MIDLAND COLLEGE
SYLLABUS
DFTG 2306
MACHINE DESIGN
2-4

Course Description:
Theory and practice of design. Students will use parametric modeling to establish relationships between dimensions and features. Projects in problem solving, including press fit, bolted and welded joints, and transmission components.

Prerequisite: DFTG 2302 and 2340

Text, References, and Supplies:
Software: Autodesk Inventor

The student will need to provide his/her own:
USB Flash Drive - REQUIRED

These supplies may be needed in future classes.

Course Goals/Objectives:
The following list of course goals will be addressed in the course. The goals are directly related to the performance objectives. Upon successful completion of the course the student will:

1. Understand the meaning of sections and cutting-plane lines.
2. Identify seven types of sections.
3. Draw a sectional view, given a two-view drawing.
4. Demonstrate the proper techniques for sectioning ribs, webs, and spokes.
5. Demonstrate the proper technique for aligned sections.
7. Draw correct conventional break symbols for elongated objects.
8. Recognize and draw the correct section-lining symbols for 10 different materials.
9. Use conventional dimensioning techniques to describe size and shape accurately on an engineering drawing.
10. Create and read a drawing at a specified scale.
11. Create drawings using metric, engineering, and architect scales.
12. Correctly place dimension lines, extension lines, angles, and notes.
13. Recognize aligned and unidirectional dimensioning systems.
14. Dimension circles, arcs, and inclined surfaces.
15. Apply finish symbols and notes to a drawing.
16. Read and create limit dimensions.
17. Describe the nominal size, tolerance, limits, and allowance of two mating parts.
18. Identify a clearance fit, interference fit and transition fit.
19. Describe the basic hole and basic shaft systems.
20. Dimension two mating parts using limit dimensions, unilateral tolerances, and bilateral tolerances.
21. Describe the classes of fit and give examples of each.
22. Draw geometric tolerancing symbols.
23. Specify position and geometric tolerances.

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24. Define and label the parts of a screw thread.
25. Identify various screw thread forms.
26. Draw detailed, schematic, and simplified threads in section and elevation.
27. Define typical thread specifications.
28. Identify various fasteners and describe their use.
29. Draw various screw head types.

Student Contributions and Class Policies:

1. Students are expected to exhibit professional behavior during scheduled class times.
2. Regular and punctual attendance is expected of all students in all classes for which they have registered.
3. All absences are considered to be unauthorized unless the student is absent due to sickness or emergencies.
4. The instructor is responsible for judging the validity of any reasons given for absence.
5. Students will not be allowed to make up an examination missed due to an absence unless they have reasons acceptable to the instructor.
6. Students may be dropped from a class by the registrar, on or before the twelfth day of class, upon recommendation of the instructor who feels the student has been unjustifiably absent or tardy a sufficient number of times to preclude meeting the course objective.
7. After the twelfth day of class, it is the student's responsibility to initiate the drop in the Office of Student Services. Failure to do so may result in the students receiving a grade of “F.”
8. Students are responsible for maintaining, organizing, and backing-up copies of all digital files. Failure to maintain an up-to-date backup may result in data loss.
9. Students MUST actively participate by completing an academic assignment required by the instructor by the official census date. Students who do not actively participate in an academically-related activity will be reported as never attended and dropped from the course.
Evaluation of Students:

- Regular daily work ......................... 40%
- Periodic tests ............................... 10%
- Attendance & Participation ............... 10%
- Final Project .................................. 20%
- Final Exam ................................... 20%

Grading Scale:

90 and above  A
80-89  B
70-79  C
60-69  D
0-59  F

Course Schedule:

This class meets two or four times a week, for a total of two (2) lecture hours and four (4) lab hours.

Due dates for course assignments will be announced throughout the semester. This will be subject to the progression of the class, therefore attendance is very important.
INFORMATION:
Students will acquire and evaluate information from existing sources and determine its relevance and accuracy as needed to build a systematic information base. Students will employ computers to acquire, organize, analyze, and communicate information.

TECHNOLOGY:
Applies technology to task, understands overall intent and proper procedures for setup and operation of equipment and computer hardware and software.

READING:
Students will locate, understand, and analyze data in documents including manuals, graphs, and schedules to perform tasks. The students will learn from a text to determine the main idea or essential message, the relevant facts and specifications, the meaning of unknown or technical vocabulary, and the appropriateness of theories of other writers.

MATHEMATICS:
Approaches practical problems by choosing appropriately from a variety of math techniques. Students will use basic math calculations throughout the course work.

LISTENING/SPEAKING:
Students will receive, attend to, interpret, and respond to verbal messages and other cues such as body language in ways that are appropriate to the purpose; for example, to comprehend; to learn; to critically evaluate; to appreciate; or to support the speaker.

PERSONAL QUALITIES:
The students will display responsibility, self-esteem, sociability, self-management, integrity and honest toward goal attainment and perseverance.
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**Students with Disabilities:**

Any student who, because of a disabling condition, may require some special arrangements in order to meet course requirements should contact Shep Grinnan as soon as possible. Mr. Grinnan’s office is located in the Scharbauer Student Center Building. These conditions may include documented physical or educational disabilities. Please be aware that services or accommodations are not automatic. Each student must request them and secure the proper authorizations/documentation.
Program Information:

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