COURSE DETAIL

INTRODUCTION TO SCIENTIFIC COMPUTING
Country China
Host Institution Tsinghua University
Program(s) Tsinghua University
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Mechanical Engineering
UCEAP Course Number 182
UCEAP Course Suffix
UCEAP Official Title INTRODUCTION TO SCIENTIFIC COMPUTING
UCEAP Transcript Title INTRO SCIEN COMPUT
UCEAP Quarter Units 3.00
UCEAP Semester Units 2.00

Course Description

This course focuses on the basic concepts of numerical analysis, including the solution of ordinary differential equations (ODEs) and partial differential equations (PDEs), interpolation, optimization, parallel computing, and an overview of applied computing in science and engineering. The course includes lectures and homework (programming), and practical exercises in programming are the focus of this course. The course content includes three main parts: The first part mainly introduces the overview of scientific computing, including its methods, existing problems, and its application in the field of energy engineering. The second part (the largest part) provides the theoretical foundation of numerical analysis, interpolation, solution of differential equations (ODEs and PDES), and optimization. Examples include simple solvers for corresponding problems. The last part focuses on the components of parallel computing technology (Message Passing Interface, MPI).

Language(s) of Instruction
English

Host Institution Course Number
30140482

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INTRODUCTION TO SCIENTIFIC COMPUTING

Host Institution Course Details

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

Course Last Reviewed
2024-2025

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