MSET 5030  
Fall 2019  

INSTRUCTOR  
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CATALOG COURSE DESCRIPTION  
3 credit hours  
Formal development of the process of designing a product, including ideas generation, engineering development, modeling and analysis, and project planning and management.  

COURSE LEARNING OBJECTIVES:  
1. Awareness of the relationship of art and science to design  
2. Competence with a set of tools and methods for product design and development.  
3. Awareness of the role of multiple functions in creating a new product (e.g., strategy, product management, marketing, finance, industrial design, engineering, production, supply chain, environmental safety, project management).  
4. To understand the holistic context of design, including global, societal, ethical, economic and environmental concerns  

COURSE OUTCOMES  
1. Demonstrate the importance of making good decisions at the design stages of part and device development so that desired functionality, manufacturability, time to market, cost, quality, robustness and durability are emphasized.  
2. Demonstrate the ability to use a systematic product development process in designing a product or system.  
3. Demonstrate the ability to practice skills in the areas of teamwork, oral presentations, and technical writing.  
4. Function effectively in a team environment; and can identify, assess and resolve team problems  
5. Produce physical prototypes  

YOU ARE EXPECTED TO KNOW:  
Since this is a capstone design course, you are expected to have mastered fundamentals of core engineering concepts and basic knowledge in your engineering discipline and products quality reliability assurance analysis.  

COURSE MATERIALS AND READING RESOURCES  
Reference Textbooks:  
Electronic online and print versions should be available from the UNT Bookstore (unt.bncollege.com), Course Smart (www.cousesmart.com), or publisher (www.mhhe.com).  

Course Website: The course will use UNT CANVAS environment for providing supplemental materials.  

COURSE INSTRUCTION AND ASSIGNMENTS  
1. This course is made up of a series of assignments and assessments to assist you in achieving the course learning objectives/outcomes. Each week you will work on various combinations of assignments, activities, discussions, readings, research, etc. which will be made available to you by each Monday and close on the following Sunday.  
   - The first half of each class session will generally be in lecture and discussion format.  
   - The second half will generally be used for project team meetings and consultation.  

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2. Preparation, attendance and participation is expected at all class meetings. As a professional courtesy, please notify me (by email) of any expected absence. You will be expected to make up any missed sessions or team duties on your own. Students are allowed a maximum of two unexcused absences. Each additional absence will result in a partial letter grade deduction (i.e. from A to B, B to C, etc). Additional absences to accommodate legitimate professional or personal reasons should be discussed with the instructor as soon as possible. Makeup quizzes will not be given. Opportunities will be provided to earn extra credit.

3. Throughout the semester, the activities will include participation of students on a product design or redesign team and demonstration of production process; prepare formal technical reports; and present information before an audience. Students may obtain access to the Engineering Graphics and Manufacturing Laboratories for development of their projects and a prototype of the product.

4. The course grade is based on performance and effort in submission of the required work and assignments. This means coming to class on time (by 5:35pm), no mobile phone or laptop computer usage during class presentations and discussions, and conducting one conversation at a time. As a professional manner, it is expected to inform the instructor for not presenting during the scheduled class hours.

5. UNT CANVAS will be used for posting the course materials and instructions, assignments, submission of assignments, email communications about the course, and the course grade-book. Be sure to check UNT CANVAS and the course email at least every other day, if not daily.

6. Class Preparation and Participation: Reading assignments for each class session are given in the Class Schedule section of this syllabus. You are expected to come to class prepared to discuss the readings and the suggested questions. Your individual class participation grade will be based upon your in-class remarks during discussions.

7. Late submission of an assignment will not be accepted, except with an acceptable excuse by the instructor.

8. All works submitted for credit must be original works created by the student uniquely for the class. It is considered inappropriate and unethical, particularly at the graduate level, to make duplicate submissions of a single work for credit in multiple classes, unless specifically requested by the instructor. Work submitted at the graduate level is expected to demonstrate higher-order thinking skills and be of significantly higher quality than work produced at the undergraduate level.

9. It is distracting to me to have laptop computers open when we are in class together. Please do not use laptops in class unless I ask you to do so for some activity or exercise.

10. Make sure your mobile devices are turned off and put away during class. If necessary, you may check them during our class break. (Using your mobile device under the desk is incredibly obvious and very rude. I will be very rude to you in return if you do it.)

11. Late arrival, early departure, and going in and out of class are very distracting to me and your classmates. I don't think it is too much to ask for you to arrive on time and sit for 80 minutes. We will always take a break around the halfway point.

12. There is no final exam in this course. You may complete all work for this class prior to the end of classes.

**ASSESSMENT METHODOLOGY AND DISTRIBUTION**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Quality participation in individual product opportunity proposal and participation rating</td>
<td>5%</td>
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<tr>
<td>Quality of your peer review of one assigned project report</td>
<td>5%</td>
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<tr>
<td>Participation in peer evaluation and peer reviews</td>
<td>5%</td>
</tr>
<tr>
<td>Quality of your preparation and participation in class and attendance</td>
<td>15%</td>
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<tr>
<td>Quality of peer evaluation ratings given by your team members</td>
<td>5%</td>
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<tr>
<td>Quality of your team’s concept design and detail design review</td>
<td>15%</td>
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<tr>
<td>Quality of your Team’s two interim reports</td>
<td>20%</td>
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<tr>
<td>Quality of your team’s final report and work presentation in the final design review</td>
<td>30%</td>
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Letter Grade Assignment
A ≥ 90%; B ≥ 75%; C ≥ 60%; D ≥ 50%

CLASS PARTICIPATION AND ENGAGEMENT (iClicker at UNT-Denton are provided for students use at no cost)
iClicker Polling: Engagement, participation, and interaction are important elements of the learning process. To that end, we will be using iClicker polling, so each student must be registered to iClicker and have a device (computer, smartphone or tablet) for polling responses for this course. You can download the app at www.iclicker.com.

PROJECTS
Your challenge in the project portion of this course is to design a new product and to produce a prototype version of it. The goal of this exercise is to learn principles and methods of product development in a realistic context. Project ideas come from the students in the class.
We ask each student to prepare a one-page written proposal and a 60-second oral presentation for the first class in the 2nd week. Guidelines for reasonable projects are in appendix.

PROJECT EXPENSES
We have a limited amount of funds to reimburse students’ out-of-pocket expenses related to the course projects. Each team will be allocated a budget of $500. If your project requires additional expenditures, your team is expected to cover these expenses personally. Note that UNT will not reimburse for sales tax, so you may need to provide UNT’s tax exemption number to vendors when you make purchases.

TEAM PROJECT
Teams will be formed in the end of 2nd week.

Project Schedule
- **Week 2**: Form Teams
- **Week 2**: Approve Team Project Topics
- **Week 6**: Interim Report 1
customer needs and competitive analysis, Concept models, selection methodologies, and uncertainties.
- **Week 12**: Interim Report 2
Concept Selection and Detail Design of Major Subsystem
- **Week 15**: Final Report
Written Report and Oral Presentation

Guidelines for the project reports writing and rubrics for evaluation will be posted on UNT CANVAS course website. Team members will score other team members in the final examination on their participations and contributions.

ADDITIONAL POLICIES AND INFORMATION
1. **Class Attendance**: Attendance is required for the class hours.
2. **Syllabus updates**: This syllabus is subject to change at any time during the semester with changes to be announced during the class hours.
3. **Classroom Use of Communication Devices**: Cell phones, iPhones, iPods, iPads, laptops, and tablets must be turned off or in silent mode before the start of the class.
4. **Dishonesty**: The UNT Catalog procedures on cheating and plagiarism will be vigorously enforced. It is the duty of each student to protect their work so it is not available to others for submission as their efforts. This is especially true of files that are generated on the computer. Students that knowingly allow others to use their work are partners in this unethical behavior. All rules relating to academic dishonesty will be enforced in accordance with University policies. Use of cell phones, iPhones, iPods, iPads, laptops, and tablets are prohibited during the class exams and quizzes.
The Instructor also has the discretion to assign a failing grade to portions of an assessment, a whole assessment, or the whole course depending on the severity of the event. Plagiarism and academic dishonesty absolutely will NOT be tolerated. It is your responsibility to consult the instructor whenever there is any doubt on the definitions of these terms or on the allowable materials on each homework assignments or reports.

5. Distribution of Course materials: State common law and federal copyright laws protect this course lectures and materials. They have my own original expression and revisions to the textbook author(s) and I record them while I deliver them in order. Whereas you are authorized to take notes in class, thereby creating a derivative work from my lecture, and/or make a print of my lecture notes/slides. The authorization extends only to making one set of notes for your own personal use and no other use. You are not authorized to record my lectures, to provide your notes to anyone else or to make any commercial use of them without express prior permission from me.

6. End of Semester Course Evaluations: Students course evaluations are a requirement for all organized courses at UNT. This survey will be made available at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback from students, as I work to continually improve this course and my teaching. I consider this evaluation to be an important part of your input to this class.

7. Disabilities Accommodation: The University of North Texas complies with Section 504 of the 1973 Rehabilitation Act and with the Americans with Disabilities Act of 1990. The University of North Texas provides academic adjustments and auxiliary aids to individuals with disabilities, as defined under the law. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring accommodation, please see the instructor and/or contact the Office of Disability Accommodation at 940-565-4323 during the first week of class.

8. Campus Resources for Student Success: To learn more about campus resources and information on how you can achieve success, go to https://success.unt.edu.

9. Exam and Assignments: (a) Requests for review of graded work must be submitted during the lecture in which such work is returned to the students. Once class is dismissed, regrade requests will not be accepted; (b) Late submission of assignments will not be accepted.

10. Consistent with University policies for 3 credit hours, this course requires 6-8 hours per week of individual effort, outside of scheduled class times. Please plan accordingly. It is critical that you establish regular times when your team can meet outside of class, since most of the activities are team-based.

11. Email Communications: All email communications must be through your UNT assigned email address. You should write MSET 5030 -Fall 2019 in the subject line. I will not reply emails from yahoo, gmail, outlook, Hotmail, etc.