Methods for analysis of mathematical phenomena

2 units (selection)

Hitoshi Imai · Professor / Planning and Design Systems Engineering for Infrastructures, Civil and Environmental Engineering, Intelligent Structures and Mechanics Systems Engineering

Target〉 To learn the to analyze the mathematical phenomena.

Outline〉 Methods used in analysis of mathematical phenomena are introduced. Especially, those in numerical analysis are focused on.

Style〉 Lecture

Keyword〉 ***mathematics, numerical analysis***

Fundamental Lecture〉 "**Numerical Analysis**"(1.0)

Relational Lecture〉 "**Advanced Computational Science**"(0.5)

Requirement〉 Only the premise that have studied basic mathematics.

Notice〉 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．

Goal〉 Being able to understand a numerical scheme to one-dimensional boundary value problems for the Poisson equation

Schedule〉

1. Introduction to computer
2. Common sense in numerical computation
3. High-speed computation (Parallel computing)
4. Finite difference method I
5. Finite difference method II
6. Finite difference method III
7. Finite difference method IV
8. Finite element method I
9. Finite element method II
10. Finite element method III
11. Finite element method IV
12. Boundary element method I
13. Boundary element method II
14. Boundary element method III
15. Iterative method

Evaluation Criteria〉 Evaluation by the report.

Contents〉 http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216714

Contact〉

⇒ Imai(A220, +81-88-656-7541, The inquiry by means of the cellular phone or E-mail is not acceptable) (Office Hour: Office hours: Thursday 14:00-15:00)