LE200 Electrical Engineering Mathematics (Second Half)

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Course Descriptions Linear algebra: review of vectors and matrices; vector spaces; linear transformations; systems of linear equations; eigenvalue problems; models in electrical engineering. Fourier and Laplace transforms and their applications. Complex analysis: complex numbers and functions; complex integration; residue theorem.

Prerequisite Knowledge (What you should know)

- Basic calculus; differentiation, integration, series
- Differential equations (both ordinary (ODE) and partial (PDE))

Tentative Course Schedule (What you must learn)

- Laplace transform and applications to differential equations (2)
- Fourier series, applications to differential equations, partial differential equations (1)
- Fourier transform, applications to partial differential equations (1)
- Complex variables, functions and derivatives (1)
- Complex integration (1)
- Power series (Taylor's and Laurent's series) (1)
- Residue theorem and applications (1)

Textbook and Reference

[1] R. V. Churchill, J. W. Brown, *Complex Variables and Applications* 8th edition, McGraw-Hill Higher Education, 2009.

[2] E. Kreyszig, Advanced Engineering Mathematics 10th edition, John Wiley & Sons, Chap 6 (Laplace), 11 (Fourier), 13-16 (Complex))
[3] Lecture notes

Grading

Attendance & Quizzes & Assignments	10%
Comprehensive Final	40%
Total	50%