



## Alfaisal University - College of Science and General Studies University Preparatory Program-Engineering Pathway

### PIE 112 - Introduction to Engineering Innovation [3 Credit Hours]

**Class Time:** TBD

**Class Location:** TBD

**Prerequisite:** None

**Instructor:** TBD

**Office:** TBD

**Phone:** TBD

**Email:** TBD

**Office Hours:** TBD

#### Recommended Textbook:

- *Introduction to Engineering*, Mohammed A. AlHaider, (2013)  
<http://www.nooonbooks.com/catalog/product/view/id/38283/s/Introduction-to=-Engineering/>

Weekly Readings and Study Guides will be posted on Moodle.

#### Course Description:

Engineering Innovation is an exciting UPP course level for motivated new students with an aptitude in math and science and an interest in engineering. In this course students will learn how to think like an engineer and develop the necessary problem-solving skills. The course will provide students with a hands on, experiential learning experience, which will provide: working knowledge of contemporary engineering practice, the problem solving process, and the tools and technologies engineers employ, as well as an understanding of the design process including competition, cost, quality, scheduling and manufacturability considerations. Numerous topics in various engineering disciplines will be covered with inspiring presentations, guest-speakers, team projects, and hands-on activities.

#### Course Goal:

The course aims to introduce students to all the different disciplines of engineering offered at Alfaisal. Each class is 3 hours long, and will be offered in a workshop/seminar style, with each session covering an independent topic. Study guides and suggested readings will be posted weekly after each class.

## Course Schedule and Major Topics:

Lecture	Lecture Topic
1	Welcome / Intro. to Engineering / History of Engineering
2	Alfaisal Engineering Programs / Intro. to SE / Software Development [SE]
3	Website Design and Development [SE]
4	Mobile App Development [SE]
5	Engineering the World's Tallest Towers [ARE]
6	Making And Meaning in Architecture [ARE]
7	Intro. to EE/ Circuit Design [EE]
8	Midterm Exam
9	Walking Straight ó Physical Balance in Robots, Machines, Ships & Rockets [EE]
10	Solar Photovoltaic Systems [EE]
11	Intro. To IE / Manufacturing [IE]
12	Productivity Improvement thorough Work System Analysis and Design [IE]
13	Intro. to ME / Automotive Engineering and Car Races (Formula, and Shell projects and challenges ) [ME]
14	3D Printing Techniques [ME]
15	Field Trip
16-18	Final Exam

## Evaluation & Grading Distribution:

Course Component	Weight	Comments
Group Projects/Activities	50%	Weekly
Journals	10%	Weekly submission on Moodle
Midterm Exam	15%	TBA
Final Exam	25%	TBA
<b>Total</b>	100%	

### Group Projects & Activities - 50%

There will be approximately several team projects/assignments, each of which you will either have to finish by the end of class, or by the following week, depending on my instructions. These projects are worth the major part of your grade, so be sure to submit your best work. Projects will be graded on a team basis, however, there is an individual participation component to the grade, and individual members who fail to participate will lose points accordingly. You will be graded on the project based off of the quality of your video/photo compilation submission, effort, participation and ability to complete the task at hand.

Peer Evaluation sheet of other team member's performance for each project submission is optional. You may download the form from Moodle, print it, fill it out, and submit to the instructor the following week. Please use this optional form to let me know if you have a complaint or an issue with your teammates. Failure to notify me of problems with your team via the evaluation form can result in consequences to your grade.

### Journals - 10%

You are expected to write down three things you learned at the end of each class session and submit it before leaving. This is an assignment to be completed individually.

### Midterm Exam - 15%

There will be a Midterm covering the first half the course's material. Please note that there are absolutely no makeup exams. Failure to show for exam, results in a score of 0. The exam takes place just before the start of the Spring Break, so please be sure to be present! Early vacation travels will not excuse you!

### Final Exam - 25% [TBA]

There will be a Final covering the second half the course's material. The Final is not cumulative. Please note that there are absolutely no makeup exams. Failure to show for exam, results in a score of 0.

### Alfaisal University Letter Grading Scale:

Grade	Percent Range	Grade	Percent Range
A	95%-100%	C	73%-75%
A-	90%-94%	C-	70%-72%
B+	86%-89%	D+	66%-69%
B	83%-85%	D	60%-65%
B-	80%-82%	F	0%-59%
C+	76%-79%		

### Policies:

#### ▪ Policy related to missing classes:

Regardless of the reasons, a student missing 15% or more of classes will be denied (DN) from the course. The 15% absences are intended to accommodate for medical emergencies<sup>1</sup> and cases of bereavement of an immediate family member<sup>2</sup>. Only in these cases will the student be allowed to make up missed class work or missed exams

#### ▪ Arriving late to class:

Coming to class 5 minutes after the start of class time is considered late, and 3 lates will count as 1 absence. Coming to class 10 minutes late will be considered as an absence.

<sup>1</sup>Medical emergency counts for only verifiable communicable diseases and unforeseen, beyond the student's control, hospitalization. It needs to be documented by the hospital (not a clinic, much less a private practice doctor) and will be verified.

<sup>2</sup>Bereavement document from the Ministry of Health will be required in case, God forbid, of a death in your immediate family. In such a case, you will be excused for three days.

#### ▪ Mobile, Laptop and Tablet Policy:

No electronic devices are allowed during the exams (except calculators under the instructor's permission). Most notably **mobile phones** are not allowed even in off mode. **An irrevocable score zero (0) will be assigned to any student caught with a mobile phone and may be subject to further disciplinary measures.** Students are not allowed to use their mobile phones, Ipads or laptops during regular classes (except under the instructor's permission). Any student caught using any of these devices will be instructed to leave the classroom and will be given a full absence for that particular lecture.

#### ▪ Academic Integrity:

Students are expected to maintain academic integrity at all times and to seek assistance from the instructor when uncertain. Students who engage in activities which misrepresent their academic work through plagiarism, cheating and falsification infractions of academic integrity will be subject to serious disciplinary measures, ranging from a zero grade in that assessment to the dismissal from the university altogether. All aspects of the course are covered by these rules, including homework, lab reports, course reports, quizzes and exams.

- **Consequences of Misconduct:**

When discipline and misconduct issues become apparent, a student will initially receive a verbal warning as a reminder to respect the instructor's authority during class time. If this misconduct during class continues, the student will be terminally dismissed from the particular course or from the university altogether. Any student disrupting an examination may be instantly dismissed from the examination room and risk being given an F grade.

- **Assignments, Quizzes and Exams:**

1. Late assignments will not be accepted; they must be completed on the day they are due to receive credit. There is no provision to make-up for missed homework assignments, quizzes, midterm or final exams except under reasons deemed acceptable by your professor (*refer to attendance policy section*).
2. The instructor will return the grades of homework assignments, lab reports, quizzes and midterm exams and to go over them with proper feedback and solutions. Grades will be posted within a maximum of one week after the day on which the assessment was offered.
3. Students must present their Alfasal ID cards during exam times.

- **Lines of Communication:**

If you have any concern or suggestion, it is imperative to follow the following steps in the order they are listed:

1. First, talk to your instructor to resolve your issue.
2. Second, if your issue has merit and was not resolved by your instructor in a reasonable time frame, you may then contact the Chair of the Department.
3. Third, if your issue has merit to be escalated further along the hierarchy, you may then contact the Vice Dean for Academic and Student Affairs.
4. Failure to give due chance and time to resolving your issue with your instructor, your Department Head and your Vice Dean, and, going above their heads directly to the Dean or to the Provost, will certainly invite disciplinary measures for not adhering to the institutional lines of communication outlined above.