ST. MAARTEN ACADEMY

Course Outline for Physics
FORM 3
TERMS 1, 2 and 3
2020-2021

INSTRUCTOR: Mrs. Suja Pereppadan

RATIONALE

This course is designed to allow students to work individually and with others in practical, field and interactive activities that are related to theoretical concepts in the course. It is expected that the students will apply investigative and problem skills, effectively communicate scientific information and appreciate the contribution that a study of Physics makes to their understanding of the world.

AIMS

Major aims of this course are :

- Acquire technical and scientific vocabulary;
- Understand the concepts and generalizations necessary for the pursuit of Physics;
- Develop the ability to apply an understanding of the principles involved in Physics to situations which may not be familiar ;
- Develop an ability to detect problems and formulate generalizations;
- Search for patterns and to test hypothesis ;
- Design experiments and carry out other investigations;
- Gather information and present it in tabular, graphical and other acceptable forms;
- Report accurately and concisely;
- Develop an ability to appraise information critically, and evaluate ideas;
- Develop an awareness of the application of scientific knowledge and a concern about the consequences of such applications.

Rules

Every student should make an attempt to attend classes regularly and actively participate in the class activities. It is fully the responsibility of a student to make up for a class/test, if you are absent from a class/test. Students are expected to complete and submit all the assignments given to them on time. Failure to submit time will result in 10 % awarded for that assignment.

Resources
CXC Physics
Physics for the CSEC Examinations
Longman GCSE Physics
Physics for CSEC 2nd Edition
Physics for CXC by John Avison

TENTATIVE SCHEDULE FOR TERM 1

Week	Topic	Objectives	Activities	Assessment
1 Aug 17-21	Introduction	Introduction to physics; study of matter and energy; chapter 1	Class work	Home-work assignment
2 Aug 24-28	Measurements and Units	Basic quantities and Derived quantities;	Class work	
3 Aug 31- Sept 4	Measurements and Units	standard form; Significant figures; Conversion from one unit to another (eg. km to m , mg to kg etc) Chapter 1	Class work	Assessment of class work/Quiz
4 Sept 7-11	Measurements and Units	Instruments and scales; digital and analog scales; Measuring devices for length; vernier calipers ; micrometer screw gauge; Chapter 2		Home-work assignment Discussion of errors made in the test
5 Sept 14-18	Measurements and Units	To find area using graphs; Volume of regular and irregular shaped objects;	Class work	Quiz/Test

Week	Topic	Objectives	Activities	Assessment
6 Sept 21-25		Conversion contd. , Factors to consider when choosing an instrument, errors to consider when conducting an experiment. Chapter 2	Experiments for finding volume of regular shaped and irregular shaped objects; use of volumetric devices;	
7 Sept 28-Oct 2	Measurements and Units	Mass; weight; finding mass using balance; differentiate between mass and weight; finding time using stop watch; Density; unit; experiments to find density of a regular and irregular shaped object; density of liquid; relative density Chapter 2 MID TERM BREAK	Hands on experience	Test
8 Oct 13-16	Measurements and Units	Problem solving from density and relative density; Find density of regular and irregular shaped objects Chapter 2	Problem solving	Assignment in Problem solving
9 Oct 19-23	Measurements and Units	Problem solving from the measurements and units. Review of unit1	Problem solving	Assignment in Problem solving End of unit 1 test
10 Oct 26-30	Mechanics	Vector and scalar quantities; examples for each type quantity; Define force, unit of force; like forces and unlike forces; resultant of these forces.	Class work	

11 Nov 2-6	Mechanics	Parallelogram law; application of parallelogram law.	Construct parallelograms	Test
12 Nov 9-13	Forces	Hooke's law; problem solving on Hooke's law. Experiments from Hooke's law.		
13 Nov 16-20	Forces	Practical work from measurements & problem solving		
14 Nov 23- Dec 4		END OF TERM 1 EXAM		

TENTATIVE SCHEDULE FOR TERM 2

Week	Topic	Objectives	Activities	Assessment
1 Dec 7-11	Forces	Conditions for equilibrium Moment of a force Levers and lever principle	Class work	Home-work assignment
2 Dec 14-18	forces	Problem solving using the concept of moment of a force Teaching Ends on the 16th	Class work.	Test

Week	Topic	Objectives	Activities	Assessment
3 Jan 4-8	Forces	Center of gravity and stability	Class work	Home work assignment
4 Jan 11-15	Energy and work	Meaning of energy, the law of conservation of energy, different forms of energy and conversion from one to the other form of energy and energy sources. Discuss some alternative sources of energy in the Caribbean		
5 Jan 18-22	work	Definition of work done and work done against a force	Class work	Home work assignment
6 Jan 25-29	power	Definition of power and to use the definition to solve problems	Problem solving	assignment
7 Feb 1-5	Work, power and energy	Problem solving		Test
8 Feb 8-12		Review Test		
9 Feb 17-19	Gravitational potential energy and kinetic energy	February 15 and 16 Mid-term Break To distinguish between Potential and kinetic energy, the formula to calculate p.e and k.e.,	Problem solving	Assignment in Problem solving. Test
10 Feb 22-26		use the formulas to solve the problems in k.e and p.e		

11 Mar 1-5	pressure	The definition of pressure, apply the definition to calculate the pressure on a surface, how the pressure is produced by solids, liquids and gases.	Problem solving	Homework assignment
12, 13 Mar 8-19	pressure	To explain some common situations in every day life, to explain the behavior of common hydraulic systems	Class work	Test

TENTATIVE SCHEDULE FOR TERM 3

Week	Topic	Objectives	Activities	Assessment
1 Mar 22-26	Pressure	Atmospheric pressure, Instruments to measure Atmospheric Pressure		
2 Mar 29-31	Atmospheric Pressure	Mercury Barometer, U-tube manometer	Discussion of application of the concept	
3 Apr 6-9	Floating	April 1-5 EASTER BREAK Archimedes Principle, floating and sinking	Class work	Home-work assignment
4 Apr 12-16	Pressure	Discussion of application questions	Class work.	Test

5 Apr 19-23	Linear motion	Displacement, velocity, acceleration,	Problem solving	
6 Apr 26- May 7		Carnival Break		Home work assignment
7 May 10-14	Linear motion	Distance time graphs, Velocity - time graphs	Class work	
8 May 17-21	Linear Motion	Graphs, Analysis of graphs continued	Class work	Test
9 May 24-28	Overall Review for exam			