Course Syllabus
(As of 2/25/2018)

TECHNOLOGY ENTREPRENEURSHIP AND COMMERCIALIZATION
SPRING SEMESTER 2019 (3 CREDIT HOURS)
WEDNESDAY, 5:30-8:00 PM, ENGINEERING RM. B-136
Undergrad: FSU EIN 4445, FAMU EIN 4150-301
Graduate: FSU EIN 5445C, FAMU EIN 5930-3

Instructional Objectives and Methods:

Although this course is offered primarily to enhance the innovative and entrepreneurial mindset of students in the FAMU-FSU College of Engineering, it is open to advanced undergraduate and graduate students of ALL DISCIPLINES (NO PREQUISITES)!

The course simulates, in an academic environment, the process of creating and analyzing commercialization plans for technology-based products or services to meet a need or solve a problem—i.e. learn by doing. Students propose technology-based ideas/opportunities with commercial potential and form teams for a selected set of those ideas/opportunities. Each team then analyzes the business potential of the idea, addressing key aspects such as the state of development of the technology (e.g. additional research needed, whether a prototype exists, etc.), needed intellectual property protection, competing technologies, the most appropriate target market, customer discovery, and the best business model for financial success (including developing a Business Model Canvas). The teams will present the findings for their project in both a final written report and an oral presentation.

In addition to the team projects, the course will include lectures and class discussions on such topics as entrepreneurship, lean startup concepts, technology product development, intellectual property protection, how to conduct a technology market study, sources of financing for start-up companies, and case studies from successful entrepreneurs. Lectures will mix experience with educational content. Grades will be based on:
1. the quality of the final written and oral reports;
2. assessments of individual and team presentations;
3. homework;
4. in-class assignments; and,
5. evaluations of your contributions by other team members
There are no exams.

Learning outcomes include: Creatively identifying problems and/or needs in society and imaginatively applying engineering and technical knowledge to propose ideas to solve those problems/needs; working in collaboration with other students in a team to creatively develop a commercialization plan and to analyze the plan to determine whether the idea is a real opportunity or not; and applying both written and oral communication skills to explain the problem/need and proposed idea to others, including those with a non-technical background.

Faculty: Dr. Mike Devine, Entrepreneur in Residence and Professor, FAUM-FSU College of Engineering. For further information, please contact Dr. Devine at mdevine@fsu.edu; phone 850-410-6378, Office A-248B. Office Hours: Wed 10am-5pm and Thurs 10am-12 Noon or by appointment.

Co- and Pre-requisites: Graduate, Senior, or Junior Standing or permission of your academic department.

Textbook website https://web.stanford.edu/group/techventures/cgi-bin/tv4/?page_id=3
Webpage Address: https://famu-fsu-eng.instructure.com/courses/184
Syllabus Change Policy: Except for changes that substantially affect implementation of the grading policy or grading scale, this syllabus is a guide for the course and subject to change with advanced notice.

Class Schedule: (Subject to Change Depending on Availability of Guest Speakers)

Class #1 January 9: An Overview of the TEC Class and Its Goals
Prior to class:
- Read the Forward, Preface, and the following sections from Chapter 1:
  - 1.1 Entrepreneurship in Context
  - 1.4 Innovation and Technology
  - 1.5 The Technology Entrepreneur
- Watch a few of the “elevator pitches” from U. Miami at http://www.youtube.com/user/2011epitch
- Watch the 3 Videos for Chapter 1 at https://web.stanford.edu/group/techventures/cgi-bin/tv4/?page_id=101
- Learn some basic terminology and concepts about the INVENTURE CYCLE by Tina Seelig
  - Here’s the 2:30 minute version: https://www.youtube.com/watch?v=50k3fv7yR-w
  - And the first 27 minutes of this video is the more complete version (but the discussion that follows is very interesting also): https://www.youtube.com/watch?v=bWTWwps0ezQ
- Each student should review at least 2 of the 12 previous TEC Final Presentations posted in the Course Module of Canvas “Samples of prior TEC Final Presentations and Reports” to gain a better understanding of what we are striving for.

Homework: Send answers via email to Dr. Devine by Tuesday, January 15, 5pm.
1. Answer Q. 1.1 (p. 22). (This page is in the Course Library Module in Canvas in case you don’t have the textbook yet.)
2. What lesson(s) did you learn for a “business pitch” from watching the U. Miami videos.
3. What was your “take away” in 50 words or less from video 3 from Stanford site (Friedberg, 2011)
4. Explain the difference in your own words (100 words max) between creativity and entrepreneurship per Tina Seelig.

Class:
- WELCOME
- Introductions of students
- Overview of the course, expectations and grading;
- Examples of technology-based business ideas
- Class Discussion: Characteristics of technology-based enterprises and importance of “customer discovery”
- What makes a good project for this class?

Class #2 January 16: Each Student Proposes a Possible Class Project (A Possible Commercial Product)—“If it were easy we would all be rich!”
Prior to class:
- Read Chapter 2.1: Types of Opportunities, 2.2: Market Engagement and Design Thinking, and 2.4 Trends and Convergence
- Watch the 3 videos for Ch. 2 at the Stanford website above
- Sara Blakely: listen to http://www.npr.org/podcasts/510313/how-i-built-this (28 mins)—you will have to SEARCH or scroll down a long set of podcasts to find her on Sept. 12, 2016 (she was the FIRST ONE!)
- Prepare a 5-6 slide presentation of your idea/opportunity (more than 1 idea if you wish). Email them to Dr. Devine no later than 3pm Wednesday the day of class so they can be ready to present by class time
- Post your BioSketch to Canvas’s Discussions before class (to help each other in forming teams)

Homework: Send answers via email to Dr. Devine by January 16, 5pm
1. Keeping in mind the videos from Chapter 2, answer Q. 2.2 (p. 48) in no more than 1 page (½ page for past and ½ page for future).
2. Where did Sara Blakely go to college? Describe 5 or more take-away lessons from her story.

Class:
- Sign Confidentiality Agreement—*Students Commit to NOT Stealing Other Students Ideas*
- Technology-based business ideas presented by students (3 minutes each plus 4 mins Q&A) including class discussion and feedback

**Class #3** January 23: *Potential Class Projects Version #2*

**Prior to Class:**
- Read Chapter 3.1-3.3 (The Vision, Mission Statement and Value Proposition)
- Watch the 3 videos for Ch. 3 at Stanford website above
- Review “Customer Discovery” slide show posted on Canvas Course Library.
- Prepare revised/refined technology-based business idea (5-6 slides) utilizing lessons from 1st presentation, what you learned from Ch. 3, and adding more on customers and market potential. **Email them to Dr. Devine no later than 3pm Wednesday the day of class** so they can be ready to present by class time.

**Homework:** Email answers **no later than 5pm, Tuesday, January 22**

1. In your own words (limit 200) what are the key points about “customer discovery”?
2. Answer Q 3.6 from Chapter 3 (page 66) of Textbook.
3. Choose one of your favorite local businesses, describe what it does and why you like it in 1-2 sentences and then develop a “mantra” for that business.

Class:
- All students present their refined/refined technology-based business idea (3 minutes plus 4 mins Q&A MAX)
- Discuss key challenges to commercializing new technologies and the importance of CUSTOMERS

**Class #4** January 30: *Learn About DESIGN THINKING and Form Teams*

**Prior to Class:**
- Students who want their project considered for a team semester project should post their 3rd Draft business idea Power Point on Canvas’s **Discussions** by 5pm, Friday, January 25
- Project Preference Request email sent by Dr. Devine **Monday morning, January 28**
- Students indicate (confidentially) their top 3 preferred projects by replying to Dr. Devine’s email no later than **5pm, Tuesday, January 29**.
- Teams assigned by Dr. Devine by **NOON, Wednesday the day of class.**
- Read Chapter 4.1, 4.4, 4.6, and 4.7: Competitive Strategy and Alliances
- Watch the videos 1 & 2 for Chapter 4 at the Stanford website as done previously

**Homework:** Send to Dr. Devine by **5pm, Wednesday January 30 (the day of class)**

1. Summarize in 100 words or less the key points from Videos 1 &2 of Chapter 4.
2. Choose any company you are somewhat familiar with (even if it’s just because you are a customer of them). Describe them briefly (including a website for the company) and do a brief SWOT analysis of them like Table 4.4 (no more than 1 page total).
3. Based on your reading of Chapter 4.6 and 4.7, can you explain why (in your own words) McDonalds seems to maintain such a competitive advantage—when it seems like anyone could sell fast food?

Class:
- Guest Speaker: Ken Baldauf, Director of FSU Innovation HUB: “Design Thinking”
- Teams meet for the first time in class to discuss development of their Team Project

**Class #5:** February 6: *Each Team’s First Commercialization Assessment/Plan*

**Prior to Class:**
- Read Ch. 5.4 New Technology Ventures
- Watch the 3 videos for Ch. 5 at the Stanford website
- Teams meet online and in person to develop/refine their Team Project
Homework:
1. Each team sends their early draft power point (with talking points in the NOTES section) to Dr. Devine **Tuesday February 5, 3pm.** (Don’t worry about making it “pretty” at this point.) Dr. Devine will do a quick review and send it back to your team by 9am Wednesday. You should have at least 1 slide for each of the 12 items in the “Commercialization Plan Content Outline” (in Course Library) even if the slide just has the title with no other information at this early stage.
2. Give your own examples of the 3 types of innovation according to Judy Estrin (Video 1 for Ch. 5). **Send to Dr. Devine by Tuesday, February 5, 5pm.**

Class: All teams present their Team Project and discuss with class (8 min presentation, 8 min Q&A). **(Each student will note 1 good point and 1 weak point for all the other teams’ project ideas.)**

Class #6 February 13: *How the Business Model Canvas Can Aid Your Commercialization Strategizing; and Sources of Business Information from FSU Libraries*

Prior to Class
- Read Ch. 3.4 (esp. the Business Model Canvas in Figure 3.4) and Ch. 6.1-6.4 (Creating the Business Plan or “Commercialization Plan”)
- Watch the 3 videos for Ch. 6
- Watch Videos 2-4 on Business Model Canvas at [http://ecorner.stanford.edu/authorMaterialInfo.html?mid=2875](http://ecorner.stanford.edu/authorMaterialInfo.html?mid=2875) (These are the 4 min, 6 min, and 5 min clips below the main video)
- (Watch the full 53 minute video if you have time!)
- Also, see Library Module for a Business Model Canvas Template and additional links for videos on the Business Model Canvas
- All teams prepare a first rough draft of their “Business Model Canvas” using the template in the Course Library. The primary focus should be on the Value Proposition and Customers. **(Bring to class and send to Dr. Devine).**

Homework: Email to Dr. Devine by **5pm, Thursday, February 14**
1. What’s the key message from Video 2 of Ch. 6?
2. Mostly for fun but there is a lesson--Watch the **Turbo Encabulator** video [https://www.youtube.com/watch?v=rLDgQg6bq7o](https://www.youtube.com/watch?v=rLDgQg6bq7o)
   a) What are your 5 favorite words/terms from the video?
   b) What do you think the “take away lesson” is?

Class:
- Four teams (chosen at random) present their first draft “business model canvas” (5 mins each plus 5 mins Q&A). The other teams will receive written feedback. (The idea is that everyone will learn from these 3 examples.)
- Discuss the idea of “pivoting” using the BMC framework (hypothesize, test, pivot as needed).
- Dr. Devine: Overview of Business Related Data/Information ONLY available for free from FSU Libraries—per Trip Wycoff, FSU Business Librarian [http://guides.lib.fsu.edu/devineguide](http://guides.lib.fsu.edu/devineguide)

Class #7 February 20: *Protecting your Ideas from Theft; and It’s All about the Customer*

Prior to Class
- Review Ch. 2.2 (previously assigned) and the Customer Discovery Slides in the Library section of Bb (also previously assigned)
- Teams continue to refine/develop their team project, focusing on “customer discovery” (each team member should interview at least 2 potential customers), and including any significant changes to their BMC.
- Send updated power points to Dr. Devine by 4:00 pm **Wednesday, February 20** get feedback from Dr. Devine via email after February 20
Homework: Email Dr. Devine by Tuesday, February 19, 5pm
- Tell me who the two potential customers were that you interviewed and what you learned about the potential of your commercial product idea from those two interviews.
- Each team submits a more complete/improved BMC based on what you learned in last week’s class and each team member’s customer interviews; and any significant changes to their business idea (e.g. how will the technology really work—i.e. NO “handwaving”?)

Class:
- Three teams chosen at random present updates on their team project (5 minutes with 5 minutes Q&A) focusing on what they learned from Customer Discovery, how it changed their commercialization plan/BMC (if at all). (All teams will get feedback from Dr. Devine via email after class)

Class #8 February 27: Inspiration from a Real Live Scientist/Technology Entrepreneur; and, How Rich Might I Become?
Prior to Class:
- Read Ch. 9.1-9.3 (Marketing and Customer Segments)
- Read Ch. 11 (Intellectual Property)
- Watch the 3 videos for Ch. 9 and the 3 videos for Ch. 11
- Review the TAM, SAM, SOM Approach to Estimating Market Size (see Course Library): after each student does his/her own estimates (see Homework), the team should agree on the best TAM, SAM, SOM estimates

Homework: Email to Dr. Devine by Tuesday, February 26, 10 pm
1. Summarize the lessons from video 2 of Chapter 9 and video 2 of Chapter 11.
2. Each student should develop their own TAM, SAM, SOM estimates for their project

Class:
- Guest Speaker: Dr. James Olcese, FSU College of Medicine; Researcher, Inventor, Entrepreneur. “Preventing Preterm Labor”
- All teams present their agreed upon Market Size information using the “TAM, SAM, SOM” approach including the sources of data (5 min each plus 3 mins Q&A).
- Explaining your Patent Homework due a week from Friday (March 8)

Class #9 March 6: Great Idea—But How Can I Get the Money to Start my Venture? (Suggestion—Marry Rich!)
Prior to Class:
- Read Ch. 18.1, 18.3-18.6 (Financing New Technology Ventures); just skim 18.7 and 18.10
- Watch the video on “angel investors” https://ecorner.stanford.edu/video/flying-with-angel-investors/
- Read Ch. 17.1
- Review “Elements of the Financial Plan” (WORD document in Course Library)

Homework: Email Dr. Devine by Friday, March 8
1. What are the key points from the text book about “angel investors” and from the video “Flying with Angel Investors”?
2. Assuming you need about $50,000 over the first year to launch your business, make a list of all possible sources you can think of (NO theft or deception) you might be able to use to obtain some or all those $’s.
3. Patent Homework: Using Google Patents, each student (not team) should find a patent closely related to their project technology, email me a pdf of the patent, and in the body of the email tell me briefly the following: judging ONLY from Claims 1 and 2 of that single patent if you think your team’s idea might still be patentable and why or why not?
Class:
- Guest Speaker: Michael Tentnowski, Director of Entrepreneurship, Innovation Park of Tallahassee, “Sources of Financing for New Technology-Based Enterprises”
- Dr. Devine: “Developing your project Financial Plan”


Prior to Class:
- Re-read Ch. 17.1, re-review “Elements of the Financial Plan” (WORD document in Course Library), and review the Financial Plan slides from Nuri PSM or other projects you choose in “Samples of prior TEC project final presentations” in Bb Course Library
- Each team develops their early draft Financial Plan (5-6 slides). Send to Dr. Devine by 4pm Wednesday the day of class

Homework: Email to Dr. Devine by 5pm, Wednesday, March 13 (before class)
- In addition to the slides to be submitted above which are necessarily brief/few words, each team should submit for a grade the same slides with more detailed explanations of each slide as to where the numbers come from, assumptions, etc. (Team Assignment)
- Although still lots of time to refine your business plan, what do you think be biggest risks are if you were to launch this business. How might you reduce the risks? (Individual Assignment)

Class:
- Guest Speaker: TBD
- Four teams (chosen at random) presents their project “draft” Financial Plan. (All other teams will get feedback from Dr. Devine via email.)

Class #11 March 27: Covering Items 7-10 in the Content Outline

Prior to Class
- Read Ch. 19.1 & 19.2 (The “Elevator Pitch” and Critical Issues)
- Watch the 3 videos for Ch. 19
- Each team continues “customer discovery” (at least 1 more customers per team member) and prepares an updated presentation on items 7 (Competition), 8 (Product Development Needs), 9 (IP) and 10 (Commercialization Alternatives) from the content outline
- Each graduate student (NOT each team) prepares a 3-minute “brief pitch” using no more than 5 slides.

Homework: Email to Dr. Devine by Wednesday, March 27, 4:00pm
- Each student describes who they interviewed and what new they learned.

Class:
- Each team presents their slides for Competition, Product Development, IP and Commercialization Alternative (5 mins presentation, 3 mins Q&A)
- Graduate Students Only: Each graduate student presents a 3-minute brief pitch (no more than 5 slides) for their team project. Undergraduate students submit a grade for the first 4 pitches—then they are dismissed (but may stay and listen if they wish!)—Grad students submit a grade for ALL other students.

Class #12: April 3: Your 1st Complete Presentation—to an outside reviewer

Prior to Class
- Prepare a 15-20 slide Power Point addressing all aspects of your project that includes items in the Content Outline and Kennedy Slide Template both posted in Canvas Library Module and include an updated BMC (but NOT to be talked about directly in the presentation—but do talk about customers, value proposition and partners. Email to Dr. Devine by 4pm the day of class.

Class
- All teams present their early draft “complete” final project presentation (8 min presentation, 6 min critique/discussion) to our GUEST CRITIC: TBD

Class #13: April 10: 2nd Complete Presentation
Prior to Class
  o Every team develops an improvement of their project commercialization plan, including additional customer discovery (each team member should interview at least 1 more person), revisions to the value proposition and competition assessment. Also, this update should include a revised/updated Business Model Canvas.

Class
  o All teams present their complete project idea and commercialization plan (12 mins each plus 6 mins Q&A). Each student must witness/critique 2 other teams noting good and weak points; a schedule of presentations will be sent before class so you can plan when to attend.

Week #14 Written Report Draft and Closing in on an Excellent Business Pitch—by the TEAM and ALL Its Members
  o Teams continue with customer discovery (at least 2 more interviews per team member), updates to BMC, and any changes per previous week’s critique along with other general improvements (such as NOT using tiny fonts and using too many words on a slide)

Wednesday April 17: NO Class
  o Each team meets with Dr. Devine for 45 mins to go over their project and slides—sign up schedule posted at https://docs.google.com/spreadsheets/d/1nb2qy-qmuSFlceEC7YLRyTP-H6IP5Pqpwg0PJh3j8-W4/edit#gid=0

Class #15 April 24: THE BIG SHOW
  5:30-8:15 PM: Final Presentations (10 min each with 5 minutes Q&A)

Monday, April 29 6pm: DRAFT Written Reports Due (WORD document emailed to Dr. Devine)

Grading Scale: A 90-100; B 80-89; C 70-79; D 60-69; F 0-59

Grading:
  • Final Written Report (Team): 20%
  • Final Presentation (Individual & Team): 35%
  • Homework and In-Class Assignments (Individual): 25%
  • Team evaluation of your contribution (Individual): 20%

Academic Honor Policy:

FAMU Students: Florida A&M University is committed to academic honesty and its core values which include scholarship, excellence, accountability, integrity, fairness, respect, and ethics. These core values are integrated into its academic honesty policy. Being unaware of the Academic Honesty Policy is not a defense to violations of academic honesty. A link to the complete policy is given below. Academic Honesty Policy violations shall be reported and appropriate actions taken by the department chair and associate dean for student affairs and curriculum. The complete policy can be found here http://www.famu.edu/Students/NEWFANG%202008-2010X.pdf

FSU Students: The Florida State University Academic Honor Policy outlines the University’s expectations for the integrity of students’ academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to “...be honest and truthful and ... [to] strive for personal and institutional integrity at Florida State University.” (Florida State University Academic Honor Policy, found at http://fda.fsu.edu/Academics/Academic-Honor-Policy.)
Americans With Disabilities Act:

Students with disabilities needing academic accommodation should: (1) register with and provide documentation to the appropriate university office. For FAMU students, this is the Center for Disability Access and Resources CEDAR). For FSU students this is the Student Disability Resource Center (SDRC); and (2) bring a letter to the instructor indicating the need for accommodation and what type. Please note that instructors are not allowed to provide classroom accommodation to a student until appropriate verification from the Student Disability Resource Center has been provided. This syllabus and other class materials are available in alternative format upon request. For more information about services available to students with disabilities:

**FAMU Students** should contact:
Center for Disability Access and Resources (CEDAR)
667 Ardelia Court, Tallahassee, Fl. 32307
http://www.famu.edu/index.cfm?cedar
Email: cedar@famu.edu
Phone: 850-599-3180
Fax: 850-561-2513
TDD: 850-561-2783

**FSU Students** should contact:
Student Disability Resource Center
874 Traditions Way
108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
(850) 644-9566 (voice)
(850) 644-8504 (TDD)
sdrc@admin.fsu.edu
http://www.disabilitycenter.fsu.edu/

**Attendance Policy:**

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

First week attendance is mandatory for both FAMU students and FSU students. Class attendance will be taken each session and factored into your final grade under the category of “Assignments/Class participation.” Students will not be penalized, for attendance purposes, for excused absences. However, students with excessive excused absences may be assigned a grade of incomplete “I” and be asked to submit missing work at a later time.

**Make-up Assignments Policy:**

Class assignments may be accepted late, without penalty, with a valid excused absence. However, you must notify me in advance if your absence involves a planned event or observance of a religious holy day. If an emergency prevents you from attending a class you must notify me at your earliest opportunity. Students with a valid excused absence will not be arbitrarily penalized for missing class assignments or activities.
Course Drop/Withdrawal Deadlines:

- February 22 2019 (seventh week course drop/withdrawal deadline)
- March 29 (late course drop/withdrawal deadline)