

Course ID:	Course Title:	Winter 2021
Phys223	Introductory Electromagnetism and Thermal Physics	Prerequisite: Phy111
		Credits: 3

Class Information		Instructor Information		Important Dates	
Days:	Tuesday/ Thursday	Instructor:	Dr. Mehdi (Nader) Dehghany, PhD.	First day of classes:	Mon, Jan 11
Time:	10 -11:15 am	Email:	Mehdi.dehghany@ambrose.edu	Last day to add/drop, or change to audit:	Sun, Jan 24
Room:	ONLINE	Google meet link	https://meet.google.com/phc-xrwq-yyb	Last day to request revised final exam:	Mon, Mar 8
Lab/ Tutorial:	Friday 3:15-5:15pm	Office:	L2091	Last day to withdraw from course:	Fri, Mar 19
	Online meeting with the above link	Office Hours:	Tuesday, Wednesday 1:00-1:30 pm Online meeting using the above link	Last day to apply for coursework extension:	Mon, Mar 29
Final Exam:	Online final Exam. Date and time will be announced later.	No classes on: January 28 th : Program day Feb 16-20: Reading week April 2 nd : Good Friday April 5 th : Easter Monday		Last day of classes:	Fri, Apr 16

COURSE DESCRIPTION

This course covers the areas of electric forces and circuits, Ohm's law, magnetic forces and thermal physics including gas law, energy transfer and thermodynamics.

EXPECTED LEARNING OUTCOMES

This course, the second one in a two-course introductory physics sequence, provides a calculus-level introduction to electromagnetism, fluids and thermodynamics. The topics covered include: electric forces and fields, electric potential, electric currents, magnetic forces and fields, fluid statics, temperature, heat, the ideal gas law and the laws of thermodynamics. Both conceptual understanding and problem-solving skills will be emphasized. Calculus will not be used, but extensive use will be made of algebra and trigonometry. Tutorial exercises provide further insight into these topics.

TEXTBOOKS

Phys123 - Physics for scientists and Engineers: A strategic approach, custom edition for Ambrose University, by Randall D. Knight (Pearson 2016) – Available from **bookstore** as well as from **online Pearson website**.

REQUIREMENTS:

Weekly Online Assignment	15%
Tutorials	10%
Online Midterm Exam One (Friday, February 26 th – 3:15 pm – 5:15 pm)	20%
Online Midterm Exam Two (Saturday, April 3 rd – 3:15 pm – 5:15 pm).	20%
Online Final Exam (Exam period – Friday April 23 rd – 9:00 am to 12:00 noon)	35%

Online weekly Assignments: In this course, you will receive weekly assignment questions based on the book chapters covered, course notes and class discussions on the Moodle website. You should work on these questions until an **Online test is opened on the following Saturday to submit your answers. The deadline for this submission is Saturday at 1:59 pm.**

Tutorials: Questions/problems are selected from the textbook to be tackled during tutorial. Your work should be handwritten on paper, then scanned in PDF file and uploaded on the Moodle course website, **until 11:59 pm on Friday.**

Midterm Exams: 50% mark of the midterm exams will be questions similar to the examples in chapters and end of the chapter questions and problems. Thus, it is strongly recommended to read the text book and practice questions at the end of each chapter on a regular plan. **These two exams are NOT cumulative.**

Final Exam: It will be on April 23rd from 9 am to 12 noon. This exam will be an ONLINE exam. Deferred exams will only be granted once full documentation (see the current Ambrose University Calendar) has been received and verified by the Department. Students must ensure they are available for the final exam. Vacations, flights, employment, etc. are not valid reasons to request a deferred examination. A sample final exam will be posted on the Moodle course website. **The final exam IS cumulative.**

GRADE SUMMARY:

The available letters for course grades are as follows:

<u>Letter Grade</u>	<u>Description</u>
A+	Excellent
A	
A-	
B+	Good
B	
B-	
C+	Satisfactory
C	
C-	
D+	Minimal Pass
D	
F	Failure

95-100	A+	82-85.9	B+	70-73.9	C+	58-61.9	D+
90-94.9	A	78-81.9	B	66-69.9	C	54-57.9	D
86-89.9	A-	74-77.9	B-	62-65.9	C-	0-54	F (Fail)

Because of the nature of the Alpha 4.00 system, there can be no uniform University-wide conversion scale. The relationship between raw scores (e.g. percentages) and the resultant letter grade will depend on the nature of the course and the instructor's assessment of the level of each class, compared to similar classes taught previously.

Please note that final grades will be available on student registration system. Printed grade sheets are not mailed out.

OTHER:

Physics can be difficult. To do well in this course, it is not enough just to come to lectures. You need to come to lectures already **prepared** by having read the assigned sections of the textbook. You might not understand everything on the first reading, but it will help you make sense of the material when we talk about it in lectures.

Memorization plays only a small part in physics. The key to success in physics is **understanding**. Understanding is developed by **participation and engaging in problem solving**. Therefore, this is an activity-based course, with activities such as demonstrations, homework solving and problem-solving sessions. This means that you will be doing a great deal of your learning while participating in activities in class. If you are not in lectures – both physically **and** mentally – you are missing out on **your** learning.

Understanding is also developed by **problem solving**. You should work through the weekly problem sets, tutorial problems, and end-of-the-chapter questions and problems. Do not be afraid to make mistakes, but do not stop until you get things right. Bring your questions to tutorials and office hours and ask for guidance if you need to – that is what they are for.

SOLUTION-PROVIDING WEBSITE: This is an important note to all students in this course.

Academic Integrity is essential to all elements of education and scholarship. Without integrity, academic qualifications cannot be relied upon, research cannot be trusted, and degrees, diplomas, and certificates lose their value. Your instructor is committed to the fundamental values of honesty, trust, fairness, respect and responsibility, as any other faculty member at Ambrose University. While I respect student’s honest academic efforts toward this course, **YOUR INSTRUCTOR WILL BE ACTIVELY MONITORING PROBLEM-SOLVING WEBSITES, FOR ANY EVIDENCE OF MISCONDUCT.** There will be **ZERO TOLERANCE** toward any act of misconduct in this course.

List of recommended questions and problems

Chapter	Conceptual questions	Exercises and Problems
1		
2		
3		
4	8, 11, 13, 14	14, 15, 17, 19, 20, 29, 31, 41, 42, 49, 62
5	3, 11	1, 2, 3, 5, 14, 16, 20, 21, 23, 28, 53
6	3, 4,	1, 5, 6, 7, 37, 38, 41, 42
7		
8		
9		
10		
11		
12		

COURSE SCHEDULE

Week	Topics
Jan.11-15	Chapter 4: Introduction: Charges (section:1) Conductors and insulators (sections: 2-3) Coulomb's Law and Electric Field (sections:4-5) Chapter 5: The Electric Field (sections:1-3) Capacitors, Motion of Charge Particles in an Electric Field (sections:4-5)
Jan.18-22	
Jan.25-29	
Feb.1- 5	
Feb.8- 12	Chapter 6: Electric Potential Energy and Electric Potential (sections:1-4) Chapter 7: Electric Potential and Field Relation (sections:1-2) Conductors and Capacitance (sections:3-7) Chapter8: Electric Current (sections:1-3) Conductivity and Resistivity (sections: 4) Ohm's law (section: 5) Chapter 9: Magnetic fields (sections:1-4 and 7-8)
Feb.15- 19	
Feb.22- 26 (Feb. 26 th at 3:15 pm midterm Exam One)	
Mar.1- 5	
Mar.8- 12	
Mar.15- 19	
Mar.22- 26	
Mar.29- Apr2 (Apr. 2 nd at 3:15 pm midterm Exam Two)	Chapter 1: Macroscopic description of matter (sections:1-2) Temperature, Pressure and Phase Changes (sections:3 and 5) Ideal Gases and Thermodynamic Processes (sections:6-7) Chapter 2: Energy and Work (sections:1-2) Heat, First Law of Thermodynamics (sections:3-4) Thermal Properties of Matter and Calorimetry (sections:5-6) Specific Heats of Gases and Adiabatic Process (section:7)
Apr.5- 9	
Apr.12- 16	

Ambrose University Academic Policies

Communication

All students have received an Ambrose e-mail account upon registration. It is the student's responsibility to check this account regularly as the Ambrose email system will be the professor's instrument for notifying students of important matters (cancelled class sessions, extensions, requested appointments, etc.) between class sessions. If students do not wish to use their Ambrose accounts, they will need to forward all messages from the Ambrose account to another personal account.

Registration

During the **Registration Revision Period** students may enter a course without permission, change the designation of any class from credit to audit and /or voluntary withdraw from a course without financial or academic penalty or record. Courses should be added or dropped on the student portal by the deadline date; please consult the List of Important Dates. After that date, the original status remains and the student is responsible for related fees.

Students intending to withdraw from a course after the Registration Revision Period must apply to the Office of the Registrar by submitting a "Request to Withdraw from a Course" form or by sending an email to the Registrar's Office by the **Withdrawal Deadline**; please consult the List of Important Dates on the my.ambrose.edu website. Students will not receive a tuition refund for courses from which they withdraw after the Registration Revision period. A grade of "W" will appear on their transcript.

Students wishing to withdraw from a course, but who fail to do so by the applicable date, will receive the grade earned in accordance with the course syllabus. A student obliged to withdraw from a course after the Withdrawal Deadline because of health or other reasons may apply to the Registrar for special consideration.

Exam Scheduling

Students, who find a conflict in their exam schedule must submit a Revised Examination Request form to the Registrar's Office by the deadline date; please consult the List of Important Dates. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; 2) the student has three final exams within three consecutive exam time blocks; 3) the scheduled final exam slot conflicts with an exam at another institution; 4) extenuating circumstances. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

Electronic Etiquette

Students are expected to treat their instructor, guest speakers, and fellow students with respect. It is disruptive to the learning goals of a course or seminar and disrespectful to fellow students and the instructor to use electronics for purposes unrelated to the course during a class session. Turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Do not use iPods, MP3 players, or headphones. Do not text, read, or send personal emails, go on Facebook or other social networks, search the internet, or play computer games during class. Some professors will not allow the use of any electronic devices in class. The professor has the right to disallow the student to use a laptop in future lectures and/or to ask a student to withdraw from the session if s/he does not comply with this policy. Repeat offenders will be directed to the Dean. If you are expecting communication due to an emergency, please speak with the professor before the class begins.

Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. Personal information (information about an individual that may be used to identify that individual) may be required as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at privacy@ambrose.edu.

Extensions

Although extensions to coursework in the semester are at the discretion of the instructor, students may not turn in coursework for evaluation after the last day of the scheduled final examination period unless they have received permission for a course Extension from the Registrar's Office. Requests for course extensions or alternative examination time must be submitted to the Registrar's Office by the deadline date; please consult the List of Important Dates. Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control."

Appeal of Grade

An appeal for change of grade on any course work must be made to the course instructor within one week of receiving notification of the grade. An appeal for change of final grade must be submitted to the Registrar's Office in writing and providing the basis for appeal within 30 days of receiving notification of the final grade, providing the basis for appeal. A review fee of \$50.00 must accompany the appeal. If the appeal is sustained, the fee will be refunded.

Academic Integrity

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to acknowledge to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university. Students are expected to be familiar with the policies in the current Academic Calendar that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

Mental Health Support

All of us need a support system. We encourage students to build mental health supports and to reach out when help is needed.

On Campus:

- Counselling Services: ambrose.edu/counselling
- Peer Supportive Listening: One-to-one support in Student Life office. Hours posted at ambrose.edu/wellness.
- For immediate crisis support, there are staff on campus who are trained in Suicide Intervention and Mental Health First Aid. See ambrose.edu/crisissupport for a list of staff members.

Off Campus:

- Distress Centre - 403-266-4357
- Sheldon Chumir Health Care Centre - 403-955-6200
- Emergency - 911

Sexual Violence Support

All staff, faculty, and Residence student leaders have received *Sexual Violence Response to Disclosure* training. We will support you and help you find the resources you need. There is a website with on and off campus supports – ambrose.edu/sexual-violence-response-and-awareness.

Off Campus:

- Clinic: Sheldon Chumir Health Centre - 403-955-6200
- Calgary Communities Against Sexual Abuse - 403-237-5888

Note: Students are strongly advised to retain this syllabus for their records.