



Anoka-Hennepin Tech Ed/CTE Course Syllabus

Course Name: Design and Fabrication

Instructor: Mr. Kratochvill
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Number Days: 58 **Approx. Hrs.:** 65 - **Term:** 1 Tri

Number of Credits: .5

Program of Study: Construction Careers

Subcategory: Construction Occupations/General

Prerequisites:

None

Brief Description:

Elective open to grades 9, 10, 11, and 12. This course is designed for students who are interested in exploring careers in engineering and design/fabrication. As an introductory course on design and fabrication, it will teach students the basics about how current industry reads, creates, and displays plans and drawings used in construction and manufacturing processes. Lab activities may include the students creating residential floor plans, isometric drawings of machine parts, 3-D renderings and printing, a CNC project, laser etching and cutting, and vinyl cutting/stickers.

Course Outcomes:

The following topics will be addressed:

A. Safety

1. Understand and demonstrate proper safety procedures in the area of dress, vision hazards, behavior, accident procedures, computer ergonomics and digital security as it pertains to CAD programs

B. Content

1. In today's workplace, quick and concise communication is very important. Students who have a background in drafting and design will be well practiced regarding reading and communicating with graphic schematics. This is a must-have skill for any person who wants to pursue a career in manufacturing, construction, or engineering regardless if they enter the workforce right away or go on to higher education. Students will:
 - generate CAD drawings using design criteria and design constraints.
 - demonstrate knowledge of the common practices in drafting and design layout.
 - draw mechanical objects and floor plans using the various software packages.
 - demonstrate knowledge of measurement and scale as it pertains to drawings and plans.
 - learn the basics of CAD software, including products such as AutoCAD, Solid Works, Adobe Illustrator, coral draw
 - demonstrate knowledge of 3-d Printers and printing, Laser engraving and cutting, Vinyl Cutters

Methods:

This course will include required reading that relates to the instructional units listed, lectures, discussions, demonstrations, and self-paced work. Although this is a hands-on, computer-based course, it will be necessary for students to become familiar with new terms, concepts and processes before practicing new skills. All lectures and demonstrations are followed by activities that allow students to more fully understand the presented material.

Evaluation:

The grade for this course will be based on the following:

- A - 100% - 90%
- B - 89% - 80%
- C - 79% - 70%
- D - 69% - 60%
- F - 59% or below

Grades will consist of tests, quizzes, activities, assignments, participation and attendance.

45% Quizzes, test and final exam.

50% Assignments and laboratory activities.

5% Attendance, clean up, cooperation and attitude.

Resources:

The following resources are needed daily for this course:

- Pen or Pencil
- Folder
- Notebook
- Thumb Drive for computer classes if student chooses
- Appropriate clothing for work in class – See instructor for complete list of appropriate clothing as different classes have different requirements.

Attend. & Conduct:

Attendance and class participation are critical to the student's success in understanding and gaining familiarity with CTE concepts. Please notify the instructor if you will be missing any classes. Students are expected to submit their own work for this course. Academic dishonesty will NOT be tolerated. This includes copying the work of other students during examinations; unauthorized collaboration on homework and project assignments; unauthorized use of the internet to obtain homework and/or test answers; representing work done by others as your own.

College Credit or Professional Certification: Pending

Coll Cr (if any):

School(s) Accepting Credit:

Hrs Toward Prof. Cert. (if any): 0 Qualification Method: Course compl. w/specified grade

Details: