

## Computer Aided Drafting and Design

### AAS: Computer Aided Drafting and Design Competencies:

#### General Education Competencies:

- I. Communicate Effectively
  1. Read and listen with comprehension.
  2. Speak and write clearly using standard English.
  3. Interact cooperatively with others using both verbal and non-verbal means.
  4. Demonstrate information processing through basic computer skills.
- II. Think Critically
  1. Make connections in learning across the disciplines and draw logical conclusions.
  2. Demonstrate problem solving through interpreting, analyzing, summarizing, and/or integrating a variety of materials.
  3. Use mathematics to organize, analyze, and synthesize data to solve a problem.
- III. Learn Independently
  1. Use appropriate search strategies and resources to find, evaluate, and use information.
  2. Make choices based upon awareness of ethics and differing perspectives/ideas.
  3. Apply learning in academic, personal, and public situations.
  4. Think creatively to develop new ideas, processes, or products.
- IV. Examine Relationships in Diverse and Complex Environments
  1. Recognize the relationship of the individual to human heritage and culture.
  2. Demonstrate an awareness of the relationship of the individual to the biological and physical environment.
  3. Develop an awareness of self as an individual member of a multicultural global community.

#### Technical Core Competencies/Outcomes:

Upon completion of this program, the graduate can:

1. Make drawing modifications.
2. Create freehand technical sketches.
3. Create an initial drawing using appropriate drafting standards.
4. Demonstrate the use of Cartesian Coordinate system with CAD software.
5. Create orthographic (multiview) drawings using manual and computer aided drafting techniques.
6. Verify drawing accuracy.
7. Perform geometric constructions.
8. Identify, create, and place appropriate section views (e.g., full, half, offset, removed, aligned).
9. Identify, create, and place appropriate auxiliary views.
10. Identify and create pictorial drawings.
11. Identify and create axonometric, oblique, and perspective drawings.
12. Locate points and lines in space using descriptive geometry techniques.
13. Determine bearings, azimuths, grade, and slope of lines.
14. Identify types of planes.
15. Create sheet metal drawings using revolution and development theories.
16. Create an assembly drawing from existing part data.
17. Apply dimensions to drawings using various units.
18. Calculate and apply dimension tolerances to drawings.
19. Demonstrate knowledge of geometric dimensioning and tolerancing.
20. Create three-dimensional models from two-dimensional drawings.
21. Use reference books, manufacturer's manuals, and trade publications for information.
22. Perform basic mathematical concepts.
23. Demonstrate knowledge of geometry.
24. Demonstrate knowledge of trigonometry.
25. Calculate volume, mass, and area.
26. Demonstrate computer knowledge and file management.

## General Education Titles and Requirements Updated October 2011

27. Operate and adjust input and output devices.
28. Create working drawings.
29. Plot scaled drawings.
30. Participate as a member of a team.