

Engineering : POE Principles of Engineering

Grade 10



#	Essential Knowledge/Skill	Alignment
1	Design Process: I can identify the design process and use it to systematically approach a design problem.	
2	Engineering Notebook: I can properly and accurately maintain an engineering notebook and digital portfolio of my work.	
3	Project Management: I can manage my projects efficiently and follow through on my responsibilities with myself and within my group. (Accountability)	
4	Usage of Materials: I can properly identify, use, and manage materials in class.	
5	Simple Machines: I can distinguish between the six simple machines, their attributes, and components and calculate mechanical advantage, work, power and efficiency in applications.	
6	Energy: I can calculate circuit resistance, current, voltage and efficiency explain advantages and disadvantages in series and parallel circuit designs in applications with hydrogen fuel cells and solar power. Students can also complete calculations for conduction, R-values, and radiation.	
7	Statics: I can calculate moments, the X and Y components of a vector, and can use the method of joint strategy to determine forces in the members of a statically determinate truss.	
8	Machine Control: I can choose appropriate input and output devices, differentiate between the characteristics of digital and analog devices and create a control system operating programs that utilize computer software while differentiating between open and closed loop systems.	
9	Fluid Power: I can calculate flow rate, flow velocity, and mechanical advantage in a hydraulic system and identify and explain basic components and functions of fluid power devices.	
10	Kinematics: I can calculate distance, displacement, speed, velocity, and acceleration from data, calculate the X and Y components of a projectile motion and determine the needed angle to launch a projectile a specific range given the projectile's initial velocity.	

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