Secondary 5 - Physics

Cycle 2 (Year 3)

Course Outline

Teacher: Dr Newton **E-mail**: newtonn@loyola.ca **Voice Mail:** 514 486 1101 ext.616

Requirements:

- Quantum Textbook
- One three ring binder (medium sized; 2 inch)
- Lined loose-leaf paper (at least 25 sheets). Dividers (3/4) are recommended.
- A well-stocked pencil case including ruler, pencils, pens, eraser, highlighters, scientific calculator etc.
- iPad (always charged for each lesson and no apps running)

The above equipment is required for **every** lesson. Failure to bring an item will result in JUG. It is the student's responsibility to check their Loyola email every day for updates and/or information. A lot of information is also posted to Moodle and it is also the student's responsibility to check Moodle daily.

Course Information:

Secondary Five Physics is an extension of the programs in Secondary Cycles One and Two. It is intended to consolidate and enrich a student's scientific training and is a requirement for several pre-university or technical programs at the college level.

Evaluation of Learning / Competencies: The pass mark is 60% for the entire year.

Section	*Competency*	*Examples of work that will contribute to the overall grade for each term*	*Weighting*
Practical	Seeks answers and solutions to scientific or technological problems. Communicates in the languages used in science and technology	Labs, Lab reports, Lab Blogs, Activities, Presentations etc	40%
Theory	Makes the most of his knowledge of science and technology. Communicates in the languages used in science and technology	Tests, Quizzes, Assignment sheets, December & June exam etc	60%

Several labs are conducted every term and are graded and weighted according to complexity. The theory mark is generally comprised of the following components, shown with their approximate weightings: Tests (50%), Quizzes (20%), Assignment sheets (20%), Online reflections (10%).

For the Term 1 and Term 3 reports, each student will also have comments regarding at least two of the following four cross-curricular competencies:

- Exercises critical judgment
- Organizes his work
- Communicates effectively
- Works in a team

Examinations

There are two formal examination periods, in January and at the end of the year (June).

Course	December Exam	June Exam
Sec. 5 Physics	50% of Term 2 Theory	50% of Term 3 Theory

There is also a Lab Exam in May which is worth 40% of the Term 3 Practical component mark.

Report Cards: There are four (4) reporting periods as per the following schedule:

Report	Date Sent (on or before)	Value
Preliminary	October 15	None – only a written communication with parents at the start of the year
Term 1	November 20	20%
Term 2	March 15	20%
Term 3	July 10	60%

Please note that the student's performance in Terms 1 and 2 is evaluated for CÉGEP acceptance, which is also conditional on a successful completion of Term 3.

Topics: Physics: Secondary 5

Term 1

Kinematics & Dynamics

- Reference Systems
- Uniform rectilinear motion
- Graphing: Motion-Displacement-Time, Velocity-Time, Acceleration-Time
- Displacement & Distance travelled
- Uniform accelerated rectilinear motion
- Constant Acceleration Formulae
- Relationship among acceleration, distance, velocity and time
- Average velocity and instantaneous velocity
- Free fall
- Motion of a body on an inclined plane
- Projectiles (1-D and 2-D)

Term 2

Energy and its transformations

- Gravitational force
- Gravitational acceleration
- Force of friction
- Centripetal Force
- Newton's Laws
- Free-body diagram; vectors
- Equilibrium and resultant of several forces; vectors
- Relative motion
- Momentum
- Mechanical Energy
- Hooke's law
- Relationship among power, work and time
- Simple machines

Term 3

Geometric Optics

- Waves
- EM Spectrum
- Speed of light
- Reflection
- Refraction: Snell's Laws
- Images
- Critical Angle
- Mirrors
- Lenses
- Colour theory

Miscellaneous Information:

Students are expected to be familiar with the Moodle page for this course and to check it daily. Programmable calculators are not permitted at any time.

General

Failure to complete homework will result in loss of marks and/or disciplinary action. **Homework submitted late will result in a penalty of 20%, and if not submitted by the following class then a grade of 0 will be assigned. Homework submitted without a name will result in a grade of 0.** Review and practice of daily work is essential to understanding and retaining the information taught. Students are expected to develop a clear and succinct writing style, with a minimum of spelling or grammatical errors.

Extra help in the form of tutorials is offered as required by appointment (newtonn@loyola.ca).

Note that if a student misses a class for whatever reason, it is THEIR responsibility to make-up the missed work. If a student misses a lab they have 24 hours to contact Mr Dagher (daghere@loyola.ca) to arrange a time to conduct the lab. They must also notify Dr Newton if they have prior knowledge of an upcoming absence.

iPad

The iPad is to be used as a tool to aid learning and to search for information. It is not to be used to play games. We have observed low attention spans, poor academic performance and reduced capacity to think in students who play too much on their iPad.

This document is important as it can also serve
as a basis for your study guide for exams