



<u>Course Title:</u> <b>Eighth Grade Engineering (Automation and Robotics)</b>		
<u>Description:</u> In eighth grade engineering, the content focuses on building models with VEX materials, programming motors and sensors, and automating systems.		
<b><u>Reporting Topic</u></b>	<b><u>Grade Level Standards</u></b>	<b><u>Competency Statement</u></b>
<b><u>Mechanism Fundamentals</u></b>	<ul style="list-style-type: none"> <li>● <b>Students will develop an understanding of engineering design</b> <ul style="list-style-type: none"> <li>○ Modelling, testing, evaluating, and modifying are used to transform ideas into practical solutions (9.6-8.H)</li> </ul> </li> <li>● <b>Students will develop an understanding of the core concepts of technology</b> <ul style="list-style-type: none"> <li>○ Technology systems include input, processes, output, and at times, feedback. (2.6-8.M)</li> </ul> </li> <li>● <b>Students will develop the abilities to apply the design process</b> <ul style="list-style-type: none"> <li>○ Make two dimensional and three dimensional representations of the designed solutions (11.6-8.J)</li> </ul> </li> </ul>	Students will develop an understanding of engineering design through the design process.
<b><u>Automation</u></b>	<ul style="list-style-type: none"> <li>● <b>Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.</b> <ul style="list-style-type: none"> <li>○ Troubleshooting is a problem-solving method used to identify the cause of a malfunction in a technological system.(10.6-8.F)</li> </ul> </li> <li>● <b>Students will develop the abilities to use and maintain technological products and systems.</b> <ul style="list-style-type: none"> <li>○ Use tools, materials, and machines safely to diagnose, adjust, and repair systems. (12.6-8.I) J. Use computers and calculators in various applications.(12.6-8.J)</li> </ul> </li> <li>● <b>Students will develop the abilities to apply the design process.</b> <ul style="list-style-type: none"> <li>○ Specify criteria and constraints for the design. (11.6-8.I)</li> <li>○ Make two-dimensional and three-dimensional representations of the designed solution.(11.6-8.J)</li> </ul> </li> <li>● <b>Students will develop a model to generate data for iterative testing and modification of a proposed object,tool, or process such that an optimal design can be achieved.(MS.ETS1.4)</b></li> </ul>	Students will recognize an error, identify the solution, and fix the problem within a program.