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

Host Institution Course Title INTRODUCTION TO SCIENTIFIC COMPUTING

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

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