



Philadelphia University

Faculty of Engineering - Department of Communications and
Electronics Engineering

Course Information

Title: Engineering Analysis 1 (0650260)

Prerequisite: Calculus 2 (0250102)

Credit Hours: 3 credit hours (16 weeks per semester, approximately 44 contact hours)

Textbook: Advanced Engineering Mathematics By:Erwin Kreyszig 10th edition, 2011

- References:**
- 1) Boyce, William E., DiPrima, Richard C., Elementary Differential Equations, ninth Edition, Wiley, New York, 2009.
 - 2) Rabenstein, Albert L., Elementary Differential Equations with Linear Algebra, Third Edition, Academic Press, New York, 1982.
 - 3) Krusemeyer, Mark, Differential Equations, Macmillan Publishing Co., New York, 1994.
 - 4) Simmons, George F., Differential Equations with Applications and Historical Notes, third edition, Taylor & Francis Group, LLC, 2017

Catalog Description: The course aims to provide students with the ability to understand and deal with first, second, and higher order differential equations as well as power series methods and Laplace transform.

Course Topics

Week	Topic
1	Basic Concepts & Ideas
2, 3, 4	First Order Differential Equations
5, 6, 7	Second Order Differential Equations
8	Higher Order Differential Equations
9	Laplace Transform, Inverse Laplace Transform
10, 11	Laplace Transform properties
12	Solving DE using Laplace Transform
13, 14	Power Series Method
14, 15	Frobenius method and Projects discussion.
16	Final Examination

Course Learning Outcomes and Relation to ABET Student Outcomes:

Upon successful completion of this course, a student should be able to:

1.	Understand Basic and elementary concepts of differential equations	[a]
2.	Distinguish the appropriate methods to solve differential equations	[a]
3.	Use fundamental knowledge to analyze and solve different engineering models	[e]
4.	Use Laplace Transform and power series to solve differential equations	[a]

Assessment Instruments:

Evaluation of students' performance (final grade) will be based on the following categories:

Exams: Two written exams will be given. Each will cover about 3-weeks of lectures

Quizzes: 10-minute quizzes will be given to the students during the semester. These quizzes will cover material discussed during the previous lecture(s).

Homework: Problem sets will be given to students. Homework should be solved individually and submitted before the due date.

Copying homework is forbidden, any student caught copying the homework or any part of the homework will receive zero mark for that homework

Participation: Questions will be asked during lecture and the student is assessed based on his/her response

Final Exam: The final exam will cover all the class material.

Grading policy:

First Exam	20%
Second Exam	20%
Homework	10%
Quizzes and participation	10%
Final Exam	40%

Total: 100%

Attendance policy:

Absence from classes and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse, acceptable to and approved by the Dean of the relevant college/faculty, shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

February, 2017