**IBDP物理课程简介**

1. Introduction of IBDP Physics IBDP物理学课程介绍

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| Introduction:  ●Physics is the most fundamental of the experimental sciences, as it seeks to explain the universe itself from the very smallest particles—currently accepted as quarks, which may be truly fundamental—to the vast distances between galaxies.  ●At the school level both theory and experiments should be undertaken by all students. The Diploma Programme physics course allows students to develop traditional practical skills and techniques and increase their abilities in the use of mathematics, which is the language of physics. It also allows students to develop interpersonal and digital communication skills. | 介绍：  ●物理学是实验科学中最基础的学科。该学科的研究范围从最小的粒子（目前认为是夸克）到遥远的星系。  ●在学校学习中，学生需要掌握物理理论和实验操作。IBDP物理可以提高学生传统实验操作技能和应用数学这门物理语言的能力。同时也能提高学生的人际交往能力和数字系统使用技能。 |
| Aim:  Become aware of how scientists work and communicate with each other. | 目标：  知晓科学家怎样工作和交流（物理科学层面） |
| Belonging to:  Group 4 (sciences) | 所属类别：  第四组（自然科学） |
| How to assess:  Internal Assessment(20%) and External Assessment(80%) | 考试形式：  内部测试(20%)+外部测试(80%) |
| Distinction between SL and HL:  ●Students at standard level (SL) and higher level (HL) undertake a common core syllabus, a common internal assessment (IA) scheme and have some overlapping elements in the option studied.  ●Students at HL are required to study some topics in greater depth, in the additional higher level (AHL) material and in the common options. | SL和HL的区别  ●SL和HL的学生有相同的核心章节和内部测试标准，选修也有重叠部分。  ●HL的学习内容更宽，更深。 |

2. Syllabus **教学大纲**

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| Syllabus | Teaching hours | | | 教学大纲 | 教学时长 | | |
| SL | HL | | SL | HL | |
| **Core**  1. Measurements and uncertainties  2. Mechanics  3. Thermal physics  4. Waves  5. Electricity and magnetism  6. Circular motion and gravitation  7. Atomic, nuclear and particle physics  8. Energy production | **95**  5  22  11  15  15  5  14  8 | | | 核心章节   1. 测量和误差 2. 力学 3. 热学 4. 波 5. 电和磁 6. 圆周运动和万有引力 7. 原子物理，核物理，粒子物理 8. 能量 | **95**  5  22  11  15  15  5  14  8 | | |
| **Additional higher level (AHL)**  9. Wave phenomena  10. Fields  11. Electromagnetic induction  12. Quantum and nuclear physics |  | | **60**  17  11  16  16 | HL必修   1. 波动现象 2. 场 3. 电磁感应 4. 量子物理、核物理 |  | | **60**  17  11  16  16 |
| **Option**  A. Relativity  B. Engineering physics  C. Imaging  D. Astrophysics | **15**  15  15  15  15 | | **25**  25  25  25  25 | 选修   1. 相对论 2. 工程物理 3. 成像 4. 天体物理 | **15**  15  15  15  15 | | **25**  25  25  25  25 |
| **Practical scheme of work**  Practical activities  Individual investigation (internal assessment – IA)  Group 4 project | **40**  20  10  10 | | **60**  40  10  10 | 实验操作  实验活动  实验报告  交叉学科项目 | **40**  20  10  10 | | **60**  40  10  10 |
| Total teaching hours | ***150*** | | ***240*** | 总教学时长 | ***150*** | | ***240*** |

**3.Assessment 测验 SL 部分**

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| Assessment component | Weighting | 考试组成 | 比重 |
| ***1.External assessment (3 hours)***  Paper 1:  ●30 multiple-choice questions on **core**  ●30 marks  ●0.75 hour  Paper 2:  ●Short-answer and extended-response questions on **core material**  ●50 marks  ●1.25 hours  Paper 3: Questions on **core and SL option** material.  ●Section A: one data-based question and several short-answer questions on experimental work.  ●Section B: short-answer and extended-response questions from **one option**.  ●35 marks  ●1 hour | 80%  20%  40%  20% | ***1.外部考试（3个小时）***  卷一:  ●30道核心章节选择题  ●30分  ●0.75小时  卷二:  ●核心章节题目  ●50分  ●1.25小时  卷三：核心章节和SL选修部分  ●A部分：一道数据分析题目，几道实验简答题  ●B部分：一个选修章节题目  ●35分  ●1小时 | 80%  20%  40%  20% |
| ***2.Internal assessment (10 teaching hours;24 marks)***  ●This component is internally assessed by the teacher and externally moderated y the IB at the end of the course.  ●The internal assessment task will be one scientific investigation.  ●The write-up should be about 6 to 12 pages long | 20% | 2.内部测评（10小时教学时长;24分）  ●此部分由内部老师来评定，IB会在课程结束时会进行外部评定。  ●内部测试内容为一次物理实验。  ●实验报告的长度为6-12页 | 20% |

**HL 部分**

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| Assessment component | Weighting | 考试组成 | 比重 |
| ***1.External assessment (4.5 hours)***  ***Paper 1：***  ●40 multiple-choice questions on **core and AHL**  ●40 marks  ●1 hour  ***Paper 2：***  ●Short-answer and extended-response questions on the **core and AHL** material.  ●95 marks  ●2.25 hour  Paper 3 : Questions on **core, AHL and option** material  ●45 marks  ●1.25 hour  ●Section A: one data-based question and several short-answer questions on experimental work.  ●Section B: short-answer and extended-response questions from one option. | 80%  20%  36%  24% | ***1.外部考试(4.5小时)***  卷一：  ●40道核心章节和HL必修部分的选择题  ●40分  ●1小时  卷二:  ●核心章节和HL必修题目  ●95分  ●2.25小时  卷三:核心章节、HL必修及选修  ●45分  ●1.25小时  ●A部分：一道数据分析题目，几道实验简答题  ●B部分：一个选修章节的题目 | 80%  20%  36%  24% |
| ***2.Internal assessment (10 teaching hours;24 marks)***  ●This component is internally assessed by the teacher and externally moderated y the IB at the end of the course.  ●The internal assessment task will be one scientific investigation.  ●The write-up should be about 6 to 12 pages long | 20% | ***2.内部测评（10小时教学时长;24分）***  ●此部分由内部老师来评定，IB会在课程结束时会进行外部评定。  ●内部测试内容为一次物理实验。  ●实验报告的长度为6-12页 | 20% |