

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	大学物理 C(下) General Physics C (II)
2.	授课院系 Originating Department	物理系 Department of Physics
3.	课程编号 Course Code	PHY105C
4.	课程学分 Credit Value	3
5.	课程类别 Course Type	通识必修课程 General Education (GE) Required Courses
6.	授课学期 Semester	春季 Spring / 秋季 Fall
7.	授课语言 Teaching Language	英文 English / 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)	1. 黄丽, 助理教授, 物理系 第二科研楼 212 室 HUANG Li, Assistant Professor, Department of Physics Rm.212, No.2 Research Bldg. huangl@sustech.edu.cn 0755-88018268
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	宋书建, 物理系, 13267056096, songshujiassj@163.com; 陶应娟, 物理系, 13825252370, tao_yingj@163.com; 文娟辉, 物理系, 13058097597, crystaljuanhui@163.com; 李克华, 物理系, 18273911983, 414600575@qq.com; 李承阳, 物理系, 13554887847, 747621919@qq.com; 庄琳玲, 物理系, 18617151756, 844546674@qq.com; 吴彩妮, 物理系, 13417499047, wucaini.1988@163.com。
10.	选课人数限额(可不填) Maximum Enrolment (Optional)	150 人/教室

11. 授课方式 Delivery Method	讲授	习题/辅导/讨论	实验/实习	其它(请具体注明)	总学时
	Lectures	Tutorials	Lab/Practical	Other (Please specify)	Total
学时数 Credit Hours	48	0	0	0	48

12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	PHY103C General Physics C (I) 大学物理 C (上)
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	Courses related with non-science and engineering 非理工科专业相关课程
14. 其它要求修读本课程的学系 Cross-listing Dept.	Non-science and Engineering Specialty 非理工科专业

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

本课程将针对非理工科专业学生简单介绍以下的物理内容：电学、磁学、波动光学以及相对论和量子力学简介。

English: The course aims to introduce physics concepts including electricity, magnetism, wave nature of light, and the introduction to relativity and quantum mechanics, to non-science or non-engineering majors.

16. 预达学习成果 Learning Outcomes

1. 能掌握并运用课程中的重要专业术语和定义。
 2. 在一些熟悉的情况下应用电学、磁学、波动光学和现代物理中的物理定律。
1. Recognize and use appropriately physics terms and definitions relevant to the major topics in the course.
 2. Apply the physics laws of electricity, magnetism, light as waves, and modern physics in familiar situations.

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.)

The main contents are chapters 21-39 from textbook (Principles of Physics, David Halliday, et al.). Some topics are excluded as the course is aimed for non-science/engineering majors.

1. Electrostatics : Coulomb's law, electric field and potential, Gauss'law, capacitance
 - Week 1: Electric charge, Coulomb's law, electric field, electric dipole
 - Week 2: Electric flux, Gauss' law
 - Week 3: Electric potential, capacitance
2. Electric current and circuits
 - Week 4-5: Current, Ohm's law, Kirchhoff's rules, circuits, RC circuits
3. Magnetic field, Ampere's law, Lenz's law, Faraday's law, inductance, AC

Week 6-7: Magnetic force, Magnetic field, Biot-Savart Law, Ampere's Law

Week 8-9: Lenz's law, Faraday's law, inductance, RL circuits

4. Wave nature of light, interference and diffraction

Week 10: EM Waves, polarization, reflection & refraction

Week 11: Interference: Young's interference experiment, interference from thin films

Week 12: Diffraction: single-slit diffraction, diffraction by a double-slit

5. Introduction to relativity and quantum mechanics

Week 13: Special relativity: relativity of simultaneity, time and length

Week 14-16: Quantum mechanics: Photoelectric effect, Bohr model of the hydrogen atom

Lectures will include 10-16 hours small class lectures.

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

David Halliday, Robert Resnick, Jearl Walker, Principles of Physics Extended International Student Version (10th edition), Wiley 2014.

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	每次 3-4 分钟	0-5%		以随机的课堂小测验方式作为间接考勤的一种方式。
课堂表现 Class Performance	同上			
小测验 Quiz	2-3 次, 按需求制定	55-60%		
课程项目 Projects				
平时作业 Assignments		10%		平均每章有 5 到 8 道作业题
期中考试 Mid-Term Test	包含在 quiz 当中			
期末考试 Final Exam	2 小时	30%		
期末报告 Final Presentation	无			

其它（可根据需要
改写以上评估方
式）
Others (The
above may be
modified as
necessary)

无			
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20. 记分方式 GRADING SYSTEM

<input checked="" type="checkbox"/> A. 十三级等级制 Letter Grading <input type="checkbox"/> 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

