

Engineering Entrepreneurship (EGN4641) Entrepreneurship for Engineers (EGN6640)

Course Syllabus

Catalog Description:

Engineering Entrepreneurship (EGN4641) and Entrepreneurship for Engineers (EGN6640) meet as a combined undergraduate / graduate level course that introduces engineering students to the concepts and practices of technology entrepreneurial thinking and entrepreneurship. Using lectures, case studies, business plans, and student presentations, the course teaches life skills in entrepreneurial thought and action that students can utilize in starting technology companies or executing R&D projects in large companies.

Course Overview:

Entrepreneurs have started new ventures for generations. Success was more a function of tenacity and a measure of the idea underpinning the business. Errors in the structure and early conduct of the enterprise could be overcome with time through learning. In the new paradigm, tolerance for such errors is acutely narrow. Competition has become intense, technology-based, market-focused and highly competent. In such a competitive environment the lack or misuse of the application of currently available technology to the structure and conduct of a new business could quickly spell its demise. Similarly, the inability to adapt the enterprise to the emergence of new technologies to make it market-driven and structure-perfect could have the same effect. In summary, competition is just too tough; the end could come quickly.

An entrepreneurial orientation is the common denominator among successful enterprises in this new paradigm. The elements that are frequently key to successful competition include a team approach to management focusing on enterprise value rather than individual recognition, structuring an environment that promotes seeking and exploiting opportunities rather than recognizing and solving problems, conceptualizing and committing to new markets rather than being constrained by traditional boundaries, and balancing intelligent risk and the opportunity for rapid advancement.

Organizational size neither offers a safe harbor nor increased risk. New ventures exist either as a new, small business or as an element of a large organization. Large companies have become competitive in this new paradigm by redefining their cultures. Decision-making has been shifted downward in these companies to encourage quick reaction to market opportunities.

Every student that plans a career, therefore, will face the need to negotiate these new realities, whether through a big company, small company, new company or old. The goal of this course is to provide the background necessary to understand the entrepreneurial approach to business and the tools required to function effectively in that environment.

Credit Hours:

3

Graduate students will not receive graduate credit for taking the undergraduate version of the class. They are allowed to enroll in the undergraduate section, but the credits will then not count toward the degree.

Pre-requisite:

EGN4641 – Junior / Senior Standing
EGN6640 - None

Course Objectives:

Explore the entrepreneurial mindset and culture that has been developing in companies of all sizes and industries; Examine the entrepreneurial process from the generation of creative ideas to exploring feasibility to creation of an enterprise for implementation of the ideas; Experience the dynamics of participating on a business team and the power inherent in a team relative to individual effort; Create and present a business plan for a technology idea; Provide the background, tools, and life skills to participate in the entrepreneurial process within a large company, in a new venture, or as an investor.

Contribution of course to meeting the professional component:

Not applicable as course is not specific to a major

Relationship of course to program outcomes:

Provides students with: an ability to function on multidisciplinary teams; an understanding of professional and ethical responsibility; an ability to communicate effectively; a broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context; and knowledge of contemporary issues

Instructor:

Erik Sander, Director
University of Florida Engineering Innovation Institute
Office location: 311 Weil Hall
Telephone: 352-392-7047
E-mail address: esander@ufl.edu
Office hours: By appointment to Tammy Hedman (thedman@eng.ufl.edu; 392-7047)
Teaching Assistant: None

On-campus Students Meeting Time and Location:

Thursday; Periods 3-5; NEB102

The course will typically be delivered weekly through a 3 hour weekly block consisting of lectures, guest speakers, student presentations, and in-class exercises.

Material and Supply Fees:

None

Textbooks and Software Required:

None, but students should expect to have reading assignments that will be posted by the instructor and other students on the Gator Innovators Facebook Group.

Recommended Reading:

The Art of the Start: The time-tested, battle-hardened guide for anyone starting anything, Kawasaki, Guy; ISBN: 1591840562, Portfolio – a member of Penguin Group; 2004

Technology Ventures: From Idea to Enterprise, Dorf, Richard, Byers, Thomas, and Nelson, Andrew; ISBN 978-0073380186; 3rd Edition, 2009

Course Outline:

The course is firmly presented in a “real-world” format, including students taking the roles of company founders and investors, creating a vision and execution plan for their company, and raising funds – exactly as they would in a true entrepreneurial endeavor. The course is delivered along the following outline of major course themes:

- I. Introduction to Entrepreneurship – Introduction to Technology Entrepreneurship and Technology Ventures, Attributes and Myths of Technology Entrepreneurs, Engineers as Entrepreneurs, Mindset of the Entrepreneurial Leader, Creating and Selling the Entrepreneurial Value Proposition.
- II. Idea Generation and Feasibility Analysis – Entrepreneurial Idea Generation and Feasibility Analysis, Technology Commercialization Potential, Paths and Barriers from Idea to Market, Assessing and Presenting the Opportunity.
- III. Business Planning and Execution – Business Structuring and Strategy, Business planning and the Business Plan, Financial Analysis and Projections; Market and Competitive Analysis, Presentation of the Opportunity, Intellectual Property Strategies for Technology Companies; Marketing, Sales and Distribution Strategies, Investment and Financial Strategies, Venture Growth and Value Harvesting.

Attendance and Expectations:

For on-campus students, attendance is mandatory at all sessions, and more than one unexcused absence can result in loss of one final course letter grade per each unexcused absence over one at the discretion of the instructor, subject to the UF attendance policies. Attendance may be taken by the instructor during any class period. The instructor has the right, at his sole discretion, to excuse an absence 1) if the student informs the instructor by E-mail at least 24 hours in advance of the class to be missed and obtains the instructor's permission to miss the class, such permission to be given at the instructor's sole discretion, or 2) the student discusses the absence with the professor immediately after the absence and provides reasonable justification for missing the class, the acceptance of such justification to be at the instructor's sole discretion.

It is the student's responsibility to find out from their classmates, the class website, or the instructor what material was covered, what additional assignments were made, and to obtain any handouts he/she may have missed.

Grading:

The course will be organized around lectures, readings, class discussion and a team project. EDGE students are not required to work in teams, but have the option to do so if it can be accommodated by the instructor. On-campus students, and EDGE students who choose to work in teams, will organize into teams for the purpose of developing a venture idea into an early stage business plan and presenting that plan. The deliverables for each team will be individual elements and a business plan and a team presentation of the plan to the class.

This course is offered at the graduate level as EGN6640 and at the undergraduate level as EGN4641, and will be delivered in the same class period. Graduate and undergraduate students will learn together as the teaching methodology and structure of the undergraduate and graduate courses are similar. However, graduate students are required to submit additional assignments (e.g. case studies) per below. Grades will be determined as follows:

Maximum Points for Assignments

Assignment	Assignment Type	Undergraduate students	Graduate students
Student Biography	Individual for all students	50	50
Individual Idea Overview	Individual for all students	50	50
Company Idea Overview	Team for on-campus students and EDGE students working in teams; Individual for EDGE students not working in teams	100	100
Value Proposition Presentation	Team for on-campus students and EDGE students working in teams; Individual for EDGE students not working in teams	100	100
Start-up.com Case Analysis	Team for on-campus graduate students and EDGE students working in teams; Individual for EDGE students not working in teams; No assignment for undergraduate students	Not required	100
Financial Projections	Team for on-campus students and EDGE students working in teams; Individual for EDGE students not working in teams	100	100
Business Plan Presentation	Team for on-campus students and EDGE students working in teams; Individual for EDGE students not working in teams	200	200
Written Business Plan	Team for on-campus students and EDGE students working in teams; Individual for EDGE students not working in teams	200	200
Final Exam Case Analysis	Team for on-campus graduate students and EDGE students working in teams; Individual for EDGE students not working in teams; No assignment for undergraduate students	Not required	100
Total Points Possible		800	1,000

If, in the sole discretion of the instructor, a student is not contributing acceptably to his/her team, the instructor reserves the right to lower an individual student's grade for

any and all team assignments to a degree that the instructor in his sole discretion feels appropriate to reflect the lack of contribution of the student to team assignment(s).

For all students, final course grades will be determined by the following Grading Scale:

Final Grade	Undergraduate Students	Graduate Students	Final Grade	Undergraduate Students	Graduate Students
A	720 – 800	900 - 1,000	C	560 – 591	700 – 739
A-	696 – 719	870 – 899	C-	536 – 559	670 – 699
B+	672 – 695	840 – 869	D+	512 – 535	640 – 669
B	640 – 671	800 – 839	D	480 – 511	600 – 639
B-	616 – 639	770 – 799	D-	456 – 479	570 – 599
C+	592 – 615	740 – 769	E	0 – 455	0 – 569

For undergraduate students: A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: <https://catalog.ufl.edu/ugrad/current>.

For graduate students: In order to graduate, graduate students must have an overall GPA and an upper-division GPA of 3.0 or better (B or better). Note: a B- average is equivalent to a GPA of 2.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: <http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>.

Unless stated otherwise, assignments must be submitted via Sakai by the stated deadline. Students are strongly encouraged to submit their assignments well before deadlines as late submissions will not be accepted under any circumstances and students, or student teams, that do not submit assignments via Sakai by the stated deadline will receive no points for that assignment, subject to the policies of the undergraduate catalogue (<https://catalog.ufl.edu/ugrad/current>) or graduate catalogue (<http://gradcatalog.ufl.edu/>) as appropriate.

Make-up Exam Policy:

Makeup exams will only be allowed under rare circumstances at the discretion of the instructor, subject to the policies of the undergraduate (<https://catalog.ufl.edu/ugrad/current>) or graduate (<http://gradcatalog.ufl.edu/>) catalogue as appropriate.

Web Site and Facebook Group:

A specific course website will be available to students through the UF E-Learning system. The website will contain the course schedule and assignments, instructor contact information, and lecture / seminar notes and other presentation and reading materials. Students are responsible for checking this often throughout the course as information may be updated frequently. Additionally, the instructor utilizes the Gator Innovators Facebook Group to post items of interest. Students are required to join the group and review all postings by the instructor so that they can participate in the discussion.

Academic Integrity:

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity." You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>

Accommodation for Students with Disabilities:

Students requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

UF Counseling Services:

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

- UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
- Career Resource Center, Reitz Union, 392-1601, career and job search services.

Software Use:

All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.