## Group 4. Physics SL/HL.

### AIMS

Enable students, through the overarching theme of the Nature of science, to:

1. appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
2. acquire a body of knowledge, methods and techniques that characterize science and technology
3. apply and use a body of knowledge, methods and techniques that characterize science and technology
4. develop an ability to analyse, evaluate and synthesize scientific information
5. develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
6. develop experimental and investigative scientific skills including the use of current technologies
7. develop and apply 21st-century communication skills in the study of science
8. become critically aware, as global citizens, of the ethical implications of using science and technology
9. develop an appreciation of the possibilities and limitations of science and technology
10. develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

### ASSESSMENT OBJECTIVES

1. Demonstrate knowledge and understanding of:
   a. facts, concepts and terminology
   b. methodologies and techniques
   c. communicating scientific information.

2. Apply:
   a. facts, concepts and terminology
   b. methodologies and techniques
   c. methods of communicating scientific information.

3. Formulate, analyse and evaluate:
   a. hypotheses, research questions and predictions
   b. methodologies and techniques
   c. primary and secondary data
   d. scientific explanations.

4. Demonstrate the appropriate research, experimental, and personal skills necessary to carry out insightful and ethical investigations.

| LIST OF TOPICS | |
|---|---|
| **Core (SL)**<br>1. Measurements and uncertainties<br>2. Mechanics<br>3. Thermal physics<br>4. Waves<br>5. Electricity and magnetism<br>6. Circular motion and gravitation<br>7. Atomic, nuclear and particle physics<br>8. Energy production | **Additional higher Level (HL)**<br>9. Wave phenomena<br>10. Fields<br>11. Electromagnetic induction<br>12. Quantum and nuclear physics |
| **Options (one is chosen)**<br>A. Relativity<br>B. Engineering physics<br>C. Imaging<br>D. Astrophysics | |

| ASSESSMENT TYPE | COMPONENT | IBDP WEIGHT % | |
|---|---|---|---|
| | | SL | HL |
| **Internal Assessment** | **Individual investigation:**<br>Students are assessed on their ability to<br>● personally engage with the investigation (8%)<br>● use scientific exploration skills (25%)<br>● use scientific analytical skills (25%)<br>● evaluate their investigation (25%)<br>● communicate their findings and its importance (17%) | 20 | |
| **External Assessment** | Paper One | 20 | 20 |
| | Paper Two | 40 | 36 |
| | Paper Three | 20 | 24 |