepreneurship and Innovation Concentration provides students with the skills, resources, and experiences necessary to become successful innovators, entrepreneurs, and leaders who tackle grand challenges to change the world. Students must be enrolled in an eligible engineering graduate degree program from one of the participating departments. The Entrepreneurship and Innovation concentration requires students to complete 12 credit hours from a list of select courses and to earn a B or higher in each course. Participating departments will be responsible for defining how credits from this concentration apply to the student's major.

Concentration Requirements

- 7 credit hours of core coursework from an approved list
- 5 credit hours of TE elective coursework from an approved list
- At least 4 hours must be at the 500-level.

Students may select elective courses not on the approved list by consultation with and approval from the (or a) TEC advisor. To learn how to enroll in this concentration and for a list of approved core and elective courses, visit https://tec.illinois.edu.

College of Engineering for the MEng in Engineering Degree Program

ILLINOIS

COLLEGE OF ENGINEERING
Office of Graduate, Professional & Online Programs
401 Engineering Hall, MC-266
1308 W. Green St.
Urbana, IL 61801 USA

August 10, 2018

Professor Andy Singer
Associate Dean for Innovation and Entrepreneurship
351 Coordinated Science Lab, MC-228

Dear Andy,

The College of Engineering supports TEC in the implementation of a transcriptable concentration in Entrepreneurship and Innovation. I request that this concentration be available to students enrolled in the Master of Engineering in Engineering degree program, including all concentrations established under this degree program.

This concentration will be a benefit to our students.

Sincerely,

Harry Dankowicz
Associate Dean for Graduate, Professional and Online Programs
danko@illinois.edu

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
217.265.4560 • engr-gpp@illinois.edu

Electrical and Computer Engineering

From: "Hwu, Wen-Mei W" <w-hwu@illinois.edu>
Subject: Re: Concentration in Innovation and Entrepreneurship
Date: September 21, 2018 at 1:36:22 PM CDT
To: "Singer, Andy" <acsinger@illinois.edu>
Cc: "Wisehart, Christine Amanda" <cbender@illinois.edu>, "Oelze, Michael L" <oelze@illinois.edu>, "Liberzon, Daniel M" <liberzon@illinois.edu>

Dear Andy,

I have completed feedback process from Michael Oelze and Daniel Liberzon. ECE is excited about the TEC concentration option for our MEng students. We feel that the TEC concentration will be an attractive option for our MEng students who would like to pursue startups and innovation as their career path.

We strongly support the proposal.

Wen-mei

Mechanical Science and Engineering

ILLINOIS

COLLEGE OF ENGINEERING

Department of Mechanical Science & Engineering | Office of the Department Head
144 Mechanical Engineering Building, MC-244
1206 W. Green St.
Urbana, IL 61801

September 17, 2018

Andrew C. Singer
Associate Dean for Innovation and Entrepreneurship, College of Engineering
Fox Family Professor of Electrical and Computer Engineering
University of Illinois at Urbana-Champaign

Dear Professor Singer,

The Department of Mechanical Science and Engineering (MechSE) enthusiastically supports the participation of MechSE students in the proposed Entrepreneurship and Innovation graduate concentration.

Sincerely,

Anthony M. Jacobi
Department Head and
Richard W. Kritzer Distinguished Professor

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
217.333.4108 • a-jacobi@illinois.edu • mechse.illinois.edu

Appendix D: TE 550 Course Syllabus

TE 550 High Tech Ventures: From Idea to Enterprise

Credit: 3 credit hours
Schedule: TBD
Instructor: Harlee Sorkin, sorkin2@illinois.edu

Resources:
Technology Ventures: From Idea to Enterprise: Byers, Dorf, and Nelson; McGraw-Hill, 3rd Ed.
How to Build a Startup: https://www.udacity.com/course/ep245

Course Description:
This class examines the fundamentals of technology entrepreneurship and addresses critical areas of the entrepreneurship process such as: Creating a successful startup and transforming it into a sustainable business; Validating an idea and taking it to market; Evaluation of new ideas; Forming high performance teams; Financing a technology-based startup. This class combines lecture, discussion and in-depth case studies, and culminates in a hands-on group project. The class is intended for undergraduates and graduate students of all majors interested in technology entrepreneurship.

Student Outcomes/Educational Objectives:

- Students will be introduced to core technology business topics. Students will be expected to cover detailed theoretical components via assigned reading and videos. [H]
- Students will apply principals learned by analyzing business scenarios, making decisions and defending their judgments in both written and oral presentations. [B,G]
- Students will be introduced to real startups via discussion with entrepreneurs actively commercializing technology that originated at the University. [H,J]
- Students will form teams and collaborate on idea generation. Projects will last the majority of the course and will constitute a significant portion of the final grade. [D]
- Students will be expected to engage with potential customers to validate their business ideas. [B]
- Students must give consideration to and defend the economic & social impact of their project. [F]
- Teams will present final written and oral deliverables during the last week of class. [G]
- Students will be expected to scrutinize and provide constructive feedback of peer presentations. [H]

Topical Outline:

- Venture Opportunity, Concept & Strategy
  - Introduction to Technology Entrepreneurship & Key Frameworks
  - Creativity & Innovation
  - From Idea to Opportunity
- Venture Formation & Planning
  - Market Sizing & Validation
  - Customer Development
  - Lean Startups
  - Business Models
- Detailed Functional Planning for the Venture
  - Team Building & Compensation
  - Entity Formation
  - Social Entrepreneurship
  - Intellectual Property
- Financing & Building the Venture
  - Accounting
  - Venture Finance
  - Marketing & Sales

Grading Policy:

Assignments	20%	
Midterm	25%	
-individual assignment		8.33%
-team assignment		8.33%
-patent project (see below)		8.33%
Final	35%	
-individual assignment		11.66%
-team assignment		11.66%
-design project (see below)		11.66%
Attendance & Class Participation	20%	

Graduate Projects

1) Patent project: read and analyze a technology patent of student's choice, identifying prior art, priority date, assignee, specification, figures and claims, including identification of POSITA. For a fictitious idea of their own, create a patent draft including the same elements.

2) Sprint design project: teams of graduate students engage in a design sprint spread across the semester completing each of the elements of the sprint process while reading *Sprint*, by Knapp, et al., of Google Ventures.

Subject: Fwd: Letter of support
Date: Wednesday, March 13, 2019 at 3:22:53 PM Central Daylight Time
From: Singer, Andy
To: McElroy, Rhonda Kay

Andrew C. Singer
Associate Dean for Innovation and Entrepreneurship, College of Engineering
Fox Family Professor of Electrical and Computer Engineering
University of Illinois at Urbana Champaign
(217) 244-9263

From: Brown, Jeffrey R
Sent: Wednesday, March 13, 2019 2:31:42 PM
To: Singer, Andy
Subject: Letter of support

Dear Andy,

Thank you for sharing the proposal to establish a transcriptable concentration in Entrepreneurship and Innovation for graduate students in the College of Engineering. The College of Business supports this proposal.

We look forward to working with you and your colleagues on ways that our colleges can work more closely together in the entrepreneurship and innovation space, which as you know, is also an important area of research, teaching and engagement in the Gies College of Business.

Thank you.
Jeff Brown
Dean, Gies College of Business

Sent from my iPad

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Office of the Provost and Vice Chancellor
for Academic Affairs

Swanlund Administration Building
601 East John Street
Champaign, IL 61820

December 20, 2018

Gay Miller, Chair
Senate Committee on Educational Policy
Office of the Senate
228 English Building, MC-461

Dear Professor Miller:

Enclosed is a proposal from the College of Engineering and the Graduate College to establish the graduate concentration in Entrepreneurship and Innovation.

Sincerely,

Kathryn A. Martensen
Assistant Provost

Enclosures

c: A. Singer
H. Dankowicz
R. McElroy
A. McKinney
J. Hart
A. Edwards
E. Stuby

telephone (217) 333-6677 • *fax* (217) 244-5639

UNIVERSITY OF ILLINOIS
AT URBANA–CHAMPAIGN

Graduate College

110 Coble Hall
801 South Wright Street
Champaign, IL 61820-6210

December 19, 2018

Kathy Martensen
Office of the Provost

Dear Kathy,

Included is a proposal from the College of Engineering to **"Establish a Graduate Concentration in Entrepreneurship and Innovation in the Technology Entrepreneur Center in the College of Engineering"**.

The proposal was received on December 5, 2018 and reviewed at the Graduate College Executive Committee meeting on December 14, 2018. The committee approved the proposal without revision.

We find that this proposal meets the standards of Graduate Education at Illinois and we now forward for your review.

Sincerely,

John C. Hart
Executive Associate Dean
Graduate College

c: A. Singer
H. Dankowicz
R. McElroy

ILLINOIS

COLLEGE OF ENGINEERING

Office of the Dean
306 Engineering Hall, MC-266
1308 W. Green St.
Urbana, IL 61801

December 5, 2018

Allison McKinney
Graduate College
204 Coble Hall
MC-322

Via: Rashid Bashir, Engineering College

Dear Allison,

The College of Engineering Executive Committee has reviewed and approved the following program revision. We now submit for campus approval.

"Establish a Graduate Concentration in Entrepreneurship and Innovation in the Technology Entrepreneur Center in the College of Engineering"

Attached is a copy of the request.

Sincerely yours,

Henrique Reis

Henrique Reis, Vice Chair
Executive Committee

Approval Recommended:

12-5-2018

Rashid Bashir, Dean
College of Engineering

Date

Harry Dankowicz
Rhonda McElroy
Henrique Reis

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Senate Educational Policy Committee
Proposal Check Sheet

PROPOSAL TITLE (Same as on proposal): Establish a Graduate Concentration in Entrepreneurship and Innovation in the Technology Entrepreneur Center in the College of Engineering

PROPOSAL TYPE (select all that apply below):

A. ☒ Proposal for a NEW or REVISED degree program. Please consult the Programs of Study Catalog for official titles of existing degree programs.

1. Degree program level:

   ☒ Graduate ☐ Professional ☐ Undergraduate

2. ☐ Proposal for a new **degree** (e.g. B.S., M.A. or Ph.D.):

   Degree name, "*e.g., Bachelor of Arts or Master of Science*": _____

3. ☒ Proposal for a new or revised **major, concentration, or minor**:

   ☐ New or ☐ Revised **Major** in (name of existing or proposed major): _____

   ☒ New or ☐ Revised **Concentration** in (name of existing or proposed concentration):
   Concentration in Entrepreneurship and Innovation

   ☐ New or ☐ Revised **Minor** in (name of existing or proposed minor): _____

4. ☐ Proposal to rename an existing major, concentration, or minor:

   ☐ Major ☐ Concentration ☐ Minor

   Current name: _____

   Proposed new name: _____

5. ☐ Proposal to terminate an existing degree, major, concentration, or minor:

   ☐ Degree ☐ Major ☐ Concentration ☐ Minor

   Name of existing degree, major, or concentration: _____

6. ☐ Proposal involving a multi-institutional degree:

   ☐ New ☐ Revision ☐ Termination

Name of existing Illinois (UIUC) degree: _____

Name of non-Illinois partnering institution: _____

Location of non-Illinois partnering institution:

☐ State of Illinois ☐ US State: _____ ☐ Foreign country: _____

B. ☐ Proposal to create a new academic unit (college, school, department, program or other academic unit):

Name of proposed new unit: _____

C. ☐ Proposal to rename an existing academic unit (college, school, department, or other academic unit):

Current name of unit: _____

Proposed new name of unit: _____

D. ☐ Proposal to reorganize existing units (colleges, schools, departments, or program):

1. ☐ Proposal to change the status of an existing and approved unit (e.g. change from a program to department)

   Name of current unit including status: _____

2. ☐ Proposal to transfer an existing unit:

   Current unit's name and home: _____

   Proposed new home for the unit: _____

3. ☐ Proposal to merge two or more existing units (e.g., merge department A with department B):

   Name and college of unit one to be merged: _____

   Name and college of unit two to be merged: _____

   Proposed name and college of new (merged) unit: _____

4. ☐ Proposal to terminate an existing unit:

   Current unit's name and status: _____

E. ☐ **Other educational policy proposals** (e.g., academic calendar, grading policies, etc.)

Nature of the proposal: _____

Revised 10/2012