Ecole Internationale Provence-Alpes-Côte d'Azur

# Forward Planning

# Long-Term Semester Planning

# Academic Year: 2020-2021

**Class:** S6
**Subject:** Physics
**Teacher:** J.RIEHL
**No. Students:** 17

Ecole Internationale Provence-Alpes-Côte d'Azur

# Curriculum – Long-Term Planning 2020-2021

| Dates | Learning objectives | Learning outcomes / Assessment | Key Competences | Activities / Resources |
|---|---|---|---|---|
| **September - October** | ***Section M : MECHANICS***<br><br>**M1** The frame of reference<br><br>**M2** The uniform circular motion: kinematics (speed, angular velocity, radius and period). Application to the satellite motion.<br><br>**M3** The gravity<br>• The universal gravitational force<br>• The centripetal force in a uniform circular motion<br>• The gravitational field<br>• The weight<br><br>**M4** Force, velocity and acceleration in a uniform circular motion | **Homework :** exercises given regularly<br><br>**Homework :** a long one (similar to a bac question) is given and marked every 2/3 weeks<br><br>**Tests** : every 3 weeks approximately, a 1P test | 1. Literacy (reading and writing)<br>3. Mathematics, Science, Technology and Engineering<br>5. Personal, Social and Learning to Learn<br>8. Cultural Awareness and Expression | **Textbook : Physics for the IB Diploma / K.A.Tsokos / Cambridge University Press 2010**<br><br>Extra paperwork from other textbooks or sources may be given sometimes |

| | | | | |
|---|---|---|---|---|
| | • Vector addition and subtraction (graphical method)<br>• Kinematics : displacement, velocity and acceleration vectors<br>• The centripetal force and acceleration : formulas<br>• Application to the circular motion of satellites<br><br>**M5** Newton's second law and kinematics<br><br>• Newton's second law and the net force<br>• Inertia<br>• Vector components<br>• Combination of velocities<br>• Instantaneous velocity and acceleration and Newton's second law | | 1. Literacy (reading and writing)<br>3. Mathematics, Science, Technology and Engineering<br>4. Digital<br>5. Personal, Social and Learning to Learn<br>8. Cultural Awareness and Expression | |
| **Vacances de Toussaint** | | | | |
| **November - December** | **M6** Newton's first law<br><br>• The equilibrium | | 1. Literacy (reading and writing)<br>3. Mathematics, Science, Technology and Engineering | |

| | | | | |
|---|---|---|---|---|
| | • Newton's first law and the linear uniform motion<br>• The terminal velocity<br>• Inertial frames of reference<br><br>**M7** Uniform and uniformly accelerated motions : kinematics<br><br>• Formulas for the uniform and uniformly accelerated motions<br>• Displacement and velocity-time graphs<br><br>**M8** Free falls and the parabolic motion<br><br>• The vertical free fall<br>• The parabolic motion | | 4. Digital<br>5. Personal, Social and Learning to Learn | |
| **B TEST 1** | | | | |
| **Christmas holidays** | | | | |
| **January - February** | **M9** Work and energy<br><br>• Kinetic energy ; work<br><br>• Gravitational potential energy | | 1. Literacy (reading and writing)<br>3. Mathematics, Science, Technology and Engineering<br>4. Digital | |

| | | | | |
|---|---|---|---|---|
| | • Mechanical energy and its conservation/non conservation<br>**M10** The simple harmonic motion | | 5. Personal, Social and Learning to Learn | |
| **Winter holidays** | | | | |
| **March - April** | **M10** The simple harmonic motion<br><br>***<u>Section F : ELECTRIC AND MAGNETIC FIELDS</u>***<br><br>**F1. THE ELECTRIC FIELD**<br><br>1.1 Basics<br><br>1.2 The radial electric field and the Coulomb's law<br>1.3 Electrical potential and potential energy<br><br>1.4 The uniform electric field<br><br>**F2. CAPACITANCE**<br><br>2.1 Basics | | 1. Literacy (reading and writing)<br>3. Mathematics, Science, Technology and Engineering<br>5. Personal, Social and Learning to Learn<br>6. Citizenship<br>8. Cultural Awareness and Expression | |

| | | | | |
|---|---|---|---|---|
| | 2.2 The parallel plate capacitor<br><br>2.3 Energy storage<br><br>2.4 Time to charge and discharge a capacitor<br><br>2.5 Capacitors in combination | | 1. Literacy (reading and writing)<br>3. Mathematics, Science, Technology and Engineering<br>4. Digital<br>5. Personal, Social and Learning to Learn<br>8. Cultural Awareness and Expression | |
| **Spring holidays** | | | | |
| **May - June** | **F3. THE MAGNETIC FIELD**<br><br>3.1 Basics<br><br>3.2 The current element<br><br>3.3 The uniform magnetic field<br><br>3.4 The solenoid<br><br>3.5 Moving charges in a magnetic field<br><br>3.6 Electromagnetic induction | | 1. Literacy (reading and writing)<br>3. Mathematics, Science, Technology and Engineering<br>4. Digital<br>5. Personal, Social and Learning to Learn<br>8. Cultural Awareness and Expression | |
| **B TEST 2** | | | | |
| **June** | **O. OPTIONAL TOPIC** | | 7. Entrepreneurship | |