

## Example Activities to Promote Development of the Entrepreneurial Mindset in Engineering Courses



1. Assign or have students select a simple tool or innovation (think: safety pin, paper clip, the wheel), imagine it as a contemporary entrepreneurial pursuit, and bullet point their initial ideas for each of major sections of a business model canvas:

- the value proposition
- a customer segment
- (a) channel(s) for that segment
- revenue streams
- key resources, activities and partners

Provide an opportunity for students to provide feedback to each other's ideas.

2. A graphic representation of a business model is provided at <https://www.cleverism.com/key-activities-block-business-model-canvas/>. Assign or have students select an innovation related to your course content and have them create a graphic representation of business model canvas for it by drawing or finding pictures online that represent each of the elements of the business model canvas.

### 3. Your Value Proposition

Have students imagine that they are their own innovation (they have created the product “Me”), then list a range of a number of people they encounter as potential customers of “Me” (@ 6-8), from important people in their lives to those with whom they have incidental contact. Next, have students list the elements that constitute the “value proposition” of “Me” for the people they listed. Finally, have the address the following:

- Describe the overlap or difference in the value proposition list you developed for each person you included as a potential customer of “Me”.
- Organize your list of people into 2-4 groups based on value proposition list you created.
- Next, reorganize your list of people into 2-4 groups based on demographics, geographic locations, professions or other characteristics.
- Finally, compare the two sets of groups you created and describe the guidance it might provide about market segmentation – how does it help you determine who you might seek as a customer of the product “Me”.

4. Assign or have students select an innovation connected to your course content and analyze what that innovation might reduce, raise, eliminate or create, then, based on their analysis write a value proposition statement for that innovation.

5. Assign or have students select an innovation connected to your course content and list all of the potential channels for marketing and distributing it. Finally, have students address the following:

Many people think that social media is the best way to market new products. Is this true for the innovation you were assigned or selected? Why or why not? Describe the potential benefits and challenges of using social media to market your innovation.

Many people think major online distributors such as Amazon or eBay are the best way to sell new products. Is this true for the innovation you were assigned or selected? Why or why not? Describe the potential benefits and challenges of using online retail to sell your innovation.

6. Assign or have students select an innovation connected to your course content and list all the possible revenue streams they can imagine. Next, have them address the following:

- Many entrepreneurs find revenue streams other than outright sale of their product attractive (such as, rent/lease, subscription, licensing). Describe the potential benefits and challenges of using these alternative revenue streams for their selected/assigned innovation.

### Example Discussion Prompts to Promote Development of the Entrepreneurial Mindset in Engineering Course Online Discussions

**CURIOSITY**  
**DEMONSTRATE** constant curiosity about our changing world  
**EXPLORE** a contrarian view of accepted solutions

**CONNECTIONS**  
**INTEGRATE** information from many sources to gain insight  
**ASSESS** and **MANAGE** risk

**CREATING VALUE**  
**IDENTIFY** unexpected opportunities to create extraordinary value  
**PERSIST** through and learn from failure

	Introduction to Engineering	Computer Integrated Manufacturing	Engineering Statistics
<p><b>John Peterson – What are the basics of the business model? What makes a high performance business model? How do you test your business model?</b></p>	<p><u>Curiosity</u>: In talking with potential customers about your design project, what questions would you ask to validate the value proposition? What other solutions are currently available? Identify 3 advantages and 3 disadvantages for a customer to switch over to your new product.</p> <p><u>Connections</u>: What potential roles can engineers play in the business model process?</p> <p><u>Creating Value</u>: Select an engineering design firm and identify their value proposition and customer segments. (This part could require going on a field trip and/or interviewing an engineer at a design firm.)</p>	<p><u>Curiosity</u>: What role does technology and automation play within a company’s business model?</p> <p><u>Connections</u>: Lean manufacturing promotes eliminating wastes in the manufacturing process. Select a company (e.g. Amazon, Walmart) and identify 3 ways in which they apply the lean philosophy within their Business Model.</p> <p><u>Creating Value</u>: Select a manufacturing company and identify their value proposition and customer segments. (This part could require going on a field trip and/or interviewing an engineer at a manufacturing company.)</p>	<p><u>Curiosity</u>: How can statistics be used to validate the business model?</p> <p><u>Connections</u>: Regression analysis can be used to predict sales and demand based off of historical data. What data collection should startup companies be doing early on to assess and manage risk, ultimately predicting the success of the company?</p> <p><u>Creating Value</u>: Select a company that relies heavily on statistics to assist in maintaining a profit. Identify the role of statistics in their overall value proposition. (Examples might include insurance companies, national laboratories, marketing firms, etc...)</p>