Opportunity to study Applied Maths

A new Kerry ETB initiative which will allow 5th Yr students to study Applied Maths as an additional subject outside of school hours will be starting shortly. The course will have four online sessions (from home) and one face to face session a month. The format is as follows;

- One weekly session online through Skype on Tuesday from 16:00-18:00
- One 2hr Saturday session a month in IT Tralee.

Below you can find the applied maths Syllabus for more information on the subject. **Any students interested should speak to our Career Guidance Teacher Ms. Breen by Friday 17/11/17**.

Applied Maths

The course essentially covers the maths of the behaviour of objects when placed in various situations, such as being thrown as projectiles, bounced off walls or other objects, immersed in fluids, or swung around on a rope.

What's on the leaving certificate Applied Maths Course?

- Circular Motion and SHM
- Collisions
- Connected Particles
- Differential Equations
- Hydrostatics
- Linear Motion
- Moments of Inertia
- Projectiles
- Relative Velocity
- Statics

APPLIED MATHEMATICS Syllabus

Ordinary and Higher Level Courses

Format of examination papers: Ordinary Level: six questions to be answered out of nine Higher Level: six questions to be answered out of ten.

NOTE: SI units to be used throughout.

Candidates will be expected to know the dimensions of any physical quantity dealt with. Knowledge of the relevant parts of the Mathematics course is assumed. Candidates will be required to deal only with such cases as can be treated in two dimensions.

N.B. Those parts of the syllabus which are printed in italics belong to the Higher Level course only. The Higher Level course includes the Ordinary Level course treated in greater depth.

1. Motion of a particle. Displacement, velocity as vectors. Applications of the vector addition law. Description of vectors in terms of unit perpendicular vectors. Elementary treatment of relative motion.

2. Newton's laws. Mass, momentum. Acceleration and force as vectors. Units and dimensions.

3. Motion in a straight line under uniform acceleration e.g. motion under gravity, motion on smooth and rough inclined planes. Work, potential energy, kinetic energy, power. Application of energy conservation. Motion of connected particles.

4. Equilibrium of a particle under concurrent forces, including friction.

5. Centre of gravity of simple bodies and systems of particles Moments and couples. Equilibrium of a rigid body or bodies.

6. Liquid pressure. Thrust on a horizontal surface. Archimede's Principle.

7. Projectiles. Projectiles on inclined plane.

8. Angular velocity. Uniform motion in a circle without gravitational forces. Conical pendulum. Circular orbits.

9. Conservation of momentum. Collisions. Direct collisions, elastic ($0 < e \leq 1$) and inelastic ($e = o$). Oblique collisions of smooth elastic spheres in two dimensions.

10. Simple harmonic motion of a particle in a straight line. (Application of simple harmonic motion to include the simple pendulum.)

11. Motion of a rigid body about a fixed axis:

(a) Calculation of moments of inertia for a rod, rectangular lamina, circular lamina and compound bodies formed of those. (Sphere is excluded). Application of parallel and perpendicular axes theorems, with proofs done as classwork. Idea of radius of gyration. Application of the conservation of energy principle to a rotating body.

(b) Application of the principle of angular momentum: rate of change of angular momentum about a fixed axis equals the total external moment about that axis. Compound pendulum. Simple applications.

12. Ordinary differential equations and applications: (a) first order, variables separable; (b) Second order reducing to type (a)