



Research Article

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Fostering Entrepreneurial Mindset in Students: A Modular Framework for Integrating Entrepreneurship Education Into Engineering Capstone Projects

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Abstract

This paper aims to integrate entrepreneurship component into senior capstone engineering projects, so to elevate their entrepreneurial intentions. Incorporating entrepreneurship into engineering capstone projects helps students understand how their technical skills can be applied in real-world scenarios. It encourages them to develop solutions that are not just academically sound but also practical and marketable. Engineering Capstone's projects are designed to provide senior students with opportunities to present their own solutions. These are all potential ideas for start-ups, that can stimulate new employment and economic growth. Nowadays the role of entrepreneurship to market economies has significantly increased, since it acts as the wheels of the economic development of the country. So, in this context, entrepreneurship education has emerged out as a demanding subject to be mastered by young graduates. This paper proposes a framework with modules (arranged according to Bloom Taxonomy) to be delivered within two stages aligned with engineering capstone projects' academic timing. This methodology will boost the interest of the students for individual start-ups and embrace any upcoming opportunities to be successful entrepreneurs. This framework can be implemented in any engineering department.

Keywords: *Entrepreneurship, Engineering Capstone Projects, Bloom's Taxonomy, Entrepreneurial Education*

1. Introduction

The phenomenon of entrepreneurship is very fascinating. The French economist Richard Cantillon defined entrepreneurship in the early 1700s as any form of self-employment and entrepreneurs as risktakers, since they procured goods at known prices in the present to sell at unknown prices later (Cantillon, 1755/1931). Entrepreneurship, according to John Stuart Mill, is the founding of a private

enterprise (Mill, 1884). This definition helps us grasp the independence needed for earning money. Particularly the year 1848 (depicts the revolution, which immersed the entire economy into a financial crisis), reveals the need for financial independence as the primary motivator for someone to become an entrepreneur. Entrepreneurship is the capacity and readiness of individuals to recognize and generate novel economic prospects and introduce their concepts into the market, despite uncertainty and other challenges, by making determinations regarding location, structure, resource utilization, and institutional involvement (Wenneker and Thurik, 1999). Entrepreneurship is the process of identifying, assessing, and capitalizing on opportunities to introduce novel products, services, organizational methods, markets, processes, and raw materials through innovative efforts that did not exist before (Shane and Venkataraman, 2000).

The core part and place to begin when defining an entrepreneur is uncertainty (Knight, 1921). It appears that "innovation," "creativity," and "entrepreneurship" are frequently used interchangeably (Amabile, 1996; Ward 2004; Walton 2003; Welter, 2011). Twenty-three different entrepreneurial behaviors were gathered by Shane and Venkataraman in 2000. They argue that these behaviors can be conceptually divided into two groups: exploitation behavior and discovery behavior. Exploitation includes establishing the startup as legitimate, gathering resources, combining, and coordinating these resources through building a functional organization, and achieving marketing success. Idea generation, opportunity detection, opportunity development, and opportunity refinement are all steps in the discovery process. (Katz and Shepherd, 2003).

There are six antecedents of entrepreneurship, which are as follows: Opportunity -based entrepreneurship; Market-driven entrepreneurship; Entrepreneurial skills; Entrepreneurship and Innovation; Digital technology; Entrepreneurial education (Diandra and Amzy, 2020). The focus of this study is on the latest antecedent. It is critical for the entrepreneurial education process to encourage student enthusiasm in entrepreneurship. Entrepreneurship is a behavior that can be nurtured and developed by young people in their early stages by incorporating entrepreneurial development into high school curricula, it helps to promote and the creation of entrepreneurial minds and allows them to shape their ideas and dreams (Malaj & Dollani, 2018). It is crucial to educate students on what to expect from the changing world to help them learn and adapt. This reality makes it necessary to increase students' understanding of the value of an entrepreneurial mindset and the necessary skills. To clarify the effects of having an entrepreneurial mentality and the associated skills on engineering students' future careers, a brief tutorial course module was offered. Most students view projects as merely a component of their course work but becoming more conscious of the reasons behind the specified tasks might help them achieve the objectives of their capstone project. Promoting entrepreneurship practices through capstone projects at the engineering departments enriches the quality of education, which is one of the essential elements of human capita as studied by many researchers (Clavijo et al., 2017; King et al., 2019; Rong, Zeng and Gao, n.d.; Shartrand and Weilerstein, 2011; Simpson, Kishenwether and Pierce, 2013). Incorporating entrepreneurship into engineering capstone projects helps students understand how their technical skills can be applied in real-world scenarios. It encourages them to develop solutions that are not just academically sound but also practical and marketable. Entrepreneurial mindset for their graduation projects requires students to identify real problems and create innovative solutions. This fosters critical thinking, creativity, and problem-solving skills, which are valuable in both entrepreneurship and engineering.

This study focuses to improve the weight of entrepreneurship understanding and application in students' learning outcomes through engineering capstone projects. Methodology of the study combines entrepreneurial practices along with engineering capstone projects, so to impact students' intentions to start businesses and effect the economic growth. The theoretical framework to embed entrepreneurial component into engineering capstone projects is described in our study. As a multidisciplinary approach [including business and engineering education], this methodology promotes and improves engineering capstone projects through entrepreneurship skills and practices.

Bloom's taxonomy for education serves as the framework's core.

1.1 The importance of Entrepreneurial Education

Entrepreneurship is a nascent and burgeoning field of study. Shigeru Fijii introduced the concept of teaching entrepreneurial studies in a practical manner at Kobe University in Japan in 1938, thus pioneering applied education in this field. The recognition of such initiatives was first gradual, and it was only after fifty years that entrepreneurship education became more widespread (Dana, 1992). The United States saw the greatest rate of increase in entrepreneurship education. Since the 1990s, interest has also been established throughout Europe and a few years ago in countries of the Middle East. According to Johansen (2014), the goal of entrepreneurship education is to promote general entrepreneurial abilities. Opportunity identification might and ought to be taught, and it should be a major subject in courses designed to prepare prospective entrepreneurs, according to the literature on entrepreneurship education (Saks and Gaglio, 2002). Certain entrepreneurial skills, such as how to launch your own business and the process of innovation in an already-existing business, are always supported by entrepreneurial education. The goals of entrepreneurial education can be divided into three categories: to concentrate on cultivating comprehension of entrepreneurship and enterprise, to seek to equip entrepreneurs and inspire them to initiate their ventures, and to donate students with entrepreneurial skills (Tang, Byrge, and Zhou, 2018). Our framework's goal fit to all the above-mentioned categories. This multidisciplinary framework tackles engineering students' entrepreneurial intention, since they are expected to establish new technology-based businesses that are essential for creating economic growth and jobs. The creation of new businesses is one of the finest methods for stimulating economic growth and lowering unemployment. To increase graduates' employability, policy makers, educators, and university administration together engage in the development of students' entrepreneurial skills (Nabi et al., 2017; Moreland 2006).

The study aims to enhance the role of entrepreneurial education in fostering the development of entrepreneurship among engineers, who are particularly well-suited for starting their own businesses. According to Karimi et al. (2016), empirical research indicates that entrepreneurship, or specific aspects of it, may be imparted through education. Education is considered a significant means of fostering entrepreneurial attitudes, intents, and abilities. Whether entrepreneurship can be promoted through education is a crucial question. There are inconsistent results from earlier studies. Some of these studies—for example (Block, Hoogerheide, and Thurik, 2013; Souitaris, Zerbinati, and Al-Laham, 2007; Walter and Dohse 2012)—reported a positive impact from entrepreneurship education, whereas others—for example, (Oosterbeek, van Praag, and Ijsselstein 2010; von Graevenitz, Harhoff and Weber, 2010)—found evidence that the effects are statistically insignificant or even adverse. Using the Theory of Planned Behavior was examined how Entrepreneurship Education Program (EEP) affected the attitudes and intents of science and engineering students (Souitaris, Zerbinati, and Al-Laham, 2007). Another study discovered that entrepreneurship education program markedly raised students' subjective norms and entrepreneurial intention. discovered that EEPs generally had favorable effects on knowledge and skill, entrepreneurial perceptions, and entrepreneurship outcomes (Martin, McNally, and Kay, 2013). Furthermore, other scholars argue that the entrepreneurship classes provides an appropriate environment for cultivating the skills required to boost proficiency in identifying opportunities (De Tienne and Chandler, 2004). According to entrepreneurial education is positively associated with the intention to engage in entrepreneurial activity (Asimakopoulos, Hernández, and Peña Miguel, 2019). For academics in higher education, changing students' mindsets—that is, how they perceive their surroundings—can be a difficult endeavor. Entrepreneurship education can improve a student's attitude toward innovative idea (Galloway & Brown, 2002).

1.2 Engineering Capstone Projects

Entrepreneurship education fosters inventive talents, which are a key driving force for future development. The field of entrepreneurial education is continuously expanding. Researchers and educators have highlighted the potential advantages of entrepreneurial education (Bosman, and Fernhaber, 2018; Karim, 2016; King et al., 2019; Nasrullah, Khan, and Khan, 2016; Ratten and Usmanij, 2020). Some colleges provide entrepreneurship courses for engineering students that are run by business departments to encourage entrepreneurial thinking in engineering curricula (Franchetti et al., 2012; Franchetti and Ariss, 2017; Oswald, 2015; Tabassum and Sundaravadeivel, 2023). These programs place a greater emphasis on starting a new business. In engineering schools or department, capstone courses provide a great opportunity for blending entrepreneurship with capstone projects.

An engineering capstone project is a project taken on by engineering students at the university during their fourth year or senior year that allows students to illustrate the knowledge and skills they have gained throughout their earlier program courses and apply them to real-world problems and cases. It is named by differently as capstone project, senior project, graduation project, final year project, senior capstone design project and maybe more. Engineering capstone projects focus more on attaining tangible or intangible results through research whereas, engineering research projects focus more on developing or proposing theories. Capstone projects compel students to engage in critical thinking and apply the knowledge they have acquired. Capstone projects are essential for engineering students to gain practical experience and prepare for real-world challenges in the professional field. Engineering capstone projects are typically carried out within capstone courses, which consist of lecture-demonstration or seminar series that focus on evaluating career options, developing professional skills, and introducing engineering design. Students work in a team during the process of capstone project and they are required to select a practical issue within their field of study. They must then demonstrate their ability to conduct thorough research, evaluate information, and effectively apply the knowledge and principles acquired throughout their coursework.

There are a few questions that our research has raised as follows:

- What are the key motivating elements that drive engineering students toward new entrepreneurial challenges?
- What are the steps capstone projects take, and how do they help students become more entrepreneurially literate?

This study, elaborates a systematic approach to stimulate students' entrepreneurial mindset. A dual attitude involving both professors' and students' perspectives on the matter has been applied. To respond to the queries, this methodology represents a humble attempt that can be adapted to any engineering department. The approach seeks to foster students' curiosity and their capacity for initiative under the professors' supervision, as opposed to being passive or reactive.

2. Methodology

The proposed framework goes along with Bloom's Taxonomy which has been developed in 1956 by Benjamin Bloom. He led a group of educational psychologists who created a classification of intellectual behavior levels that are significant in learning. According to Bloom (1956) there are recognized six levels within the cognitive domain as shown in Figure 1. While, Figure 2 explains the verbs that are useful for measuring learning outcomes that correspond to Bloom's taxonomy levels.

Bloom taxonomy levels are described below:

Level 1: Knowledge- "involves remembering particular and universals, remembering procedures and processes, or remembering a pattern, structure, or environment."

Level 2: Comprehension- "refers to a form of comprehension or fear in which the individual understands what is being told and may apply the material or idea being given without necessarily linking it to other material or realizing its fuller consequences."

Level 3: Application- refers to the “application of abstractions in specific and concrete situations.”

Level 4: Analysis- describes the “dissection of a communication into its basic sections or parts in order to make the relative hierarchy of ideas obvious and/or the relationships between concepts communicated explicit.”

Level 5: Synthesis- involves the “linking of components and parts to produce a whole.”

Level 6: Evaluation -generates “decisions about the worth of materials and procedures for certain uses.”

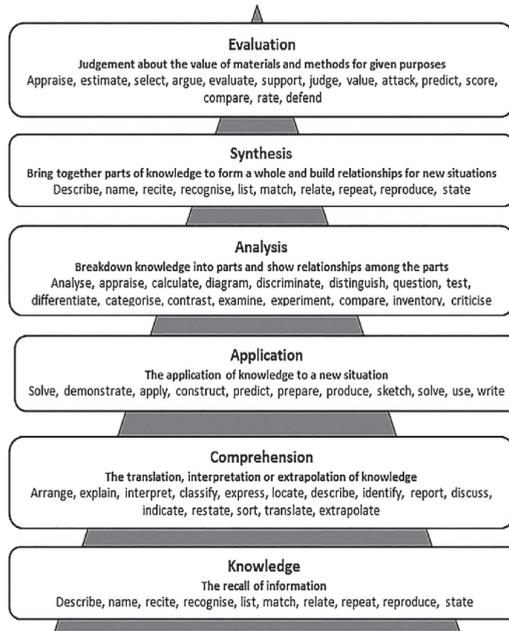


Figure 1: Bloom’s taxonomy levels (Source: Bloom (1956))

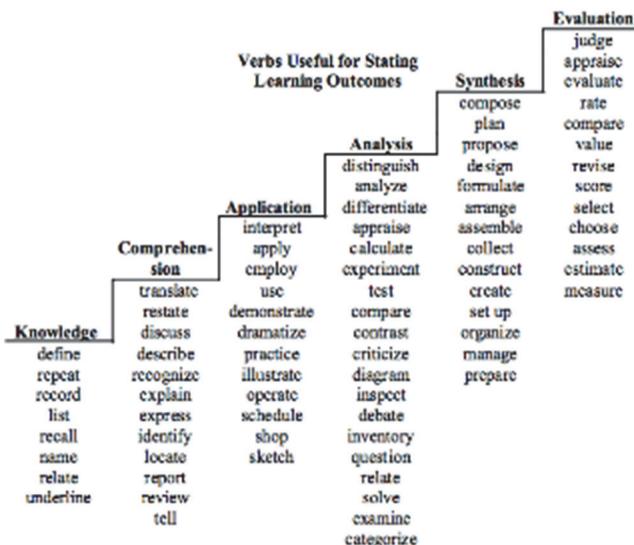


Figure 2: Bloom’s taxonomy of measurable verbs (Source: Bloom (1956))

The first step to the proposed framework begins with transformation of Bloom's Taxonomy levels to teaching modules related with Capstone Projects. The second step to the proposed framework continues with implementation of these modules according to transformed Bloom's taxonomy levels. In addition, the second step also describes the proposed framework for 2-semester capstone courses.

2.1 Transformation of Bloom's Taxonomy Levels to Engineering Capstone Project Modules

The transformation of Bloom's Taxonomy levels with teaching modules related with capstone projects is illustrated in Figure 3 as Bloom's pyramid. The main objectives of these modules are to persistently foster an entrepreneurial mindset for engineering students and stimulate their interest by relating curriculum to real-world problems, and improve knowledge retention. This transformation is the foundation for integrating entrepreneurship component into engineering capstone projects. There is no work in the literature that modifies Bloom's Taxonomy for engineering capstone projects and this modification is also one of the major contributions of this study.



Figure 3: Bloom Taxonomy Pyramid transformed for Engineering Capstone Projects
Source: Authors

Proposed modules according to transformed Bloom's taxonomy levels are described as below:

2.2 Module 1: "Where ideas come from?"

The first module involves an interactive presentation to provide students with entrepreneurship knowledge. This activity enriches students with information ranging from the fundamentals of how to become entrepreneurs to the sources of ideas. The entrepreneurship coordinator of the department conducts this module. Presentation shares real examples of strategies to create new ideas, such as "mix and match". The objective of this group-activity is for students to come up with potential start-up ideas that initiate from their actual capstone project. Activity also includes group-assignment for the students to generate as least one idea reflecting their capstone start-up potential. Based on Bloom taxonomy, module 1 refers to Bloom's taxonomy knowledge level.

2.3 Module 2- Problem solution fit

Module 2 is conducted as a workshop. Module 2's major purpose is to strengthen students' comprehension of the topics of their capstone project. Students endeavor to understand the worth of

their project and its true impact on society in this section. The idea is to transition smoothly from a modest capstone project to a startup. Capstone project titled as "Implementing waste reduction for quality improvement in SMEs" may generate a start-up idea as consulting business for sustainable quality improvement for SMEs, since they do not have enough white-collar workers. Either a member of the entrepreneurship club or the entrepreneurship coordinator leads this activity. Based on Bloom taxonomy, module 2 refers to Bloom's taxonomy comprehension level.

2.4 Module 3-Evaluation forms (Selecting best ideas)

Module 3 depicts the transition from a capstone project to a startup project. The student's responsibility at this step is to illustrate the theoretical knowledge acquired from previous modules in a capstone project template. They fill out a framework like a capstone project, which contains the problem statement, literature review, background, and methodology. The department established a committee to review their projects up to this point. The primary responsibility of this committee is to choose capstone projects that have the potential to become startups. Based on Bloom taxonomy, module 3 refers to Bloom's taxonomy application level. In this stage students use all elements of a pitch, as per Babson competition template and consulting Global Students Challenge- Overview and Guidelines.

2.5 Module 4-Business model generation (Business model canvas)

This process is carried out by the projects that were successfully selected from Module 3 of Stage 1. Module 4 consists of a workshop. This session is directed by a member of the entrepreneurship club or the entrepreneurship coordinator. During module 4, students conducted business model canvas to analyze the project. Canvas business model is a technique for describing and assessing a business model that has nine components: customer segmentation, value propositions, channels, customer relationships, income streams, key resources, key activities, key partnerships, and cost structure. Based on Bloom taxonomy, module 4 refers to Bloom's taxonomy analysis level.

2.6 Module 5 - How to pitch in front of an investor

Module 5 is conducted as a training to a selected group of students. The entrepreneurship coordinator aims to provide students with advice on how to provide a solid presentation of their project in front of an investor. Students attempt to theoretically develop a complete notion for their project and prepare themselves to properly "sell" it. Based on Bloom taxonomy, module 5 refers to Bloom's taxonomy synthesis level.

2.7 Module 6-Presentations/Competitions (Prizes)

Module 6 consists of assessing the project and selecting it as a startup. Capstone projects are evaluated by entrepreneurship club members or the entrepreneurship coordinator. This module is known as the evaluation session. Students that have already been qualified present their project to the committee. This module "ends" with a surprising prize. The winner will be willing to finance or search financiers their capstone project, which has now been transformed into a startup. Based on Bloom taxonomy, module 6 refers to Bloom's taxonomy evaluation level.

After describing these modules, the second step continues with the implementation of them. Note that, the second step also describes the proposed time framework for 2-semester capstone courses as explained below. It is mandatory for students to attend capstone courses for graduation.

2.8 Framework for Integrating Entrepreneurship into Engineering Capstone Projects

In 2-semester capstone course sequence, students in teams of four to five senior students work together on a project that requires the application of a combination of engineering tools and methods to tackle a real-life problem. The projects are usually conducted in a collaboration cooperation with an industrial (manufacturing/service) partner or an industry (manufacturing/service). The students are allowed to contribute to the problem formulation and the design of the capstone project. They are eventually given full ownership and responsibility to plan and execute the project. The faculty member, supervisor, acts as a facilitator, mentor, and assessor to ensure that professional approaches are followed and that students are progressing in the presumed design experience satisfactorily.

At the beginning of the first senior semester faculty members (supervisors) announce their proposal for the capstone projects. Students form their teams and discuss the available proposals with the corresponding faculty members; enquiring about the most relevant courses, and the necessary skills to conduct the project effectively. They are also informed about the potential new levels of knowledge and skills that would be needed in the project work. When students participate in those discussions, they in fact reflect on what they have studied in the earlier program courses and link that to the project topics. This helps them integrate and develop better understanding of the program courses that they have experienced, and guide them to develop a vision of the experience they will face in the project work. Students are also provided with a brief guide summarizing the meaning of the design concept and the standard engineering methodologies for design, analysis, improvement, problem solving, etc. This includes the scientific engineering problem solving methods, modeling and analysis process, design of experiments, etc. The supervisor meets with the project team weekly to follow up with their progress. Also, on a weekly basis as well, all senior students in each capstone course attend a series of lectures presented by the capstone project coordinator to address relevant topics and enrich student’s knowledge and experience with the real-life experiences by career related topics such as choosing a job and post-graduate education in engineering or other disciplines and professional skills such as interviewing, verbal and oral presentation skills, intellectual property rights, engineering standards, and ethics and more. Note that, for the proposed framework, capstone project courses endure for 2-semesters, the integration of entrepreneurial component according to Bloom’s Taxonomy levels with teaching modules is designed with two stages.

Stage 1:

A preparation training for the supervisors is conducted prior to the start of the capstone project, as shown in Figure 4. Entrepreneurial thinking workshop intends to prepare engineering supervisors with a multidisciplinary approach (that includes entrepreneurial view) before they propose capstone projects of the academic year. This training also enlightens them about entrepreneurial thinking and activities that they should be aware of before mentoring the students. After this session, the course of capstone projects begins.

Table 1: Stage-1 Module Implementation.

Fall				
Capstone-1st Semester				
	September	October / November	November / December	January/February
	Before the Semester start	Beginning of the Semester	Before Mid-semester	End of Semester
Name of Activity	Entrepreneurial thinking	Where ideas come from? MODULE-1	Problem solution fit (Value proposition canvas)MODULE-2	Evaluation forms (Selecting best ideas) MODULE-3
Audience	Instructors	Students	Students	Instructors
Type of activity	Presentation	Workshop	Training	Evaluation
Duration	1 session (Department Meeting)	1 session (GP seminar)	2 sessions (GP seminars)	1 session (final presentations)
Owner	Department entrepreneurship coordinator	Entrepreneurship Club + Dep. entrepreneurship coordinator	Entrepreneurship Club + Dep. entrepreneurship coordinator	Entrepreneurship Club

Source: Authors

The first stage includes three modules: Modules 1, 2, and 3. The time framework of the modules is designed to correspond with the capstone activities. Therefore, Module-1 gives students an understanding of start-up ideas and equips them with the ability to look at their projects from this perspective. While, Module-2 is conducted during the set-up of problem statement, and enables students to see the solution of these capstone projects' problems, as potential start-up ideas to commercialize. The Module-2 goes along with the development of background and methodology of the capstone projects, and helps as well the students to prepare strategies that fit meeting market needs. Module-3 corresponds with the normal procedure of evaluation of engineering capstone projects and it is a committee decision based on specific rubrics measuring students' outcomes. During this process committee needs to make a complementary evaluation based on the format shown in Figure 5.

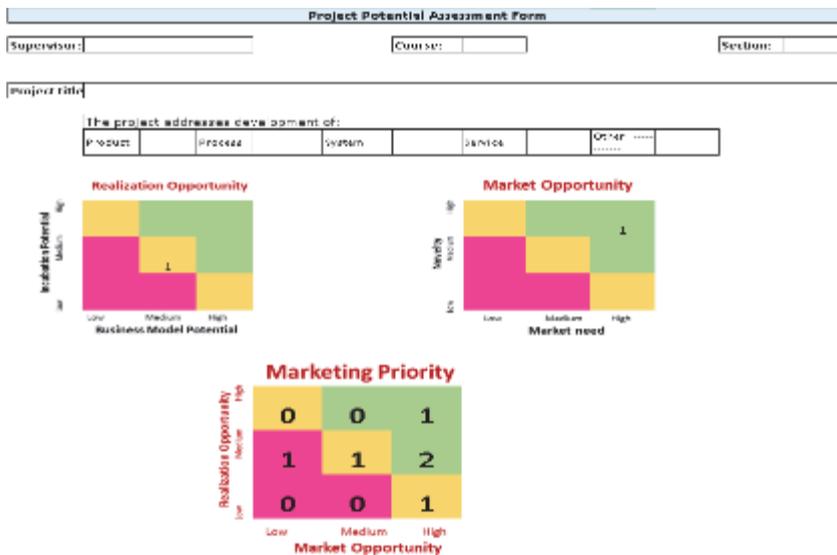


Figure 4: Evaluation of project market potential. Source: Authors

This template tries to capture the capstone potential from the following combined perspectives: Realization opportunity (which includes two dimensions. The ability of the project to have a successful business potential and its incubation potential); Market opportunity (which includes two dimensions as well. The consumers' need of this capstone solution and its novelty to the market); Both converge into Marketing Priority matrix with two other dimensions (Market and realization opportunities, which determine the potential of commercializing and marketizing the output of capstone projects). Committee marks with 1 only Realization and Market opportunity, based on their understanding. Marketing priority generates sum scores of the entries. Projects that fell with their score in the green areas of this matrix qualify for the second stage. Note that number of selected projects will be substantially low, compared with total number of projects due to the accumulated points according to the scale. The goal is to qualify maximum top 20% of the total capstone projects.

Stage 2:

The second stage includes three modules: Modules 4, 5, and 6 as shown in Figure 6. Module 4 is conducted during the analysis and results of capstone projects, and helps the students to implement strategies that fit with the market potential of their outcomes. Module-5 helps students to prepare a combined presentation format of their capstone projects, that include the entrepreneurial

components, such opportunity, market, business model and actions.

Table 2: Stage-1 Module Implementation

Spring			
Capstone-2nd Semester			
March		April	May
Beginning of the Semester		Before Mid-Semester	End of Semester
Name of Activity	Business model generation (Business model canvas) MODULE-4	How to pitch in front of an investor MODULE-5	Presentations/Competitions (Prizes) MODULE-6
Audience	Students	Students	Preselected Judges
Type of activity	Workshop	Training	Evaluation
Duration	3 sessions	1 session	1 session
Owner	Entrepreneurship Club	Entrepreneurship Club	Entrepreneurship Club

Source: Authors

During the presentations' week committees select the best projects, and these ones then go through a competition day. During Module-6, selected students present their works in front of a committee that includes representatives of Department, Entrepreneurial and Local Businesses. Only the top three projects are awarded as winners.

3. Recommendations and Conclusion

The purpose of our approach is to integrate entrepreneurship component into senior capstone engineering projects and elevate entrepreneurial intentions of the students. They are expected to build new technology-based enterprises that are critical for economic growth and job creation. The integration process designed in two stages and explained for an engineering department using the Bloom taxonomy. Engineering department evaluates students' capstone projects, but its goal spans farther than that. The purpose integrates an entrepreneurial mindset for students, so they perform the tasks from capstone project through a startup. This technique is a pilot project that can be implemented in any engineering department.

Reasons for integrating entrepreneurship into engineering capstone projects can be summarized as below:

- Incorporating entrepreneurship into engineering capstone projects helps students understand how their technical skills can be applied in real-world scenarios. It encourages them to develop solutions that are not just academically sound but also practical and marketable.
- Entrepreneurial projects often require students to identify real problems and create innovative solutions. This fosters critical thinking, creativity, and problem-solving skills, which are valuable in both entrepreneurship and engineering.
- By integrating entrepreneurship, students gain a deeper understanding of business concepts such as market analysis, feasibility studies, business plans, and financial considerations. This knowledge is essential for engineers who may want to start their own businesses or work in multidisciplinary teams.
- New engineering graduates with entrepreneurial experience are more attractive to employers, as they possess a broader skill set and a mindset for innovation. They are better equipped to adapt to changing industry demands.
- Encouraging entrepreneurship in engineering can lead to the development of startups and innovative technology companies, which can contribute to economic growth and job creation.

- Many engineers eventually transition into leadership or entrepreneurial roles. Exposure to entrepreneurship during their studies prepares them for these career transitions.

Overall, integrating entrepreneurship into engineering capstone projects prepares students for the dynamic, interdisciplinary, and innovative nature of the modern engineering profession and equips them with the skills to be more than just technical experts. In our paper, we raise the following questions:

- What goals do college students have in terms of entrepreneurship?
- Are they willing to take on a challenge?
- What are the key motivating elements that draw or propel them in this direction?
- What are the steps capstone projects take, and how do they help students become more entrepreneurially literate?

We propose the following prepositions that may be future research topics.

Preposition 1: In a country, where the culture does not encourage youth to engage in entrepreneurship activities, government programs will have a good impact on growing youth interest in entrepreneurship.

Preposition 2: Due to the high percentage of young unemployment, incorporating entrepreneurship into a capstone project in the engineering departments will have a positive influence on increasing youth interest in entrepreneurial activity.

Preposition 3: Youth participation in entrepreneurial activity will operate as a mediator between lowering the unemployment rate and increasing economic growth.

According to our analysis, our conclusions are as follows: Generally, it is difficult for the younger generation to set goals for themselves in terms of entrepreneurship. We endeavored to include Bloom taxonomy levels into the Engineering department to make the entire process more understandable. Each module is important, but two stand out as particularly beneficial to students: Module 2 - Problem Solution Fit and Module 4 - Business Model Generation. Students understand the notion of entrepreneurship, its significance, and its practical application. After acquiring the necessary knowledge, they conduct a business model that allows them to turn their ideas into something more tangible. We expect that entrepreneurship education will make entrepreneurship more appealing to the mindset of youths.

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