

## CAD SYLLABUS for DISTANCE LEARNING

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The intent of the class is to teach the formal process of producing a two-dimensional drawing - as a means of design communication, often referred to as a "print" - utilizing industry-recognized software and American drawing standards.

The course includes:

Introducing the universal activity of design in preparation of construction or manufacture, and the concept of depicting manufactured or constructed "things" through the use of a uniform system of graphic representation.

Introducing Onshape as a cloud-based precision drawing software.

Utilizing Draw and Modify tools in Onshape software to draw lines and shapes with absolute precision. This introduction will include use of construction geometric relationships such as tangency, concentricity, parallelism, perpendicularity and co-planarity.

Practicing basic Principles of Orthographic Projection to depict features of physical objects in two dimensions.

Introducing principles of dimensioning features in accordance with American standards and with respect to manufacturing.

Introducing the concept of tolerances as used in the manufacture of mass-produced items.

Students will complete a series of graded tutorials utilizing the two-dimensional capabilities of Onshape or other 2D precision drawing software.

Introducing the fundamentals of three dimensional software using the four basic 3D production features: Extrude; Revolve; Loft, and Sweep.

Students will complete a series of graded tutorials utilizing the three-dimensional capabilities of Onshape 3D precision drawing software.

A series of lectures will be presented demonstrating the use of diverse features such as threaded and non-threaded fasteners.