

LESSON PLAN 2

<p>TEACHER:</p> <p>GRADE: 10</p>	<p>CURRICULUM SUBJECT: TMJ20</p> <p>UNIT: 4</p>
<p>LESSON TOPIC:</p> <p style="text-align: center;">3D Printing Sprocket Fabrication</p>	<p>MATERIALS/ VISUAL AIDS:</p> <ul style="list-style-type: none"> ● Gear Tutorial using Inventor ● You Tube Videos ● 3D Printer ● PLA Filament
<p>INTRODUCTION/ MOTIVATION:</p> <p>Talk about the importance of 3D manufacturing prototyping and how it can be used to support the Electric Vehicle industry. Explain how gears can be 3D printed prior to fabrication and the pros and cons using this method. Show them actual samples.</p>	<p>PERFORMANCE CRITERIA (STUDENTS EXPECTATIONS):</p> <p>Students will be required to understand gear ratio calculations in order to manufacture the correct gear in the manufacturing lab.</p>
<p>EXPECTATIONS:</p> <ul style="list-style-type: none"> ● A1.2 identify key areas of operation in manufacturing (e.g., design of product, production planning, fabrication of product, quality control); ● A1.4 describes ways in which manufacturing technology affects people's daily lives (e.g., by providing improved consumer products, developing new diagnostic equipment in health care, creating more energy-efficient means of transport). ● B1.1 follow a design process that includes identification of the particular need or problem, consideration of design criteria 	<p>Time/ MISC:</p> <p>2 / 3 classes pending students' understanding.</p>

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<p>and constraints, development of multiple solutions, selection of the optimal solution, evaluation of the product, and life cycle assessment (LCA);</p> <ul style="list-style-type: none">● B1.4 develop technical drawings (e.g., orthographic, isometric, and assembly drawings) and technical reports, as required in the design and manufacture of a product;● C1.3 use proper storage and disposal techniques of materials and waste products, ensuring that there is a minimal effect on the environment;● D1.4 demonstrate the safe use of tools and equipment in compliance with safety manuals, instructions, and institutional requirements;● D1.5● use protective clothing and equipment as required to ensure their own and others' safety in the work environment.	
<p>TEACHING/ LEARNING CONTENT:</p> <ul style="list-style-type: none">● Use bright links to display gears● Review if students understand how to access the software in order to start their designs.	

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SUMMARY/ RECAPITULATION:

Students will be required to understand how to utilize the software provided in order to design their gear prior to 3D printing it. Students are required to dialogue with proper terminology.

EVALUATION/ ASSIGNMENT:

Students are required to complete the Gear Ratio worksheet and submit for marking. This material will be useful as part of a future practical assignment.

LESSON NOTES/ REFLECTION:

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