



THE HONG KONG  
POLYTECHNIC UNIVERSITY  
香港理工大學

Department of

**I**ndustrial &  
**S**ystems  
**E**ngineering

工業及  
系統工程  
學系

# BSc (Hons) in Aviation Operations and Systems 航空營運及系統學 (榮譽)理學士

**2**-year Full-time Government-funded Top-up Degree Programme  
年全日制政府資助銜接學位課程

(Programme Code: 45497)





## What is Aviation Operations and Systems?

Aviation Operations and Systems concern design and development, planning and scheduling, and implementation and control of various processes, operations, and systems in aviation and related industries. Particular emphasis is given to the development of new processes, new operations, new systems, and the re-engineering of existing processes, operations, and systems. This enables better understanding of the complex problems and inter-relationships of various aviation operations, and draws on specialised knowledge and skills in engineering, management, and social sciences to specify, optimize, predict, and evaluate the results to be obtained from such processes, operations, and systems.



## BSc (Hons) in Aviation Operations and Systems

### 航空營運及系統學(榮譽)理學士

#### Characteristics

Hong Kong needs to upgrade its manpower to meet the aviation industry's prevailing and future demands, so as to maintain its competitiveness in the rapidly changing world and highly competitive markets in the region. Only university graduates possessing profound aviation-related professional knowledge and diverse management skill-sets have the ability and adaptability to be successful in such an environment. This programme is designed from a multi-stakeholder perspective to cover the whole spectrum of the aviation industry, spanning policy, management, operations, logistics, and systems levels. Various relevant university departments are collaborating to co-design and deliver this programme, including the Department of Industrial & Systems Engineering, the Department of Logistics & Maritime Studies, and the School of Hotel & Tourism Management. The programme offers a highly integrated, broad-based education aimed at producing degree-level aviation professionals to meet the high-level diverse manpower needs of the aviation industry.

Through the AOS programme, students will be able to practice and understand different common technological systems and processes found in the aviation industry. Moreover, by undertaking hands-on projects, students will also be able to integrate their academic knowledge with practical skills covering key engineering tasks including problem identification, design, fabrication, and evaluation. Students will also be trained to become specialists in aviation areas such as aircraft logistics, airline operations and revenue management, and inflight service management.



#### Aims of the programme

The overall aim of this programme is to produce professionals who are competent in the design, development, planning, scheduling, controlling, executing, and managing aviation operations, systems, and related technologies. In this programme, students will study the underpinning Industrial Engineering fundamentals and theory used in aviation operations and systems. As a consequence, graduates of the programme will become competitive professionals in aviation operations and systems for the local and global aviation industry.

PROGRESSION CURRICULUM\*#

Year 1	
Semester 1	Semester 2
<ul style="list-style-type: none"><li>• Introduction to Aviation Management</li><li>• Business Law</li><li>• Warehousing Technologies and Operations</li><li>• Applications of Operations Research in Aviation</li><li>• Professional Communication in Chinese</li><li>• Integrated Aviation Systems Project</li></ul>	<ul style="list-style-type: none"><li>• Total Quality Management</li><li>• Systems Modeling and Simulation</li><li>• Engineering Costing and Evaluation</li><li>• Aviation Safety and Security Management</li><li>• Professional Communication in English for Engineering Students</li><li>• Integrated Aviation Systems Project - cont'd</li></ul>
Year 2	
Semester 1	Semester 2
<ul style="list-style-type: none"><li>• Fleet and Flight Management</li><li>• Society and the Engineer</li><li>• Airport Logistics Engineering</li><li>• Elective 1</li><li>• Individual Project</li></ul>	<ul style="list-style-type: none"><li>• Airline Strategy and Management</li><li>• Airport Management</li><li>• Project Management</li><li>• Elective 2</li><li>• Individual Project - cont'd</li></ul>

Elective Subjects:

- Pilot Ground Theory
- Inflight Service Management
- Environmental Management in the Travel and Hospitality Industry
- Data Management in Aviation Industries
- Mobile Technologies for Logistics Systems
- Green Legislation and Supply Chain Logistics
- Aircraft Service Engineering and Logistics
- Quality Management
- Air Flight Operations Management
- Airline Operations and Revenue Management
- Information Systems for Logistics Management



\* Those students not meeting the equivalent standard of the Undergraduate Degree Language and Communication Requirements (LCR) (based on their previous studies in AD/HD programmes and their academic performance) will be required to take degree LCR subjects on top of the normal curriculum requirement.

# Students also need to fulfill the Cluster Areas Requirement (CAR) and Service-Learning credit requirements

Gaining Practical Experience from WIE

Work-Integrated Education (WIE) has been incorporated into the course of studies to ensure that students gain real-life work experience that is relevant to their study disciplines, and to enhance their all-round development. Each student must attain a minimum of one WIE training credit, i.e., completion of at least 2 weeks/80 hours of full-time training, or the equivalent, before graduation.

Summer Placement

Summer placement opportunities may be provided to students to enable them to gain practical work experience.

Industry-related Final Year Projects

Most of our students' final year projects will be industry-related. Each student will collaborate with an organization and work on a specific topic under the supervision of an academic staff and a staff member from the partnered company. The main aim is to provide students with hands-on experience in applying what they have learnt in the classroom for solving real-life problems or making improvements to current systems.

### ISE Entry Scholarships

To recognise the outstanding academic performance of students, the department will grant entry scholarships with a total amount up to HK\$30,000 to eligible students admitted to AOS programme via Non-JUPAS local senior year admission. Details can be found at <https://www.polyu.edu.hk/ise/scholarships>.

### Requirement and Scholarship Amount

A one-off scholarship of HK\$15,000 when the student is admitted to the BSc (Hons) in Aviation Operations and Systems programme with Distinction or GPA of 3.5 or above, and an additional HK\$15,000 if the student has achieved a GPA of 3.2 or above in the 2nd semester of year 1.

A square QR code with a red and white geometric pattern in the center, located in the bottom right corner of the ISE Entry Scholarships section.

## Career Prospects

Graduates can be employed as:

- Aviation Business Analysts
- Aviation Project Engineers
- Aviation Safety Engineers
- Ground Operations Engineers
- Crew Operations Officers
- Passenger Services Officers
- Fleet Technical Engineers
- Cargo Services Coordinators
- Airworthiness Engineers
- Revenue Management Officers
- Inventory Management Analysts
- Client Support Executives
- Quality Assurance Engineers
- Operations Engineers
- Systems Engineers
- Planning Engineers



**Mr Sun Yuk Hin Jordan**  
*Digital & IT Graduate Trainee*  
*Cathay Pacific Airways Limited*

AOS is a wide ranging and practical programme that provides comprehensive insights into the aviation industry. The knowledge and actual cases that I have learnt from the course are very down to earth, not to mention the teaching staff are supportive and inspired me a lot in both my academic and career development. Foremost, the programme nourished me into becoming a professional who can facilitate day-to-day airline operations. If you are interested in statistical data analysis, process improvement, and operation research & management, join AOS! You will be amazed by how much you can do to advance the industry.



**Ms Wong Mei Sze Macy**  
*Operations Trainee*  
*Standard Chartered Bank (Hong Kong) Limited*

The AOS programme allowed me to figure out that operations provide the foundation to every successful company; in other words, are indispensable. Besides, it provided comprehensive knowledge regarding operations and systems in the aviation industry which can also be applicable to other industries. It helped me to gain advantages in the competitive banking industry. Not least, knowledge learnt in the course is beneficial for me in managing numerous challenges and applying them in the workplace.



**Mr Ko Chun Hung Rick**  
*Cargo Services Officer*  
*Cathay Pacific Service Ltd.*

Aviation is a cross-functional industry which requires specialized knowledge. Getting into this massive and fast-changing industry, AOS offers the best opportunity for you. It provides all-round aviation-related knowledge and integrated skills from engineering to management through different interesting projects which helped me understand and deal with various complex challenges. I am sure AOS can nurture aviation lovers to become highly competent professionals in the aviation industry in the future.

## Supporting Organizations

- Asia Airfreight Terminal Company Limited
- BNP Paribas
- Boeing Commercial Airplanes
- Cathay Dragon
- Cathay Pacific Airways Limited
- Cathay Pacific Catering Services (H.K.) Limited
- China Aircraft Services Limited
- Civil Aviation Department, HKSAR Government
- Committee on Aviation, The Hong Kong Chinese Enterprises Association
- DHL
- Hong Kong Aero Engine Services Limited
- Hong Kong Air Cargo Terminals Limited
- Hong Kong Airlines Limited
- Hong Kong Express Airways Limited
- Hong Kong International Airport
- Hong Kong Logistics Association
- Hong Kong Trade Development Council
- Hongkong Association of Freight Forwarding and Logistics Limited
- Jardine Airport Services Limited
- Jetstar Hong Kong Airways Limited
- Kalitta Air
- TAG Aviation Asia Limited
- The Chartered Institute of Logistics and Transport in Hong Kong
- The Hong Kong Shippers' Council
- The Institute of Purchasing and Supply of Hong Kong
- TNT Express Worldwide (HK) Limited
- Vogue Laundry Service Limited

## Professional Recognition

The programme has been granted provisional accreditation by the Chartered Institute of Logistics and Transport in Hong Kong (CILTHK).

## Entrance Requirements of the Programme

An Associate Degree or Higher Diploma holder in a relevant discipline or equivalent qualifications is eligible to apply for the programme.

In addition to academic results, the potential for and interest of applicants in the programme, their language and communication skills, and learning attitude, will also be considered. Shortlisted candidates will be invited to attend a selection interview.

## Enquiries

### Academic Matters

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### General Enquiries

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**Programme Website** <https://www.polyu.edu.hk/ise/aos>

