

CAD 2

CAD2 Year/1 credit 12th grade

Students will use advanced features of AutoCAD and Autodesk Inventor to create drawings. Students will design concepts and then manufacture those designs using 3D printers and CNC machines.

Course Resources:

Autodesk AutoCAD 2019

Autodesk Inventor 2015

Various CNC software platforms

Course Outcomes:

Students will be able to outline common manufacturing processes from concept to production.

Students will be able design parts and manufacture them to acceptable tolerances.

Students will be to seek employment with learned skills, or prepared to enter a post-secondary facility to further their skills.

Pa Standards.

Standard - 3.4.10.A2 Interpret how systems thinking applies logic and creativity with appropriate comprises in complex real-life problems.

Standard - 3.4.12.A2 Describe how management is the process of planning, organizing, and controlling work.

Standard - 3.4.12.A3 Demonstrate how technological progress promotes the advancement of science, technology, engineering and mathematics (STEM).

Standard - 3.4.10.B4 Recognize that technological development has been evolutionary, the result of a series of refinements to a basic invention.

Standard - 3.4.12.B2 Illustrate how, with the aid of technology, various aspects of the environment can be monitored to provide information for decision making.

Standard - 3.4.10.C1 Apply the components of the technological design process.

Standard - 3.4.10.C2 Analyze a prototype and/or create a working model to test a design concept by making actual observations and necessary adjustments.

Standard - 3.4.12.C2 Apply the concept that engineering design is influenced by personal characteristics, such as creativity, resourcefulness, and the ability to visualize and think abstractly.

Standard - 3.4.10.D1 Refine a design by using prototypes and modeling to ensure quality, efficiency, and productivity of a final product.

Standard - 3.4.10.E6 Illustrate how manufacturing systems may be classified into types such as customized production, batch production, and continuous production.

Standard - 3.4.10.E7 Evaluate structure design as related to function, considering such factors as style, convenience, safety, and efficiency.