Philadelphia University
Faculty of Engineering – Department of Electrical Engineering

Course Details:

Title:	Fundamentals of engineering (610111)
Prerequisite:	None
Credit Hours:	3 credit hours (16 weeks per semester, approximately 45 contact hours)
Textbook:	"Foundations of Engineering,2nd edition, Mark T. Holtzapple, W. Dan Reece, Mc-Graw Hill.
References:	Serway, Raymond, and John Jewett. Physics for scientists and engineers with modern physics. Nelson Education, 2013.
Course Description:	The course is a requirement for electrical engineering students. It introduces the basic principles of engineering such as numbering systems, tables and graphs, statistics, Newton's Laws, introduction to thermodynamics, SI unit system, units conversion, and introduction to the fundamentals of electrical engineering.

Course Outlines:

Week	Topic
1	Physical concepts of numbers
2	Use of tables and graphs
3, 4	Statistics analysis
5, 6, 7	Newton's laws
8, 9	Introduction to heat and heat transfer
10, 11	SI system of units and unit conversions
12	Algebra (basic operation, law of indices, brackets and factorization, fundamental laws and precedence)
13	Simultaneous equations (simple equation, solving two equations by substitution ane elimination)
14	Quadratic equations (solution of quadratic equation by factorization, by complementing the square and by formula)
15	Physical concepts of current, voltage, emf, types of energies and power)
16	Ohm's law and Kirvhoff's law

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Understand the scientific notation and the significant figures for any number.	[a]
2.	know how to make tables and draw graphs in different formats, and how to write linear equation from data points	[a,b]
3.	Be able to know and calculate different statistics concepts	[a]
4.	Be able to know some concepts related to newton's laws, the fundamental forces, and the three newton's laws	[a,e]
5.	know some thermodynamics concepts, gas laws, and thermodynamics laws	[a,c]
6.	Be able to know the types of SI units, and conversion factors	[a]
7.	Understand the basic electric quantities, circuit components, and simple resistive circuit	[e]

Assessment Guidance:

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams: The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.

Quizzes: (3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.

Homework and projects: Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).

Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.

Collective Participation: Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.

Final Exam: The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

Grading policy:

First Exam	20%
Second Exam	20%
Homework and projects	12%
Quizzes and participation	8%
Final Exam	40%
Total:	100%

Attendance Regulation:

The semester has in total 45 credit hours. Total absence hours from classes and tutorials must not exceed 15% of the total credit hours. Exceeding this limit without a medical or emergency excuse approved by the deanship will prohibit the student from sitting the final exam and a zero mark will be recorded for the course. If the excuse is approved by the deanship the student will be considered withdrawn from the course.

May, 2018