APPLIED ARTS DIVISION
PHYS 050
Credit Course
Fall, 2018

COURSE OUTLINE

PHYS 050

PRINCIPLE OF PHYSICS

90 HOURS
3 CREDITS

PREPARED BY: Tom McBee DATE: September 5, 2017
APPROVED BY: DATE:

APPROVED BY ACADEMIC COUNCIL: June 29, 2015

RENEWED BY ACADEMIC COUNCIL:

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The Course Outline Template is approved by the Academic Council on June 20, 2018

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COURSE TITLE

INSTRUCTOR: Tom McBee

OFFICE HOURS: TBA

OFFICE LOCATION: A2718

CLASSROOM:
Lectures A2603
Labs A2801

E-MAIL: tmcbee@yukoncollege.yk.ca

TIME:
Lectures T & Th 2:30-4:00 pm
Labs F 1:00-4:00 pm

TELEPHONE: 867.668.8831

DATES: September 5th-December 20th

COURSE DESCRIPTION

College Preparation Physics 050 will allow students to take Physics 060 at Yukon College, a Grade 12 Physics course, offered at high schools, or a pre university level Physics course offered at colleges and universities. Physics 050 is suitable for those students wishing to enter vocational or career programs that require or will benefit from Grade 11 Physics. The content of the course includes: a review of mathematics for physics, kinematics, dynamics, vectors, momentum and conservation, energy, heat, and electricity.

PREREQUISITES

High school Mathematics 11 (Pre-Calculus from BC/Yukon or with Algebra elsewhere) or Yukon College Math 050 or any college equivalent is a co-requisite; however, it is strongly recommended that students complete Math 050, or high school mathematics grade 11, prior to enrolling in Physics 050.

As there are many formal laboratory reports to write a demonstrated writing ability is also required. Successful completion of Yukon College English 030 (English 040 prior to 2016) would be considered the minimum.

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LEARNING OUTCOMES

Upon completion of Physics 050, students will be able to

- meet the competencies as stated for ABE Advanced Level Chemistry located in the BC Adult Basic Education BC Articulation Handbook
- Obtain the prerequisite body of knowledge and skills that will provide a basis for further academic and career/vocational 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 times 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.

Assignments

There are nine assignments to be completed. The assignments account for 25% of the course mark.

Tests

There are two midterm examinations in this course. Each midterm accounts equally for 25% of the course mark.

Laboratories
There are seven laboratories in this course, each of which require a detailed report. The laboratories account for 25% of the course mark. **Students must achieve a minimum of 50% on the laboratory component to pass the course.**

Rewrites

A rewrite for a failing grade on an examination (less than 50%) may be permitted at the instructor's discretion. These examinations will be written no earlier than two weeks after the date of the original examination. The mark will be recorded whether it is higher or lower than the original. However, a maximum mark of 65% will be awarded.

"No Shows"

A student who misses an examination will receive a mark of zero for that examination but may be permitted a rewrite. Exceptions may be made if a student receives prior permission from the instructor, or faces an emergency. Some form of documentation of the emergency may be required.

EVALUATION:

Assignments	25%
Laboratory mark*	25%
Midterm 1	25%
Midterm 2	25%
Total	100%

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

REQUIRED TEXTBOOKS AND MATERIALS

Open Stax, Rice University (2017). College Physics
Yukon College, Physics 050 Laboratory Manual, 2017. Supplied.
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.

Electronic Devices

In order to be successful in classes and minimize distractions for others, cell phones, iPods and other electronic devices must be turned off while students are in class. In an emergency situation, the instructor may give a student permission to use a cell phone.

Appropriate Language

In all areas of the college environment, students are responsible to show respect for others, swearing, or language that is discriminatory or derogatory in relation to race, sex, ethnic background, religious beliefs, age and physical condition is not appropriate.

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.

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.

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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

Physics 050 covers the Core Topics as stated for ABE Advanced Level Physics located in the BC Adult Basic Education Articulation Handbook which may be found at http://www.bctransferguide.ca/

More Specifically:

Measurement

- SI Units
- Dimensional Analysis
- Significant Digits
- Measurement
- Precision and Accuracy
- Graphical Analysis
- Creating Equations
- Solving Problems Using Equations

Motion

- $\vec{d} - t$ Graphs
- Average and Instantaneous Velocities
- Velocity – Time Graphs
- Vectors and Scalars
- Relative Velocity
- Acceleration
- Average and Instantaneous Velocity

Forces

- Newton's First Law
- Newton's Second Law
- Newton's Third Law
- Gravity, mass, Weight
- Universal Law of Gravity
- The Normal Force
- Friction
- Springs

Momentum and Its Conservation

- Momentum and Impulse
- Conservation of Momentum

Energy and Work

- Work
- Power
- Work, Power, Force, and Energy
- Kinetic Energy
- Gravitational Potential Energy
- Conservation of Energy
- Efficiency

Thermal Energy

- Kinetic Molecular Theory
- Thermal Energy and Temperature
- Heat , Thermal Energy Transfer
- Specific Heat Capacity
- Law of Conservation of Energy
- Changes of State and Latent Heat
- Calorimetry

Electricity

- Electric Charge, Creation and Measurement
- Coulomb's Law
- Current
- Electric Circuits

- Electric Potential
- Resistance and Ohm's Law
- Simple Circuits
- Series Circuits
- Parallel Circuits
- Combined Series-Parallel Circuits
- Power
- Ammeters and Voltmeters