TEXAS A&M UNIVERSITY
GALVESTON CAMPUS

ENGR 112 - Foundations of Engineering II

COURSE SYLLABUS

Course Information

Foundations of Engineering II - ENGR 112
Fall 2015

Course Instructor

Masoud Hayatdavoodi, Ph.D.
Instructional Assistant Professor
Ocean Engineering Department

Office: PMEC 117
Email: masoud@tamu.edu
Website: http://people.tamu.edu/~masoud/

Class Schedule

- **Lecture:** Monday, Wednesday 08:00AM - 08:50AM at KIRK 207
- **Laboratory:** Thursday 08:00AM-09:50AM, at PMEC 143

Office Hours

Monday: 02:00PM-03:00PM,
Wednesday: 02:00PM-03:00PM,
Friday: 02:00PM-03:00PM.
And by appointments.

Grading

Assignments	20%
Midterm Exam	25%
Project I	5%
Project II	10%
Project III	10%
Final Exam	30%

Grading Scale

A $\geq 90\%$
B $\geq 75\%$
C $\geq 60\%$
D $\geq 50\%$
F $< 50\%$

Textbooks

- Camba, Jorge Dorribo and Otey, Jeffrey and Whiteacre, Matthew (2012) "Foundations of Graphics for Engineers," Pearson Learning Solutions.
- Shih, Randy H. (2012), "AutoCAD 2012 Tutorial, Second Level: 3D modeling," SDC Publication, ISBN: 978-1-58503-640-0.
- Chapra, Steven C. (2011), "Applied Numerical Methods with MATLAB for Engineers and Scientists,", McGraw-Hill Science/Engineering/Math.

Course Communications	Course-related material, along with class communications, are held on *eCampus* through *Howdy* portal. Students are expected to check and use the course webpage on regular basis.
Course Description	Continuation of ENGR 111. Topics include, depending on the major: emphasis on computer applications and programming and solids modeling using CAD tools or other software; fundamentals of engineering science. Advanced graphic skills.
Learning Outcomes	The course in intended to familiarize students with fundamental engineering competencies, and to enhance their empirical and quantitative skills, and to assist students to integrate multiple disciplines to construct innovative engineering solutions. In this course, students should gain fundamental knowledge of engineering graphics, three dimensional CAD drawing, MATLAB m-files, and should become familiar with utilizing computer programs in solving engineering problems. Upon completion of this course, students should be able to formulate basic practical engineering problems and use computer programs for solutions, and to present results in a systematic manner. This course supports the ABET criteria b, d, g and k, as following, and criteria 1 and 7: b. An ability to design and conduct experiments as well as to analyze and interpret data; d. An ability to function on multidisciplinary teams; g. An ability to communicate effectively; k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Prerequisites	ENGR 111, MATH 151
Attendance and Make-up Polices	Information concerning absences is contained in the University Student Rules Section 7 `http://www.tamug.edu/stulife/Academic%20Rules/Rule%207.pdf`. The University views class attendance as an individual student responsibility. All students are expected to attend class and to complete all assignments. Late arrivals count as absences.Please consult the University Student Rules for reasons for excused absences, detailed procedures and deadlines as well as student grievance procedures (Part III, Section 45). If the absence is excused, the student will be provided an opportunity to make up any quiz, exam or other work that contributes to the final grade. The evaluation method will be decided by the instructor. The evaluation date is agreed upon by the student and instructor.
Academic Integrity	*An Aggie does not lie, cheat or steal, or tolerate those who do.* For additional information visit: `http://www.tamug.edu/HonorSystem`.
Americans with Disabilities Act (ADA)	The Americans with Disabilities Act (ADA) is a federal non-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this law 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 an accommodation, please contact the Counseling Office, Seibel Student Center, or call (409)740-4587. For additional information visit: `http://www.tamug.edu/counsel/Disabilities.html`.

TENTATIVE SCHEDULE

MONDAY	WEDNESDAY	THURSDAY
Aug 31st **1** Course Introduction	Sep 2nd **2** Eng. Graphics: Isometrics	3rd **3** AutoCAD: 2D Review Assignment
7th **4** Eng. Graphics and AutoCAD: Isometrics	9th **5** Eng. Graphics: Orthographic Projection and Isometric Drawing	10th **6** AutoCAD: Isometric Drawing Assignment
14th **7** Eng. Graphics: Sections	16th **8** AutoCAD: 3D Wireframe Modeling	17th **9** AutoCAD: 3D Wireframe Assignment
21st **10** **Midterm Review**	23rd **11** Literature Review Resources	24th **12** **AutoCAD Midterm Exam**
28th **13** Paper Review Selection	30th **14** Introduction to Programming	Oct 1st **15** **Midterm Exam**
5th **16** Programming: Flowcharts	7th **17** Programming: MATLAB Language	8th **18** **Paper Review: Presentations**
12th **19** MATLAB: m-files	14th **20** Input-Output	15th **21** MATLAB Programming
19th **22** Decisions	21st **23** Decisions	22nd **24** MATLAB Programming
26th **25** Loops	28th **26** Loops	29th **27** MATLAB Programming
Nov 2nd **28** Plotting	4th **29** Plotting	5th **30** MATLAB Programming
9th **31** Numerical Integration	11th **32** Numerical Integration	12th **33** Project II: Wave Loads
16th **34** Probability and Statistics	18th **35** Project III: Water Waves	19th **36** Laboratory Experiment
23rd **37** Project II Revision	25th **38** Probability and Statistics	26th **Thanksgiving Holiday**
30th **39** Project III Revision	Dec 2nd **40** Probability and Statistics	3rd **41** MATLAB Programming
7th **42** Redefined Day: Friday	9th **43** **Final Exam Review**	10th **44** Reading Day: No Class

Final Exam: Tuesday, December 15, 2015, 8:00AM to 10:00AM at KIRK 207.