



University of Puerto Rico
Mayagüez Campus
College of Engineering
Department of Mechanical Engineering
Bachelor of Science in Mechanical Engineering



Course Syllabus

1. General Information: Alpha-numeric codification: INME 3810 Course Title: Creative Design II Number of credits: 2 Contact Period: Two hours of lecture per week
2. Course Description: English: Product dissection uses hands-on dissection exercises to develop in students the ability to understand a machine in not only its functionality but also in terms of its history, social impact, the design methodology, the marketing constraints and the customer needs. Use of proper technical vocabulary to describe mechanical and electrical components. Learn oral, written and hand sketching communication skills. Spanish: Ejercicios de disección de productos para desarrollar en los estudiantes la habilidad a entender una máquina, no solo en su funcionamiento sino también en términos de historia, impacto social, metodología de diseño, restricciones en el mercadeo y necesidades del cliente. Uso de la terminología y vocabulario apropiado para describir componentes mecánicos y eléctricos. Aprender destrezas de comunicación oral, escrita y gráfica.
3. Pre/Co-requisites and other requirements: Pre-requisites: (INGE 3809 or INME 3809) or INGE 3011
4. Course Objectives: After completing this course, the student should be able to: <ul style="list-style-type: none">• Identify, formulate, and solve mechanical problems of simple machines and mechanisms by applying principles of engineering, science, and mathematics (1);• Use basic engineering knowledge to generate an engineering design of simple machines that meet specified needs (2);• Make clear and effective technical presentations, both in terms of form as well as content, of his/her work and write clear technical reports describing his/her work (3);• Use of proper engineering judgment in the area of simple machines guided by ethical, environmental, and professional considerations (4);• Use project management tools such as Gantt charts, Pareto charts, critical path analysis, and action items for planning, prioritizing, and scheduling tasks in a design project work effectively. Work on project teams in both member and leader roles, with team members who may have different backgrounds and technical skill levels (5);• Find, evaluate and use resources to learn independently in the area of basic machines and mechanisms (7).
5. Instructional Strategies: <input checked="" type="checkbox"/> conference <input type="checkbox"/> discussion <input type="checkbox"/> computation <input checked="" type="checkbox"/> laboratory <input type="checkbox"/> seminar with formal presentation <input type="checkbox"/> seminar without formal presentation <input checked="" type="checkbox"/> workshop

art workshop practice trip thesis special problems tutoring

research other, please specify:

6. Minimum or Required Resources Available:

The students are required to bring basic tools and safety glasses and gloves for some workshops when necessary. Computers and other tools are available in L-122 and L-100, respectively.

7. Course time frame and thematic outline

General Topics	Contact Hours	
	Lecture	Workshop
Course introduction and teambuilding.	1	2
The engineering design process and related activities	3-4	3-5
Technical documentation: documents, graphs, presentations and drawings	1-2	3-4
Basic machines and mechanisms	1-2	2-3
Rapid prototyping, instrumentation and reverse engineering	1-2	2-3
Engineering ethics	1	0
Dissection of products	1	6-10
Oral presentations	1	3-5
Partial exams	0-3	0
Total hours: (equivalent to contact period)	15	30

8. Grading System

Quantifiable (letters) Not Quantifiable

9. Evaluation Strategies

	Quantity	Percent *
<input checked="" type="checkbox"/> Exams	1-3	0-25
<input checked="" type="checkbox"/> Final Exam **	1	10-25
<input checked="" type="checkbox"/> Short Quizzes	0-10	0-25
<input checked="" type="checkbox"/> Oral Reports	0-10	0-25
<input type="checkbox"/> Monographies		
<input type="checkbox"/> Portfolio		
<input checked="" type="checkbox"/> Projects	3-10	25-50
<input type="checkbox"/> Journals		
<input checked="" type="checkbox"/> Other, specify:		
Workshop Attendance ^		0-25
Prototypes, diagrams, draft ^	0-3	0-20
Poster Presentation ^	0-3	0-5
Peer Evaluation ^		0-5
TOTAL:		100%

* All evaluation strategies will add to 100%

** In design courses a capstone project may replace the final exam.

^The professor will include at least two of these items.

10. Bibliography:

Textbook:

Abarca, J., Bedard, A., Carlson, D., Carlson, L., Hertzberg, J., Louie, B., Milford, J., Reitsma, R., Schwartz, T., Sullivan, J. (2000). *Introductory Engineering Design: A Project-Based*

Approach, Retrieved on 2018 from:

http://itll.colorado.edu/courses_workshops/geen_1400/resources/textbook/ **

** These books are key classic references and remain as the top books for the subjects covered in the course and there are no up-to-date textbooks to substitute these books.

11. Law 51: The Comprehensive Educational Services Act for People with Disabilities:

States that after identifying with the instructor and the institution, the student with disabilities will receive reasonable accommodation in their courses and evaluations. For more information, contact the Department of Counseling and Psychological services at the Office of the Dean of Students (Office DE 21) or call 787-265-3864 or 787-832-4040 x 3772, 2040 and 3864.

12. Academic Integrity

The University of Puerto Rico promotes the highest standards of academic and scientific integrity. Article 6.2 of the UPR Students General Bylaws (Board of Trustees Certification 13, 2009-2010) states that academic dishonesty includes, but is not limited to: fraudulent actions; obtaining grades or academic degrees by false or fraudulent simulations; copying the whole or part of the academic work of another person; plagiarizing totally or partially the work of another person; copying all or part of another person answers to the questions of an oral or written exam by taking or getting someone else to take the exam on his/her behalf; as well as enabling and facilitating another person to perform the aforementioned behavior. Any of these behaviors will be subject to disciplinary action in accordance with the disciplinary procedure laid down in the UPR Students General Bylaws.—

13. Certification 06-43 of the Academic Senate

"The academic guidelines for offering online courses," defines: Traditional face-to-face courses are those that have less than 25% of the course's regular contact hours via the Internet. Therefore, a three-credit course will be considered "face to face" if, of the 45 hours of regular contact, 11 or less are taught via the Internet. According to certification 06-43 of the Academic Senate, a course may include up to 25% of its total contact hours via the Internet. The objective of this is so that all professors have this alternative in the case of any unscheduled eventuality.

14. Sexual Harassment: Certification 130-2014-2015 states:

Sexual harassment in the workplace and in the study environment is an illegal and discriminatory act and is against the best interests of the University of Puerto Rico. All persons who understand they have been subject to acts of sexual harassment at the University of Puerto Rico may file a complaint and request that the institution investigate, where necessary, and assume the corresponding action by the university authorities. If the complainant is a student, he or she must refer his or her complaint to the Office of the Student Ombudsperson or that of the Dean of Students.

Revised: February, 2019