常微分方程

(10520 EE 201001, Ordinary Differential Equations)

一、課程說明

This course aims to provide sufficient mathematic training for students whose majors are in engineering or physics. The content emphasizes in ordinary differential equations, eigenfunction expansion, Fourier transforms, and Laplace transforms. This course lays the mathematic foundation of electromagnetics, modern physics, solid-state physics and so on. Basic mathematic skills, especially calculus, are required.

二、教科書

D. G. Zill, M. R. Cullen, *Differential Equations with Boundary-Value Problems*, 7th Edition, Brooks/Cole, Cengage Learning, 2009. (ISBN 10: 0-495-10836-7)

三、參考書籍

C. H. Edwards, D. E. Penney, D. Calvis, *Differential Equations and Boundary Value Problems*, 5th Edition, Pearson, 2016. (ISBN 10: 1-292-10877-0)

四、教學方式

Lectured in English

五、教學進度(Syllabus)

1. First-order ordinary differential equations (ODEs)
2. Second-order linear ODEs
3. Laplace transforms
4. Fourier transforms
5. Eigenfunction expansion
6. Power series method and special functions (Bessel functions, Legendre's polynomials)

六、成績考核(Evaluation)

Homework assignments 作業(30%)、midterm exams 兩次期中考(各 35%)

七、可連結之網頁位址

http://lms.nthu.edu.tw