COURSE OUTLINE

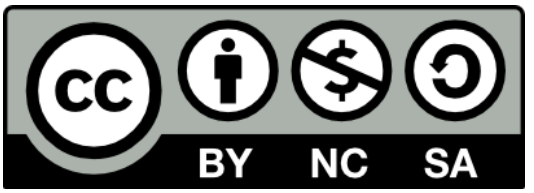
PHYS 100
Introductory Physics

3 CREDITS

PREPARED BY: Tom McBee, Instructor
DATE: November 4, 2020

APPROVED BY: Joel Cubley, Chair, School of Science
DATE: November 6, 2020

APPROVED BY SENATE: June 29, 2015



PRINCIPLES OF PHYSICS

INSTRUCTOR: Tom McBee
OFFICE LOCATION: N/A
E-MAIL: tmcbee@yukonu.ca
TELEPHONE: 867.668.8831

OFFICE HOURS: TBA
CLASSROOM: Labs: A2801
Lectures: Online via Zoom
TIME: Labs: Fri. 1:00 -3:55 pm
Lectures: T/Th 2:30-3:30 pm
DATES: Jan.4th- Apr. 27th, 2021

COURSE DESCRIPTION

Physics 100 is a course for students with modest preparation in Physics and allows students to take Physics 101 at Yukon College, 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.

PREREQUISITES

High school Physics grade 11 with a minimum grade of 65% or Yukon College Physics 050 with a minimum grade of 65%. Pre-Calculus 11 with a minimum grade of 65% or Yukon College Mathematics 050 with a minimum grade of 65% is also required.

RELATED COURSE REQUIREMENTS

It is required that all students have access to a computer or other device and Internet to do their studies. The minimum specifications for a student device are as follows:

Requirement	**Windows-based PC**	**Apple Mac/macOS-based PC**
Operating System	Windows 10	macOS X
Web Browser	Firefox, Edge or Google Chrome	Firefox, Edge or Google Chrome
RAM/Memory	4 GB	4 GB
Storage	5 GB of available space	5 GB of available space

EQUIVALENCY OR TRANSFERABILITY

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)
UAF	Phys 102X (3)		

LEARNING OUTCOMES

Upon successful completion of this 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

Due to COVID, lectures will be conducted using ZOOM which is a synchronous (in real time) virtual format that enables face-to-face approaches to teaching and learning. Further, due to a reduction in class time, there are greater expectations students will work independently and do more homework. There are approximately 36 hours of class time in addition to 18 hours of laboratory time. The laboratories will generally be scheduled about every other week for three hours each.

ASSESSMENTS:

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. 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".

Homework
Homework assignments account for 8% of the course mark.

Assignments
Assignments account for 17% of the course mark.

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 require a detailed report. Laboratories will be conducted in groups of 6 or less in Ayamdigut. Students outside of Whitehorse will be provided kits and perform laboratories very similar to those at Ayamdigut. Students in Whitehorse may obtain a kit and perform the laboratory at home by contacting the instructor and paying a deposit which will be refunded upon return of the kit and all its contents. The laboratories account for 25% of the course mark. ***Students must achieve a minimum of 50% on the laboratory component to pass the course**.

EVALUATION:

Homework	8%	
Assignments	17%	
Laboratory mark*	25%	*See above
Midterm 1	20%	
Midterm 2	30%	
Total	100%	

REQUIRED TEXTBOOKS AND MATERIALS

Cutnell, John, Johnson, Kenneth, Physics, 5th ed. 2001 (provided).
Yukon University, Physics 060 Laboratory Manual, 2020. (provided)
Scientific non-programmable calculator.

ACADEMIC AND STUDENT CONDUCT

Information on academic standing and student rights and responsibilities can be found in the current Academic Regulations that are posted on the Student Services/ Admissions & Registration web page.

PLAGIARISM

Plagiarism is a serious academic offence. Plagiarism occurs when a student submits work for credit that includes the words, ideas, or data of others, without citing the source from which the material is taken. Plagiarism can be the deliberate use of a whole piece of work, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Students may use sources which are public domain or licensed under Creative Commons; however, academic documentation standards must still be followed. Except with explicit permission of the instructor, resubmitting work which has previously received credit is also considered plagiarism. Students who plagiarize material for assignments will receive a mark of zero (F) on the assignment and may fail the course. Plagiarism may also result in dismissal from a program of study or the University.

YUKON FIRST NATIONS CORE COMPETENCY

Yukon University recognizes that a greater understanding and awareness of Yukon First Nations history, culture and journey towards self-determination will help to build positive relationships among all Yukon citizens. As a result, to graduate from ANY Yukon University program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see www.yukonu.ca/yfnccr.

ACADEMIC ACCOMMODATION

Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon University Academic Regulations (available on the Yukon University website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, they should contact the Learning Assistance Centre (LAC): lac@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