Dream > Believe> Create

EEE 4483
Entrepreneurship and New Technologies

-COURSE SYLLABUS-

Class Meets: xxxxxxxxxxxxxx
Room: WSOM 203
Spring 2010
Website: spears.okstate.edu/eee

Instructor: xxxxxxxxxxxx
Office: xxxx
Phone: xxxxxxxxxxxxxx
E-mail: xxxxxxx
Office Hours: xxxxxxxxxxx

I. Prerequisites

This course is especially designed for students in business, engineering, information systems, and the sciences, but all students interested in entrepreneurship and technology are welcome. The "Introduction to Entrepreneurship" course or instructor permission is required for admission to the course.

II. Course Overview

Today's global economy has two primary drivers: technological innovation and entrepreneurship. On the one hand, multinational competition in all industries has increased the demand for engineers and scientists who have the entrepreneurial spirit and who can lead companies to success in the next millennium. On the other hand, a considerable number of engineers and people with technical backgrounds are opting to start their own businesses, opting to "do their own thing" instead of working for someone else. In the process they are both reinventing existing industries and/or markets and creating entirely new industries and/or markets. The entrepreneur transfers technology, identifies opportunities, creates jobs and is a major force in improving the economy and our lives. To meet the challenges of the global business environment in the 21st century, the engineer/scientist requires not only a high degree of professional competence in technical aspects but also a fundamental grasp of the entrepreneurial process. From a different perspective, high-technology industries are characterized by a high degree of market, technological and competitive uncertainty. Conventional managerial approaches may not be as well-suited to the high-tech arena where a different "managerial tool kit" is necessary.

The purpose of this course is to bridge the gap between technical competence and entrepreneurial proficiency. Students are not expected to have any formal business background, but instead, to have a strong background in a technical field. These fields can range from the engineering disciplines to computer science, and from biology and chemistry to medicine. Accordingly, the course will provide the necessary exposure to the fundamentals of business, while minimizing the use of business school jargon. We will approach entrepreneurship as a manageable process built around innovativeness, risk-taking and proactiveness. We will explore entrepreneurship as processes, as planning, as parts, and as people. Our focus will *not* be on start-up companies per se (e.g., a new restaurant concept), but on ventures where the business concept is built around either a significant technical advance in an operational process, or in the application of technology to create a new product or service.

While not a requirement, students are encouraged to bring to the course ideas and concepts that they might have for new ventures. The course will help students in assessing the real potential of these concepts, while providing direction in terms of how to capitalize on them. This will be a course of ideas, of questions, and of issues. While opinions will be given and perspectives will be shared, students will be challenged to develop their own positions on many of the questions raised. It is also a pragmatic, applied course, with students exposed to real entrepreneurial case studies, real entrepreneurs, and the need to create a feasibility study or business plan for a real business concept.

III. Course Learning Objectives

In this course, we seek to help engineering/science/technical students:

- recognize their entrepreneurial potential and appreciate their abilities to pursue entrepreneurial dreams;
- master a set of principles, tools and concepts that enable the them to exploit each stage of the entrepreneurial process in high tech context;
- recognize the distinct challenges posed by high technology entrepreneurial ventures;
- understand the key components of a successful business model and be able to critique the model behind any technology-based venture;
- articulate the manner in which marketing tools can be applied in the high-tech environment;
- develop a cross-disciplinary perspective on the issues involved in bringing a technological innovation to commercialization;
- determine financial requirements for a technology venture and know when (and how) to pursue particular sources of financing;
- appreciate the logic, process and requirements of a high quality business plan for a technology-based entrepreneurial venture;
- develop a personal perspective on how to approach the inherent ethical dilemmas encountered within any technology venture.

IV. Text and Reading Materials:

Required:

Richard C. Dorf and Thomas H. Byers (2007), Technology Ventures, New York: McGraw Hill.

Other Recommended Sources:

Readings Packet at University Library, Reserve Desk

Robert Burgelman, Modesto Maidique and Steven Wheelwright (1996), Strategic Management of Technology and Innovation, Second Edition, Burr Ridge, IL: Irwin McGraw-Hill.

Jeffrey Young, (1998), Forbes Greatest Technology Stories, New York: John Wiley and Sons.

Edward B. Roberts (1991), Entrepreneurs in High Technology: Lessons from MIT and Beyond, New York: Oxford University Press.

Michael L. Baird (1994), Engineering your Start-up: A Guide for the High-Tech Entrepreneur, Professional Publications.

Rob Ryan (2001), Entrepreneur America: Lessons from Inside Rob Ryan's High-Tech Start-Up Boot Camp New York: HarperBusiness.

C. Gordon Bell, et al. (1991), High-Tech Ventures : The Guide for Entrepreneurial Success , New York: Perseus Press.

V. Student Assessment

Students will be evaluated based on five key components of the course:

• Weekly Blackboard Postings with analyses/ Class Participation/Contribution	40%
• Final Analyses with Presentation by e-Teams	30%
• Midterm Examination (essay format)	30%
Total credits	100%

Each week, each team of 4 persons will present their work as the model for that class' lecture and discussion. These teams will answer questions posed, help formulate solutions to class problems and issues, and be the sounding board for the class discussion that week. Every team, however, will go through the exercise for the week and post its work with notes and discussion points.

As a final analysis, each e-team will be expected to research, analyze, and present its analysis for its assigned, high potential, technology-based business. A three-person review panel, as well as the firms for which the analyses are written, will help evaluate all final submittals.

V. Entrepreneurial Opportunities in the Engineering and Science Disciplines

A unique feature of the course will be periodic presentations from the tech entrepreneurial community, as well as the faculty of various engineering, science and technical departments on campus. These presentations will highlight entrepreneurial opportunities with the respective disciplines.

VI. Teaching/Learning Style

The learning method will involve a mix of interactive lectures, class discussions, and case presentations. The emphasis will be on developing an understanding of key concepts at the technology and entrepreneurship interface and applying them in a wide variety of contexts. Students are expected to come to class prepared and to make a contribution to the discussions that occur in the classroom. Contributions include asking questions, answering questions, providing examples from your own life experiences and your other courses, expressing opinions, taking positions, disagreeing with points made by the instructor or your peers, and so forth.

VII. Attendance Policy

Attendance is required. Your contribution is an important part of the learning experience gained by each of your peers. Absence means you are taking away from the class dynamic and evolving culture of the class. You are allowed a maximum of one unexcused absence. Missing more than this total will mean the forfeiture of your class participation grade.

VIII. Academic Dishonesty:

Anyone suspected of academic dishonesty will be referred to the proper university authority as explained in the *Oklahoma State University Student Rights and Responsibilities Governing Student Behavior*. Participating in a behavior that violates academic integrity (e.g. unauthorized collaboration, plagiarism, copying homework, looking at another student's paper during an exam, helping another person cheat, unauthorized advance access to exams, etc) will result in your being sanctioned.

IX. Disabled students:

If you believe that you have a disability and need accommodations of any nature, I will work with you and the university Office of Student Disability Services, (315 Student Union) to provide reasonable accommodations to ensure that you have a fair opportunity to perform in this class. Please let me know of such disability and the accommodations as soon as possible. No accommodations will be made without prior notification.

X. Weekly Topical and Reading Assignments

(note: we may at times move at a faster or slower pace depending on circumstances and the topic in question)
TV = *Technology Ventures*
Readings = *readings from recommended list will be added on a week-by-week basis.*

Week 1	Overview of the class • Syllabus review • Blackboard Review Principles of entrepreneurship applied to technology ventures Assignment: o TV, Chapter 1, pp. 3-26 o TV, Chapter 2, pp. 27-56 o Post your name, photo, and skills resume to Blackboard by Thursday @ 5 pm. Teams will be formed from this information.
Week 2	Class topics: • How engineers and scientists think • Science, invention, innovation and entrepreneurship • Process innovation; Assignment: o TV, Chapter 3, pp. 59-72 o TV, Chapter 7, pp.157-165

Week 3	Presentation of the Technologies • Venture Portfolio summaries • Venture 1: Firm and Mission Statements • Technology overview • Value Propositions • Opportunity Identification • Industry and context overview for the venture Assignments: o TV, Chapter 5, Innovative Strategies o TV, Chapter 8-4, Corporate New Ventures o TV, Chapter 8-5, Innovator's Dilemma o TV, Chapter 8-6, Incentives o TV, Chapter 8-7, Managing ventures o TV, 8-8, 8-9, Summaries, case o Industry analysis draft for Venture 1, to be posted to Blackboard by Friday @ 5 pm
Week 4	Class topics • Industry analysis • Innovation strategies and process models • Corporate new ventures • Innovation and incentives • *(Guest Presentation): How a High Tech Incubator Works* Assignment due for class this week: o TV, Chapter 11-3, Product & Offering o TV, 11-4, Research o TV, 11-8, Diffusion of technology o TV, 11-9, Crossing the chasm o Post final industry analysis to Blackboard with copy to team firms. o Post innovation process model for Venture 1 with notations by Friday @ 5 pm
Week 5	Class topics: Understanding Innovation and its Dilemmas; Perspectives on the New Product Development Process; Technology-Push vs. Market-Pull; The Role of Technology in the Venture; Rapid Prototyping; Innovation Portfolios; Best Practices in Innovation Management; Why New Products, Services and Processes Fail • Product & Offering • Research • Diffusion • Crossing the chasm Assignment: o TV, Chapters 12, 13 The New Enterprise Organization; Acquiring, Organizing, and Managing Resources o Post Market Research for Venture 1 to Blackboard by Friday @ 5 pm.

Week 6	Class topics • Firms and Resources • Innovation Pipelines Assignments: o Interview assigned ventures and post full description of their organizations, culture, and social capital to Blackboard by Friday @ 5 pm. This becomes each team's assigned venture for the rest of the class. o TV, Chapter 14, Management of Operations o TV, Chapter 9, Knowledge, Learning, and Design
Week 7	Class topics • Knowledge, Learning, and Design • Management of Operations: Control & Management of innovation within the ventures Assignments: o Draft probable Operation and Knowledge Chart for each venture posted on Blackboard o Design the probable innovation pipeline with notations o Review for midterm exam
Week 8	Midterm exam Reading Assignment: TV, Chapter 11, The Marketing Plan & Sales Plan
Week 9	Class topics • Entry Wedges; • Marketing New Technologies, • Innovation and Markets • It's the Customer, Stupid! • Understanding Markets • Primary and Selective Demand • Estimating Market Potential for New Technology Products and Services • How Organizations Buy High Tech Products and Services • Segmentation Assignment: o TV, Chapter 11, The Marketing & Sales Plan o 11-1, 11-2, 11-3 (Review), 11-4 (Review), 11-5, 11-6, 11-7, 11-8 (Review), 11-9, 11-10, 11-11, 11-12 o Target Market Analysis, Tuesday after Spring Break before class
	SPRING BREAK
Week 10	Class topics • Why Technical People and Marketing People See Things Differently: Implications for Successful Ventures • Marketing and Technology • Technology Adoption and Crossing the Chasm Again

	• Issues in Commercialization and Launch • Risk • Intro to Financial Analysis Assignment: o Firm risk assessment (w/ clients) o Sales projections (w/ clients) o Review Pro formas (w/ clients) o Growth, breakeven, profit (w/ clients) ▪ All of the above are to be posted by Friday, Week 10, @ 5 pm. o TV, Chapter 18, Sources of Capital
Week 11	Class topics • Angels, Vultures and Other Culprits: Financing the Venture; • Sources of Finance; • Linking Financing to the Type and Stage of Venture Assignment: o TV Chapter 19, Presenting the Plan o Financial Analyses to be posted by Friday @ 5 pm
Week 12	Class topics • Summary of Venture Analyses to be reviewed in Class (presentations) Technology Overviews Venture Feasibility Financial Analyses: Required Funding, Requisite Ratios, Performance Measures, Funding sources
Week 13	Presenting Analyses to Ventures Assignment: o Make corrections and incorporate all comments into final draft of plan o Schedule appointments
Week 14	Debriefing the experience. What did we learn? Assignment o Final submittal of analyses to ventures, professor
Week 15	Wrap-up of the semester