

## Engineering Design and Build Competitions

UCI Energy Invitational

VEX Robotics

DC STEM Fair Robotics

ASCE Bridge Building

Chevron Design Challenge

C-STEM Linkbot Robotics



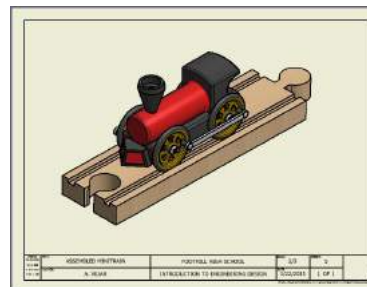
## FACULTY

- ◆ Jeff Farr - EDD, IED, POE, CIM, ROB, Director
- ◆ Dan Shell—IED, Visual Imagery



## Foothill High School

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# FEAT



Foothill Engineering And Technology

- ◆ A STEM pathway designed to allow students to explore a variety of Engineering, Manufacturing, Design and Production Courses



- ◆ The pathway prepares students for entry to college, training/certification programs or the workplace. The courses are taken along with approved college prep academic classes. The project based learning pathway courses count as general elective credit and upon completion of a pathway students can receive special recognition at graduation

## KNIGHTS



# Foothill Engineering And Technology Pathway

## IED—Introduction to Engineering Design

A course that teaches problem-solving skills using a design development process. Models of product solutions are created, analyzed and communicated using solid modeling computer design soft-ware. The courses major area of focus is using the 3D modeling Software: Autodesk Inventor with prototype modeling being done the second semester.

## ROB—Robotics

In this course students will be given introductions to the VEX Robotics Design System and Autodesk Inventor while learning key STEM principles through a process that captures the excitement and engagement of robotics competition. The curriculum is heavily focused on mechatronic principles and robotic programming language using RobotC that results in students entering their robots in the VEX Competition arena.

## POE—Principles of Engineering

A course that helps students understand the field of engineering/engineering technology. Exploring various technology systems and manufacturing processes that helps students learn how engineers and technicians use math, science and technology in an engineering problem solving process to benefit people. The courses major areas of focus are, mechanical, electrical, civil and robotics engineering.

## CIM-Computer Integrated Manufacturing

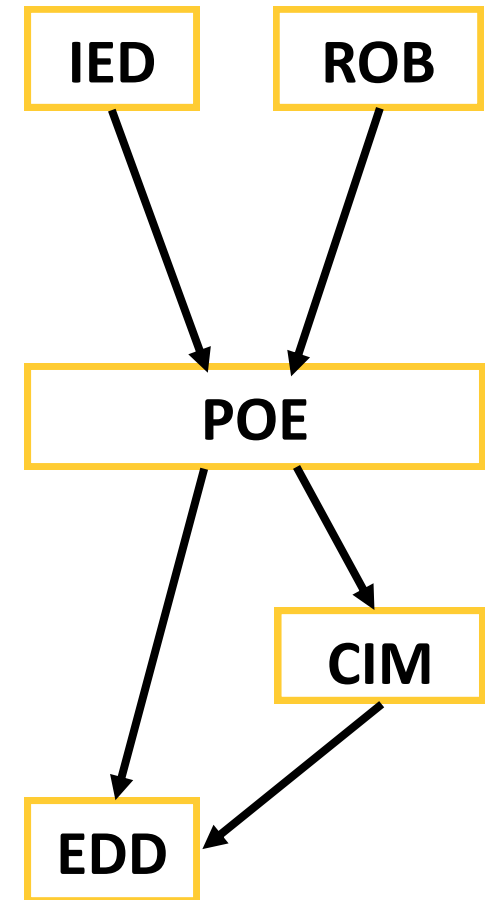
A course that applies principles of robotics and automation. The course builds on computer solid modeling skills developed in Introduction to Engineering Design (IED) and design principles from Principles of Engineering (POE). Students use CNC, welding equipment and other machines to produce actual models of their three-dimensional designs. Machines used in the class are: CNC Mill, CNC Lathe, CNC Plasma Arc Cutter, Laser Engraver/Cutter, MIG Welding Machine, TIG Welding Machine, Sheet Metal Shear/Brake/Roller, Hydraulic Press, Tubing Bender, and Sheet Metal Bead roller.

## EDD—Engineering Design and Development

An engineering research course in which students work in teams to research, design and construct a solution to an open-ended engineering problem. Students apply principles developed in their proceeding courses and are guided by a community mentor. They must present progress reports, submit a final written report and defend their solutions to a panel of outside reviewers at the end of the school year.



# Pathway Flowchart



**IED and ROB are Introductory Courses (Level 1)**  
**POE is a Focus Course (Level 2)**  
**EDD and CIM are Completer Courses (Level 3)**

One course from each level is required to complete the pathway. Students may elect to take four courses by choosing CIM their third year and finishing with EDD their fourth year.

