

## Faculty Senate Course Form

Effective Date:

Submission Date:

Department:

College of: Course

Contact Person:

Prefix:

Create New, Revise, Inactivate, or Reactivate:

Course #:

### Course Form:

- Used to create new course numbers or new prefixes.
- Used to change Name, Grading, Hours, Description, Reactivate
- Used to inactivate a course from the current catalog. Courses are never deleted. They are made inactive and can be legislated to become active again.

1. Purpose/Justification for the Changes:

2. Is this related to, and/or affect, any other department/college/unit curricula or programs at Pittsburg State University? ***If "Yes", please provide an explanation. Provide documentation of any discussions (e.g. copies of emails, memos, etc.) that have occurred.***

Yes

No

3. Is this course to be considered for General Education?

*If "yes" this requirement will need approval of the General Education Committee after the revisions have been approved by Faculty Senate. The General Education Course Approval form will also need to be submitted.*

Yes

No

4. Will this course be required of any education majors?

*If "yes," this requirement will need approval of the Council for Teacher Education before upload to " College Curriculum Legislation" in SharePoint.*

Yes

No

5. Will additional resources or costs be required?

Yes

No

If so, what will be needed?

PSU Faculty Senate 24-25

6. Will any additional course fees be required (e.g. equipment, clothing, travel, licensing, etc.)?  
*If "yes," complete the Course Fee Form on the Faculty Senate website, it will need to gain approval of the President's Council.*

Yes                      No

7. Objectives/Student Learning Outcomes for NEW courses only, as it will appear in the syllabus:  
**Attach with upload.**

8. Assessment Strategies (e.g. exams, projects, university rubric, etc.), as it will appear in the syllabus:  
**Attach with upload.**

**Course Numbers cannot be changed, only created.**


	Existing	New/Proposed
Title:		
Course Number:		
Credits:		
Grading System:		
Pre/Co-Requisite(s):		
Course Description:		

## Authorization Sign-Off


**Checklist: Check once verified.**

- Required fields completed.
- Syllabus attached for new courses
- Assignment Strategies Attached

-Approved: Department Chair/Director

Date: \_\_\_\_\_ Signature, Chair/Director: \_\_\_\_\_ 

-Approved: College Curriculum Committee

Date: 1/13/25 Signature, Committee Chair: \_\_\_\_\_ 

-Approved: Dean of College

Date: 1/13/25 Signature, Dean: \_\_\_\_\_ 

-Approved: Council for Teacher Education (if applicable)

Date: \_\_\_\_\_ Signature, Council Chair: \_\_\_\_\_

-Approved: University Undergraduate Curriculum Committee

Date: \_\_\_\_\_ Signature, Committee Chair: \_\_\_\_\_

-Approved: Faculty Senate

Date: \_\_\_\_\_ Signature, Recorder Faculty Senate: \_\_\_\_\_

Originating Departments(s): After completing this form, please upload it to the SharePoint, within the appropriate College folder, "Preliminary Legislation", to allow for review and questions. Any modifications should be saved as "original file name.v2.docx" and uploaded as well.

Following final College Curriculum Committee approval, please apply the appropriate signatures, and send them to your College Administrator.

**Pittsburg State University**  
**Department of Engineering Technology**  
**Mechanical Engineering Technology Program**  
(Prepared by: Daniel Maxwell, 01/2024)

**COURSE TITLE:** MECET 523-01- Mechanical Design 1

**COURSE SCHEDULE:** Face-to-Face, Tuesday/Thursday, 11:00-12:15, KTC W201/W202

**INSTRUCTOR:** Daniel Maxwell  
Phone: (620) 235-4374  
Office Hours: As posted in Canvas

Office: KTC W224d  
E-mail: [dmaxwell@pittstate.edu](mailto:dmaxwell@pittstate.edu)

**COURSE DESCRIPTION:** MECET 523 – Mechanical Design I. (3 hours lecture). Principles for selecting and interfacing standard mechanical system components. Topics include tolerance analysis, fasteners, shafts, couplings, brakes, clutches, gears, belt and chain drives, bearings, seals, cams, motors, and other power transmission components. Extensive use of engineering handbooks, vendor catalogs, and computer software. Prerequisite: MECET 423 Mechanics of Materials or equivalent.

**TEXTBOOK/MATERIALS REQUIRED:**

- Mott, Robert A., *Machine Elements in Mechanical Design*, (6<sup>th</sup> Ed.), Pearson. ISBN: 978-0-13-444118-4

**COURSE OBJECTIVES:**

- Objective 1 - To develop basic information supporting material definition and selection and the impact of material choice on loading, stress and failure of a component. (Outcome 2)
- Objective 2 - To develop an understanding of the connection between design activities and cost, production, maintainability, reliability, quality, etc. (Outcome 2)
- Objective 3 - To apply design and analysis procedures to various machine elements. (Outcome 2)
- Objective 4 – To demonstrate the ability to use computer programs to support design and analysis tasks. (Outcome 4)

**COURSE TOPICS:**

- Nature of Mechanical Design
- Materials in Mechanical Design
- Finite Element Analysis
- Design for Different Types of Loading
- Stress and Column Analysis
- Combined Stresses and Mohr’s Circle
- Fasteners and Springs
- Keys and Bearings
- Tolerances and Fits
- Bolted and Welded Frames

**GRADING SYSTEM:**

90 - 100%	A	Attendance	5%
80 - 89	B	Quizzes	20%
70 - 79	C	Projects	25%
60 - 69	D	MidTerm Examination	25%
0 - 59	F	Final Examination	25%

## TENTATIVE SCHEDULE OF ACTIVITIES

*This schedule is tentative and subject to change.*

<u>Week</u>	<u>Date</u>	<u>Class Content</u>	<u>Reading</u>	<u>Assignments</u>
1	01/16 01/18	Introduction, Mechanical Design Overview Material considerations in design	Chapter 1 Chapter 2	HW 1 HW 2
2	01/23 01/25	Stress and Deformation Analysis Combined Stresses and Mohr's Circle	Chapter 3 Chapter 4	HW 3 HW 4
3	01/30 02/01	Design for Different Types of Loading Endurance Limits and Goodman Criteria	Chapter 5	HW 5
4	02/06 02/08	Design Examples Columns	Chapter 5 Chapter 6	HW 6
5	02/13 02/15	Finite Element Analysis Discussion and Practice		
6	02/20 02/22	Keys, Splines, Couplings and Seals	Chapter 11	HW 11
7	02/27 02/29	Tolerances and Fits	Chapter 13	HW 13
8	<b>03/05</b> <b>03/07</b>	<b>MidTerm Exam Part 1</b> <b>MidTerm Exam Part 2</b>		
9	<b>03/12</b> <b>03/14</b>	<b>Spring Break</b>		
10	03/19 03/21	CSWA-Simulation Review CSWA-Simulation Exam		
11	03/26 03/28	Rolling Contact Bearings	Chapter 14	HW 14
12	04/02 04/04	Plain Surface Bearings	Chapter 16	HW 16
13	04/09 04/11	Linear Motion Elements Fasteners	Chapter 17 Chapter 19	HW 17 HW 19
14	04/16 04/18	Springs	Chapter 18	HW 18
15	04/23 04/25	Frames, Bolted and Welded Connections	Chapter 20	HW 20
16	04/30 05/02	CSWA-S Exam Review		
<b>17</b>	<b>05/07</b>	<b>Final Exam: 11:00-12:50</b>		

See the Syllabus page for the course in Canvas for additional information regarding policies, resources and other important general information.

## **Additional Details/Descriptions Follow:**

**Attendance:** The course meets for lecture 75 minutes two times a week. Attendance will comprise a portion of the grade, arriving late may incur a penalty. Classes missed due to documented illness or University Sponsored Activity will not be counted as absent, however students are responsible to make up missed material through reading and arranging possible make-up of assignments with the instructor.

**Campus Closure:** In-person courses may shift to online activities in the event of campus closure/inclement weather. Full participation in that event may require a webcam, microphone and steady high-speed internet connection, as well as Respondus Lock-Down Browser. Attendance, quiz and exam policies may require modification in such an event.

**Classroom Etiquette:** Students are strongly encouraged to participate in the lectures through early preparation and questions or comments in class but are asked not to monopolize the entire class period. Students are required to behave in a professional manner and respect the learning environment of others. If students must come in late or leave early, please notify the instructor beforehand and do so in a quiet, non-disruptive manner. Please silence and store all electronic devices and refrain from engaging in distracting activities on the computers. The instructor reserves the right to remove any device deemed to be causing a disruption - this includes, but isn't limited to: cell phones, tablets, eReaders, eCigarettes. Students are expected to follow the PSU COVID-19 related guideline including wearing of masks, social distancing, and staying home when exhibiting symptoms of illness.

**Homework:** Homework will be assigned covering each major topic via pages in Canvas and will typically come from problems in the textbook. Homework problems will have answers provided, either in the back of the book or by the instructor. The student should work on the problem until they understand how to obtain the correct answer. This provides the student the opportunity to resolve problems on their own and avoid simple errors. Homework problems will not be submitted; however, material for the quizzes and exams will be similar to the homework so students are highly encouraged to complete the homework.

**Quizzes:** Quizzes to ascertain comprehension of the material and its applications will be assigned. These may cover material discussed in class that day. These may also include less formal in-class problem solving.

**Projects:** As an overall mechanical design course, much of the assigned work will be in the form of projects. These projects will involve detailed use of SolidWorks FEA and Excel. Details of each project, including scoring rubrics, will be provided. Successful completion of FEA projects in particular will help students prepare for the CSWA-Simulation exam.

**MidTerm Examination:** The midterm exam for this course will be a classical exam given during the week before spring break. The exam may cover two class periods and include all topics discussed to that point or prerequisite course topics.

**Final Examination:** The final exam for this course will be a classical exam given during the final exam period schedule for the course. The exam will be comprehensive, and may include all course topics and all prerequisite course topics.

**Missed and Late Work:** No work will be accepted after the given due date unless due to a documented medical necessity or a documented school event. Absences due to documented school events must be discussed in advance through email. One homework quiz and one content quiz will be dropped to cover unanticipated life events.

**Academic Dishonesty:** Submitting someone else's work as your own will not be tolerated in this class. Working together on homework assignments is encouraged, but EACH individual must show ALL work for EVERY problem themselves. Examples of academic dishonesty include, but aren't limited to: cheating on assignments or tests, submitting someone else's work as your own, giving your work to someone else, use of solution manuals/assignments from previous semesters, not citing sources on a writing assignment. Plagiarism includes copying from printed solution manuals, from other students, from the web, etc. Determination of what is or is not academic dishonesty is at the discretion of the instructor. If your work is considered to be an act of academic dishonesty all parties involved will automatically receive a zero on that assignment. Your actions could also cause you to receive an 'F' in the course and could result in severe penalties, up to and including dismissal from the university.

**Canvas:** The course will be administered with the CANVAS system. The site will maintain course materials and be used for communications, problem submissions, and grading. The site should be checked frequently. Students can track their grades through Canvas. Grades for quizzes that are automatically graded by Canvas will be available immediately. Grades for quizzes and tests that require instructor evaluation will generally be available before the next class. Grades for projects/tutorials will generally be available within a week.

**Communication Policy:** Students are encouraged to interact with the instructor outside of class in person, via phone conversations and over the Internet. Questions sent via Canvas or email will typically be answered within less than 24 hours if received between 8:00am Mondays and 4:00pm Fridays; however, any questions asked outside of the "normal business week" may result in longer than normal response times.

**Special Concerns:** Any student who, because of a disabling condition, may require some special arrangements in order to meet course requirements should contact the instructor as soon as possible to make necessary accommodations; 7-10 days prior notice prior to an exam is appreciated to allow time to provide necessary materials to the Testing Center.