ET 105-2 Engineering Drawing and Computer Aided Drafting

Three Semester Hours

Knoblauch 105 – CAD Drafting Classroom and Lab

Western Illinois University, College of Business and Technology Department of Engineering Technology, Knoblauch 135

Spring Semester 2017

Instructor: Dr. Brian Stone, Assistant Professor

Instructor Bio: Dr. Stone received his undergraduate degree in Management from Brigham Young University, an MBA from the University of Utah and a Ph. D from Arizona State University in Construction Management. His fields of study include extensive research and experience in Organizational Behavior topics in CM-related fields, Small Business Management, Contracting with the Federal Government, Best Value procurement processes, Leadership-related issues in CM, Government, Takeoffs and Estimating, Project Management, Project Planning, Industry measurement techniques and applications. He has over 14 years of applied experience in construction management as an owner of a construction company contracting specifically in Federal, Non-Profit, Commercial and Residential environments.

Class Times:

Section 1 - T/TH 1:00 - 2:40pm

Office Hours: W - 4:20 - 5:00pm  TH 12-1 pm or by appointment (Knoblauch Room 339)

Email: b-stone@wiu.edu

Office Phone: Dept. Phone: 298-1091 (email is best for messages)

Catalog Description: ET 105 – Engineering Graphics/Computer-Aided Drafting (CAD) This course is an introduction to engineering design and graphics, including design problems, sketching, dimensioning, tolerancing, multi-view orthographic representations, auxiliary views, section views, and working drawings. Students are required to use CAD in this course.

Purpose of the Course: This course is designed to provide pre-engineering students and engineering technology students with an understanding of the field of engineering drawing and descriptive geometry, the graphical languages of engineering technology. The instructional units include both cognitive (knowledge) content and psychomotor (skill) development blended through theory and practice in a laboratory/classroom environment. The course is primarily designed for students going into one of the engineering fields. The student will create drawings both manually and on the computer. Some out-of-class lab time is required.

It is intended that the students taking this course will participate the following learning activities:

- Analyze the engineering function of existing products
- Apply design principles and rationale in a realistic and original design project
- Work in groups to generate, analyze, evaluate and select among engineering design solutions to meet specified requirements
- Create functional description of the design intent
- Develop design objectives
● Build functional physical model and test it
● Communicate the results of the design process, including working drawings, verbal and written presentations.
● Demonstrate proficiency in freehand sketching to communicate design ideas
● Convert between pictorial and multiviews
● Demonstrate spatial visualization and reasoning skills by using 3D parametric solid modeling analysis.
● Interpret and create working drawings
● Convert between pictorial views and multiview drawings (Create appropriate section views from given multiview drawings)
● Create a properly dimensioned and toleranced multiview drawings using engineering standards
● Create appropriate auxiliary views from given multiview drawings
● Create complete working drawings with detailed part drawings and assembly drawings

**Prerequisite:** None.


**Equipment:** Pencil, eraser, scale, and straight edge will be needed. Engineering drawing instruments will be discussed in class during the first two sessions. Thumb drive is helpful to backup your work.

**Objective of the course:** By completion of the course, the student will be able to: Draw, sketch and computer generated with AutoCAD typical industrial manufacturing part drawings and to read blueprints of mechanical objects. Knowledge, understanding, and ability to produce (sketch and draw) industrial and engineering drawings of all types is emphasized throughout the semester.

**Special Course Cost:** Students of this course are required to pay a special course charge of $25.00 for each lab-related course in the Engineering Technology Department. This money is used to support the consumable items used during the course.

Payment of the course cost is a required portion of the class and must be paid after the second week of the semester, but prior to your final exam. If you fail to pay your course cost, you will receive a grade of “I” for the course until the lab fee is paid or the university automatically changes the grade from “I” to “F” according to the University Policy. If the grade is changed to an “F”, the grade will remain an “F” on your permanent transcript, regardless of payment.

Also, for the convenience of the students, the instructor will announce one date that a staff member will visit the classroom to collect course charges en masse.

It is recommended that students pay by check made out to “WIU”. Likewise, the student should expect a receipt to serve as proof of payment.

If you have questions or concerns, please direct them to the staff in Knoblauch Hall 135 or call 309/298-1091.

**Attendance:** Attendance at each class session is important in this subject matter area where the student must demonstrate skill by performance. Complete records on attendance are
maintained and grades are accumulated. Any four unexcused absences will lower one’s course grade one letter.

**Evaluation of Student Progress:** Evaluation, or grading, will be based upon: correct solutions to problems, assignments, industrious work habits and manipulative skills, performance on tests and exams, regular attendance, and completion of assigned homework (sketching, oral reports, research or reaction papers.)

**Backing up of Work:** This course relies heavily on electronically saved files. However, you cannot rely on technology to keep your files safe. For this reason, I recommend having at least two backups of your past work. The student is responsible to back up any and all of their past work in the event that there is a dispute over scores or delivery of assignments.

**Mid-term:** Approximately at the end of the second month of the semester (TBA)

**Quizzes:** To be announced the day before if there are any

**Final Exam:** Will be announced towards the end of the semester

**Student Evaluation:** Course grades will be based on a percentage of total possible points. The grading scale will approximate the normal break-off points closest to a category.

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<thead>
<tr>
<th></th>
<th>89-87 B+</th>
<th>79-77 C+</th>
<th>69-67 D+</th>
<th>Below 60 F</th>
</tr>
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<tbody>
<tr>
<td>92-100 A</td>
<td>86-83 B</td>
<td>76-73 C</td>
<td>66-63 D</td>
<td></td>
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<tr>
<td>92-90 A-</td>
<td>82-80 B-</td>
<td>72-70 C-</td>
<td>62-60 D-</td>
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**Late Drawing Policy:**

1. Any assignment that is turned in one class late will be further penalized by the loss of 20%, plus any drawing errors or mistakes.
2. Drawings two classes late will lose 50%. Any drawing errors will lower the grade still further.
3. Students who are absent because of a verifiable illness can usually make up missed work, not including tests. It is the student’s responsibility to check in with the campus medical center, then make arrangements for make-up work via email, phone conversation or as soon as they come back to class.

**Course Grading Information:**

- A. Approximately 15% of the final course grade will be determined by the final project; testing both practical skill and comprehensive knowledge.
- B. Approximately 15% of the final course grade will be determined by test, practical test, technical reports and mid-term test.
- C. About 70% of the final course grade will be determined by the average of all daily assignments and drawings.

**Student Conduct:** Students who disrupt class, deface equipment or property, or cheat on tests, drawings, or other assignments will receive a course grade of “0”.

**In Class Conduct:**

**Personal Electronics in the Classroom:** Personal electronics use in the class must be kept to
a minimum during lectures, presentations and guest speakers times. During the above three periods in class, texting and cell phone use is only acceptable if you use if the phone is on your desk and you use only one hand to communicate. (Obviously, the other hand would be holding a writing tool or messaging your head because of the massive amounts of learning taking place). If you feel that you have a need on your electronic device that requires more attention than what is being presented in class, I ask that you take it outside until you are complete with your communication.

**Food and Drink in class:** Acceptable at non-computer tables as long as the area is cleaner after you are done than it was when you arrived. Please keep them away from all electronic equipment, computers, printers that don’t belong to you.

**Disability Support Services:** “In accordance with University policy and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. For the instructor to provide the proper accommodation(s) you must obtain documentation of the need for an accommodation through Disability Resource Center (DRC) and provide it to the instructor. It is imperative that you take the initiative to bring such needs to the instructor’s attention, as he/she is not legally permitted to inquire about such particular needs of students. Students who may require special assistance in emergency evacuations (i.e. fire, tornado, etc.) should contact the instructor as to the most appropriate procedures to follow in such an emergency. Contact Disability Resource Center (DRC) at 298-2512 for additional services.

If you have emergency medical information to share with me, if you need special arrangements in case the building must be evacuated, or if you need accommodations in this course because of a disability, please make an appointment with me as soon as possible. My office location and hours are at the top of this syllabus. If you plan to request disability accommodations, you are expected to register with the Disability Support Services (DSS) at 298-2512 at least two weeks before any exam listed in this course.

**Last Day to Drop Course:** Two weeks following the first day of class. (Please see your administrative WIU sources for further details).

**Incomplete Grade:** “I” – Incomplete grade, a temporary grade given for extenuating circumstances which prevent a student from completing the course requirements before end of term. *Note:* University policies govern the issuance of incomplete grades and academic honesty and integrity.

**Department of Engineering Technology Goals for Student Learning**

Engineering Technology (Construction Management, Graphic Communication, and Manufacturing Engineering Technology) is a field of study designed to provide students educational programs that allow them to communicate effectively, design and apply technical solutions, use technology effectively, and respond to project management tasks in an environment with continually changing and sophisticated technology in an increasingly competitive global marketplace.

**By graduation, Engineering Technology students should be able to:**

1. Think critically and creatively; 2. Understand the theoretical principles of the profession; 3.
Understand and apply relevant technology in the solution of technical problems; 4. Organize, manage, and maintain projects; 5. Develop an appreciation for ethical and professional practices; 6. Develop and refine oral, written, and visual communication skills; and 7. Demonstrate an overall competency in the program objectives.

**Academic Integrity**

Preamble Western Illinois University, like all communities, functions best when its members treat one another with honesty, fairness, respect, and trust. Students have rights and responsibilities (http://www.wiu.edu/provost/students/) and students should realize that deception for individual gain is an offense against the members of the entire community, and it is the student’s responsibility to be informed and to abide by all University regulations and policies on Academic Integrity. Plagiarism, cheating, and other forms of academic dishonesty constitute a serious violation of University conduct regulations. Students who engage in dishonesty in any form shall be charged with academic dishonesty.

It is a duty of faculty members to take measures to preserve and transmit the values of the academic community in the learning environment that they create for their students and in their own academic pursuits. To this end, they are expected to instill in their students a respect for integrity and a desire to behave honestly. They are also expected to take measures to discourage student academic dishonesty, to adjust grades appropriately if academic dishonesty is encountered, and, when warranted, to recommend that additional administrative sanctions be considered. Grading policies are the exclusive prerogative of the faculty; administrative sanctions are under the authority of the Director of Student Judicial Programs. This document provides policies and procedures to be followed when academic dishonesty is encountered.

**Definitions of Academic Dishonesty**

The following definitions and examples are not meant to be exhaustive. The University reserves the right to determine, in a given instance, what action constitutes a violation of academic integrity. (See www.wiu.edu/policies/acintegrity.php for complete descriptions of the following topics:

1. **Plagiarism**
2. **Fabrication and Falsification**
3. **Cheating**
4. **Complicity in Academic Dishonesty**
5. **Abuse of Academic Materials**
6. **Multiple Submissions**

**Reporting Academic Dishonesty**

All members of the University community share the responsibility and authority to challenge and make known acts of apparent academic dishonesty. Any student, faculty, member, or staff person who has witnessed an apparent act of student academic dishonesty, or has information that reasonably leads to the conclusion that such an act has occurred or has been attempted, has an ethical responsibility for reporting said act(s). Confronting and reporting academic dishonesty can be done in a variety of ways, and people should choose the manner most appropriate for the circumstances. Acts of apparent academic dishonesty that occur in the classroom should be reported directly to the course instructor, and/or the course instructor’s Department Chair, and/or the instructor’s College Dean. The Council on Admission, Graduation, and Academic Standards (CAGAS) or the Graduate Council will not accept or act upon anonymous reports, but will hold in strict confidence the identity of any person reporting a suspected instance of academic dishonesty, unless that person consents to having his/her identity revealed.
Student Rights and Responsibilities: It is essential that all students know what is required of them in order to complete a course satisfactorily. To that end, the office of the Provost and Academic Vice President recommends that students become familiar with the guideline concerning their rights and responsibilities. The guidelines are available on-line at:
http://www.wiu.edu/provost/students

Resolution of Problems:

Should a problem occur, students should speak to their instructor first. If the problem is not resolved, meet with the chair of the department. If the problem continues to be unresolved, go to the College of Business and Technology's Dean.

Students should observe the following sequence for the resolution of problems:

Student --> Instructor --> Chairperson --> Dean

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**ET 105 Classwork Summary**

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<tr>
<th>Title</th>
<th>Assignment Type</th>
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<tr>
<td>AutoCAD Intro Print</td>
<td>Lab 1</td>
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<tr>
<td>Plastic Templates</td>
<td>Lab 2</td>
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<tr>
<td>Sketches:</td>
<td>Lab 3</td>
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</table>
Sheet Metal Piece  Lab 4  
Football Field  Lab 5  
Orthographic Lab 1  Lab 6  
Floorplan Sketch:  Lab 7  
Orthographic Lab 2  Lab 8  
NBA Court 1  Lab 9  
NBA Court 2  Lab 10  
Orthographic Lab 3  Lab 11  
Orthographic Lab 4  Lab 12  
Exam 1 REVIEW (Midterm)  Exam 1  
Layers Lab: Construction and Hidden & Center lines  Lab 13  
Platt Drawings (Garage Addition)  Lab 14  
Plat Drawings II (Wedding Planner)  Lab 15  
Boomerang drawing  Lab 16  
Drilled Bent Part  Lab 17  
Cylinder Part  Lab 18  
Auxiliary Views  Lab 19  
Final Project Part 1  Exam 2a  
3 Dimensional Drawings (Willis Tower)  Lab 20  
3D Walls Home  Lab 21  
Final Project Part 2  Exam 2b

**Course Assessment Summary**

<table>
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<th>Total %</th>
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<tr>
<td>21 Labs (Tentatively)</td>
<td>250</td>
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<tr>
<td>1 Midterm and 1 Final Project</td>
<td>120</td>
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<tr>
<td>Participation and Other Scoring</td>
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<td><strong>Total</strong></td>
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