



School of Science
PHYS 100
Introductory Physics

Term: Summer 2024

Number of Credits: 3

Course Outline

INSTRUCTOR: Inderjeet Kaur

OFFICE LOCATION: Yukon Research Centre

CLASSROOM: A2101 **Labs:** A2801

E-MAIL: inderjeetkaur@yukonu.ca

OFFICE TIME: By appointment

Lectures: Mon., Tues, Wed., and Thurs. 9:00 - 10:20 am

Labs: Thurs. 1:00 - 3:55 pm

DATES: May 1st – Jun. 18, 2024

COURSE DESCRIPTION

Physics 100 is a course for students with modest preparation in Physics and allows students to take Physics 101 at Yukon University, or a calculus-based university level Physics elsewhere.

Physics 100 introduces a broad range of physical phenomena including: kinematics and dynamics in two dimensions including force, energy, momentum, and circular motion; electrostatics and electromagnetism. The use of graphs and vector analysis is emphasized throughout. Laboratory exercises serve to familiarize the student with both the phenomena and the laboratory instruments commonly used to measure them.

COURSE REQUIREMENTS

Prerequisite(s): High school Physics grade 11 with a minimum grade of 65% or YukonU Phys 050 with a minimum grade of 65%. Pre-Calculus 11 with a minimum grade of 65% or YukonU MATH 050 with a minimum grade of 65% is also required.

EQUIVALENCY OR TRANSFERABILITY

Receiving institutions determine course transferability. Find further information at:

<https://www.yukonu.ca/admissions/transfer-credit>

Some examples of potential transferability include:

SFU Phys 100 (3) UBC Phys 100 (3)

UNBC Phys 115 (4) UVIC Phys 100L (1.5)

TRU Phys 1130 (3) UR Phys 109 (3)

www.yukonu.ca

LEARNING OUTCOMES

Upon successful completion of the course, students will be able to:

- Obtain the prerequisite body of knowledge and skills that will provide a basis for further academic training
- Appreciate and apply the physics of everyday life
- Appreciate and apply the scientific method to investigations of all phenomena
- Communicate effectively, particularly to the scientific community using the language of physics and mathematics.
- Carry out all duties in an ethical, professional manner, including the collection of data.
- Work effectively as a member of a team.
- Handle equipment in a safe and effective manner with regard to their own safety and the safety of others.

COURSE FORMAT

Weekly breakdown of instructional hours

Students are expected to attend 1.5 hr lectures four times a week, for a total of approximately 36 hrs. Homework and assignments are completed outside of class time, and it is expected these will require an additional 5-6 hrs of work per week. It is important to note that the time required for successful course completion will vary by individual. The 7 mandatory laboratory sessions will occur about every week for at least 2.5 hrs each. Lab reports will require an additional 1-2 hrs to complete.

Delivery format

This course and the lab are delivered with set meeting times in-person on campus (synchronous face-to-face).

EVALUATION

Assignments	20%
Midterm 1	20%
Midterm 2	30%
Laboratory	30%
Total	100%

Tests

There is a midterm which accounts for 20% of the course mark and a cumulative final examination which accounts for 30% of the course mark.

Laboratories

There are seven laboratories, each of which requires a detailed report. The laboratories account for 30% of the course mark. ***Students must achieve a minimum of 50% on the laboratory component to pass the course.**

Attendance & Participation

The collection of data for most laboratories must be done in a laboratory, therefore students must attend or conduct a laboratory session in order to submit a report. Missed labs will not be repeated. Students arriving late to a laboratory session may be refused entry.

It is the student's responsibility to attend classes. Students who miss classes are responsible for any work missed except for laboratories as detailed in "ASSESSMENTS".

COURSE WITHDRAWAL INFORMATION

Refer to the YukonU website for important dates.

TEXTBOOKS & LEARNING MATERIALS

Cutnell, John, Johnson, Kenneth, Physics, 5th ed. 2001

- on reserve at the YukonU Library for full-term loan. You must return the textbook or face a hold on your account preventing you from accessing transcripts or registering for further courses.

Open Stax, Rice University (2022). College Physics 2e

Yukon University, Physics 060 Laboratory Manual, 2020. (provided)

Scientific non-programmable calculator.

ACADEMIC INTEGRITY

Students are expected to contribute toward a positive and supportive environment and are required to conduct themselves in a responsible manner. Academic misconduct includes all forms of academic dishonesty such as cheating, plagiarism, fabrication, fraud, deceit, using the work of others without their permission, aiding other students in committing academic offences, misrepresenting academic assignments prepared by others as one's own, or any other forms of academic dishonesty including falsification of any information on any Yukon University document.

Please refer to Academic Regulations & Procedures for further details about academic standing and student rights and responsibilities.

ACCESSIBILITY AND ACADEMIC ACCOMMODATION

Yukon University is committed to providing a positive, supportive, and barrier-free academic environment for all its students. Students experiencing barriers to full participation due to a visible or hidden disability (including hearing, vision, mobility, learning disability, mental health, chronic or temporary medical condition), should contact [Accessibility Services](#) for resources or to arrange academic accommodations: access@yukonu.ca.

TOPIC OUTLINE

Topic	Chapter	Week
Introduction and Mathematical Concepts, Vectors	1	1
Kinematics in One Dimension	2	1
Kinematics in Two Dimensions	3	2
Mechanics: Forces and Newton's Laws of Motion; Equilibrium and Non-equilibrium Applications	4	3,4
Uniform Circular Motion; Gravity	5	5
Work and Energy	6	6
Impulse and Momentum, Collisions (Two Dimensions)	7	6, 7
Rotational Kinematics; Torque, Equilibrium Applications (Statics)	9	9, 10
Electric Forces and Electric Fields	18	10, 11
Electric Potential Energy and the Electric Potential	19	11, 12
Magnetic Forces and Magnetic Fields	21	12, 13
Electromagnetic Induction	22	14, 15