

Class Time and Location

- **Location:** College of Science, Building number 4

	Days	Time	Room
Lectures	Sunday, Tuesday and Thursday	Check your schedule	Check your schedule
Laboratory	One session a week See your course schedule	Two hours	Different lab locations

Instructor Information

Name	Dr. Abdulaziz Saleh Alqasem
Office	2A57
Email	AbdAlqasem@ksu.edu.sa
Office Hours	To be announced soon. Also we can meet anytime by appointment.



Course page

The course materials are available at: <https://faculty.ksu.edu.sa/en/abdalqasem/course/442901>

Grading Policy

Assessment	First Midterm	Second Midterm	Laboratory	Final Exam
Weight	15%	15%	30%	40%

General Policies

- **Attendance:** Regular attendance is expected (**75% minimum**) and crucial for success in this course.
- **Eating and Drinking:** You can, but please do not disturb others with noise or strong odors.
- **Leaving the Classroom:** Please minimize disruptions when entering or leaving the classroom. You do NOT need to ask for permission.

Course Description

This course provides a comprehensive introduction to the fundamental principles of electricity and magnetism. It begins by discussing electric charges, their interactions, and their influence on the surrounding space through electric fields and potentials. The course then introduces capacitors and the storage of electric energy, establishing connections to broader topics in physics. Subsequent chapters address direct current and electric energy consumption, followed by an exploration of magnetic fields and their effects on electric charges. The course further explains the relationship between electricity and magnetism, detailing how each can generate the other. Finally, the course concludes with electromagnetic induction and its applications in alternating current circuits, which are examined in detail.

Main Textbook

Serway, R. A., & Jewett, J. W. (2018). **Physics for Scientists and Engineers** (10th ed.)

Secondary Textbook

Halliday, D., Resnick, R., & Walker, J. (2013). **Fundamentals of Physics** (10th ed.). Wiley.

Resources

Online simulations (e.g., [PhET](#))

How to Succeed on This Course

- After completing each chapter, go back to the slides/book and **do** the **examples** and suggested **problems by yourself**.
- You **must** be able to **solve all examples and suggested problems** without looking at the solutions, as you will do so during the exams.

Three Steps to Prepare for the Exams (SST):

1. **Study** the lecture slides and read the textbook for the assigned sections.
2. **Solve** all examples and suggested problems in the assigned sections.
3. **Test** your knowledge and preparation by solving previous exams.

Four Common Mistakes to Avoid:

1. **Not** attending lectures and laboratory sessions, or coming late to class.
2. **Not** asking questions during class or office hours. All questions are encouraged, and you should not hesitate to ask for help.
3. **Not** preparing for the exams by following the SST steps mentioned above. Focusing on **only** answering previous exams is **NOT** enough, and cannot teach you the main concepts and problem-solving skills needed to succeed in this course.
4. **Not** keeping up with the material and falling behind. The chapters in this course are very interconnected, so it is crucial to keep up with the material and not fall behind.

Tentative Schedule

Chapter	Title	Sections	Examples	Suggested Problems	Hours
22	Electric Fields	3, 4, 5, 6	1, 2, 3, 5, 6, 7, 8	9, 12, 15, 20, 21, 24, 25, 30, 35, 38	4
23	Continuous Charge Distributions and Gauss's Law	2, 3, 4	4, 5, 6, 7, 8, 9	10, 11, 13, 14, 15, 16, 18, 19, 24, 27, 29, 33, 34, 37, 38	4
24	Electric Potential	1, 2, 3, 6	1, 2, 3	1, 2, 3, 8, 34, 35	3
25	Capacitance and Dielectrics	1, 2, 3, 4, 5	3, 4, 5	1, 3, 4, 7, 9, 11, 12, 17, 25, 35	4
26	Current and Resistance	1, 2, 4, 6	1, 2, 3, 4, 5	4, 6, 10, 13, 17, 18, 23, 28, 30, 35	5
27	Direct-Current Circuits	1, 2, 3	1, 4, 5, 6, 7	1, 9, 13, 21, 33, 37	5
28	Magnetic Fields	1, 2, 3, 4	1, 2, 3	3, 4, 9, 16, 21, 25	4
29	Sources of the Magnetic Field	1, 2, 3, 4, 5	5, 7	1, 12, 13, 23, 27	4
30	Faraday's Law	1, 2	1, 2	1, 4, 15	2
31	Inductance	1, 3	1	3, 4, 20, 21	2
32	Alternating-Current Circuits	1, 2, 3, 4, 5, 6, 7	1, 4, 5, 6	1, 4, 6, 9, 12, 13, 16, 19, 20, 21, 23, 24, 25	6

Note

Students are expected to be able to solve *all* examples in the assigned sections, as well as the suggested problems, under the instructor's supervision.