

PRINCE SULTAN UNIVERSITY
Department of Mathematics & Science
Physical Science (SCI101) SYLLABUS
Term 132



Instructor Information:

Textbook:

- ***Conceptual Physical Science Explorations.* Hewitt, Suchocki, and Hewitt. Second Edition. Pearson/Addison Wesley (2010).**

Goals:

- To increase the understanding of natural phenomena and laws
- To develop physical curiosity and critical thinking skills
- To enhance investigative and observational skills
- To enhance problem solving strategies and techniques
- To enhance communication skills

Objectives:

The student is expected to become familiar with basic physical principles and concepts in mechanics and fluids. A *conceptual* rather than mathematical approach will be used. Specific objectives include:

- To understand various aspects in the motion of uniformly accelerated objects.
- To become familiar with Newton's laws of motion
- To understand the concepts of work, energy, kinetic energy, potential energy, the conservation of energy, and the conservation of momentum
- To become familiar with several concepts in fluid mechanics, such as fluid pressure, Archimedes' principle, and Bernoulli's principle.

Grading:

Different class assessment techniques will be used. A total of 100 points will be distributed as follows:

- ***Exams:*** Two major exams: 20 points *each*
Final *comprehensive* exam: 40 points
- ***Quizzes:*** 10 points
- ***Homework and other class work:*** 10 points

Note: There will be no make-ups for quizzes missed by the student. Major exam make-up may be possible only after a legitimate reason, approved by the office of student affairs.

Attendance and Absences:

- Attendance will be taken within 5 minutes of the start of the class. You will be considered absent if you arrive later.
- A "DN" Grade will be automatically issued to the student who misses 13 lectures. After that he will not be allowed to attend lectures or to take exams.
- There will be no makeups for the lectures missed by the student.

Learning Management System (LMS):

We will use LMS throughout this course for several purposes, such as for downloading and uploading files (lectures, presentations, homeworks), exchanging information (announcements and other details), taking exercises and quizzes, and communicating (email). Please make sure that you can login to the LMS website (<https://lms.psu.edu.sa>) (note the https not http), and that the course SCI101 is among your courses and you can access it. If you have any access issues please contact the responsible department.

Lecture Schedule (Tentative) & Exams Dates

WEEK	DATES	CHAPTER, TOPIC & SECTIONS
1	Jan. 26 – 30	CH2: Newton's First Law of Motion-The Law of Inertia
2	Feb. 2 – 6	CH2 continued
3	Feb. 9 – 13	CH3: : Newton's Second Law of Motion-Force and Acceleration
4	Feb. 16 – 20	CH3 continued
5	Feb. 23 – 27	CH4: Newton's Third Law of Motion-Action and Reaction
6	March 2 – 6	CH4 continued
7	March 9 – 13	CH5: Momentum
		FIRST MAJOR EXAM (March 9 th (Sunday) at 4 pm)
8	March 16 – 20	CH5 continued
9	March 23 – 27	Midterm Vacation
10	Mach 30 – April 3	CH6: Energy
11	April 6 – 10	CH6 continued
12	April 13 – 17	CH7: Gravity, Projectiles, and Satellite Motion
13	April 20 – 24	CH7 continued
14	April 27 – May 1	CH8: Fluid Mechanics
		SECOND MAJOR EXAM (April 27 th (Sunday) at 4 pm)
15	May 4 – 8	CH8 continued
16	May 11 – 15	CH8: continued
	May 18 – 19	Final exams preparation period
	May 20 – June 5	Final exams

Homework and Quizzes:

- There is a homework assignment at the end of each chapter. You are required to do the homework within a week after finishing each chapter, but you are not required to submit your homework. Your homework will be evaluated using a homework-quiz. That is, one week after finishing the chapter, you will be given a number of problems from your homework to solve in the class.
- In addition, a number of quizzes will be given to monitor student understanding and progress, and to put emphasis on important concepts.
- Homework assignments:

	Think and Explain	Think and Solve
Ch. 2	2, 5, 7, 10, 18	1, 2, 3, 4, 5
Ch. 3	1, 3, 7, 8, 10	2, 3, 4, 5, 6
Ch. 4	2, 3, 6, 7, 10	1, 2, 3, 4, 5
Ch. 5	2, 6, 9, 16, 20	1, 3, 4, 6, 7
Ch. 6	1, 3, 8, 13, 15	2, 3, 4, 5, 6
Ch. 7	2, 5, 8, 11, 14	2, 4, 8, 9, 10
Ch. 8	1, 7, 9, 14, 18	1, 2, 3, 4, 5

Classroom Policy:

For the benefit of your fellow students and your instructor, please practice common courtesy with regard to all course interactions. For example:

- Be considerate toward your classmates and instructor, arrive to class on time and do not leave early.
- Avoid classroom distractions. Be attentive, stay awake, and take notes.
- If you must leave early please inform your instructor in advance (enter or leave quietly, don't walk across the front of the classroom)
- ***Cell phones must be turned off during class.***

Additional Reading:

1. *Physics*. James Walker. 4th Edition. Pearson/Addison-Wesley (2010).
2. *Fundamentals of Physics*. Halliday, Resnick, and Walker. John Wiley & Sons, INC.