



ENGINEERING & DESIGN SECTOR

Engineering Pathway (152)

Offered at El Modena High School

Vocational Education Level	Course Name	Course Number	Articulations	Voc. Ed Level Label
01	Foundations of Technology & Engineering (UC-G)	O605 *		Introductory
02	3D Computer Aided Design	O763	SAC	Concentrator
02	Pre-Engineering & Design	O738		Concentrator
03	Engineering & Design (UC-G)	O739 *		Capstone
03	Professional Internship	O745		Capstone

FOUNDATIONS OF TECHNOLOGY AND ENGINEERING

O605 *

Foundations of Technology & Engineering is a one-year course designed to expose high school students to a wide range of science, engineering, and technology content. The integrated units of study provide a concept driven mastery system of learning where students are engaged in hands-on projects. The course is part of the Paxton Patterson educational system. **This course is UC approved as a "G" Elective.**

3D COMPUTER AIDED DESIGN

O763

3D Computer Aided Design is a one-year Engineering Pathway course designed to prepare students for industry certification on 3D drafting software. The course introduces students to the fundamentals of 2D drafting and sketching. Students will master 3D modeling including sketching, assembly, and rapid prototyping in a variety of project-based applications. This course provides the student with an understanding of the engineering development process from concept through design to the final product. Upon completion of the course students will take the SOLIDWORKS® CSWA certification exam.

PRE-ENGINEERING & DESIGN

O738

Students will receive an introduction to the engineering design process and how it is used to solve technological problems. They will learn about sources of power, and materials and processes used in manufacturing systems. They will create hand drawn and computer generated sketches of original engineering designs. Students will apply mathematical and scientific concepts in their lab projects. Career and educational pathways in civil, mechanical, electrical and aerospace engineering will be explored.

ENGINEERING & DESIGN

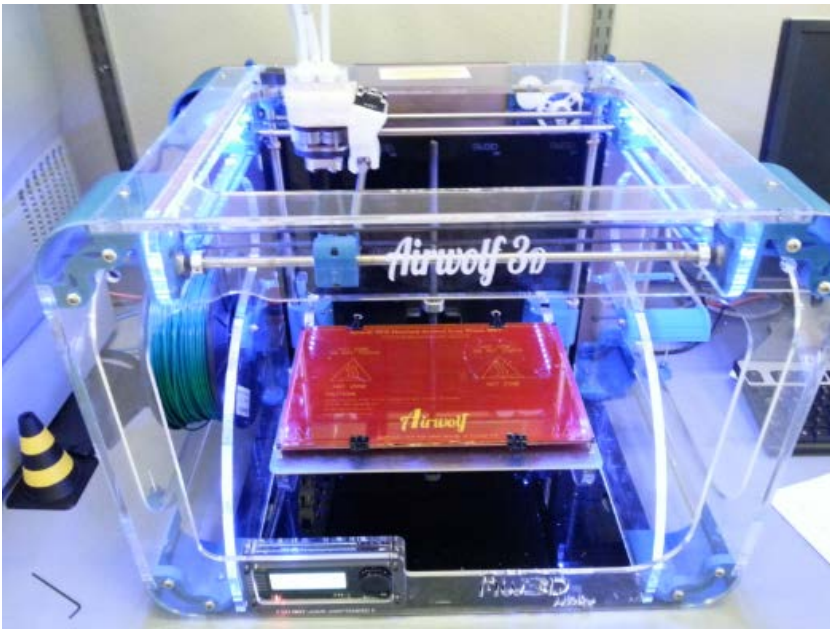
O739 *

Students will study mechanical, civil, structural, electrical, and environmental engineering topics. Engineering problems will be analyzed and students will exhibit solutions through sketches, CAD drawings, and rapid prototype models. Scientific and mathematical concepts will be used to explain observations and solutions. Research, report writing, and oral presentations will be fundamental to the course. Engineering-related careers and educational pathways will also be explored. **This course is UC approved as a "G" Elective.**

PROFESSIONAL INTERNSHIP

O745

This practicum and internship course allows the students to apply academic and career readiness skills in a workplace environment. Instruction will combine standards-based classroom instruction with extended on-site industry experience. Students will learn all aspects of Professionalism, and apply 21st Century Skills of Communication, Collaboration, Critical Thinking, Creativity and Problem Solving in a real world setting. Interested students can prepare to take the WorkKeys National Career Readiness Certificate.



Canyon High School Pathways

<http://www.canyonhighschool.org/academics/CTE>

El Modena High School Pathways

http://www.elmodenahs.org/apps/pages/index.jsp?uREC_ID=382265&type=d&pREC_ID=879439

Orange High School Pathways

<http://www.orangeusd.org/ohs/docs/pathwaysflyer.pdf>

Villa Park High School Pathways

http://www.villaparkhigh.org/apps/pages/index.jsp?uREC_ID=419726&type=d&pREC_ID=917448

