PHYS 0175: Physics for Science and Engineering 2

Fall-semester, 2023

(*Modifications to this syllabus may be required during the semester. Any changes to the syllabus will be posted on Backboard system and announced in class.*)

Lecturer:

A.P. Lin Fang (林方)

Institute: Physics College, Sichuan University

Office: Room 321 Zone 3

Email: linfang@scu.edu.cn

Office-hour: Not fixed, appointment first. Online support is always available.

Time and Location:

1. 13:50 - 15:30 Monday, Room 102 Zone 3.

2. 13:50 - 15:30 Wednesday, Room 102 Zone 3.

Teaching Assistant:

Jacob (于跃雳), a senior student in SCUPi.

QQ: 757498784

Cell: 18840584473

Email: 2020141520114@stu.scu.edu.cn

Catalog Description:

4 Credits.

As the second part of a two-semester introduction to general physics, this course introduces students to the basic principles of fluid dynamics, thermodynamics, electromagnetic field and wave optics; modern physics such as theory of relativity and quantum mechanics is briefly introduced as well.

Suggested Textbook:

Principles of Physics, 10th Edition, Halliday, Resnick, Walker. International Student Version.

Course Outline:

The goal of this course is to give students an introductory overview of the subject of thermal dynamics, electromagnetics and modern physics. Strong mathematical skills are needed to test the understanding of the models and theories that the students will be introduced to. As the semester progresses the course includes:

Part 1: Thermodynamics

Thermodynamics (Ch. 18-20)

Part 2: Electromagnetic Field

Electric field: Chapter 21 – 25
Current and Circuit: Chapter 26 – 27
Magnetic field: Chapter 28 – 29
Induction and inductance: Chapter 30 – 31
Maxwell's equations: Chapter 32 – 33

Part 3: Modern Physics (Optional)

Quantum Theory: Chapter 38 – 40

Examination Schedule:

Midterm Exam: Late October or early November (Part 1 and part of Part 2);

Final Exam: Late December (The rest of Part 2 and Part 3).

Course Grading:

Homework:
40%. Full score of 10 points each time.

Midterm Exam:
20%.

Final Exam:
40%.

Bonus:

1. At most 5 points added to the **total**.
2. Several small but open and innovative problems will be given with the course going on.
3. Students can freely choose to do or not to do the works.
4. Teams can be formed of which the number of members are no more than 3.
5. Students can deliver their works by paper, presentation (in video) or animated demo.

The up-limit of total score is 100. If exceeded, it will be counted as 100.

Grading Scale:

Final grades will be determined according to the table below. An additional curve **may be** applied, as determined by the overall final grade distribution of the class.

字母等级	A	A-	B+	B	B-	C+	C	C-	D+	D	F
中文等级	优秀		良好		中等		合格				不合格
百分制	100~90	89~85	84~80	79~76	75~73	72~70	69~66	65~63	62~61	60	<60
绩点	4	3.7	3.3	3	2.7	2.3	2	1.7	1.3	1	0