



**Purpose:** It is the intention of this Administrative-Master Syllabus to provide a general description of the course, outline the required elements of the course and to lay the foundation for course assessment for the improvement of student learning, as specified by the faculty of Wharton County Junior College, regardless of who teaches the course, the timeframe by which it is instructed, or the instructional method by which the course is delivered. It is not intended to restrict the manner by which an individual faculty member teaches the course but to be an administrative tool to aid in the improvement of instruction.

**Course Title** - Engineering Graphics I

**Course Prefix and Number** - ENGR1304

**Department** -Engineering Design

**Division** - Technology and Business

**Course Type:** (check one)

- Academic General Education Course (from ACGM – but not in WCJC Core)
- Academic WCJC Core Course
- WECM course (This course is a Special Topics or Unique Needs Course: Y  or N )

**Semester Credit Hours #: Lecture Hours #: Lab/Other Hours #:** 3:2:4

**Equated Pay hours for course:** 4

**Course Catalog Description** - Introduction to computer-aided drafting using CAD software and sketching to generate two- and three-dimensional drawings based on the conventions of engineering graphical communication; topics include spatial relationships, multi-view projections and sectioning, dimensioning, graphical presentation of data, and fundamentals of computer graphics.

**Prerequisites/Co-requisites** - MATH 1314 or equivalent

List Lab/ Other Hours
Lab Hours 4
Clinical Hours
Practicum Hours
Other (list)

**Prepared by** Jo Ann Shimek:

**Date:** 06/11/15

**Reviewed by Department Head:** Jo Ann Shimek

**Date:** 06/11/15

**Accuracy verified by Division Chair:** David Kucera

**Date** 07/15/15

**Approved by Dean or Vice President of Instruction:** Leigh Ann Collins

**Date:** 3-3-16



**I. Topical Outline** – Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, clinical or other non-lecture instruction):

- Industry terminology and standards
- Sketching - freehand, perspectives, projections
- Fundamentals of Computer Graphics – AutoCAD:
  - Introduction to spatial relationships
  - Graphical presentation of data
  - Geometric construction
- Multi-view projection and sectioning
- Dimensioning
- Blueprint reading including -
  - Architectural Plans - elevations, sections and details
  - Civil plans - contour maps, underground utilities and drainage plans
  - Structural plans - foundations, concrete, steel, and wood structures
  - Mechanical plans - plumbing, HVAC, fire systems, isometrics and P&ID's
  - Electrical plans - one-line diagrams, conduits and cables
- Manipulating CAD files - opening, marking, as-built drawings

**II. Course Learning Outcomes**

<b>Learning Outcomes</b>	<b>Methods of Assessment</b>
<p><b>Upon successful completion of this course, students will:</b></p> <p>Demonstrate proficiency in freehand sketching.</p> <p>Demonstrated proficiency in geometric modeling and computer aided drafting and design (CADD).</p> <p>Communicate design solutions through sketching and computer graphics software using standard graphical representation methods.</p> <p>Solve problems using graphical geometry, projection theory, visualization methods, pictorial sketching, and geometric (solid) modeling techniques.</p> <p>Demonstrate proper documentation and data reporting practices.</p> <p>Complete a project involving creation of 3D rapid prototype models.</p> <p>Function as part of a design team as a team leader and as a team member.</p>	<p>Daily work to include Hand sketches, AutoCAD drawings and solid model drawings.</p> <p>Written exams</p> <p>(All drawings evaluated in terms of accuracy of drawing views, use of line types, line quality, dimensioning accuracy and placement and drawing organization.)</p>

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**III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.**

Technical Graphics Communication, by Bertoline; McGraw-Hill

**IV. Suggested Course Maximum - 20**

**V. List any specific spatial or physical requirements beyond a typical classroom required to teach the course.**

Computer work station to include printers/plotters, projection system and appropriate software.

**VI. Course Requirements/Grading System – Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course**

Daily Assignments – 30%  
Quizzes- 30%  
Mid-term Exam- 20%  
Final Exam- 20%

A = 100 -90  
B = 89-80  
C = 79-70  
D = 69-60  
F = 59 or below

"C" or above in all degree specific classes

**VII. Curriculum Checklist**

- **Academic General Education Course** (from ACGM – but not in WCJC Core)  
No additional documentation needed

- **Academic WCJC Core Course**  
Attach the Core Curriculum Checklist, including the following:

- Basic Intellectual Competencies
- Perspectives
- Exemplary Educational Objectives

- **WECM Courses**  
If needed, revise the Program SCANS Matrix & Competencies Checklist.