

COURSE SYLLABUS

1. General Information:

Alpha-numeric codification: INGE 3012
 Course Title: Engineering Graphics II
 Number of credits: 2
 Contact Period: 1 hour 50 min of lecture-drawing periods per week

2. Course Description:

English: Underlying principles of the graphic language: fundamentals of delineation, analysis and solution of space problems, symbols and standards as applied to engineering. Spatial geometry: distances between planes and lines, angles between lines and planes, rotation problems. Introduction to graphical mathematics and nomography.

Spanish: Principios fundamentales del lenguaje gráfico: fundamentos en el bosquejo, análisis y solución de problemas, símbolos y normas aplicadas a la ingeniería, geometría descriptiva, distancias entre planos y líneas. Ángulos entre planos y líneas, problemas de rotación. Introducción a las matemáticas gráficas y nomografía.

3. Pre/Co-requisites and other requirements:

INGE 3011

4. Course Objectives:

- After completing the course, the student should be able to apply the basics of descriptive geometry on creative problem solution.
- Apply descriptive geometry solution to three-dimensional problems.
 - Work with spatial description and coordinate dimensions.
 - Determine geometric relation of a problem.
 - Understand basic topographic concepts such as bearings, azimuths, slopes and strike.
 - Develop profiles views and plot plans.
 - Work with the four components of a force and use graphical vector analysis to identify the member forces in coplanar and non-coplanar force systems including beams and trusses.

5. Instructional Strategies:

- | | | | |
|---|--|--|--|
| <input checked="" type="checkbox"/> Conference | <input checked="" type="checkbox"/> Discussion | <input checked="" 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 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 type="checkbox"/> Other, please specify: | | | |

6. Minimum or Required Resources Available:

Supplies and material: The course instructor will establish the supplies. Examples are: Pencils, Erasers, Irregular curves, 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
• Lines, Points and Planes	4
• Primary & Successive Auxiliary Views	4
• True length and Point View of Lines	4
• Edge View of Planes	3
• True Size of Planes	3
• Angle Between Lines and Principal Planes	4
• Angle Between Two Planes	4
• Distance Between Lines	3
• Intersection	4
• Developments	3
• Revolution	4
• Sloping Lines	2
• Landform Drawings	1
• Bearing and Azimuths	2
• Vertical Section and Plan Profiles	4
• Slope and Slope Direction of a Plane	3
• Strike and Dip	2
• Outcrop	2
• Vector Graphics	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	1-3	20%-40%
<input checked="" type="checkbox"/> Final Exam (Final Project)	1	20%-30%
<input checked="" type="checkbox"/> Short Quizzes	1-3	5%-10%
<input type="checkbox"/> Oral Reports		
<input checked="" type="checkbox"/> Lab work	20-30	20%-40%
<input type="checkbox"/> Portfolio, Monographies		
<input type="checkbox"/> Projects (Group Online Activities)		
<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

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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Revised: June 2020