



ANKENY
COMMUNITY SCHOOL DISTRICT

Industrial CAD 1

Contact information:

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Credit: 1 High School Credit (1 Semester)

Pre-requisite: None

Course Description:

This is an introductory course using Computer Aided Drafting/Design software to create drawings and designs used in industry and manufacturing. Students interested in inventing products or producing engineering type drawings will enjoy this course. Beginning with two-dimensional drawings the student will progress into 3D modeling designs. The course is presented so that all students can have success in this class.

Supplies Needed:

- Pencils
- Notebook or Paper

How students will be graded on academics:

- Letter grades will continue to be assigned for all courses at the secondary level based on the 0-100 percent scale.
- When utilizing a rubric with four levels of proficiency (Beginning, Making Progress, Meeting the Standard, Exceeding), teachers will show the connection between a student's performance on the rubric to the assigned grade within the 0-100 percent scale. This connection will be communicated at the onset of its use and throughout the learning progression for the purpose of providing feedback.

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Grading Scale for Non-Weighted Classes:

Letter Grade: A
Minimum Percent: 92.5

Letter Grade: A-
Minimum Percent: 89.5

Letter Grade: B+
Minimum Percent: 86.5

Letter Grade: B
Minimum Percent: 82.5

Letter Grade: B-
Minimum Percent: 79.5

Letter Grade: C+
Minimum Percent: 76.5

Letter Grade: C
Minimum Percent: 72.5

Letter Grade: C-
Minimum Percent: 69.5

Letter Grade: D+
Minimum Percent: 66.5

Letter Grade: D
Minimum Percent: 62.5

Letter Grade: D-
Minimum Percent: 59.5

Letter Grade: F
Minimum Percent: 59 and below

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Guiding Practices:

Multiple and Varied Assessment Opportunities

All students should have multiple and varied assessment opportunities to demonstrate higher levels of achievement. Additional opportunities may include being reassessed on only the content/skills not mastered, spiraling assessment of content/skill on subsequent assessments, reassessment of an alternate form of an assessment (e.g., Form B instead of Form A), student revisions of work products based on descriptive feedback, or alternative methods of assessments (e.g., an oral response rather than a written test).

Guidelines for reassessment opportunities include the following:

- Students will be provided the opportunity to be reassessed - best practice is to provide additional opportunities for students to demonstrate learning during future assessments.
- Teachers determine appropriateness and authentic need for reassessments.
- Reassessment method will be provided at the discretion of the teacher.
- Reassessments will be given within a reasonable time frame that the teacher determines and students will be communicated with in advance.

Homework / Independent Practice

Homework is an opportunity for students to practice skills, apply knowledge, review and build on past learning, and extend learning. Homework is individualized and based on each student's progress towards established standards. The purpose of the assignment will determine whether or not a grade is given and will be clearly articulated to students. Through independent learning tasks (homework), students assume more responsibility for their learning and are given opportunities to apply what they have learned to new situations or experiences.

Extra Credit and Bonus Points

To ensure that grades reflect progress toward and achievement of the standards, giving extra credit points or bonus points will not occur in this class.

Behavioral Expectations

The work habits/behavior standards are for grades 6-12 courses in our district. These work habits/behavior standards will be reported throughout the semester and are as follows:

- Organization and Readiness
- Productivity and Accountability
- Collaboration Skills

For those of you accessing this document electronically, the work habits tool can be accessed [here](#). We will be using the following performance levels:

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Performance Levels for Work Habits/Behavior Standards:

MS = Meets Standard

PM = Partially Meets Standard

DM = Doesn't Meet Standard

NE = No Evidence

These descriptors are intended for feedback and communication and do not impact a student's GPA.

Formative and Summative Assessment:

Definitions

- **Formative Assessment:** Formal and informal processes teachers and students use to gather evidence for the purpose of improving learning.
- **Summative Assessment:** Assessments that provide evidence of student achievement for the purpose of making a judgment about student competence or program effectiveness.

Electronic Device Policy:

Electronic Devices are not to be used in the classroom. There will be no games, Facebook, Twitter, other social media, etc. If electronic devices are used for such purposes, the student will be asked to put it away. If improper use continues, PBIS procedures will be followed.

All Major (Extreme) Behaviors are managed by an administrator.

Instructional Delivery:

Lecture, discussion, study guides, assigned drawings, powerpoint presentations, related videos, demonstrations, and guided practice completing mechanical drawings.

Computer Aided Design 1 (Frameworks and Benchmarks):

- Demonstrate knowledge of the drafting and design industry.
 - Identify and describe the training, qualifications, and advancement opportunities in the drafting and design industry.
 - Describe the job outlook, projections, and earnings for workers in the design and drafting occupations.
- Demonstrate knowledge regarding the interpretation of information from drawings.
 - Describe the impact of globalization on drafting and design.
 - Utilize a combination of measurement and mathematical processes to solve linear and solid shape problems related to drafting and design.
- Understand and use basic drafting techniques.

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- Use architectural, metric, civil, and mechanical engineer's scales and demonstrate scaling techniques.
- Identify and draw the various line types.
- Demonstrate correct lettering techniques (freehand or CAD).
- Reproduce drawings (e.g., blueprints and plots).
- Perform basic geometric constructions.
- Draw orthographic views and transfer features.
- Apply basic dimensioning techniques.
- Create specialty drawings.
- Use computer and peripheral devices to aid in the documentation for design projects.
 - Demonstrate basic CAD operations.
 - Demonstrate proper care and maintenance of CAD equipment and software.
 - Demonstrate proficiency in creating two-dimensional and three-dimensional CAD drawings.
 - Follow National CAD Standards for CAD layers, organization of drawing sets, drawing sheets, and schedules, drafting conventions, terms and abbreviations, graphic symbols, notations, code conventions, and plotting.
- Apply technical drawing skills to actual projects.
 - Construct keyway and keyseat drawings.
 - Construct spline and gear drawings.
 - Construct cam and follower drawings.
 - Construct fastener head drawings.
 - Construct drawings of molded plastic parts.
 - Construct exploded and orthographic assembly drawings.

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