Context

• Entrepreneurship traditionally is most closely aligned with business
• Blind spots
  • Entrepreneurship experts don’t necessarily know about content area
  • Content experts don’t necessarily know about entrepreneurship
• Increasing need to be interdisciplinary
• Where does engineering fit in?

Needs Assessment → Design/Analysis – Product Development → Developing a Business
Objectives of Talk

• Describe entrepreneurship resources at UMKC
• Discuss how entrepreneurship is being implemented campus-wide, with particular emphasis on engineering programs
Overview

• Background
  • UMKC’s Entrepreneurship program
  • UMKC’s Engineering programs

• Approaches for incorporating entrepreneurship
  • Curricular
  • Extracurricular

• Classroom exercises
  • Ideation techniques
  • Business model canvas

• Future Direction
Entrepreneurship at UMKC

• Mission of the Regnier Institute for Entrepreneurship and Innovation – To inspire and nurture entrepreneurs and innovators through transformational education, research and programs.

• Curriculum
  • 25 course sections offered each semester, including on-line.
  • Cross Campus focus through Anchor courses and collaborations

• Co-Curricular programs
  • E-Scholars program. Campus and Community offering
  • Competitions – ROO Idea Jump, RVCC, EQ
  • Venture Hub – Incubator for startup entrepreneurs

• Community Programs - Internships
Engineering at UMKC

- History of UMKC’s Engineering programs
  - General engineering degree offered since University of Kansas City’s charter in 1929
  - Emphases in civil, mechanical, electrical engineering added in 1956
  - Separated into degree programs in 1975 after launch of the MU/UMKC Coordinated Undergraduate Engineering Program
  - Engineering programs merged with the Computer Science and Telecommunications Program in 2001 to become the School of Computing and Engineering (SCE)
Engineering at UMKC

• BS Degrees in Civil Engineering, Computer Science, Electrical and Computer Engineering, and Mechanical Engineering
• BA Degree in Computer Science
• Bachelor of Information Technology
• MS Degrees in Civil Engineering, Computer Science, Electrical Engineering, and Mechanical Engineering
• Participates in UMKC’s Interdisciplinary PhD program through computer science, electrical and computer engineering, engineering, and telecommunications and computer networking disciplines
Approaches

• Curricular
  • ANCH399 Innovation and the Aging Population
  • New Venture Creation course
  • Technology Commercialization – Full Time MBA program
  • Mechanical Engineering Capstone Design sequence
  • MSME Entrepreneurship option

• Extracurricular
  • Venture competitions
  • Student teams
Innovation and the Aging Population Course

• A General Education course – meets requirements of the university.
• Students from all schools and departments on campus
• Over 60 students every semester – course fills in first week of registration
• Two part curriculum – Information on the aging population and entrepreneur venture development
• Students focus on an idea (product or service) that fills a void or solves a problem for aging
• Business model is developed and presented at end of semester
Co-Curricular Courses

• New venture creation course – taught by Law School and Bloch Business School – in its 15th year
• Students working in teams, develop a Business Plan for a new venture
• Example of successful projects from class
  • Eye Verify – early stage business plan developed - sold in 2016 for 350 million
  • My Heart Outcome – won 2016 RVCC - $10,000
  • Other - http://info.ongandcompany.com/blog/client-spotlight-enduralock
• Technology Commercialization – Full Time MBA program
• Projects from community including; Children’s Mercy Hospital, Black and Veatch, Honeywell and others
Mechanical Design Synthesis I

• Fulfills university general education requirement
• Focused on design process
• In-class design activity
  • Ideation/brainstorming
  • Identify needs
  • Benchmarking
  • Concept generation
• Assessment of prototyping/manufacturing costs
Mechanical Design Synthesis II

- Capstone design project
  - Need identified via community partners
  - Student teams go through entire design process
MSME Entrepreneurship Option

• Exposure to principles of entrepreneurship as part of the MSME degree program
• 6 of 30 credit hours are taken through the Regnier Institute, including
  • ENT5502 Introduction to Entrepreneurship (3 CH)
  • One 3 CH entrepreneurship elective (Entrepreneurship and New Venture Creation, Urban Entrepreneurship, Health Sciences Entrepreneurship)
Venture Competitions

• ROO Idea Jump - $3,000 per semester. Students present Business Concepts (Business Models). Mostly from Entrepreneurship Classes

• Regnier Venture Creation Challenge - $75,000 in prizes, $25,000 BCBS special competition. Open to UMKC, UM System and local universities

• EQ Competition – UM System open competition $250k UM dedication, $30k each campus initially
Mobility Designed

• Winners of 2015 Reginer Venture Creation Challenge

• Developed a new type of crutch intended to reduce pain and improve function over traditional crutches

• Partnering with UMKC for biomechanical testing to quantify crutch performance
Mobility Designed

• Interdisciplinary opportunity for engineering students
  • Technical aspects of crutch analysis
  • Running a startup company
Student Teams
Ideation Techniques

• Engineers often focused only on technical/analytical aspects of design
• Incorporate brainstorming/ideation into the design process
• Example activity:
  • What is a product you use every day that you wish were designed better?
  • Participate here:

PollEv.com/gregking257
Business Model Canvas

Nine Building Blocks

• Value Proposition
• Customer Segments
• Channels
• Customer Relations
• Revenue Streams
• Key Resources
• Key Activities
• Key Partners
• Cost Structure
Future Directions

• Academic Advisory Board – September 19th – Plan for 2018 – 2019
• Entrepreneurship “101” lecture in Engineering courses
• Expansion of the Healthcare Venture Creation initiative sponsored by BCBS
• Workshops on various issues in Venture Creation to accommodate Engineering and Medical/Healthcare majors
• Further engagement with Community Partners to bring entrepreneurial opportunities to MBA and other classes.