PRINCIPLES OF CAD DESIGN I
Course Syllabus

Course Number: TTC-0445A
OCAS Code: None
Course Length: 90 Hours
Career Cluster: Architecture and Construction, Manufacturing
Career Pathway: Design/Pre-Construction, Manufacturing Production Process Development
Career Major(s): Advanced CAD Drafter-Architectural Emphasis

Pre-requisite(s): This course is the basic CAD software course. Topics covered are safety, tools, equipment, media CAD reproduction, sketching, scale usage, drawing formats, alphabet of lines, lettering and geometric construction, computer literacy through CAD, operating systems and file utilities, software functions, office functions, hardware applications, coordinates, drawing environment, plotting, printing, multi-view drawing environment, geometry modifications and dimensioning, symbol library development, introduction to parametric and software, introduction to multiple CAD software used to manipulate text and graphics, and basic CAD applications. Course is continued in PRINCIPLES OF CAD DESIGN II.


Course Objectives:

A. Demonstrate Use of Calculator.
   1. Explain the types of calculators used in drafting. (Ex: TI-Casio)
   2. Locate function keys.
   3. Perform simple math calculations on the calculator.

B. Solve Metric Conversions.
   1. Use a conversion chart.
   2. Explain constant math conversions.
   3. Use metric conversions to solve math problems.

C. Solve Math Problems Involving Length.
   1. Explain diameter, radius, and circumference.
   2. Solve problems for diameter, radius, and circumference.
   3. Explain sectors and arc lengths.
   4. Solve sector problems for arc length and perimeter.
   5. Explain right triangles.
   6. Explain sine of an angle.
   7. Explain cosine of an angle.
   8. Explain tangent of an angle.
  10. Solve cosine problems.
  11. Solve tangent problems.
  12. Find the perimeter of right triangles.
  13. Find the perimeter of composite problems.
  14. Explain non-right triangles law of sines.
15. Find opposite length on non-right triangles.
16. Find opposite angles on non-right triangles.
17. Explain law of cosines non-right triangles.
18. Find opposite lengths.
19. Solve for angle with three lengths given.

D. Use Intermediate Operations.
1. Build and place objects in layers.
2. Control the layering and coloring of objects.
3. Store and retrieve drawing views and images.
4. Remove layers, blocks, styles, and other unwanted objects from drawing

Objectives are TTC instructor developed.

Teaching Methods: The class will primarily be taught by the lecture and demonstration method and supported by
various media materials to address various learning styles. There will be question and answer
sessions over material covered in lecture and media presentations. Supervised lab time is
provided for students to complete required projects.

Grading Procedures: 1. Students are graded on theory and shop practice and performance.
2. Each course must be passed with seventy (70%) percent or better.
3. Grading scale: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=50-59%.

Description of Classroom, Laboratories, and Equipment:
Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center
School District No. 18. All programs provide students the opportunity to work with
professionally certified instructors in modern, well-equipped facilities.

Available Certifications/College Credit
The student may be eligible to take state, national or industry exam after completion of the
program. College credit may be issued from Oklahoma State University-Okmulgee or Tulsa
Community College. See program counselor for additional information.

College Credit Eligibility: The student must maintain a grade point average of 2.0 or better.