物理根基，創智未來

關於AP

應用物理學系 (AP) 創立於1987年，一直以成為國際一流物理學系為目標，匯聚頂尖學者，緊貼尖端科技發展和社會需求，聚焦新材料、人工智能、大數據、光電子等高端領域。多年來，AP培養具備基礎知識、應用技能、商業思維、國際視野和創新精神的創科人才，服務於大專院校、科研機構、工商業和創新產業等。AP亦在多個世界學科及研究排名中取得優秀成績。

51st
光學
2023 U.S. News & World Report

98th
自然科學
Nature Index 2022
5大科學國家*排名

101-125th
物理科學
2023 Times Higher Education
世界大學科目排名

*5大科學國家：美國、中國、德國、英國及日本

五大研究範圍

- 能源材料與器件
- 納米材料及微電子器件
- 智能材料與器件
- 理論與計算物理
- 光子學、等離激元光子學與光電子學

科研學習

擁有超過30個實驗室作為教學及科研用途，當中包括與科技龍頭－華為共同建立人工智能聯合實驗室、材料與器件中心實驗室及無塵室。成績優秀的學生有機會參與學系教授的科研項目，如：太陽能電池、快速檢測病毒生物傳感器、新能源材料等。

物理學(榮譽)理學士
副主修人工智能及數據分析(AIDA)
或創新及創業(IE)

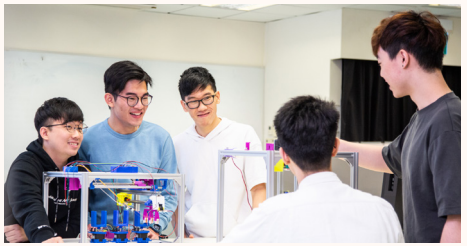
#JS3030 **133學分**

25 取錄人數 | **4年** 全日制 | **UGC funded** | **30** GUR科目 + **67** 核心科目 + **36** AIDA/IE

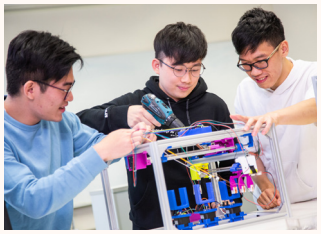
4年時間 同步完成主修及副主修課程

物理為主修課程，學生於第一年修讀基礎課程，第二年起則按個人發展意向選擇副主修 AIDA 或 IE。副主修比一般的課程內容更深入。畢業時，學生將頒獲以下其中一個學士學位：

- 物理學 (榮譽) 理學士 - 副主修人工智能及數據分析
- 物理學 (榮譽) 理學士 - 副主修創新及創業

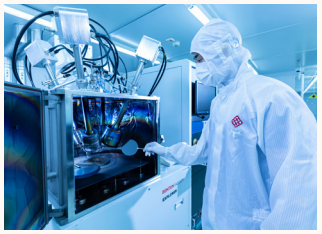


課程特色



著重實際應用

除了設備完善的實驗室及參與學系科研機會，我們與世界各地的大學、科研機構及公司有緊密聯繫，為學生提供實習交流機會，實踐所學，擴闊視野。



跨學科課程

將主修的物理學，融合AIDA / IE，為學生提供基礎及新興知識，助其輕鬆踏上各種職業道路，例如創科、醫療保健和工業應用。

著重全面發展

課堂設計積極培養學生多元思維、溝通技巧、領導才能、創意、批判思考及解難等「軟技能」，培育新一代創科專才。

科目一覽

以下為4年課程內修讀的科目摘要

大學核心課程 (GUR) (30學分)

Cluster Areas Requirements (CAR)
Language and Communication Requirements (LCR)
Leadership Education and Development
Healthy Lifestyle
Service Learning

主修-物理 (67 學分)

Electromagnetism and Waves
Experiment X
From Semiconductor to Intelligent Devices
Materials Science
Mechanics and Robotic Motion
Quantum Mechanics for Scientists and Engineers
Scientific Instrumentation and Automation
Sensors and Transducers for Internet of Things

副主修 (36學分)

人工智能及數據分析 (AIDA)

Artificial Intelligence
Data Structures and Algorithms
Data Analysis Techniques for Scientists
Energy Conversion and Storage with Machine Learning
Integrated Capstone Project
Machine Learning in Physics

二選一

創新及創業 (IE)

Business Innovation Project
Company attachment
Creativity, Innovation and Entrepreneurship
Study for Innovation Ecosystems
Innovation and Entrepreneurship Colloquium
Managing Innovation and Technology
Strategic Brand Management

獲頒學士學位

物理學(榮譽)理學士
副主修人工智能及數據分析
Bachelor of Science (Honours) in Physics with a Secondary Major in Artificial Intelligence and Data Analytics

物理學(榮譽)理學士
副主修創新及創業
Bachelor of Science (Honours) in Physics with a Secondary Major in Innovation and Entrepreneurship

就業方向

擁有跨學科知識及技能的畢業生，可向不同行業發展或進修深造。

資訊科技相關

數據科學家 Data Scientist
AI軟件工程師 AI Software Engineer
系統架構師 System Architect
系統分析師 System Analyst
程式分析員 Analyst Programmer
資訊科技顧問 IT Consultant

工業相關

科技顧問 Technology Consultant
工程師 Engineer
系統開發人員 System Developer

醫療服務相關

醫學物理師 Medical Physicist
實驗室經理 Lab Manager
定量研究員 Quantitative Researcher

研究與開發相關

研究助理 Researcher
材料工程師 Materials Engineer
研發工程師 R&D Engineer
技術官 Scientific/Technology Officer

金融服務相關

定量研究員 Quantitative Researcher
數據科學家 Data Scientist
金融工程師 Quant Developer

Physics Foundation for an Intelligent Future

About AP

The Department of Applied Physics (AP) was founded in 1987, and we are devoted to become a world-class physics department. We brought in high-caliber scholars and researchers with diverse expertise to enrich our curriculum and scientific innovations, with a strong focus on the development of cutting-edge technologies such as new materials, artificial intelligence, big data and optoelectronics. Over the years, AP has nurtured talents with fundamental and applied scientific knowledge, skills, and innovative mindset. Our graduates are welcomed by employers and have made significant contributions to the industries and the community. We achieved remarkable results in various University rankings.

51st
Best Universities for Optics
2023 U.S. News & World Report

98th
Leading 200 institutions in physical sciences
Nature Index 2022 Big 5 science nations

101-125th
Physical Sciences
Times Higher Education (THE) World University Rankings 2023 by subject

*Big 5 science nations: USA, China, Germany, England and Japan

5 Major Research Areas

- Energy Materials & Devices
- Nanomaterials & Microelectronic Devices
- Smart Materials & Devices
- Photonics, Plasmonics & Optoelectronics - Materials & Devices
- Theoretical & Computational Physics

Research and Innovation

AP is well-equipped with more than 30 world-class research laboratories for teaching and research purpose, including a joint AI laboratory with Huawei, University Research Facility in Materials Characterization and Device Fabrication, as well as Cleanroom facilities. Students with outstanding academic performance results are actively recruited to join research projects led by our academic staff, working on forefront topics like photovoltaics, biosensor for virus detection and new energy materials.

BSc (Hons) in Physics with a Secondary Major in Artificial Intelligence and Data Analytics (AIDA) or Innovation and Entrepreneurship (IE)

#JS3030

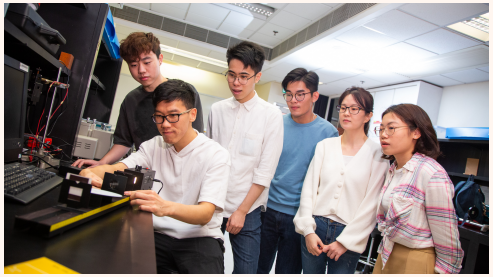
133 credits

25 Intakes
4 years Full time
UGC funded
30 GUR subjects + **67** Physics + **36** AIDA/IE

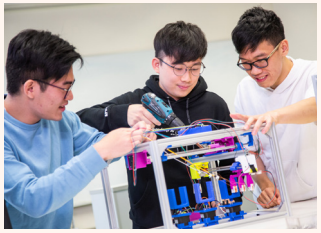
Acquire a Major with a Secondary Major degree in 4 years

Students enrolled to our Physics programme follow a common curriculum in the first year, before they choose a Secondary Major in either AIDA or IE in Year Two, according to their own preference. They will graduate with one of the following degrees upon successful completion of the corresponding graduation requirements:

- Bachelor of Science (Honours) in Physics with a Secondary Major in Artificial Intelligence and Data Analytics
- Bachelor of Science (Honours) in Physics with a Secondary Major in Innovation and Entrepreneurship



Programme Highlights



An Application-oriented approach

The learning experience is supported by well-equipped laboratories and research opportunities. Collaborations with renowned universities, research institutions and industry partners provide excellent internship and exchange opportunities for students.

Multidisciplinary Nature

The combination of physics and AIDA/IE provides students with both solid scientific knowledge and practical skillsets, opening them to a wide range of career paths such as innovation, health care and industry.

All-rounded Development

The learning pedagogies are designed to develop students' "soft skills", such as lateral thinking, communication skills, creativity, critical thinking and problem-solving skills, which are critical assets for our future leaders.

Subject List

Highlight of subjects in our 4-year curriculum.

General University Requirement (GUR) (30 credits)

- Cluster Areas Requirements (CAR)
- Language and Communication Requirements (LCR)
- Leadership Education and Development
- Healthy Lifestyle
- Service Learning

Major – Physics (67 credits)

- Electromagnetism and Waves
- Experiment X
- From Semiconductor to Intelligent Devices
- Materials Science
- Mechanics and Robotic Motion
- Quantum Mechanics for Scientists and Engineers
- Scientific Instrumentation and Automation
- Sensors and Transducers for Internet of Things

Secondary Major (36 credits)

AIDA

- Artificial Intelligence
- Data Structures and Algorithms
- Data Analysis Techniques for Scientists
- Energy Conversion and Storage with Machine Learning
- Integrated Capstone Project
- Machine Learning in Physics

Either one

IE

- Business Innovation Project
- Company attachment
- Creativity, Innovation and Entrepreneurship
- Study for Innovation Ecosystems
- Innovation and Entrepreneurship Colloquium
- Managing Innovation and Technology
- Strategic Brand Management

Awarded Bachelor' s Degree

Bachelor of Science (Honours) in Physics with a Secondary Major in Artificial Intelligence and Data Analytics

Bachelor of Science (Honours) in Physics with a Secondary Major in Innovation and Entrepreneurship

Career Prospects

Equipped with interdisciplinary scientific knowledge, skills, and innovative mindset, our graduates are well-prepared to work in various industries or pursue further studies.

Tech-related	Industry-related	Medical Services-related	Research & Development-related	Financial Services-related
Data Scientist	Technology Consultant	Medical Physicist	Researcher	Quantitative Researcher
AI Software Engineer	Engineer	Lab Manager	Materials Engineer	Data Scientist
System Architect	System Developer	Quantitative Researcher	R&D Engineer	Quant Developer
System Analyst			Scientific/Technology Officer	
Analyst Programmer				
IT Consultant				