Learning Objectives Report
November 02, 2025 - November 08, 2025

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Engineering (EDP)

Date: Monday, November 03, 2025
Slide: BUILDING DAY
Learning Objectives:
We will:
• BUILDING DAY
I will:
• BUILDING DAY
Essential Question:
BUILDING DAY

Date: Tuesday, November 04, 2025
Slide: Importing VEX STEP Files into Autodesk Fusion - Learning Objectives
Learning Objectives:
We will:
• We will collaboratively explore the process of importing VEX STEP files into Autodesk Fusion by following a step-by-step guide.
I will:
• I will successfully import a VEX STEP file into my Autodesk Fusion project and verify the import by identifying and viewing the 3D model.
Essential Question:
Why is it important to accurately import VEX STEP files into Autodesk Fusion, and how does this process enhance our 3D modeling capabilities?

Date: Wednesday, November 05, 2025
Slide: BUILDING DAY
Learning Objectives:
We will:
• BUILDING DAY
I will:
• BUILDING DAY
Essential Question:
BUILDING DAY

Date: Thursday, November 06, 2025
Slide: Subsystem Concept Sketches - Learning Objectives
Learning Objectives:
We will:

• We will collaboratively explore different subsystems in a larger system and brainstorm their functions and interactions.
I will:
• I will create a detailed sketch of one subsystem, labeling its components and explaining its role within the larger system.
Essential Question:
How do individual subsystems work together to form a complete and functional system?

Date: Friday, November 07, 2025
Slide: Peer Feedback on Prototypes - Learning Objectives
Learning Objectives:
We will:
• Collaboratively review and discuss each other's prototypes, providing constructive feedback.
I will:
• Individually present my prototype and utilize peer feedback to identify at least two areas for improvement.
Essential Question:
How can receiving and giving feedback on prototypes enhance the design process?

Engineering (PAE)

Date: Monday, November 03, 2025
Slide: Introduction to Google Colab and Python - Learning Objectives
Learning Objectives:
We will:
• Explore the Google Colab environment and write a simple Python program together.
I will:
• Create a Google Colab notebook and write a Python script to perform basic arithmetic operations.
Essential Question:
How can Google Colab help us execute Python code efficiently in the cloud?

Date: Tuesday, November 04, 2025
Slide: Using Google Colab and Matplotlib to Generate Basic Charts - Learning Objectives
Learning Objectives:
We will:
• Collaborate to explore the Google Colab environment and understand the basics of using Matplotlib for data visualization.
I will:
• Create a simple line and bar chart using Matplotlib in Google Colab, demonstrating the ability to customize chart elements like titles and labels.
Essential Question:
How can we use Google Colab and Matplotlib to effectively visualize data?

Date: Wednesday, November 05, 2025
Slide: Using Google Colab and Kaggle for Time Series Data with Pandas
Learning Objectives:
We will:
• We will collaboratively explore Google Colab and Kaggle to locate and import time series datasets, and discuss the process of loading data into a Pandas DataFrame.
I will:
• I will individually find a time series dataset on Kaggle, import it into Google Colab, and successfully load it into a Pandas DataFrame.
Essential Question:
How can we effectively use online platforms like Google Colab and Kaggle to access and analyze time series data with Pandas?

Date: Thursday, November 06, 2025
Slide: Chapter 10 Test Preparation - Manufacturing Engineering
Learning Objectives:
We will:
• Review key concepts and problem-solving methods from Chapter 10 on manufacturing engineering as a class.
I will:
• Identify and explain three main concepts from Chapter 10 and solve related practice problems to demonstrate understanding.
Essential Question:
How do the principles of manufacturing engineering contribute to efficient production processes?

Date: Friday, November 07, 2025
Slide: Test - Chapter 10
Learning Objectives:
We will:
• Test - Chapter 10
I will:
• Test - Chapter 10
Essential Question:
Test - Chapter 10

W.I.N. Robotics

Date: Monday, November 03, 2025
Slide: Vision Sensors and Armbot IQ - Learning Objectives
Learning Objectives:
We will:
• We will watch a video demonstration of an Armbot IQ using a vision sensor to follow a color block and discuss how the sensor detects and processes color information.
I will:
• I will explain how a vision sensor identifies and tracks a color block and describe the steps involved in the process.
Essential Question:
How does a vision sensor enable robots like the Armbot IQ to interact with their environment?

Date: Tuesday, November 04, 2025
Slide: Configuring and Calibrating the VEX Vision Sensor
Learning Objectives:
We will:
• We will configure the VEX Vision Sensor and work together to understand its interface and basic settings.
I will:
• I will calibrate the VEX Vision Sensor to accurately detect and identify a specific color block, demonstrating my ability to adjust settings and troubleshoot common issues.
Essential Question:
How does calibrating the VEX Vision Sensor enhance its ability to accurately detect specific colors in a robotic application?

Date: Wednesday, November 05, 2025
Slide: Python Coding with VEX Vision Sensor - Learning Objectives
Learning Objectives:
We will:
• We will write a Python script to interface with the VEX Vision Sensor to capture images and identify objects.
I will:
• I will develop a Python program that successfully captures images using the VEX Vision Sensor and extracts the x, y coordinates of identified objects.
Essential Question:
How can we use Python to automate image capture and object recognition with a VEX Vision Sensor?

Date: Thursday, November 06, 2025
Slide: Python Scripting with Vision and LED Sensors - Learning Objectives
Learning Objectives:
We will:
• Collaboratively write a Python script that uses a vision sensor to detect an object's color and communicate it to a touch LED sensor.
I will:
• Individually test and debug the Python script to ensure the touch LED sensor changes to match the detected color, demonstrating understanding of sensor integration.
Essential Question:

How can we use sensors and programming to create interactive systems that respond to their environment?

Date: Friday, November 07, 2025
Slide: Programming a Robot with VEX Vision Sensor - Learning Objectives
Learning Objectives:
We will:
• Collaboratively program a robot to approach a color block and stop once it detects proximity using the VEX Vision Sensor's width change detection.
I will:
• Individually write and test a program that enables a robot to drive toward a color block and stop accurately when the block appears larger on the VEX Vision Sensor.
Essential Question:
How can robots use changes in the perceived size of objects to navigate and stop precisely?