

Foundations of Engineering Unit 3: Career Challenge

Unit Focus

In this culminating experience, students will be asked to apply the Engineering Design Process in solving a challenge. This solution will act as an all encompassing PBA and final exam for the entire course. Students will get the opportunity to research engineering careers and find out through several tests what kind of engineering they could be based on how they answered the questions within the test. The PBA will ask students to create a solution to a problem through the lens of their selected career within the field of engineering.

Stage 1: Desired Results - Key Understandings

Established Goals	Transfer	
<p>Connecticut Goals and Standards <i>Pre-Engineering Technology: 12</i></p> <ul style="list-style-type: none"> Brainstorm possible solutions. <i>ENG.02.05</i> Describe the process for researching known, relevant information, constraints and limitations. <i>ENG.02.03</i> Develop details of a solution. <i>ENG.02.07</i> Identify the functions of an engineer. <i>ENG.01.02</i> <p><i>Technology Education (CTE)</i></p> <ul style="list-style-type: none"> Describe the following engineering fields: mechanical, chemical, civil, and electrical. <i>TE.ET.A.1</i> Identify the following job functions and responsibilities: research and development, design, production, supervision, management, testing, and analysis in mechanical, chemical, civil, and electrical engineering. <i>TE.ET.A.2</i> Design Process: Describe and apply the design process to identify and solve a problem. <i>TE.ET.H</i> <p>Student Growth and Development 21st Century Capacities Matrix <i>Critical Thinking</i></p> <ul style="list-style-type: none"> Synthesizing: Students will be able to thoughtfully combine information/data/evidence, concepts, texts, and disciplines to draw conclusions, create solutions, and/or verify generalizations for a given purpose. <i>MM.1.3</i> <p><i>Creative Thinking</i></p> <ul style="list-style-type: none"> Imagining: Students will be able to conceive of a novel approach to create a text, performance, solution, application, or inquiry. <i>MM.2.2</i> 	<p>T1 Develop a product/solution that adheres to key parameters (e.g., cost, timeline, restrictions, available resources and audience). T2 Communicate effectively based on purpose, task, and audience using appropriate vocabulary.</p>	
	Meaning	
	Understandings	Essential Questions
	<p>U1 Assessing ones personality and intelligence can help make ones career choices. U2 Awareness of your interests and aptitudes helps make informed career decisions and post-secondary plans. U3 Self-awareness provides self-reflection and leads to communication of personal strengths and weaknesses. U4 Engineers make proposals on how to solve a problem to secure funding.</p>	<p>Q1 How can I use self-awareness to make appropriate career choices? Q2 How do I create a solution based on a given problem?</p>
	Acquisition of Knowledge and Skill	
	Knowledge	Skills
<p>K1 8 step Engineering Design Process K2 Myers-Briggs Personality test, Online personality test K3 What kind of Engineer should you be? K4 Engineering proposal format K5 Grand Challenges in Engineering & Summary</p>	<p>S1 Use 8 step Engineering Design Process to propose a solution in solving a given problem S2 Develop an engineering proposal.</p>	