



Design and Manufacturing 2

Grand Haven High School



Course Number: I21

Grade Level: 10-12

Credits: 1

Prerequisite Courses : Design and Manufacturing 1

Course Description

Project based class where students learn how to design and build engineered solutions to product design problems using 3D Solid Modeling CAD software and advanced manufacturing equipment. Students receive Industry-Recognized Credentials and Certifications. The process and requirements for rapid prototyping are reinforced with hands-on practice. Design for manufacturing and assembly concepts introduced. This course is supported in partnership with SME PRIME.

Course Objectives

Design for manufacturability and assembly using 3D Solid Modeling. NC3 certification that includes hands-on training in Precision Measurement Instruments and Introduction to Mechatronics. Verisurf training in manufacturing inspection. Additive manufacturing using FDM and SLA 3D printing technologies. Hands-on training using Universal Robots collaborative robots.

Student Expectations

Be prepared, on time, and ready to learn when you enter the room. Be an attentive listener. Actively participate in class discussions. Help each other. Wait to be dismissed.

Communication

casej@ghaps.org

616-850-6165

Google Classroom

Using Google Classroom, announcements, lessons, and assignments are posted and updated daily. Considerable emphasis is placed on student-centered activity, project, problem based learning. Many of the assignments and projects are completed in class. Software is available for download in addition to lab hours available after school or by appointment.

Click on the following link to download Autodesk Inventor software used in class from Autodesk Education Community <https://www.autodesk.com/education/home>

Building Behavioral Expectations

TEAM GH ... One Team, One Family, One Grand Haven. Be Kind. Always.

It is our expectation that ALL GHHS students, staff and parents will ... always give their best **EFFORT** in everything that they do, work hard to be **INCLUSIVE** of each other, show **RESPONSIBILITY** in class, the hallways, cafeteria and at events, and **WORK TOGETHER** at all times!

GO BUCS

Grading Policy

Assignments - 100%

Scope and Sequence

Welcome

Onshape CAD Software

Onshape Learning Center

Parametric Solid Modeling Projects

Design Challenges

Tooling U-SME

Tolerancing and Fits

Geometric Dimensioning and Tolerancing

Onshape Simultaneous Sheet Metal

Engineering Working Drawings

Designing for Manufacturability and Assembly

Lean Manufacturing

Reverse Engineering

Manufacturing Concepts and Principles

Manufacturing Day

Additive Manufacturing using Formlabs Form 3 and Dremel Digilab 3D45

Precision Measurement Instrumentation (PMI)

Introduction to Mechatronics using FESTO Advanced Manufacturing

Shape Corp Engagement Activities

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