

Differential Equations

2 units (selection)

Nobuyoshi Fukagai · ASSOCIATE PROFESSOR / PLANNING AND DESIGN SYSTEMS ENGINEERING FOR INFRASTRUCTURES, CIVIL AND ENVIRONMENTAL ENGINEERING, INTELLIGENT STRUCTURES AND MECHANICS SYSTEMS ENGINEERING

Target Introduction to mathematical theory of differential equations.

Outline Boundary value problems of second order linear differential equations.

Style Lecture

Keyword 微分方程式の境界値問題, *Sturm-Liouville* 問題

Goal To be familiar with Sturm-Liouville type equations.

Schedule

1. Introduction
2. Helmholtz's equation
3. Eigenvalues and eigenfunctions
4. Green's function
5. Residue analysis
6. Expansion of Green's function
7. Fourier series
8. Existence theorem
9. Sturm-Liouville problems
10. Characteristic function
11. Solvability of boundary value problems
12. Basic estimates
13. Distribution of eigenvalues
14. Eigenfunction expansion
15. Review

Evaluation Criteria Evaluation will be based on assignments.

Reference 望月清・トルシン 『数理物理の微分方程式』 培風館

Contents <http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=218258>

Student Able to be taken by student of other department

Contact

⇒ 工学部数学教室 (A棟219室) (Office Hour: 木曜日 15:00~ 16:00)

Note 授業を受ける際には、2時間の授業時間毎に2時間の予習と2時間の復習をしたうえで授業を受けることが、授業の理解と単位取得のために必要である。