

Entrepreneurship – an important “learning” for scientists and engineers

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Entrepreneurship is the vehicle that fuels economic growth. This class exposes you to the “entrepreneurial process”, with consideration of issues such as the nature of entrepreneurship, opportunity identification, intellectual property creation and strategy, market research, operations, financing, valuation of technology, and cash flow analysis in a technical environment. These are necessary ingredients of all successful technical business ventures, regardless of size. In the process, you will learn to integrate technical skill with business concepts and will be much better prepared to innovate and bring sound innovative, new products to commercial reality.

If you have ever wanted to form your own company to commercialize your idea, or already have a small start-up or work in a research organization and have an idea that you feel has commercial potential then you need to understand the information that needs to be generated to decide if there is a “business opportunity”, whether the idea, however technologically sound has the market potential and market viability.

Questions that need to “researched” and addressed by any entrepreneur engineer/technologist are:

- What problem is your technology (product or service) addressing? What is the compelling need for your product or service?
- Which group or groups (industry, consumers, etc.) is directly concerned with the problem? Or would benefit/use.
- What are you selling – product, or a service. What is the benefit to the customer? Why will they buy your product/service -- how do you add or create value for your customer to buy your product (competitive advantage, value proposition). What is your “competitive advantage” and your “product differentiator”
- Identify the market (detailed analysis is not necessary at this point), the size, the competition, and the product differentiator
- Name the companies doing business in your identified market segment
- Develop a value chain analysis (schematic) and show where you envision your business to be in the value chain -- Important!
- What would the cost of your product be (estimate -- material costs + manufacturing costs. What is the cost of similar products in that market?
- Research your idea/innovation vis-à-vis patent activity by visiting the U.S.(www.uspto.gov) and European patent databases (www.cordis.lu/ipr-helpdesk/en/home.html). Is there already a patent on your innovation? Are their patent/s related closely to your innovation? Related patent/s in the field of your innovation? Countries/Universities involved in the patents?
- Remember that market and business potential needs to be established before moving forward.
- Revenue Model -- How do you make money?

Using personal examples, this class will illustrate and showcase the world of entrepreneurialism for the scientist and engineers and budding entrepreneurs.

Financial Analysis & Being an Entrepreneur

You will learn the language of business and begin to understand the importance behind the numbers. Communicate more effectively with accounting and finance peers. Read and use a company's financial statements. Interpret a company's profitability, solvency and liquidity

Becoming an entrepreneur – from idea stage to forming a company and running a business – what are the steps and information needed and how do you do it?

Learning Objectives

- Time value of money
- Breakeven analysis
- Operating and financial leverage
- Financial terminology, and financial analysis techniques
- Have you ever wanted to form your own company to commercialize your idea – be an entrepreneur? Understand the steps and information to be generated to decide if there is a “business opportunity” – the product feasibility or business plan
 - Overview
 - Company formation
 - Patents