

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 worldclass 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.

101-125th

Rankings 2023 by subject

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

Physical Sciences Times Higher Education (THE) World University

*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 133credits **25 4**_{years} UGC Intakes Full time **funded** $30_{\text{GUR}} + 67 + 36$ subjects Physics 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.

PolyU Applied Physics in Department of Applied Physics, PolyU (O) **f** polyuap



Subject List

Highlig<mark>ht of subjects in our 4-</mark>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

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

Major – Physics (67 credits)

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

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

IE

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

Al Software Engineer

System Architect

System Analyst Analyst Programmer IT Consultant

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 Data Scientist

Industry-related

Technology Consultant Engineer System Developer

Medical Services-related

Medical Physicist Lab Manager Quantitative Researcher

Research & Development-related

Researcher Materials Engineer R&D Engineer Scientific/Technology Officer

Financial Services-related

Quantitative Researcher Data Scientist Quant Developer

