COURSE NUMBER & TITLE: ENTK-1650-01 - ADVANCED DRAFTING

SEMESTER/YEAR: Fall 2006

LECTURE HOURS: 2 LAB HOURS: 4 CREDIT HOURS: 4

CLASS TIME: 1:00-3:50 PM DAYS: MW ROOM: EI 104

INSTRUCTOR'S NAME: Hank Reifke

INSTRUCTOR'S CONTACT INFORMATION:

Office Location: EI 112
Office Phone: 268-2529 w/voice mail
Email: hreifke@caspercollege.edu

OFFICE HOURS: MTW 12-12:50 PM
T 4-5:50 PM
TH 4-4:50 PM

COURSE DESCRIPTION: A continuation of the instruction received in Drafting I and Computer Aided Drafting I and II. The computer is used to perform advanced engineering drawings including: multiview drawings, sections, obliques, auxiliaries, advanced dimensioning and geometric tolerancing. Production and CAD procedures will be emphasized.

STATEMENT OF PREREQUISITES: ENTK 1510 and ENTK 2505

GOAL: To teach those who are preparing for a career in industry to be able to use computer hardware and software to produce industrial drawings. A more advanced study of the Drafting I and CAD I & II curriculums will be emphasized.

OUTCOMES: Upon completing ENTK 1650, you will be able to:
1. Explain and draw auxiliary views and orthographic projections
2. Prepare multi-auxiliary and secondary auxiliary views.
3. Explain what sectional views (also called sections) are, and demonstrate how they are projected.
4. Identify cutting-plane lines when two or more sections appear on the same drawing.
5. Use general-purpose section lining on assembly drawings.
6. Explain the conventions for screw-thread representation
7. Describe the sectioning method for spokes, align ribs, holes, and lugs in section.
8. Draw a detailed thread representation of common thread forms, a representation of threaded fasteners in assembly and a schematic thread representation.
9. Dimension the different types of fasteners.
10. Explain how multiple detail drawings are done.
11. Describe how drawing revisions are handled.
12. Explain how assembly drawings are used.
OUTCOMES: (continued)
13. Explain the terms geometric tolerancing, flatness of a surface, straightness of feature size, circular tolerance zone, MMC, virtual condition, LMC, and RFC.
14. Explain how datums are used for geometric tolerancing, understand the relationship between datums and orientation tolerancing.
15. Describe the manufacturing process called welding, and list the three major types of welding.
16. Understand the difference between the terms weld symbol and welding symbol and list the eight elements that can make up a welding symbol.
17. Define fillet weld, bevel groove weld, and a J-groove weld and describe how the welds are used.
18. Interpret and apply weld symbols.
19. Define the term gear and describe the four major families of gears.
20. Produce detail and assembly drawings of gears.
21. Explain the process used to specify spur gears for a drive system.
22. Define the terms rack and pinion and bevel gear.
23. Interpret and use electric and electronics drawing symbols.
24. Use CAD for electrical drawings.
25. Use standard symbols to represent electrical schematic diagrams
27. Produce isometric projection piping drawings.

METHODOLOGY: Students will be given daily lectures, demonstrations, videos, and PowerPoint presentations focusing on the topic at hand, to be followed by an appropriate lab assignment on the computer. Most assignments will require time outside of class to complete. To facilitate working outside of regular class hours, open CAD lab hours will be announced at the beginning of each semester and offered on a Monday through Friday basis.

EVALUATION CRITERIA:
Grading will be based on the completion of approximately 50 assignments, and four (5) tests.
Final grades will be based upon class assignments, tests, and participation according to the following percentages:
• 40% Tests (Chapter tests and final)
• 40% Daily Work (Daily assignment due at the end of the class or in instructor’s office box by the beginning of the next class to be considered on time.
• 20% Participation (attendance class plus assignments in on time and class involvement)

Grade Scale:
90-100pts = A, 80-89pts = B, 70-79pts = C, 60-69pts = D, 0-60pts = F

REQUIRED TEXT, READINGS, AND MATERIALS:
Texts:
• Jensen, Helsel & Short, Engineering Drawing & Design Workbook
• Bethone, James, D. Engineering Graphics with AutoCAD 2006, Prentice Hall.
Hand Drafting Equipment and Supplies Needed Per Student:
Furnished by the student:
- 45 degree and 30 degree -60 degree triangles,
- metric, architect’s and civil engineer’s scales
drafting instruments, irregular curve
protractor
erasing shield
art gum and Mars plastic erasers
- 0.3, 0.5, 0.7 mm 2H mechanical, 9H wood drafting pencils
drafting tape
pencil pointer,
draftsmen’s dry cleaning pad
Ames lettering guide
dusting brush
a circle template
6” bow compass
Isometric Ellipsas Template #123
USB Jump Drive (64 MB storage device or larger)

CLASS POLICIES:
• Outside chapter readings will be assigned on a regular basis.
• Late assignments will not receive full credit, 10% or 1 grade for every day late. After four classes, assignment will not receive over 50% or U.
• Assignments turned in after class is over should be placed in box outside instructor’s office door.
• Assignments returned for correction must be stapled to corrected assignments to be considered for grade change.
• Assignments turned in after assignments returned to class will receive 50% or U.
• Participation is expected, and will be taken into account when grading.
• Students missing 5 classes will be given the choice of taking an “F” for the class, changing to an audit and continue to participate, or withdrawing from class.
• Students late to class more than 10 minutes are considered an absence.
• There will be NO makeup tests given. This also applies to pop quizzes.
• Casper College demands intellectual honesty. Proven cheating, plagiarism, or any form of dishonesty can result in the offender failing the course or being expelled from school.
• No CD and headphones in class/lab.
• Cell phone off or on vibrate. (Use them outside the classroom)

Last date to change to Audit Status or to Withdawrs with a W Grade:
Please refer to the current Casper College Catalog – November 3, 2006.

SAFETY: Personal and equipment safety standards will be strictly enforced. It is the individual’s responsibility to develop a safe work attitude.

STUDENT RIGHTS AND RESPONSIBILITIES: Please refer to the Casper College Student Conduct and Judicial Code for information concerning your rights and responsibilities as a Casper College Student.
Chain of Command: If you have any problems with this class, you should first contact the instructor in order to solve the problem. If you are not satisfied with the solution offered by the instructor, you should then take your problem through the appropriate chain of command starting with the department head, then the division chair, and lastly the vice president for academic affairs.

Academic Dishonesty—Cheating and Plagiarism: Casper College demands intellectual honesty. Proven plagiarism or any form of dishonesty associated with the academic process can result in the offender failing the course in which the offence was committed or expulsion from school. See the Casper College Student Code of Conduct.

ADA Accommodations Policy: It is the policy of Casper College to provide appropriate accommodations to any student with a documented disability. If you have a need for accommodation in this course, please make an appointment to see me at your earliest convenience.

CALENDAR OR SCHEDULE INDICATING COURSE CONTENT:

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<thead>
<tr>
<th>Topics</th>
<th>Approximate time</th>
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<tbody>
<tr>
<td>Drawing Media, Filing, Storage &amp; Reproduction</td>
<td>0.5 week</td>
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<tr>
<td>Sectioning</td>
<td>2 weeks</td>
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<tr>
<td>Basic Dimensioning &amp; Tolerancing</td>
<td>1.5 weeks</td>
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<tr>
<td>Auxiliary Views &amp; Revolutions</td>
<td>2.5 weeks</td>
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<tr>
<td>Threaded Fasteners</td>
<td>1 week</td>
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<tr>
<td>Geometric Dimensioning &amp; Tolerancing</td>
<td>2 weeks</td>
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<tr>
<td>Detailed &amp; Assembly Drawings</td>
<td>1.5 weeks</td>
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<tr>
<td>Welding Drawings</td>
<td>1 week</td>
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<tr>
<td>Belts, Cams &amp; Gears</td>
<td>2 weeks</td>
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<tr>
<td>Pipe Drawings</td>
<td>1 week</td>
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<tr>
<td>Electrical &amp; Electronics Drawings</td>
<td>1 week</td>
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