EEL 3304 Engineering Entrepreneurship: Products to People
Syllabus, Spring 2019
(Version 1.0, 1/12/19)

Schedule
Class sessions: TuTh 9:00-10:20 a.m.
Lab session: F 8:30-11:20 a.m.
Room: EL Design Suite

Course Overview

This course is the second in the two-course sequence on Design and Entrepreneurship required in the BS in Engineering Leadership. It is intended to give students an opportunity to experience the human-centered commercialization process from start to finish in a single semester. In teams, students will go from a functional prototype to an advanced prototype and a business model that prepares them for a go/no-go decision. It requires students to conduct empirical experiments through interviews with people in the start-up's ecosystem, to recognize the impacts of the start-up on the ecosystem, to (re-)design the product based on your findings and analyses, and to function effectively on teams. Your professors will be there as your advisors and mentors, but you and your users will be your guide. It will be hugely rewarding and very fun, but will take a lot of work. So let's get going!

"Recognizing the need is the primary condition for design." —Charles Eames

Predominant Course Activities

Throughout the semester, you and your teammates will continue the design project from EL 3331. As such, you will be unleashing your creative genius on the following major activities during each of the four quadrants of designing in light of the entrepreneurship process represented in the Innovation Canvas (Explore, Ideate, Market, Design). In EL 3331, you learned primarily about product-to-market fit (customer segments and value propositions). In this course you will cycle through the quadrants again, this time with particular attention to the remaining elements of the Market quadrant, which represents the Business Model Canvas. You will learn the tools and techniques for these elements in three phases: (1) channels and customer relationships, (2) key partners, key resources, and key activities, and (3) revenue streams, and cost structures.
Each phase will include, at the minimum, the following graded assignments:

- Weekly oral reports
- Design review presentations
- Peer evaluations
- Prototypes
- Other phase-specific deliverables

Key Course Goals and Outcomes

- Know the principles and practices relating to customer relationships, channels, revenue streams, key partners, key activities, key resources, and cost structures.
- Know the principles and practices relating to a start-up's commercial or social ecosystem.
- Apply data collection and analysis to empirical hypotheses relating to customer relationships, channels, revenue streams, key partners, key activities, key resources, and cost structures.
- Apply data collection and analysis to empirical hypotheses relating to impact of a start-up from and on its commercial or social ecosystem.
- Refine design/redesign, using advanced analytical techniques.
- Apply principles and practices of teamwork, including establishing goals, planning tasks, meeting deadlines, and analyzing risk and uncertainty.
- Write a business plan and present a business case.
- Know the principles and practices of adaptive leadership.
- Be familiar with leadership in terms of dimensions of culture and culture clusters.
- Strengthen personal leadership character, competence, and capacity.

Relationship to Program Outcomes

- An ability to develop and conduct appropriate experimentation, to analyze and interpret data, and to use engineering judgment to draw conclusions.
- An ability to recognize ethical and professional responsibilities in engineering situations and to make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.

Grading

15% Homeworks (business acumen, project management, leadership)
10% Course notebooks and ePortfolio
20% Weekly presentations, participation, and BMC worksheets
15% Mid-term report and presentation
25% Final report, presentation, and minimum viable product
15% Business Model You

Required Materials

- Blank, S., & Dorf, B. (2012). The startup owner's manual: The step-by-step guide for building a great company. K & S Ranch.
- Northouse, P. G. (2015). Leadership: Theory and practice (7th ed.). Sage publications.
- Clark, T., Osterwalder, A., & Pigneur, Y (2012). Business model you. Wiley &

Sons.
- Arora, M., & Baraonikian, H. (2013). Leadership in project management (2nd edition). Leadership Publishing House.
- Shim, J., & Henteleff, N. (1994). What every engineering should know about accounting and finance. CRC Press.

Policies

Academic Dishonesty
Students are encouraged to collaborate throughout the semester but all graded materials must represent the student's individual work. (When in doubt, ask!) Academic dishonesty is the attempt to present the work of somebody else as his or her own work or attempting to pass any assignment by improper means. It is a serious offense and will not be accepted. Any misconduct will be handled according to the current university policy and reported in accordance with university regulations. For more info visit the Dean of Students or http://studentaffairs.utep.edu.

Special Accommodations
If you would like to request special accommodation due to a disability, we can certainly work that out. Please contact The Center for Accommodations and Support Services via their website http://sa.utep.edu/cass/.

See also separate Course Policies Document for policies on attendance, use of electronics, late submissions, teamwork, etc.

Faculty Information

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