Differential Equations

2 units (selection)

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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-Louville 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=216853

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．