



COURSE OUTLINE

APPS 053

APPLIED SCIENCE 053

90 hours

PREPARED BY: Simone Rudge DATE: 26 May 2010
Instructor

APPROVED BY: Shelagh Rowles DATE: 26 May 2010
Applied Science and Management, Dean

YUKON COLLEGE

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Applied Science 053

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COURSE WEBSITE:	http://ycdl4.yukoncollege.yk.ca/~srudge/APP

COURSE OFFERING DAYS & TIMES:	Monday - Friday 10:20 – 12:00 (and sometimes 8:30 – 10:00)
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COURSE DESCRIPTION

APP Science provides a foundation in concepts of science including matter, motion, forces, simple machines, fluids, gases, heat, electricity and light. The applied approach to the delivery of this course material will provide an integration of mathematical and scientific concepts with the trades.

LEARNING OUTCOMES:

Upon the completion of APP Science, the student shall:

- demonstrate the scientific skills necessary to successfully complete the Trade Entrance Exam.
- demonstrate the scientific skills necessary to successfully complete the pre-apprenticeship and apprenticeship training.
- demonstrate the science knowledge required by a journeyman in their chosen trade.
- communicate effectively, particularly to the trades using the language of science.
- 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.

DELIVERY METHODS/FORMAT:

Students will be guided through the scientific concepts and skills required to accomplish several projects. Practical applications of mathematics and science will be emphasized. Students will prepare a portfolio including working drawings and calculations for several constructions. Students will be given ample practice in writing multiple choice science questions in order to prepare for the Trade Entrance Examination.

PREREQUISITES:

- Mature Student Status with acceptable scores on the College Placement Test and English Placement Test, **or**
- Completion of Yukon College Level III, **or**
- Permission of the Dean of Applied Science and Management

COURSE REQUIREMENTS/EVALUATION:**Attendance and Conduct**

Attendance is mandatory. A student may be dismissed from a course or program if more than ten per cent (10%) of the scheduled contact hours are missed in any one course. Dismissal from a course may result in loss of full-time status and loss of sponsorship funding.

Regular attendance is a key factor in successful completion of the course. Students arriving late for class will be marked as absent for 1/3 of that class. Attendance will contribute 10% towards student's final mark in the course.

In the interest of minimizing distractions during class, students are asked not to text, use cell phones, or music devices during class. Cell phone ringers must be turned off during class time.

Daily Quizzes

Students will write a daily quiz containing science questions. These quizzes will contribute 35% towards student's final mark in the course.

Project Portfolio

Students will submit a portfolio including the calculations and working drawings for their project constructions. These items will contribute 15% towards student's final mark in the course.

Tests

After each science unit, students will write a unit exam. There are five units in science. The average of these five tests will contribute 40% towards a student's final mark in the course.

Evaluation

Attendance	10%
Daily Quizzes	35%
Project Portfolio	15%
Unit Tests (5)	40%
Total	100%

Evaluation & Grades

Apprenticeship Preparation uses the standard Yukon College grading system found in the College Calendar on page 104. 70% is required in all three apprenticeship preparation courses for continuing into the pre-employment programs at Yukon College.

At the end of the semester, final course grades are available through the Yukon College website through the Banner student login. By entering your student ID number and PIN, a full transcript of course marks is available.

During the semester, students may choose to have marks posted on the course website.

These are the guidelines that will be followed:

- Only marks of students who give written consent will be posted;
- A consent form will be provided for students to sign before any grades or marks are posted for the course. Students who do not wish to have their marks posted should not fill out or sign the consent form;
- A code name or number agreed to by the student and instructor will be used for the purpose of posting marks; and
- Marks will be posted in a non-alphabetical format.

Dishonesty and Plagiarism

The assignments are individual assignments – group submissions are not permitted. All submissions should be original work prepared for that specific assignment. To copy another person's work and present it as your own will result in penalties. Note that plagiarism is defined not only as submitting someone else's work as yours, but also includes submitting the same assignment for more than one course without the explicit permission of the instructor. The penalties for plagiarism include receiving a mark of 0 for the assignment, a mark of F for the course and expulsion from the college.

TOPIC OUTLINE/SYLLABUS

Matter

- Force
- Density
- Specific Gravity
- Friction
- Gravity and weight
- Motion: solid objects
- Design and Structure
- Centre of Gravity

Work, Energy and Machines

- Simple Machines
- Energy Conversion
- Mechanical Advantage
- Efficiency

Project: Projectiles with Levers

Fluids (Liquids and Gases)

- Pressure and Buoyancy
- Viscosity
- Expansion and Contraction
- Bernoulli's Principle
- Gas Laws

Project: Projectiles with Gases

Heat and Temperature

- Temperature
- Expansion and Contraction
- Sources of Heat Energy
- Calculating Heat
- Latent Heats
- Heat Transfer

Electricity, Circuits & Motors

- Electricity and magnetism
- Circuit concepts
- Parallel and Series Circuits
- Generators and Motors
- Properties of Light

Project: Motors