

UNIT I: Concepts and Trends

Essential Standard: 1.00

Understand Fundamental Concepts and Trends of Drafting

Indicator: 1.03

Understand Career Options.

A. Explain the following:

1. Engineer
2. Manufacturing
3. Electrical
4. Transportation
5. Fabrication
6. Construction
7. Architecture
8. Public Utilities
9. State and Local Government
10. Armed Services
11. College and Universities

B. Basic Drafting Jobs

1. Drafter Trainee

- a. Assists with drawing preparation and performs support tasks
- b. Typically requires high school diploma including drafting classes and/or apprenticeships during high school

2. Junior Drafter

- a. Prepares drawings under direction of drafting technician or senior detailer
- b. Typically requires at least one year of high school drafting and an associate degree in drafting technology

3. Drafting Technician (Drafter)

- a. Prepares drawings with less supervision than a Junior Drafter

- b. Typically requires an associate degree in drafting technology and one year of drafting experience
4. Design Drafting Technician
- a. Combines design and drafting skills, interpretation of designer's sketches and engineer's details
 - b. Typically requires an associate degree in drafting technology and one year of drafting experience
5. Designer
- a. Works with engineers and drafters to turn conceptual design into usable production drawings and specifications
 - b. Typically requires an associate degree and at least five years industrial experience, knowledge of design process and drawing requirements
6. Checker
- a. Experienced drafter who checks drawings created by drafting technicians for accuracy and completeness
 - b. Typically requires an associate degree and at least five years industrial experience, detailed knowledge of design process and drawing requirements
7. Senior Detailer
- a. Especially skilled in understanding details of how things work and go together, capable of detailing complex parts and making details understandable
 - b. Typically requires an associate degree and at least five years industrial experience, knowledge of drawing requirements
8. Engineer
- a. Has at least a four-year degree in an engineering specialty
 - b. Must be licensed by the states in which they operate
 - c. Many specialized branches
 - d. Uses technical drawings to communicate ideas and products for manufacturing or construction
 - e. Most major corporations employ a complete engineering design team
 - 1. Research and development personnel

2. Development engineer
3. Project engineer
4. Design engineer
5. Technical illustrator

C. Branches of Engineering

1. Aerospace

- a. Designs aircraft for NASA, public transportation and military applications.
- b. May work with sub-systems, such as electrical, mechanical, structural, etc.

2. Architecture

- a. Interest in building and construction
- b. Typically, Architects and Architectural Designers have a four or five-year degree and must be licensed by the states in which they operate
- c. Additional courses of study for specializing in various fields
 1. Landscape architects
 2. City planners
 3. Interior designers
- d. Create original designs that are pleasing to the eye as well as functional and meet client and code requirements
- e. Drawings include floor plans, foundation plans, site plans, elevations, and specialty plans for electrical, plumbing, heating & air, etc.

3. Civil

- a. Designs structures, environmental systems, and various construction projects.
- b. Arguably the oldest engineering profession.
- c. May do analysis and design for materials and structural systems for buildings, aircraft, etc.

4. Electrical/Electronic

- a. Designs electric power devices, controls, mechanisms, and electrical systems.

- b. Works with power transmission, analog and digital circuits, and communications.

5. Mechanical

- a. Similar to engineering with more emphasis on creative abilities of the drafter: creativity, ingenuity and technical knowledge
- b. Work from sketches or just a memo describing a new product idea
- c. Determine how or if ideas might work and provide accurate drawings and specifications for proposed products