

King Fahd University of Petroleum and Minerals

Department of Mathematics and Statistics

SYLLABUS

Semester II, 2017-2018 (072)

(Dr. Nasser-eddine Tatar)

Course #: Math 513
Title: Mathematical Methods for Engineers
Textbook: Advanced Engineering Mathematics with Matlab, Dean G. Duffy, 3rd Edition 2010

Extra References

- Beginning Partial Differential Equations, P. V. O'Neil, Wiley Inter Science 1999.
- Advanced Engineering Mathematics by Zill and Cullen (Third Edition, 1999).
- D.W.Trim, Applied Partial Differential Equations (International Thomson Publishing)
- P. V. O'Neil, Advanced Engineering Mathematics (Thomson Brooks).

Objective: This course aims to introduce some necessary concepts of Engineering Mathematical Methods such as Fourier and Laplace transforms, Sturm-Liouville problems, basic PDE's, and some matrix theory.

Outcomes: By the end of this course, the student should be able to

- 1- Obtain Fourier series representations of commonly used functions,
- 2- Solve Sturm Liouvilles Problems,
- 3- Know basic properties of Laplace and Fourier Transforms and be able to find transforms of commonly used functions,
- 4- Know basic linear partial differential equations (PDEs),
- 5- Solve these PDEs using Fourier Series, Laplace, and Fourier Transforms
- 6- Understand and apply basic linear algebra.

Week	Chapters	Material
1-2	4	Fourier Series
3-4	5	The Fourier Transform
5-6	6	The Laplace Transform
7-8	9	The Sturm-Liouville Problem
9-10	10	The Wave Equation
11	11	The Heat Equation
12	12	The Laplace Equation
13-14	15	Linear Algebra
15		Catch up and Review

Grading Policy: Homework, Attendance and Assignments ..%, Midterm ..%, Final ..%

Final Exam: May 06, 2018 at 7:00pm

Office: 5-506

Tel: 4654

Schedule

Day/Time	8:-8:50	9-9:50	10-10:50	11-11:50
Sunday		Office hour	Math 513 R: 4-237	Office hour
Monday				
Tuesday		Office hour	Math 513 R: 4-237	Office hour
Wednesday				Math Seminar
Thursday		Office hour	Math 513 R: 4-237	Office hour