

课程详述

COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1.	课程名称 Course Title	普通物理学（上） General Physics I
2.	授课院系 Originating Department	物理系 Department of Physics
3.	课程编号 Course Code	PHY101
4.	课程学分 Credit Value	5
5.	课程类别 Course Type	通识必修课程 General Education (GE) Required Courses
6.	授课学期 Semester	秋季 Fall
7.	授课语言 Teaching Language	中英双语 English & Chinese
8.	授课教师、所属学系、联系方式 (如属团队授课, 请列明其他授课教师) Instructor(s), Affiliation & Contact (For team teaching, please list all instructors)	陈伟强, 物理系 理学院 P5101 室 Chen Weiqiang, Department of Physics Rm. P5101, College of Science chenwq@sustech.edu.cn 0755-88018205
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	待公布 To be announced
10.	选课人数限额(可不填) Maximum Enrolment (Optional)	

11. 授课方式 Delivery Method	讲授 Lectures	习题/辅导/讨论 Tutorials	实验/实习 Lab/Practical	其它(请具体注明) Other (Please specify)	总学时 Total
	80	0	0	0	80
学时数 Credit Hours					
12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	高中物理, 代数, 三角学。课上将利用到微积分和线性代数 High school physics, algebra, trigonometry. Calculus will be adopted in class				
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	PHY102 普通物理学(下) General Physics II				
14. 其它要求修读本课程的学系 Cross-listing Dept.	其他理工科专业中对物理有较高要求的专业 Majors with higher requirements for physics among other science and engineering majors				

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

本课程讲授以下的物理内容：牛顿力学、振动、波和热学。课程将主要面向物理专业学生，侧重于介绍物理学基本原理的产生和发展过程，以及不同物理学规律间的相互关系，强调利用相关数学工具进行演绎推导能力的培养。

The main objective of this course is to introduce basic physics concepts including Newtonian mechanics, oscillations, waves and thermal physics. The course focuses on the origin and development of physics laws as well as their relationship from a physicist point of view. Training of relevant mathematical tools is also included.

16. 预达学习成果 Learning Outcomes

- 1、掌握牛顿力学、振动、波和热学的基本原理，并能够灵活运用这些物理原理来处理与本课程内容相关的实际问题。
- 2、能够使用微积分和简单的微分方程理论来处理本课程涉及的相关物理问题。

1. Understand the physics laws of Newtonian mechanics, oscillation and wave, thermal physics, and apply them in practical problems.
2. Able to use calculus, simple differential equations to formulate the physics laws covered in the course.

17. 课程内容及教学日历 (如授课语言以英文为主, 则课程内容介绍可以用英文; 如团队教学或模块教学, 教学日历须注明主讲人) Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)

1. Week 1: Vectors (矢量)
2. Week 2: Newton's law of motion (牛顿运动定律)
3. Week 3: Frames of reference: Galilean transformation (参考系: 伽利略变换)
4. Week 4: Conservation of energy (能量守恒)
5. Week 5: Conservation of linear and angular momentum (动量守恒和角动量守恒)
6. Week 6-7: Elementary dynamics of rigid bodies (初等刚体力学)
7. Week 8: Inverse-square-law force (平方反比律的力)
8. Week 9 - 10: Harmonic oscillator and standing wave (谐振子与驻波)
9. Week 10-11: Forced oscillations (受迫振动)
10. Week 12: Travelling waves (行波)
11. Week 13: Wave packets (波包)
12. Week 14-16: Introduction to thermal physics (热学简介)

Lectures will include 10-16 hours small class lectures. (讲授过程将包括 10-16 小时小班讲授)

18. 教材及其它参考资料 Textbook and Supplementary Readings

课程主要内容参考 Berkeley Physics Course(In SI Units)
The main content of the course refers to Berkeley Physics Course (In SI Units)

课程评估 ASSESSMENT

19. 评估形式 Type of Assessment	评估时间 Time	占考试总成绩百分比 % of final score	违纪处罚 Penalty	备注 Notes
出勤 Attendance				
课堂表现 Class Performance				
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments		10%		
期中考试 Mid-Term Test		60%		总共 2 次期中考试，每次期中考试占比 30%。 There are 2 mid-term tests in total, and each mid-term test accounts for 30%.
期末考试 Final Exam		30%		
期末报告 Final Presentation				
其它 (可根据需要 改写以上评估方式) Others (The				

above may be
modified as
necessary)

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20. 记分方式 **GRADING SYSTEM**

- A. 十三级等级制 **Letter Grading**
 B. 二级记分制 (通过/不通过) **Pass/Fail Grading**

课程审批 **REVIEW AND APPROVAL**

21. 本课程设置已经过以下责任人/委员会审议通过
This Course has been approved by the following person or committee of authority

物理系教学指导委员会
Education Instruction Committee of Physics department