

# Entrepreneurship Introductory Course Designed for Students Majoring in Network Engineering

**Fang Fang and XingE Luo\***

Network Engineering and Research Center, South China University of Technology,  
Guangzhou, China, 510641

Email: ffang@scut.edu.cn; Xluo@scut.edu.cn

**Abstract.** This introductory course is designed to build interest for students in the field of entrepreneurship. Entrepreneurship introductory courses for students majoring in network engineering can inspire students' creativity. Innovative teaching methods link the professional knowledge of network engineering and project cases, enhance students' entrepreneurial practice ability, and strive to solve the disconnection between teaching and practice. The course provides some guidelines, insights, and advice needed to launch successful information technical ventures, helps students majoring in the network engineering develop entrepreneurial thinking. It is suitable for students who are interested in owning their own information technology business. The course design contains classroom interactive activities to make the teaching process more active.

## 1. Introduction

The thinking and ability of innovation and entrepreneurship are the key elements in the cultivation of new engineering talents. Innovative entrepreneurship education is the core competitiveness need to train students to cope with future changes. The development of a new economy will inevitably lead to the emergence of a number of new industries that are closely integrated with Internet technology. At the same time, accelerating the transformation and upgrading of traditional industries will inevitably promote the vigorous development of a large number of innovative enterprises, requiring students to have the ability to innovate and start businesses. [1]

## 2. The Importance of Learning Entrepreneurial Knowledge

As a kind of soft power, entrepreneurial culture is mainly about encouraging the spirit of entrepreneurship and the idea of dare to start a business, compared with the hard power of scientific research strength and talents. [2]

Entrepreneurship education is important because:

- It helps you think of new ways to earn money in a tough economy.
- It can help prepare you for a job.
- It can help you think of new ways to be a valued employee in any job.
- It demonstrates a variety of ways that your technical skills can be used in the workplace.
- It creates a foundation for additional learning experiences. [3]

## 3. Learn from the Successful Experience of Stanford University

Stanford pioneered the innovation model that combined the university, government and industry, accomplishing the optimal balance of scientific research, practical application and education. Stanford supplies the government and society with talents and research accomplishment and continuously



creates new enterprises. Almost two-third of all technical PhDs and half of engineering bachelor and master degrees holders will start a company during their careers.

Stanford's entrepreneurial resources are primarily in the curriculum. At Stanford, entrepreneurship-related courses can be roughly classified into four categories:

- **Product-oriented:** This type of course requires students to make prototypes of testable products within one semester. This type of course is generally offered at the College of Engineering.
- **Case-oriented:** This type of course focuses on the analysis and discussion of entrepreneurial cases, generally in business College. This type of class is not only a compulsory course for business College students, but also students from other colleges.
- **Focused:** This type of course covers one aspect of the entrepreneurial process and is spread across all majors. For example, there is a course devoted to Need finding, on how to find user needs in a systematic way.
- **Lecture type:** In addition to the one-time lecture course, Stanford also has a more than ten years of regular course Entrepreneur thought leader seminar. Invite an entrepreneur or investor to share an hour a week. [4]

Cultivating talents is the top priority of the university. Through the complete entrepreneurship curriculum system, the university offers various levels of entrepreneurship courses to bachelors, masters and doctors, and provides entrepreneurial extracurricular activities and practical opportunities according to the different needs of students, thus enriching students' entrepreneurial knowledge. Inspire students' entrepreneurial enthusiasm.

#### **4. Course Modules**

There are five modules in this course. Each module has case study. Each case study discusses basic business management skills.

The entrepreneur of the course case, Wang, is a university student majoring in network engineering. After evaluating his skills, Wang conducts market research and identifies the target market. Lee showed his plans to customers and began to create a small IT business that is ready to grow.

##### *4.1. Find and Research a Business Opportunity.*

Skills can be divided into two main categories: hard skills and soft skills. Hard skills are quantifiable and easy to demonstrate. For example, knowing a foreign language is easy to demonstrate by passing a test or conversing with someone. Hard skills are often associated with formal training, a certification, or degree. Soft skills show how we relate to others. These include effective communication, creativity, problem solving, flexibility, reliability, and the ability to listen. These skills are highly valued by customers and employers, but they are more difficult to demonstrate. [3]

Classroom interactive activities: Students discuss what hard skills and soft skills they have for entrepreneurship.

Wang finds out that he has extensive knowledge in computer network hardware and software installation. He has a good understanding of networking, and he has both practical and educational experience in these areas. Wang likes the idea of using his skills to make money. He also likes the flexibility that business ownership provides. The idea that Wang uses his computer network skills to conduct business is not a business opportunity unless Wang can prove that others need his skills and are willing to pay for them.

When entrepreneur realizes that his problem has no readily available solution, he considers starting a new business to solve the problem. This is entrepreneurial thinking. He recognizes that a problem may be a business opportunity. Problem solving is just one way to recognize a new business opportunity. There are other opportunities:

- **Problem solving** - Obstacles or challenges that the business could solve
- **Changes** - Laws, situations, or trends that evolve over time
- **Inventions** - Totally new products that are developed
- **Competition** - Doing the same thing more effectively than others
- **Technological advances** - Adapting new technology to an existing product

- Unique knowledge - Special understanding of what the people in your area want  
A company can sell products or services. A product is something that exists in nature or is made by people. It is tangible, meaning that it can be touched. A service is work that provides time, skills, or expertise in exchange for money. It is intangible. [3]

Wang must decide:

- What product or service to offer?
- Where the product will be sold?
- How customers will learn of the product?
- What they should charge for the product?

#### 4.2. Market Research

Find the people who need the skills that Wang has. Wang uses research to help him locate the people who need their product or services. These people are his target market. Communicating to the target market is called “marketing.” Asking them to purchase the product or service is called “selling.” Entrepreneurs sell by showing the customer the benefits they will receive when they purchase the product.

Market research is the collection of information about the industry that the entrepreneur wants to enter. In Wang's case, it is information about the need for computer services in his area. Wang needs to gather information about the industry he is entering. This information helps him determine which customers he will serve and who the competition is. Market research provides Wang with facts so that he can make good decisions. When Wang starts a new business, he will encounter many decisions. Business plans are a record of these decisions. More importantly, the business plan also includes research to support each decision.

Business plans are used to guide the management and to explain the business to people outside of the company. There are usually five sections in a business plan:

- The Executive Summary
- The Business Description
- The Environmental Analysis
- The Management Biographies
- The Financial Section

#### 4.3. Providing Outsource Services

Outsourcing is a great way for a company to fill a temporary need or to hire expertise they may not have within their own organization. The people or companies a business hires to provide temporary labour or expertise are called contractors. Finding, communicating, and building relationships with other businesses is important to a contractor. These relationships are often defined by a contract. [3]

In the classroom case study, Wang successfully established a small computer network service business. Wang found a large Information technology company might hire a contractor for maintenance or customer support work. IT companies are not the only type of company that uses contractors. Some ways that companies in many different industries use contractors include: Cleaning services Construction work Food service Security Personnel needs.

Classroom interactive activities: Students discuss which other business is suitable for outsourcing.

Wang is hired by the large Information technology company to perform a specific task and he will receive payment for his services, but Wang isn't employees. Wang and the large Information technology company that hire him, formalize their agreement by writing and signing a contract. Common contracts Wang will encounter as he operates and expand his business include: partnership agreements, employment contracts, loan agreements, lease agreements, confidentiality agreements, and purchase agreements.

A request for proposal is a written document outlining in detail what the purchaser wants to buy. An RFP includes the following sections: introduction, requirements, bid process, selection criteria, and schedule. A bid proposal is the supplier's response to an RFP. If the bid proposal is accepted by the hiring company, it becomes a legal contract. [3]

#### 4.4. E-Business

Wang plans to help small businesses in the community implement e-Business. He intends to use the following steps: Define a business problem; Identify, evaluate, and choose e-Business solutions; Prepare an implementation plan; Evaluate the business using business metrics.

When a company uses Internet applications as a part of business operations, they are participating in e-Business. E-Business is simply the use of Internet technology to perform any business activity.

Customer communication is facilitated through e-Business applications types: Websites; Email; Online discussion groups; Affiliate and associate programs; Blogs. Communicating with customers is a high priority for any business. Today, many companies are using e-Business applications to increase and improve their customer communications. Business owners may also use e-Business applications for operational functionality to include inventory control, utility cost management, and shipping, receiving, and order tracking. E-Business applications can also help business owners with the operational functions of their business. Businesses must research and choose which tools apply to their specific Internet goals. One of the most attractive features of e-business is the ability to customize applications to meet a business owner's specific needs. [3]

Classroom interactive activities: Students discuss how e-business can help Wang's business.

#### 4.5. Giving Good Customer Service

Getting and keeping customers is the only way a company can continue to operate. Everyone in an organization is involved in customer service. Keep a "customer first" attitude. Handle conflicts professionally. Gain customer loyalty.

Classroom interactive activities: Ask students to think about how Wang's business can provide better customer service.

### 5. Summary

Based on the characteristics of network engineering, we attempt to explore the design of entrepreneurship introductory courses. The construction of entrepreneurship courses at domestic universities is still in its infancy. We need to learn from Stanford University's successful experience, actively improve the systematic curriculum, open a variety of entrepreneurial courses with rich levels, and build a combination of general education, professional education and entrepreneurial skills education; the integration of arts and sciences; comprehensive curriculum and independence Entrepreneurial courses complement each other in the entrepreneurial talent development curriculum system. The University strives to provide various forms of entrepreneurial practice opportunities, so that students can master the knowledge, skills and abilities of entrepreneurship in university, and can make objective and rational judgments on the risks of future entrepreneurship, thus laying the foundation for their future entrepreneurship. [5]

### 6. References

- [1] Zheng qinghua, Leading with innovation and entrepreneurship education to create "new engineering" education model, China University Teaching, 2017(12), pp8-12. (In Chinese).
- [2] Wu jijun, The Enlightenment of American Entrepreneurial University to the Development of Chinese Colleges and Universities, Industrial&Science Tribune, 2018(17)3, pp13-14. (In Chinese).
- [3] <https://www.cisco.com/>, 2018
- [4] Huang hai, <https://www.zhihu.com/question/28833187> 2015.3. (In Chinese).
- [5] Zhu chunkui, Li wenjuan, Gong chen, Yang tianbo, The Experience and Enlightenment of Building an Entrepreneurial University in Stanford University, Science and technology of China, 2018(6),pp28-30. (In Chinese).