



<b>Course Title: Principles of Engineering (POE)</b>		
<p><u>Description:</u> POE is a course that helps students understand the field of engineering and engineering technology. Exploring various technology systems and manufacturing processes help students learn how engineers use math, science and technology in an engineering solving process to benefit people. The course is heavily project-based and includes machine control through computer programming. As of 2017-2018, POE will count as 2 hours of Science Physics credit as long as being taught by a Physics endorsed instructor. This course corresponds to EGT410 in the DMACC course guide.</p>		
<b>Reporting Topic</b>	<b>Course Level Standards</b>	<b>Competency Statement</b>
<b><u>Mechanics</u></b>	<ul style="list-style-type: none"> <li>• Demonstrate application of simple machine and gear systems. (POE.SM01)</li> <li>• Engineer and program robots to perform tasks within certain criteria and constraints. (POE.MC02)</li> </ul>	Students will demonstrate mechanisms and control mechanical processes.
<b><u>Energy</u></b>	<ul style="list-style-type: none"> <li>• Build electrical circuits and energy efficient systems. (POE.ES03)</li> <li>• Analyze and construct alternative energy sources and calculate energy transfer and flow. (POE.EA04)</li> </ul>	Students will explain the conservation of energy and power and calculate efficiencies of mechanical and electrical systems.
<b><u>Material Science</u></b>	<ul style="list-style-type: none"> <li>• Analyze, construct and calculate static equilibrium within bridge trusses. (POE.S05)</li> <li>• Analyze and present the product life cycle of a product. (POE.MP06)</li> <li>• Analyze and calculate stress/strain curves. (POE.MT07)</li> </ul>	Students will explain, calculate and interpret material testing data.
<b><u>Physical Mathematics</u></b>	<ul style="list-style-type: none"> <li>• Analyze and calculate dynamics of fluids (POE.F08)</li> <li>• Use statistics and probability to analyze and interpret data. (POE.ST09)</li> <li>• Describe and calculate the velocities and trajectories of various bodies. (POE.K10)</li> </ul>	Students will make calculations and solve a variety of real world Fluid, Kinematic and Statistical physics problems