APPLIED SCIENCE AND MANAGEMENT
Physics 100
3 Credit Course
Winter, 2020

COURSE OUTLINE

PHYSICS 100

INTRODUCTORY PHYSICS

3 CREDITS

PREPARED BY: Tom McBee, instructor
DATE: July 10, 2019

APPROVED BY:
DATE:

APPROVED BY ACADEMIC COUNCIL: 1993

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INTRODUCTORY PHYSICS

INSTRUCTOR: Tom McBee

OFFICE LOCATION: TBA

E-MAIL: tmcbee@yukoncollege.yk.ca

TELEPHONE: 867-668-8831

OFFICE HOURS: TBA

CLASSROOM: TBA

TIME: Lectures
Tuesday and Thursday
2:30 p.m. to 4:00 p.m.
Friday
1:00 p.m. to 2:30 p.m.
Labs:
Friday
1:00 p.m. to 4:00 p.m.

DATES: January 6 to April 29

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 provides an introduction to 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

None

EQUIVALENCY/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)	UAS	In progress

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

This class is offered by lecture format at Ayamdigut Campus only. Approximately half the Friday classes will be labs from 1:00 p.m. until completion on or before 4:00 p.m; the remaining Fridays will be regular classes from 1:00 a.m. until 2:30 p.m. A schedule with labs dates will be made available.

ASSESSMENTS:

Attendance & Participation

The collection of data for most laboratories must be done in the laboratory, therefore students must attend the laboratory sessions in order to submit a report. Students arriving late to a laboratory session may be refused entry.

Homework

A homework assignment will be submitted after each chapter covered in the course. Each assignment accounts equally for a total of 8% of the course mark. Homework assignments include the answers therefore students will be graded on the attempt to solve the problem In addition, because the Homework Assignments will be graded in class, it is not possible to submit them late.

Assignments
An assignment will be submitted after each chapter covered in the course. Each assignment accounts equally for a total of 17% of the course mark. There will be 10% deducted for late assignments unless prior permission has been received from the instructor. It is the students' responsibility to attend class. Late assignments will receive deductions regardless of absences. A student planning to be away on the due date must submit the assignment prior to leaving. Assignments will usually be returned the class following the due date. Once assignments have been returned to the class, they will no longer be accepted. If the due date is missed owing to an emergency, an alternate assignment may be given.

Tests
There is a midterm and cumulative final examination. The midterm accounts for 20% of the course mark while the final examination accounts for 30% of the course mark. The examinations are "closed book" although formula sheets will be provided.

Laboratories
There are seven labs in the course, one from each topic. Each of the seven labs requires a detailed lab report due one week after the lab session. The collection of data must be done in the laboratory or classroom; the calculations and write-up can be done at home, therefore students must attend the lab session in order to submit a report. For this reason, consult the schedule and make any necessary arrangements. There will be 10% deducted for late reports unless prior permission has been received from the instructor. It is the students' responsibility to attend class. Late reports will receive deductions regardless of absences. Reports will usually be returned the class after the due date. Once reports have been returned they will no longer be accepted. **Students must achieve a minimum of 50% on the laboratory component to pass the course.**

EVALUATION:

Homework		8%
Assignments		17%
Labs*		25%
Midterm Exam		20%
Final Exam		30%
Total		100%

***Students must achieve a minimum of 50% on the laboratory component to pass the course.**

REQUIRED TEXTBOOKS/MATERIALS:
Cutnell, John, Johnson, Kenneth, Physics, 5th ed. 2001 (provided)
Yukon College, *Physics 100 Laboratory Manual*, 2017 (provided)
Scientific non-programmable calculator. Scientific graph paper (decimal, not quarter inch)

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 College.

ATTENDANCE AND PARTICIPATION
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"**.

YUKON FIRST NATIONS CORE COMPETENCY
Yukon College 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 College program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see www.yukoncollege.yk.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 College Academic Regulations (available on the Yukon College website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, he/she should contact the Learning Assistance Centre (LAC): lac@yukoncollege.yk.ca.

Topic Outline

Topic	Chapter	Week
Introduction and Mathematical Concepts, Vectors	1	1
Kinematics in One Dimension	2	1, 2
Kinematics in Two Dimensions	3	2, 3
Mechanics: Forces and Newton's Laws of Motion; Equilibrium and Non-equilibrium Applications	4	3, 4
Uniform Circular Motion; Gravity	5	4
Work and Energy	6	5
Impulse and Momentum, Collisions (Two Dimensions)	7	5, 6
Rotational Kinematics; Torque, Equilibrium Applications (Statics)	9	6, 7
Electric Forces and Electric Fields	18	8, 9
Electric Potential Energy and the Electric Potential	19	9, 10
Magnetic Forces and Magnetic Fields	21	10, 11
Electromagnetic Induction	22	12, 13