

COURSE SYLLABUS

1. General Information:

Alpha-numeric codification: INGE/INME 3809
 Course Title: Creative Design
 Number of credits: 3
 Contact Period: 2 hours lecture, 2 hours laboratory

2. Course Description:

English: Introduction to the underlying principles and methodologies of engineering graphics communications, as a tool for the solution of engineering problems: fundamentals of graphic visualization, sketching, pc-based computer-aided-design (cad), and technical presentations. An introduction to computer-aided-design software will include principles of parametric solid modes of mechanical parts and assemblies including dimensions and tolerancias. Solid modeling is the tool for visualization, and analysis of engineering problems.

Spanish: Introducción a los principios y las metodologías de comunicaciones gráficas en ingeniería como una herramienta para la solución de los problemas de ingeniería. Fundamentos de visualización gráfica, bosquejos, diseño asistido por computadora (dac) usando la computadora personal y presentaciones técnicas. Introducción a programas de diseño asistido por computadora y principios de sólidos paramétricos de partes mecánicas y ensamblajes, incluyendo dimensiones y tolerancias. Modelaje de sólidos es la herramienta para visualización y análisis de problemas de ingeniería.

3. Pre/Co-requisites and other requirements:

None

4. Course Objectives:

To provide a solid foundation for further learning and to spark student’s imagination and a desire for continued learning. To expose students to critical reasoning and visualization techniques in engineering problems. To provide students with the basic skills of graphic communications applied to the engineering design process. To expose students to basic manufacturing and fabrication techniques through the construction of computer-generated solid models of parts and assemblies of parts for simple machines. To introduce students to computers and their use in graphic communication and as a tool for solving engineering problems. To develop resourcefulness and problem-solving skills.

5. Instructional Strategies:

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|--|--|--|--|
| <input checked="" type="checkbox"/> Conference | <input checked="" 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 type="checkbox"/> Workshop | <input type="checkbox"/> Art workshop | <input checked="" type="checkbox"/> Practice | <input type="checkbox"/> Trip |
| <input type="checkbox"/> Thesis | <input type="checkbox"/> Special problems | <input checked="" type="checkbox"/> Tutoring | <input type="checkbox"/> Research |
| <input checked="" type="checkbox"/> Other, please specify: Oral Defense for Course Project | | | |

6. Minimum or Required Resources Available:

Supplies and material: Mechanical pencil 0.5 mm, erasers, compass, 45 and 30/60 degree triangles, protractors, architect scale, civil engineer scale and metric scale. For online lectures you will also need a Laptop with camera and access to High Speed Internet.

7. Course time frame and thematic outline:

Outline	Contact Hours
• Introduction to engineering design, teamwork	2
• Introduction Design Process	2
• Lettering, Instruments, Lines, Scales	3
• Geometric construction, Tangency	4
• Orthographic Projection	2
• 3D sketching, Oblique, Isometric Drawings	4
• Aux views, Sections	1
• Introduction to CAD software (2 and 3 dimensional)	3
• Creation of solid models of parts	8
• Creation of assemblies of model parts	6
• Creation of documentation drawings	2
• Creation and orientation of drawing views	2
• Fundamentals of dimensioning and tolerance	8
• Reading engineering drawings	1
• Design projects	8
• Two partial exam	4
Total hours: (equivalent to contact period)	60

8. Grading System:

Quantifiable (letters) Not Quantifiable

9. Evaluation Strategies:

Note: To be assigned by professor: quantity and percent

	Quantity	Percent
<input checked="" type="checkbox"/> Exams	1 - 2	20% - 40%
<input checked="" type="checkbox"/> Final Exam (Final Project)	1	10% - 20%
<input type="checkbox"/> Short Quizzes		
<input type="checkbox"/> Oral Reports		
<input checked="" type="checkbox"/> Lab work Oral Reports. Worksheet	20 - 30	40% - 50%
<input type="checkbox"/> Portfolio, Monographs		
<input checked="" type="checkbox"/> Projects (Includes Oral Presentation)	1	20% - 30%
<input type="checkbox"/> Other, specify: (attendance and participation)	1	5% - 10%
TOTAL:		100%

10. Bibliography:

Required Textbook:

- Frederick E. Giesecke, Shawna Lockhart, Marla Goodman and Cindy M. Johnson, **Technical Drawing with Engineering Graphics**, 15th Edition, Pearson, Prentice Hall 2016 ISBN-10: 013430641-4
- NX 10 Tutorial: Sketching, Feature Modeling, Assemblies, Drawings, Sheet Metal, and Simulation basics-Online Instructor. Paperback:136 pages Publisher: Create Space Independent Publishing Platform (March 31,2015) ISBN-10: 1511523794

11. Reasonable Accommodation (Law 51):

The University of Puerto Rico at Mayagüez (RUM) recognizes that each student has an inherited right to request reasonable accommodation according to Law 51: Law for Integral Educational Services for People with Disabilities. Every student has the right to receive reasonable accommodation if he/she presents the necessary evidence to be evaluated by the Office of Services to Students with Disabilities (OSEI-RUM), and the related information can be found at the following link: <https://www.uprm.edu/cms/index.php/page/85>. If your case is approved by OSEI-RUM, you will receive reasonable accommodation in your courses and evaluation, and you must contact each professor for course registered. For additional information contact OSEI-RUM at Sánchez Hidalgo 410 or via telephone 787-832-4040 extension 3107.

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. Policy Against Discrimination Based on Sex, Sexual Orientation, and Gender Identity:

The University of Puerto Rico prohibits discrimination based on sex, sexual orientation, and gender identity in any of its forms, including that of sexual harassment. According to the Institutional Policy Against Sexual Harassment at the University of Puerto Rico, Certification Num. 130, 2014-2015 from the Board of Governors, any student subjected to acts constituting sexual harassment, may turn to the Office of the Student Ombudsperson, the Office of the Dean of Students, and/or the Coordinator of the Office of Compliance with Title IX for an orientation and/or formal complaint.

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.

15. Certification 06-43 of the Academic Senate states, "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 16-43 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.

Revised by:

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Approved by:



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