



University of Michigan

—◆交大密西根学院◆—

UM-SJTU Joint Institute



Shanghai Jiao Tong University

Course Profile

Degree Program:

ECE-Electrical & Computer Engineering

ME-Mechanical Engineering

* General Courses for Both ECE & ME Degree Programs

Course Name: Honor Physics I

Course Code: VP 160

Course Credits: 4

Course Category: * Required Elective

Terms Offered:

Fall _____

Spring _____ (YYYY-YYYY)

✓ Summer_2022-2023_ (YYYY-YYYY)

Course Pre/Co-requisites:

Mathematic courses: Applied Calculus II (vv156) or Honors Mathematics II (vv186)

Reference books (no specific textbook for this course):

Classical Mechanics, John Taylor

An Introduction to Thermal Physics, Daniel V. Schroeder

Principles of Thermodynamics, Jean-Philippe Ansermet et al.

Fundamentals of Physics, David Halliday, Robert Resnick, Jearl Walk

Physics for Mathematicians: Mechanics I, Michael SPIVAK

Classes:

Monday and Wednesday 12:10-13:50, Friday 12:10-13:50 (odd weeks only)

Instructor:

Zijie Qu (屈子杰)

Office: Room 517, JI Building

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Teaching Assistant:

Jin Wu (吴锦)

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Grading Policy:

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- Homework: weighting factor 30%
- TWO medium-term exams: grading weighting factor 20% each
- One final exam; grading weighting factor: 30%

Academic Integrity: (Any types of honor code regulations like class rules, homework policy, exam rules or project collaboration policy could be defined here)

It is very necessary to show up in the class. Homework assignments need to finish independently and submit on time. Frequent discussions and exchanges with the instructor or TAs are strongly encouraged. To make a fair judgment of learning, strict rules related to homework assignments and exams need to be formulated without exception. Any honor code violation behavior (e.g. plagiarism) must be recorded with corresponding penalty.

Course description:

Honors Physics I (VP160) is the first part of an honors course in general physics. It will cover classical mechanics and an introduction of thermodynamics. Specific topics include kinematics, dynamics, statics, periodic motion and oscillation, work and energy, fluids and solids, gravitation, waves, kinetic theory of gases, 1st and 2nd law of thermodynamics.

This course will strongly rely on calculus, with many formulas being derived from general principles and discussed in relation to specific models of phenomena observed in the nature. Conceptual links across different areas of physics will be emphasized in order to develop interdisciplinary intuition allowing to approach problems in various fields of science and engineering in a systematic way.