

分子エネルギー遷移論

2 units (selection)

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Target This class introduces the two- and three-dimensional steady-state heat conduction problems, a number of heat transfer problems in either periodic or transient temperature variations and phase change problem.

Outline The key problem of heat transfer is to determine the rate of heat transfer at a specified temperature difference to estimate the cost, the feasibility and the size of equipment necessary to transfer a specified amount of heat in a given time. In this class, following the two- and three-dimensional steady-state heat conduction problems, a number of heat transfer problems in either periodic or transient temperature variations and phase change problem are explained.

Style Lecture and exercise

Keyword *multidimensional steady-state heat conduction, periodic heat conduction, heat transfer with phase change*

Requirement Students are required to have a good understanding of undergraduate-level thermodynamics, hydrodynamics and related subjects.

Goal To understand the solution of multidimensional steady-state heat conduction and heat transfer with phase change problems.

Schedule

1. Recent topics on heat transfer
2. Multidimensional steady-state heat conduction problem (1)
3. Multidimensional steady-state heat conduction problem (2)
4. Quasi-steady-state heat conduction problem (1)
5. Quasi-steady-state heat conduction problem (2)
6. Unsteady-state heat conduction problem (1)
7. Unsteady-state heat conduction problem (2)
8. Unsteady-state heat conduction problem (3)
9. Boundary layer theory in laminar flow (1)
10. Boundary layer theory in laminar flow (2)
11. Boundary layer theory in laminar flow (3)
12. Heat transfer problem with phase change (1)
13. Heat transfer problem with phase change (2)
14. Heat transfer problem with phase change (3)
15. Heat transfer problem with phase change (4)

Textbook To be introduced in the class.

Reference To be introduced in the class.

Contents <http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216787>

Student Able to be taken by only specified class(es)

Contact

⇒ Teacher of course

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。