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## How to Weave Entrepreneurship into Engineering Education: The Experience at San Jose State University

Minnie Patel  
*San Jose State University*

Anuradha Basu  
*San Jose State University, anu.basu@sjsu.edu*

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## **2006-2325: HOW TO WEAVE ENTREPRENEURSHIP INTO ENGINEERING EDUCATION: THE EXPERIENCE AT SAN JOSE STATE UNIVERSITY**

### **Minnie Patel, San Jose State University**

Minnie H. Patel is an Associate Professor in the Department of Industrial & Systems Engineering at the San Jose State University (SJSU). She earned her Ph.D. from Georgia Tech in 1988. Her masters' degrees are in operations research from Georgia Tech, in systems engineering from the University of Illinois-Chicago, and in statistics from the M.S. University, Baroda, India. She was a faculty member in the Department of Industrial & Manufacturing Engineering (IME) at the University of Wisconsin-Milwaukee (UWM) from 1990-2002 prior to joining San Jose State University. She chaired the IME Department at UWM from 2001-2002. She also held a faculty position in the Management Science Program at the University of Tennessee-Knoxville from 1987-1990. Her principal research interests lie in the areas of operations research applications and applied statistics. She has published numerous technical papers in these areas in a variety of refereed technical journals. She is a senior member of the Institute for Industrial Engineers (IIE), a full member of the Institute for the Operations Research and Management Science, and a member of the American Society of Engineering Education. She has served IIE in various professional capacities since 1999.

### **Anuradha Basu, San Jose State University**

Anuradha Basu is an Associate Professor in the Department of Organization & Management at San Jose State University (SJSU) and Director of the Silicon Valley Center for Entrepreneurship at SJSU. She is also Faculty Advisor to the SJSU Entrepreneurial Society, a student club. She earned her PhD and MPhil degrees in Economics from King's College, University of Cambridge, England, an MBA from the Indian Institute of Management, Calcutta, India, and a BA (Honours) degree in Economics from St. Stephens' College, University of Delhi, India. Prior to joining SJSU in Fall 2003, she was Founder-Director of the Centre for Entrepreneurship at the University of Reading's Business School and a Senior Lecturer (Associate Professor) in the Department of Management. During 2002-03, she was a Visiting Scholar at the Center for Research on Economic Development and Policy Reform, Stanford University. She also gained industry experience as an international account officer at the Bank of America, working in India and the UK. Her principal research interests lie in the areas of ethnic minority entrepreneurship and entrepreneurship education. She has published numerous academic papers in these areas and has studied topics such as business growth amongst immigrant entrepreneurs, culture and entrepreneurship, and family enterprise.

# How to Weave Entrepreneurship into Engineering Education: the Experience at San Jose State University

## Abstract

There is a growing consensus about the need for engineers and scientists to have entrepreneurial skills to be successful in their careers. However, there is a continued debate as to how best to impart these skills at the undergraduate level. It is possible to identify two routes to accomplish this objective. One route is to offer courses in engineering entrepreneurship and the other is to encourage students to participate in extracurricular activities that help to foster entrepreneurial skills.

The most common approach adopted by a growing number of universities is to offer courses in entrepreneurship to engineering students. A more unconventional approach that has been used at San Jose State University (SJSU) is to invite students to participate in a Neat Ideas Fair, a campus-wide forum to celebrate creativity and innovation. This fair gives the students an opportunity to display the creative solutions developed by them as part of their engineering course projects. While this event generates enthusiasm and excitement among students and has led to the further development and commercialization of ideas in a few cases, it has two drawbacks. First, it attracts only those students who already have good ideas to display and secondly, it does not give students the fundamentals of entrepreneurship in a systematic way. Despite the fact that SJSU is located in the heart of the Silicon Valley, the engineering students at SJSU are not adequately exposed to entrepreneurship as revealed by a preliminary survey by the authors. To bridge this gap, we plan to develop teaching material for an engineering entrepreneurship course at the undergraduate level supported by a CCLI grant from the National Science Foundation.

The objective of the present paper is to describe a process of selecting appropriate course material for teaching engineering entrepreneurship in order to dispel some of the common myths about entrepreneurship amongst undergraduates at SJSU. This paper also discusses the value and impact of the two approaches identified above in educating and exposing engineering students to entrepreneurship.

## Introduction

With recent technological developments, globalization and the internet revolution, the business environment has changed dramatically over the last few years. Customer-driven markets in highly competitive environments have led many U.S. companies to engage in offshore development of their non-core activities. This has impacted engineering job opportunities domestically. It is becoming ever more important for engineers to understand and adapt to the increasingly complex business environment and be able to create jobs for themselves through entrepreneurial initiatives. Small and medium size firms are experiencing fast-growing employment and self-employment in engineering is increasing<sup>1</sup>. It has become imperative for engineers to develop an entrepreneurial mentality in this context. Recent evidence suggests a gradual change of the engineer from the “employee mentality to the entrepreneurial mentality”<sup>2</sup>

There is a growing consensus about the need to impart entrepreneurial skills to engineering students at universities. The overall objective for doing so is “unlocking (an engineering) student’s creative thinking skills”<sup>3</sup> and enhancing their ability to develop an “entrepreneurial perspective” to proactively seek opportunities, take calculated risks and execute on ideas<sup>4</sup>. It is widely acknowledged that on becoming familiar with the fundamentals of entrepreneurship, students will be better able to develop engineering solutions that address customers’ needs in an increasingly global marketplace. This in turn will positively contribute to their career success. Nevertheless, there is continued debate regarding how best to impart entrepreneurial skills and an entrepreneurial perspective to engineering students at the undergraduate level.

The most common approach adopted by a growing number of universities is to introduce entrepreneurship courses into the engineering curriculum. Today, over 125 engineering colleges in the United States offer programs which prepare and motivate engineering students to create new businesses<sup>5</sup>. There are many reasons why a university should teach entrepreneurship to engineering students<sup>5</sup>:

- (i) Engineers, with their awareness of technological developments, are in an excellent position to initiate new, technology-based enterprises.
- (ii) Entrepreneurship education offers engineering students the opportunity to become entrepreneurs, attracts and motivates them.
- (iii) Entrepreneurial education provides visibility and a potential for revenue to the university from successful start-ups created under the program.
- (iv) The community benefits from the employment and revenue generated through the start-ups and the support activities they require.
- (v) Successful entrepreneurship education has the potential to generate new industries that result in benefits for the entire nation.

While many engineering schools now recognize the need to incorporate entrepreneurship into their curriculum, they debate about how best to teach entrepreneurship to engineering students<sup>3</sup>. This involves evaluating curricular issues like the quality and number of entrepreneurship courses, the value of using entrepreneurs as guest lecturers, finding suitable faculty to teach the courses, and developing programs that promote experiential learning<sup>6</sup> (Standish et al 2002). A few schools have experimented with courses that combine classroom learning with industry internships<sup>7</sup> (Creed et al 2002). The development of material for undergraduate entrepreneurship-engineering courses is still in its infancy.

A more unconventional route for introducing entrepreneurship concepts and skills to engineering and science students is to encourage them to participate in extracurricular activities that help foster their entrepreneurial skills. This approach has been tried at SJSU through the Neat Ideas Fair, a campus-wide forum to celebrate creativity and innovation.

The purpose of this paper is to describe and assess the extracurricular approach to fostering an entrepreneurial perspective among students, to assess the level of interest in learning about entrepreneurship among engineering students, and to describe a process of selecting appropriate course material based on the engineering student responses.

## San Jose State University Background

San José State University (SJSU) is located in the Silicon Valley, the birthplace of major high-tech developments. The university trains engineers to meet the needs of the local industry base. It is estimated that 10 percent of California's engineering graduates come from San José State University. A recent American Electronics Association survey states that 1,500 of the top 2,500 electronics companies (60 percent) are within 30 miles of SJSU. It is important for the College of Engineering at SJSU to help students develop knowledge and skills in entrepreneurship so that they can effectively contribute to the development of existing as well as new h-tech companies.

The student population at SJSU, which is nearly 30,000 strong, is diversified ethnically. SJSU's business and engineering colleges have among the nation's highest levels of minority undergraduates<sup>8</sup>, particularly Asian-Americans (32% of all students). In addition, over half of the students overall are women. The percentages of women and minorities in the University are given in Table 1 below:

Table 1: Percentages of Minority and Women Students at Various Colleges at SJSU

College	Percentage women of total	Percentage minority of total
College of Business	53%	68%
College of Science	40%	66%
College of Engineering	25%	74%
Total SJSU	54%	59%

It is important, therefore, for SJSU faculty to make a conscious effort to develop and deliver teaching material to reach an ethnically diversified student population.

## Description of SJSU's Neat Ideas Fair

The Silicon Valley Neat Ideas Fair ([www.cob.sjsu.edu/svnif](http://www.cob.sjsu.edu/svnif)) was first held in November 2004 as a forum to promote creativity and innovation at SJSU by generating and highlighting Neat Business Ideas. It was conceived as an opportunity for students from different disciplines to present their creative ideas to their peers across campus and to industry professionals, to interact and build entrepreneurial teams, and secure feedback from many sources on their ideas.

The main aims of the Fair were to encourage students to conceptualize and present new business ideas and creative solutions that may have been developed as part of a class project, generate enthusiasm and excitement about entrepreneurship in the SJSU community, and to strengthen connections both within SJSU and between the University and the local community. Participants were asked to present their ideas using a poster board and if possible a prototype or computerized representation of their idea. They also had the opportunity to present their ideas orally in 2 minutes in the Elevator Pitch Contest and in writing in the Written Summary Challenge. Judges for all three contests were drawn from the local business community and included entrepreneurs, investors, and local government representatives. As a further incentive to participants, prizes were secured from local companies like Apple, Adobe, and Microsoft. Prizes were awarded for the best exhibits, the best elevator pitch, the best written summary, and for the People's Choice of the best displayed idea.

The Fair was organized by SJSU's Silicon Valley Center for Entrepreneurship (SVCE), a university-wide organized research and teaching unit housed within the College of Business. When the idea was first floated in Spring 2004, it was greeted with enthusiasm by all the faculty members contacted in Engineering, Industrial Design, and Sciences and the organizing committee for the Fair included faculty members from the Colleges of Engineering and Science and the School of Art and Design. The event was co-hosted by the Entrepreneurial Society, a student club at SJSU. Thus, the organization of the Fair represented a unique cross-campus partnership between faculty and students at SJSU.

The Fair was advertised directly to students by means of flyers posted on every floor and in every class room in the Engineering building and by emails sent to student members of the Entrepreneurial Society. It was also promoted through emails sent to key Engineering faculty members by the SVCE Director and by the Engineering professor who was a champion for the Fair. Moreover, the SVCE organized a series of eminent speaker guest lectures during the Fall semester and reminded all attendees about the upcoming Neat Ideas Fair. In 2005, professors and students made class presentations to Engineering students highlighting the aims and benefits of the Fair. A direct email was also sent out to all students by the Associate Dean of Engineering.

In 2004, nine Engineering students, one alumnus, and one faculty member from Engineering, participated in the Neat Ideas Fair. Together, they presented 8 exhibits of the 99 exhibits at the Fair. While four students (and their professor) displayed projects they had worked on in their Computer Engineering class, the remaining students, who were from Mechanical Engineering, participated of their own accord, having learned about the Fair from flyers, their friends, and faculty announcements in class.

The number of engineering student exhibits increased slightly from 8 to 11 in the second Neat Ideas Fair in 2005, with an increase in the total number of participating students from 9 to 22. These included one exhibit from Aerospace Engineering, 4 from Computer Engineering, 4 from Mechanical Engineering, one from Software Engineering, and one from Electrical Engineering. While three groups said they heard about the Fair in class or from their professors, the remaining 8 said they heard about it from friends or because they were members of the SJSU Entrepreneurial Society and were interested in obtaining feedback on their ideas.

### **Evaluation of the Neat Ideas Fair**

The educational value and impact of a novel initiative like the Neat Ideas Fair can be assessed at several levels, including the following:

- the awareness it created about entrepreneurship;
- the interest and enthusiasm it generated among attendees;
- the level of participation in the event;
- subsequent action taken by participants to develop their ideas into viable businesses

It is possible to conclude that the Neat Ideas Fair had a positive impact in terms of creating awareness and generating enthusiasm and excitement about entrepreneurship. Evaluation of the feedback sheets received from attendees shows that their degree of enthusiasm and interest was

reasonably high when they came to see the Fair but increased substantially after they had actually visited the Fair.<sup>9</sup>

The impact of the Fair in terms of participation levels amongst engineering students has been low albeit growing slowly. The Fair succeeded in encouraging entrepreneurially minded engineering students by providing them with a forum to present their ideas. In fact, a group of mechanical engineering students that participated in the 2004 Fair won the People's Choice award and received extensive coverage in the local San Jose Mercury newspaper. They were subsequently approached by a China-based manufacturer and are currently in the process of licensing the production of their product (a motorized scooter that can be folded up into a briefcase) for a market launch in Europe and the U.S. But for the Fair, this group's innovative product idea may never have become a commercial reality, as readily acknowledged by its founding team.<sup>10</sup>

In summary, the Neat Ideas Fair seems to have primarily reached engineering students who were already entrepreneurial rather than those with latent talents. Despite the attempt to create awareness of the Fair by means of direct emails, class announcements, requests to faculty, and numerous flyers posted at various points during the semester, the number of participants from engineering remained small when compared with the number of engineering students at SJSU.

The above experience can be interpreted in two alternative ways. It could either be interpreted as a lack of interest in entrepreneurship amongst engineering students. However, this would be at odds with the feedback received from student surveys conducted by us over the past two years, which indicate an interest in learning about entrepreneurship, as discussed in this paper. Alternatively, and more likely, it reflected the difficulties of attempting to persuade students to participate in extracurricular events, given that most engineering students have extremely high work loads (131-138 units required for graduation for various majors in the college of engineering). Besides, most SJSU students pay their way through university, and hence, juggle school with part-time employment.

These results imply that if we want to foster entrepreneurial skills amongst SJSU engineering students, the only way to do so would be by introducing curricular change in the form of formal courses in entrepreneurship that the students can take as part of their degree program or as a Minor in Business. The courses would impart the fundamentals of entrepreneurship to students in a systematic way. These would offer a formal structure to the students to learn about entrepreneurship and may be combined with opportunities for active learning through projects by the students. The question regarding what to include in a course in entrepreneurship nevertheless remained to be answered and was one of the principal reasons for conducting a survey of students' knowledge and perceptions.

### **Engineering Students Survey**

The main purpose of the survey was to determine what students (customers) know and would like to learn about entrepreneurship. Rather than imposing our beliefs on the students, we first studied customer requirements so as to design appropriate course material. The exploratory survey was designed to determine the level of interest in entrepreneurship amongst engineering

students at SJSU. We were also interested in determining their degree of understanding of the concept of entrepreneurship and the extent to which their responses reflected some of the common myths about entrepreneurship.

The students were surveyed in three junior/senior level courses offered by the industrial & systems engineering department at SJSU. Two of the three courses are the service courses (engineering probability and statistics and engineering economic systems) and required course (managing engineers) for the industrial & systems engineering students.

A total of 99 students were surveyed. This sample constitutes 4.5% of the population of junior and senior engineering students currently enrolled at SJSU. The students were asked questions to gather information on their background (class year, current major, gender, ethnicity), if they currently owned a business, their understanding of the concept of entrepreneurship, their interest in learning about entrepreneurship, starting their own business, attending workshops and events on entrepreneurship at SJSU, showcasing their ideas for new ventures, products or services at forums at SJSU, starting their own business after they secured some good work experience or some academic knowledge about starting and managing their business, the three main areas of entrepreneurship that they were interested in learning about, and if they were hesitant about starting their own business, followed by an explanation of their response.

### Background of the students surveyed

Around 81% of the respondents were juniors and seniors as shown in Table 2. About half of the respondents were industrial and systems engineering majors and the remaining half included computer engineering, industrial technology, and other majors (see Table 3).

Table 2: Class level of respondents: Number of responses (%)

Senior	Junior	Sophomore	Graduate	Freshman	No Response
43 (44%)	38 (38%)	3 (3%)	13 (13%)	1 (1%)	1 (1%)

Table 3: Majors of respondents

Ind & Sys Eng	Ind. Tech.	Comp Eng	Other	No Response
52 (53%)	12 (12%)	19 (19%)	14* (14%)	2 (2%)

\* Includes software engineering, civil engineering, materials engineering, human factors, and general engineering.

Tables 4 and 5 show that a majority of the respondents were male and of Asian/Pacific Islander ethnicity, followed by white (18%), black (8%), Hispanic (7%). The gender and pattern of ethnicity among respondents is consistent with the gender and ethnic composition of engineering students at SJSU.



Table 4: Gender of the respondents

Male	Female
81	18
82%	18%

Table 5: Ethnicity of respondents

Asian/Pacific Islander	White	Black	Hispanic	No response
64	18	8	7	2
65%	18%	8%	7%	2%

When asked what the students planned to do after graduation, the most frequent response was that they wanted to secure a job. Only a few said that they planned to work for themselves (see Table 6).

Table 6: Students' plans after graduation

Get a Job	Work for Yourself	Other	No Response
79	5	11	3
80%	5%	11%	3%

It is possible to argue that imparting skills in entrepreneurship would be valuable to the students even though a majority of them plan to seek employment after they graduate. This is because a course in entrepreneurship would help to broaden their knowledge and encourage them to be entrepreneurial in their workplace.

A small proportion of the students surveyed owned their own businesses (see Table 7), mainly in the service sector (IT consulting, trading, dry cleaning, and heating and air conditioning.)

Table 7: Currently own business

Yes	No	No Response
13	85	1
13%	86%	1%

When asked whether or not they understood the meaning of entrepreneurship, sixty eight students answered in the affirmative (see Table 8).

Table 8: Do you know the meaning of entrepreneurship?

Yes	No	No Response
68	28	3
69%	28%	3%

Those who said they knew the meaning of entrepreneurship were asked to briefly define the concept. A review of their definitions shows some of the misconceptions about the meaning of entrepreneurship amongst the students. Some of the responses to the meaning of

entrepreneurship were “capital gain with no financial backing”, “make money”, “taking risk on your own”, “branching out”, “gain experience in your field”, “advance lifestyle”, and “big organized company”.

Table 9: Are you hesitant to start your own business?

Yes	No
56	33
57%	33%

Table 9 shows that of the 99 students surveyed, over half indicated that they were hesitant about starting their own business. There were three main reasons cited for such hesitation. The most frequently cited reason (20 students) was their lack of experience and knowledge. For instance, responses included “do not know how to start a better business,” “need more knowledge and skills.” A second reason expressed by 15 students was “the high risk of failure.” In the same vein, responses included “too much at stake” and “fear of going out of business.” A third reason expressed by 11 students was the lack of capital to start a business and that starting a business would “need lots of money.”

The above responses indicate that the students expressed some of the commonly held myths about entrepreneurship, notably:

- Starting a business “needs lots of money”
- “Running a business can be easy”
- Entrepreneurship involves “taking risk on your own”

These are regarded as myths since they are a misrepresentation of the facts. For instance, starting a business may not necessarily require vast initial financial investment. In fact, most entrepreneurs start with very little initial capital beyond their own savings. Evidence indicates that money is much less critical than other resources; if an entrepreneur is talented and has a good idea, the money will follow.<sup>11</sup> Similarly, running a business involves making a number of simultaneous, prompt decisions, and juggling a host of simultaneous tasks to balance the size of the opportunity, the resources available to exploit the opportunity, and the quality and size of the team, which is far from easy. This is evident from the high rates of start-up failure: one-third of all new business fail to survive more than 2 years after inception and over half fail to survive more than 4 years.<sup>12</sup> Finally, successful new ventures in the high tech field have predominantly been established by teams of founders rather than by single individuals who bear the entire risk. As Timmons observes, “most successful entrepreneurs are leaders who build great teams and effective relationships working with peers..” (p. 68).<sup>11</sup> There are several advantages of a founding team rather than an individual founder that the students need to understand.

The survey responses indicate that many of the students were interested in entrepreneurship. However, they were hesitant about starting their own business. This highlights the need to provide them with some knowledge about entrepreneurship to give them the confidence to start a business.

When asked what they would like to learn in the area of entrepreneurship, several students expressed interest in learning about the process of starting a new business. This included understanding venture capital process and the competitive landscape, new product development, innovation, and protecting intellectual property. Interestingly, students indicated a desire to learn about technology based as well other types of businesses (retail, international trade, nonprofit, etc.).

Table 10: Interest in Entrepreneurship

<b>How interested are you in the following?</b>	<b>Mean Score*</b>	<b>Mean score (Junior)</b>	<b>Mean Score (Senior)</b>	<b>Mann-Whitney P-value</b>
1. Learning about entrepreneurship	3.9	3.7	4.02	0.0828
2. Starting your own business	4	3.6	4.2	0.0035
3. If we define entrepreneurship as the ignition of new ventures, how interested are you in entrepreneurship?	3.9	3.6	4.1	0.0133
4. Attending workshops/events on entrepreneurship at SJSU	3.5	3.3	3.7	0.1065
5. Showcasing your ideas for new ventures, new products, or new services at forums/fairs at SJSU?	3.5	3.3	3.6	0.1801
6. Starting your own business after you get some good work experience	4.03	3.68	4.3	0.0021
7. Starting you're your own business after you get some academic knowledge about starting and managing your business?	4.0	3.7	4.1	0.0903

\* 1 = Not at all interested, 2 = A little, 3 = Neutral, 4 = Interested, and 5 = Very interested

From the mean scores from Table 10, it is clear that there is an interest in entrepreneurship amongst the engineering students surveyed. Their interest in entrepreneurship increases as they progress through the years of the university. Thus, the seniors are significantly more interested than juniors in learning about entrepreneurship and starting their own business, albeit preferably after gaining some work experience. A comparison of senior and junior responses indicates that the responses to questions 2, 3, and 6 above are a statistically significantly larger for seniors than for juniors at the 5% significance level, using the Mann-Whitney test (which was selected since the sample data did not support Gaussian population assumptions).

### **Implications for course material based on survey results**

Since the authors are currently in the process of developing course material for a course in entrepreneurship for engineers, the results of the survey are a crucial input in determining the nature of course content.

The survey results emphasize the fact that engineering students need to be made aware of what entrepreneurship means and need help in dispelling some of the common fears and myths they hold about entrepreneurship. This can be achieved by means of two complementary approaches

to learning: (i) case studies and (ii) active learning. While case studies will contribute to improving their knowledge and understanding of the different aspects of entrepreneurship, active learning will impart the experience they need to gain confidence in starting their own business.

**Case studies:** We aim to focus case studies on local entrepreneurs, if possible, alumni of SJSU, so that they can act as role models for the students who could identify with them. In addition, they can help to dispel some of the myths about entrepreneurship and to expose students to the various steps and simultaneous processes involved in creating successful ventures.

The case studies will expose engineering students to real world issues in new ventures in the engineering field. The cases will enable students to understand theoretical concepts and apply their knowledge of technology and entrepreneurship to a practical situation. This will enhance students' understanding of the interaction between technology, entrepreneurship and the business environment. The students will also begin to appreciate contemporary issues as they develop in the engineering field.

**Active learning:** This will involve encouraging students to work in group project to generate practical business ideas, develop preliminary business plans, and participate in active forums like the Neat Ideas Fair and Business Plan competition.

The NIF project will give students the opportunity for hands-on experience in developing and presenting ideas for new ventures. The project will also help to promote students' creativity and logical thinking skills, as well as their oral and written communication skills.

Since both the case study analyses and the Neat Ideas Fair project will be assigned as group work, these activities will improve students' ability to work in teams. Both these activities will develop students' critical thinking skills and communication skills, and help them in integrating engineering and entrepreneurship concepts. Overall, the students will be better prepared for engineering practice after completing a course in entrepreneurship.

## **Conclusion**

This paper has distinguished between two approaches to imparting entrepreneurial skills to engineers: curricular and extracurricular. The first approach of offering entrepreneurship courses is by far more common at U.S. universities. The second, more unconventional approach has been tried at SJSU to promote active learning and encourage creativity and innovation among students. This paper briefly describes the latter approach as manifested in the Silicon Valley Neat Ideas Fair, and evaluates its advantages and disadvantages in imparting entrepreneurship skills and an entrepreneurial perspective to engineering students. The drawbacks of the Fair as the sole mode of spreading entrepreneurship learning among students, implies the need to adopt the first approach as well of introducing entrepreneurship courses for engineers. The latter, in turn, raises the question of how best to determine the course content for such courses.

This paper has presented a customer-focused process to determine the nature of the course material to be developed for teaching an undergraduate course in entrepreneurship at SJSU. It suggests that the first step would be awareness of the background information of SJSU students,

an understanding of the level of knowledge about entrepreneurship amongst the engineering students, and areas of interest to them. The results of a preliminary survey to determine what engineering students know and would like to learn about entrepreneurship followed by the implications for the course material have been discussed in the paper. Finally, based upon the preliminary survey results and the existing participation of engineering students in the Near Ideas Fair, this paper proposes two complementary approaches to learning, namely, (i) case studies and (ii) active learning,, to make the engineering students aware of what entrepreneurship means and to help them to dispel some of the common fears and myths they hold about entrepreneurship.

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