

ENGINEERING AND INDUSTRIAL TECHNOLOGY

1211 Introduction to Engineering Design (CAD)

Grade(s): 9-12

Credit: .5 per semester

Term(s): 1 or 2

CTE

Opportunity to earn the Certified SolidWorks Associate (CSWA) certification.

This course is a single semester introduction to engineering design concepts for students who would like to explore the Engineering Design program without the need to commit to a full year course. It also affords students who may not be able to fit a full-year course into their schedule the ability to get started on the Engineering Design pathway. Students learn about the engineering design process and parametric 3D modeling through the use of SolidWorks industry leading Computer Aided Drafting (CAD) software. Students who complete this course can continue on to Principles of Engineering to complete the prerequisite for advancement in the Engineering Design sequence as well as the Fab Lab courses. It is recommended for any students interested in exploring the engineering profession or who plan to pursue a career in engineering, design, technical illustration, 3D printing, machining, or other technical fields.

121502 Principles of Engineering

Prerequisite: Introduction to Engineering Design

Grade(s): 9-12

Credit: .5 per semester

Term(s): 2

CTE

Opportunity to earn the Certified SolidWorks Associate (CSWA) certification.

Principles of Engineering Design builds off the skills learned in Introduction to Engineering Design. Students continue to develop their understanding of engineering concepts and proficiency using SolidWorks state-of-the-art Computer Aided Drafting (CAD) software. They learn to create assemblies, to read and prepare drawings found in manufacturing and engineering industries, and begin to explore more advanced CAD techniques like stress analysis and motion studies. This course fulfills the prerequisite for advancement in the Engineering Design sequence as well as the Fab Lab courses. It is recommended for any students interested in pursuing a career in engineering, design, technical illustration, 3D printing, machining, or other technical fields.

124101 Manufacturing Technologies I

Grade(s): 9-12

Credit: .5 per semester

Term(s): 1

CTE

In this course, students are introduced to the tools, materials, techniques, and skills that are found in manufacturing industries. Students will learn about the

processes, procedures, and safety for taking raw materials into a finished manufactured product. Students learn to operate drill presses, table saws, miter saws, circular & belt sanders, grinders, planers, jointers, scroll saws, and band saws as well as many other hand tools. Students learn to etch designs into parts using the Epilog Helix Laser machine. Projects will focus on fabricating parts and products while working with metals, woods, and plastics. This course is one of the prerequisites for the Fab Lab pathway. It is recommended for students wishing to pursue a career in manufacturing, woodworking, design, construction, or building trades.

124102 Manufacturing Technologies II

Prerequisite: Manufacturing Technologies I

Grade(s): 9-12

Credit: .5 per semester

Term(s): 2

CTE

In this course, students continue to explore techniques and skills found in the manufacturing industries that they started in Manufacturing Technologies I. Coursework will focus more heavily on precision machining as students learn to use a vertical mill. Students will work with a wide range of materials including wood, aluminum, steel, acrylic, HDPE, UHMW and other plastics. They will learn about the processes, procedures and safety for taking raw materials into finished manufactured products. This course is recommended for students wishing to pursue a career in manufacturing, machining, construction, or building trades.

122101 CAD for Architecture I

Grade(s): 9-12

Credit: .5 per semester

Term(s): 1

CTE

This course is intended specifically for students interested in pursuing a career in an architectural field. Students are introduced to Revit Architectural design software where they learn to prepare various types of drawings found in the architectural drafting industry. Students learn about the composition of a typical structure while creating detailed working drawings and Building Information Models (BIM) for homes, duplexes, and cabins. This course is recommended for students interested in pursuing a career in architecture, real estate, interior decorating, or a building trade.

122102 CAD for Architecture II

Prerequisite: CAD for Architecture

Grade(s): 9-12

Credit: .5 per semester

Term(s): 2

CTE

This course builds off the skills learned in CAD for Architecture I. Students continue to develop their

understanding of architectural concepts and proficiency using Revit Architectural design software. Students tackle more complex projects, creating detailed working drawings and in-depth Building Information Models (BIM) to design larger structures like malls and office buildings. This course is recommended for students interested in pursuing a career in architecture, real estate, interior decorating, or a building trades.

122102 CAD for Architecture II

Prerequisite: CAD for Architecture

Grade(s): 9-12

Credit: .5 per semester

Term(s): 2

CTE

This course builds off the skills learned in CAD for Architecture I. Students continue to develop their understanding of architectural concepts and proficiency using Revit Architectural design software. Students tackle more complex projects, creating detailed working drawings and in-depth Building Information Models (BIM) to design larger structures like malls and office buildings.

This course is recommended for students interested in pursuing a career in architecture, real estate, interior decorating, or a building trades.

171621-171622 Construction Tech 1* (2-hour class)

Grade(s): 9-12

Credit: 1 per semester

Term(s): 1 & 2

CTE

This introductory course provides students a "hands-on" experience in various construction occupations to include carpentry, electrical, plumbing, heating, sheetrocking, and taping, painting, and cabinet installation. Most learning will take place on an actual construction site in the community building homes and/or working on rehabilitation projects for nonprofit organizations. Students will increase math abilities related to the trade and construct residential dwellings to meet codes while interpreting blueprints.

**This course is offered at East High School. Denfeld High School students may register for this course. Transportation is provided to and from East*