Plymouth Regional High School
CTE Department
Course Outline

Course Title	**Drafting Technology**
Length of Course	Full Year
Prerequisite(s)	None
Course Description	Drafting technology is an introductory course in mechanical and architectural drafting using drawing boards and AutoCAD software. Problem-solving activities in shape and size description, sectioning, auxiliary views, pictorial drawings, and house plans will be covered. Since drafting is the language of industry, anyone interested in careers in manufacturing, construction, engineering or design is encouraged to enroll in this course.

Units and Topics Covered

Unit 1 Introduction to Graphic Communications **(E)**
- Identify current and emerging careers related to drafting.
- Explain typical uses of board and computer-aided drafting techniques

Unit 2 Technical Drawing Tools **(P, E)**
- Identify the basic equipment used in board drafting
- Identify and describe various types of drafting media
- Select the appropriate scales for architectural, civil and mechanical drafting.
- Describe the hardware components of a CAD workstation

Unit 3 Basic Drafting Techniques **(P, I, E)**
- Prepare a drawing sheet for a technical drawing
- Use basic drafting tools and equipment properly and efficiently to produce technical drawings.
- Use CAD commands efficiently to create basic geometry.
- Produce a technical drawing using CAD

Unit 4 Text **(P)**
- Letter clear, neat freehand notes and dimensions on a technical drawing or sketch.
- Create text appropriate for a mechanical drawing using a CAD system.

Unit 5 Engineering Geometry and Constructions **(P, I)**
- Identify and describe various geometric shapes and constructions used by drafters.
- Construct various geometric shapes accurately.
- Solve technical and mathematical problems through geometric constructions using drafting instruments.
- Solve technical and mathematical problems through geometric constructions using a CAD system.

Unit 6 Sketching- Conceptual Problem Solving **(P, I)**
- Explain the importance of freehand sketching for communicating technical ideas.
- Develop designs using freehand multiview and pictorials sketches.

Unit 7 Multiview Drawing **(P, I)**
- Explain the relationship of orthographic projection to multiview drawing.
- Describe the difference between first- and third-angle projection.
- Determine the number of views needed to describe fully the shape and size of an object.
- Locate multiple views on a drawing according to accepted principles of drafting.
- Create the various views of an object.
- Develop a multiview drawing from the initial idea to a finished drawing using board drafting.
- Develop a multiview drawing from the initial idea to a finished drawing using CAD techniques.
- Identify and use the lines and line symbols recommended by the American National Standards Institute (ANSI)
- Produce a technical drawing using board drafting techniques.
- Create and set up a drawing file on a CAD system using ANSI or ISO standard layouts.

Unit 8 Dimensioning Procedures **(P, I)**
- Apply measurements, notes and symbols to a technical drawing.
- Use ANSI and ISO standards for dimensions and notes.
- Differentiate between size dimensions and location dimensions.
- Use board drafting techniques to add dimensions and notes to a technical drawing.
- Use a CAD system to add dimensions and notes to a technical drawing
-

Unit 9 Sectional Views **(P, I)**
- Describe the purpose of a sectional view.
- Select the appropriate type of sectional view to show the hidden feature.
- Describe and use conventional breaks and symbols.
- Prepare a drawing with sectional views using both board drafting techniques and CAD.

Unit 10 Auxiliary Views **(P, I)**
- Determine when a full auxiliary view is required.
- Determine when a partial auxiliary view is required.
- Develop a primary auxiliary view using board drafting techniques and CAD

Unit 11 Pictorial Drawing **(P, I)**
- List various uses of pictorial drawings.
- Create isometric drawings with the isometric axes in normal and reversed positions.
- Explain the basic differences in the three types of axonometric projection.
- Develop a 3dimensional solid models from the initial idea to a finished drawing using CAD technique

Unit 12 Architectural Drafting **(P, I)**
- Prepare a set of house plans using board drafting techniques.
- Identify and name the parts and materials used in a building.
- Explain the purpose of each type of plan that is typically included in a set of architectural working drawings.
- Dimension an architectural drawing.
- Describe and develop a site plan for a single building plot.

Skills Basic reading, keyboard, arithmetic operations

Assessments Grading will be based on participation and quality of lab assignments on each unit of instruction. Tests, quizzes and lab assignments are graded based on a percentage of points earned out of total points allotted.

At the end of this course, students will be prepared for: Mechanical or Architectural Drafting
Future career paths in Industrial Technology

Grading All lab assignments, quizzes and tests are graded on a point system.

EXPECTATIONS:
1. Treat classmates and computers, the room and text with respect.
2. No Food or Drink
3. Help others
4. Use of Internet is restricted unless specific permission has been granted by the instructor
5. You will be assigned a computer or desk - stick to it, all provided materials in your tray
6. Save all your work on your u:/ drive in a folder named for this course
7. All other school rules apply

Going to the bathroom during class requires you to miss class and your departure is a form of class disruption. Therefore, permission to exit class to go to the bathroom is reserved for utmost emergencies and these should be handled discretely, with my permission. There are no other reasons for you to leave the classroom during class. If you need to use the bathroom, please let Mr. Fogarty know that you are signing out.

Behavioral Consequences:
The classroom is a forum for learning where an individual's participation is vital to its success. In the event that an individual's behavior becomes disruptive to this environment, consequences will be issued.
1. Warning
2. Detention
3. Change in seating
4. In School Suspension (ISS)/Call Home
5. Parent Conference/Mr. Cleary.

Please reference the rules and regulations provided in the student handbook for further details.

PRIDE and Tradition

Pride and tradition, two cornerstones in the foundation of our school culture, are a

legacy from our past and a vision for our future. Plymouth Regional High School is committed to preparing students to become productive and engaged citizens in a global community. Therefore, in addition to acquiring a core body of knowledge through local curriculum that reflects state and national standards, all students will develop the following skills and dispositions.

Practical Skills and Personal Growth

- ***Develop viable skills that support success in the workforce***
- ***Become a self - directed and adaptable lifelong learner***
- ***Pursue interests and passions***
- ***Reflect on successes and failures with resilience, tenacity, flexibility and perseverance***

Responsibility and Respect

- ***Demonstrate responsibility for one's own mental, physical and financial wellness***
- ***Take ownership for learning and behavior***
- ***Show reliability for tasks, time and ideas***
- ***Exhibit honesty, integrity, empathy, fairness and respect***

Innovation and Critical Thinking

- ***Explore and design innovative solutions to complex and authentic problems***
- ***Engage in creative expression***
- ***Think creatively to transfer knowledge and apply skills to new situations***
- ***Critically interpret, analyze, synthesize and apply information***

Diversity and Awareness

- ***Value diverse opinions, ideas and abilities***
- ***Recognize and respect other cultural perspectives***
- ***Engage in new experiences to gain awareness***
- ***Demonstrate civic, social, environmental and global responsibility***

Engagement and Communication

- ***Impact the community positively through service and/or leadership***
- ***Collaborate effectively to produce a unified product***
- ***Speak and write for authentic purposes***
- ***Listen actively for understanding***