Course Title: Machine Design I
Course Prefix: **MCEG** **Course No.:** **3043** **Section No.:** **P01**

Department of | **Mechanical Engineering** | **College of** | **Engineering**

Instructor Name: | ***Xiaobo Peng***
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P.O. Box | 519
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Prairie View, TX 77446

Office Hours: | **M: 10AM ~ 12 Noon; W: 11AM ~ 12 Noon; Th: 12 Noon ~ 2 PM**
Virtual Office Hours: | **N/A**

Course Location: | ***New EE Building 117***
Class Meeting Days & Times: | **Monday and Wednesday, 8:00 ~ 9:50**
Catalog Description: | **Fundamentals of mechanical design methodology, design of machine elements for static and fatigue failure, individual projects and classroom discussions of various design solutions.**

Prerequisites: | **CVEG 2063 Mechanics of Materials; MCEG1021 Mechanical Engineering Lab I**

Co-requisites: | **None.**

Required Text: | **Budynas, R. G. and Nisbett, J. K., Shigley's Mechanical Engineering Design, 10th edition, McGraw-Hill Book Company, ISBN 978-0-07-339820-4.**

Recommended Text/Readings: | **None.**

Access to Learning Resources: |
PVAMU Library:
phone: (936) 261-1500;
web: http://www.tamu.edu/pvamu/library/
University Bookstore:
phone: (936) 261-1990;
web: https://www.bkstr.com/Home/10001-10734-1?demoKey=d

Course Goals or Overview:

This course is designed to introduce students in mechanical engineering to the contemporary mechanical design methodology as applied to machine elements and to the process of mechanical design. The student will design mechanical elements using concepts developed in design of machine elements, engineering graphics and other related courses.

Course Outcomes/Objectives
At the end of this course, the student will

1 | Develop the skills for mechanical element design;
2 | Be able to analyze mechanical engineering elements;
3 | Have the knowledge of various machine elements;
4 | Be able to complete a mechanical design project.

Course Requirements & Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

Exams – written tests designed to measure knowledge of presented course material
Quizzes – written quizzes designed to measure knowledge of presented course material
Exercises – written assignments designed to supplement and reinforce course material
Projects – design project to measure ability to apply presented course material
Class Participation – daily attendance and participation in class discussions

Grading Matrix

Instrument	Value (points or percentages)	Total
Quizzes and Homework	30%	30
Projects	10%	10
Mid Term Exam	30%	30
Final Exam	30%	30
Total:		**100**

Grade Determination:
A = 100 – 90pts;
B = 89 – 80pts;
C = 79 – 70pts;
D = 69 – 60pts;
F = 59pts or below

Course Procedures

Use of Ecourses (http://ecourses.pvamu.edu):
Ecourses will be used extensively in this class. Lecture slides, assignment, and tutorials will be provided on Ecourses. **You need to have the printout of the lecture PPT with you when you come to the class.**

Assignments & Due Dates:
Homework needs submitted at the beginning of class on the assigned day. Late homework will be charged a **10%** penalty for **each** day late – weekend days do count. Circumstances beyond your control (i.e. illness, computer failure, weather, etc.) will be considered as required.

Attendance
Class attendance is mandatory.

References

None.

16 WEEK CALENDAR

Week One: **INTRODUCTION/BASICS**
Chapter (s): **1**
Assignment (s):

Week Two: **MATERIALS**
Chapter (s): **2**
Assignment (s):

Week Three: **LOAD AND STRESS ANALYSIS**
Chapter (s): **3**
Assignment (s):

Week Four: **DEFLECTION AND STIFFNESS**
Chapter (s): **4**
Assignment (s):

Week Five: **DEFLECTION AND STIFFNESS**
Chapter (s): **4**
Assignment (s):

Week Six: **FAILURES RESULTING FROM STATIC LOADING**
Chapter (s): **5**
Assignment (s):

Week Seven: **FAILURES RESULTING FROM STATIC LOADING**
Chapter (s): **5**
Assignment (s):

Week Eight: **FAILURES RESULTING FROM VARIABLE LOADING**
Chapter (s): **6**
Assignment (s):

Mid-Term Exam

Week Nine: **FAILURES RESULTING FROM VARIABLE LOADING**
Chapter (s): **6**
Assignment (s):

Week Ten: **THE DESIGN OF SCREWS, FASTENERS, AND CONNECTIONS**
Chapter (s): **8**
Assignment (s):

Week Eleven: **THE DESIGN OF SCREWS, FASTENERS, AND CONNECTIONS**
Chapter (s): **8**
Assignment (s):

Week Twelve: **THE DESIGN OF SCREWS, FASTENERS, AND CONNECTIONS**
Chapter (s): **8**
Assignment (s):

Week Thirteen: **ROLLING-CONTACT BEARINGS**
Chapter (s): **11**
Assignment (s):

Week Fourteen: **ROLLING-CONTACT BEARINGS**
Chapter (s): **11**
Assignment (s):

Week Fifteen Topic **MECHANICAL SPRINGS**
Chapter (s): **10**
Assignment (s):

Week Sixteen **Final Exam**

University Rules and Procedures

Disability statement (See Student Handbook):
Students with disabilities, including learning disabilities, who wish to request accommodations in class should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

Academic misconduct (See Student Handbook):
You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

Forms of academic dishonesty:

1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.

2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.

3. Fabrication: use of invented information or falsified research.

4. Plagiarism: unacknowledged quotation and/or paraphrase of someone else's words, ideas, or data as one's own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one's own work also constitutes plagiarism.

Nonacademic misconduct (See Student Handbook)
The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

Sexual misconduct (See Student Handbook):
Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

Attendance Policy:
Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class.

Student Academic Appeals Process
Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

Technical Considerations for Online and Web-Assist Courses

Minimum Hardware and Software Requirements:

-Pentium with Windows XP or PowerMac with OS 9
-56K modem or network access
-Internet provider with SLIP or PPP
-8X or greater CD-ROM
-64MB RAM
-Hard drive with 40MB available space
-15" monitor, 800x600, color or 16 bit
-Sound card w/speakers
-Microphone and recording software
-Keyboard & mouse
-Netscape Communicator ver. 4.61 or Microsoft Internet Explorer ver. 5.0 /plug-ins
-Participants should have a basic proficiency of the following computer skills:
- ·Sending and receiving email
- ·A working knowledge of the Internet
- ·Proficiency in Microsoft Word
- ·Proficiency in the Acrobat PDF Reader
- ·Basic knowledge of Windows or Mac O.S.

Netiquette (online etiquette): students are expected to participate in all discussions and virtual classroom chats when directed to do so. Students are to be respectful and courteous to others in the discussions. Foul or abusive language will not be tolerated. When referring to information from books, websites or articles, please use APA standards to reference sources.

Technical Support: Students should call the Prairie View A&M University Helpdesk at 936-261-2525 for technical issues with accessing your online course. The helpdesk is available 24 hours a day/7 days a week. For other technical questions regarding your online course, call the Office of Distance Learning at 936-261-3290 or 936-261-3282

Communication Expectations and Standards:
All emails or discussion postings will receive a response from the instructor within 48 hours.

You can send email anytime that is convenient to you, but I check my email messages continuously during the day throughout the work-week (Monday through Friday). I will respond to email messages during the work-week by the close of business (5:00 pm) on the day following ***my receipt*** of them. Emails that I receive on Friday will be responded to by the close of business on the following Monday.

Submission of Assignments:
Assignments, Papers, Exercises, and Projects will distributed and submitted through your online course. Directions for accessing your online course will be provided. Additional assistance can be obtained from the Office of Distance Learning.

Discussion Requirement:
Because this is an online course, there will be no required face to face meetings on campus. However, we will participate in conversations about the readings, lectures, materials, and other aspects of the course in a true seminar fashion. We will accomplish this by use of the discussion board.

Students are required to log-on to the course website often to participate in discussion. It is strongly advised that you check the discussion area daily to keep abreast of discussions. When a topic is posted, everyone is required to participate. The exact use of discussion will be determined by the instructor.

It is strongly suggested that students type their discussion postings in a word processing application and save it to their PC or a removable drive before posting to the discussion board. This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, it should be copied and pasted to the discussion board.