

CAD Architectural Design 1

The first in a sequence of courses that prepare individuals for careers in the Architecture, Engineering, and Construction (AEC) industry. This course includes instruction in 2D or 3D Computer-Aided Design (CAD) software to draw a small residential home with an emphasis on blueprint reading. *Taught simultaneously with CCET 1040. College credit available for 11th-12th grade.

Course Details:

Grades: 9th-12th

Credit: 0.5

Credit type: AT/IT/Elective

*11th-12th grade may earn CCET 1040 credit.

Prerequisite: None

CAD Architectural Design 2

The second and third semesters in a sequence of courses that prepare individuals for careers in the Architecture, Engineering, and Construction (AEC) industry. This course includes instruction in 3D Computer-Aided Design (CAD) software to design and model a small residential home with an emphasis on residential methods and materials of construction, codes, and Building Information Modeling (BIM). During the second semester this course includes instruction in 3D Computer-Aided Design (CAD) software to model a small commercial building with an emphasis on commercial methods and materials of construction, codes, and Building Information Modeling (BIM). *Taught simultaneously with CM 1000.

Course Details:

Grades: 10th-12th

Credit: 1.0

Credit type: AT/IT/Elective

Prerequisite: None, CAD Architectural Design 1 highly recommended.

CAD Mechanical Design 1

The first in a sequence of courses that prepares individuals to develop technical knowledge and skills required to plan and prepare scale pictorial interpretations and technical documentation of engineering and design concepts. This includes instruction in the use of 2D Computer-Aided Design (CAD) software, sketching, drawing layout, geometric construction, orthographic projection, and dimensioning. *Taught simultaneously with IEDT 1010/CCET 1030.

Course Details:

Grades: 9th-12th

Credit: 1.0

Credit type: AT/IT/Elective

Prerequisite: None

CAD Mechanical Design 2

The second and third semesters in a sequence of courses that prepares individuals with an emphasis in developing technical knowledge and skills to develop 3D models in support of mechanical and industrial engineers, and related professionals. This includes instruction in the use of 3D Computer-Aided Design (CAD) software, model creation, and technical communication. Second semester of this includes instruction in the use of 3D Computer-Aided Design (CAD) software, threads and fasteners, welding symbols, geometric dimensioning and tolerancing, and assemblies. Taught simultaneously with CCET 1030.

Course Details:

Grades: 10th-12th

Credit: 1.0

Credit type: AT/IT/Elective

Prerequisite: None, CAD Mechanical Design 1 highly recommended.

Electronics 1

The first and second semesters in a sequence of courses that prepares individuals to apply technical knowledge and skills to assemble and operate electrical/electronic equipment used in business, industry, and manufacturing. Instruction includes training in safety, electrical theory, parallel and series circuits, Kirchoff's Laws, schematic diagrams, electrical components, and soldering. Second semester focuses on instruction including training in safety, numbering systems, Boolean algebra, logic diagrams, digital devices, and combinational logic circuits. Taught simultaneously with EET 1700.

Course Details:

Grades: 10th-12th

Credit: 1.0

Credit type: AT/IT/Elective

Prerequisite: None, high school Math 1 highly recommended.

Engineering Capstone

Project Defense Rubric: Members of an engineering team, students apply science, technology, and mathematical concepts and skills to solve engineering design problems or to significantly innovate existing products. Students research, develop, test, and analyze designs using criteria such as cost, effectiveness, safety, human factors, and ethics. Long term project development by student teams and regular interaction with and presentations to members of industry are essential components to the success of this course. Taught simultaneously with CE2620.

Course Details:

Grades: 10th-12th

Credit: 0.5

Credit type: AT/IT/Elective

Prerequisite: **1 or more of the following:** CAD Architectural Design 2 or 3, CAD Mechanical Design 2 or 3, Electronics ½, Engineering Principles ½, or Robotics ½.

Engineering Technology

This is an exploratory STEM course focusing on introducing students to the importance and impact of engineering in their daily lives. This is an experiential course that uses projects and design problems to deepen the understanding of the students in this content and area of potential career paths. The state core reads as follows:

A foundational engineering design course that introduces basic problem-solving and documentation skills. Various aspects of engineering will be explored along with technology's environmental, societal, political, and economic impacts on our world. By utilizing problem-solving skills, students will develop essential abilities and attitudes that will in turn expand their occupational opportunities in the world of engineering.

Students are welcome and encouraged to take part in either SkillsUSA or TSA (Technology Student Association) the Career & Technical Student Organizations that align with this subject matter.

Software: Inventor/Solidworks, Excel, Word, AutoCAD, Sketchup

CE Course(s): N/A

0.5 Credits in AT,IT or EL

Prerequisites: None

Principles of Engineering

The first and second semesters in a sequence of “hands on” courses that tie observations and concepts common to a variety of different engineering disciplines in order to develop a better understanding of basic math and science principles used in engineering. By utilizing problem-solving skills in a laboratory environment, students will develop skills and attitudes that impact and expand occupational opportunities in engineering. Semester 1 focuses on civil, structural, electrical/electronics, and computer engineering. Second semester focuses on mechanical, robotics, and hydrological engineering as well as fluid dynamics, and materials science. Taught simultaneously with ENGR 1010.

Course Details:

Grades: 10th-12th

Credit: 1.0

Credit type: AT/IT/Elective

Prerequisite: None

Principles of Manufacturing 1

Part 1 of the Utah Aerospace Pathway. This course is an introduction to the materials and manufacturing processes used throughout the various manufacturing industries with a focus on the aerospace industry. This course also addresses the history and principles of industry, product development, operational structure, and quality management. Emphasis is placed on the interaction of processes selection, strength optimization, cost, and overall quality.

The Aerospace Program requires that a student be a U.S. citizen and pass a background check in order to complete the Externship portion of this program. Please be advised.

Course Details:

Grades: 10th-12th

Credit: 0.5

Credit type: AT/IT/Elective

Prerequisite: None

Robotics

The first and second semesters in a sequence of courses that prepares individuals with a lab-based, hands-on curriculum combining electrical, mechanical and engineering principles. Students will learn to design, build, program, and control robotic devices. A rigorous study and application of electrical concepts will include: sources of energy, electrical safety, use and identification of basic electronic components, sensors and actuators. Engineering concepts will include: mechanical design, prototype development, design testing, programming, and proper engineer documentation. Taught simultaneously with EET1600.

Course Details:

Grades: 10th-12th

Credit: 1.0

Credit type: AT/IT/Elective

Prerequisite: None, Recommended courses include: Electronics, CAD Mechanical Design, and/or Engineering Principles.