

Subject Description Form

Subject Code	ME47010
Subject Title	Airworthiness
Credit Value	3
Level	4
Pre-requisite / Co-requisite/ Exclusion	Pre-requisite: AAE3005 Introduction to Aircraft Design and Aviation System; or ENG3005 Introduction to Aircraft Design and Aviation System; and ISE3009 Aviation Safety and Reliability
Objectives	This subject aims at providing students basic understanding of the aircraft airworthiness that has to be considered as a coherent process from the design of aircraft to the monitoring of its technical condition in airline service. Different airworthiness requirements for civil aircraft under CAA, FAA, JAR and ICAO regulations are introduced.
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> a. Familiarize aircraft airworthiness including both the technical aspects of certification and the legal and economic implications; b. Analyze types of certificate process, procedure and implementation; c. Understand aircraft maintenance procedures and certification process; d. Effectively communicate with aviation professionals with fluency in English and Chinese writing and speaking.
Subject Synopsis/ Indicative Syllabus	<p>General - Convention on International Civil Aviation; Annexes 1, 6, 7, 8, 16 and 19; State of Design, State of Manufacture, State of Registry and State of the Operator; Classification of aircraft; Registration of aircraft and Noise Certification.</p> <p>Type Certification of Aircraft - Design aspects of airworthiness requirements for aeroplanes, helicopters, engines and propellers in terms of Flight, Structure, Design and Construction, Tests and Inspection, Rotors and Powerplant, Systems and Equipment, Operating Limitations and Information, Crashworthiness and Cabin Safety, Operating Environment and Human Factors, and Security; Proof of compliance of applicable airworthiness requirements; Type Certificate; and Supplementary Type Certificate.</p> <p>Production - Aircraft Production; Production Approval.</p> <p>Certificate of Airworthiness - Issuance and continued validity of a Certificate of Airworthiness; Flight manual; Weight and balance of aircraft; and Temporary loss of airworthiness.</p> <p>Design and Manufacturing of Products Other Than Aircraft - Type validation/acceptance of engines and associated equipment; Design and production approval of aircraft equipment and accessories; Approval of radio apparatus; Parts Manufacturing Approval.</p>

Continuing Airworthiness of Aircraft - Responsibilities of Contracting States in respect of continuing airworthiness; Airworthiness Directives; and Aircraft leasing.

Aircraft Maintenance - Maintenance Steering Group (MSG-3); Maintenance Review Board Report; Maintenance Planning Data; Maintenance Programme; Condition Monitoring and Reliability Programme; Modification and Repair; Certificate of Return to Service; Certificate of Maintenance Review;

Changes to Type Design - Classification of modification and repairs; Flight testing; Certificate of Fitness for Flight; Permit to Fly; Responsibilities of Type Design organization and aircraft operator; changes to approved documents.

Maintenance Support Arrangement - Air Operator Certificate; Operational Specifications; Maintenance Agreement; and Minimum Equipment List.

Approval of Aircraft Maintenance Organization and Aircraft Maintenance Training Organization

Licensing of Aircraft Maintenance Personnel

In Service Reporting System

The Chinese Vocabulary and Terminology in Air Transportation - Reading of various Chinese profession-related manuals, such as Aircraft Maintenance Manual (AMM, 飛機維修手冊), Illustrated Parts Catalog (IPC, 飛機件號手冊), Fault Reporting Manual (FRM, 故障報告手冊), Fault Isolation Manual (FIM, 故障隔離手冊) and Tool and Equipment Manual (TEM, 工具設備手冊) etc.#

“The Chinese Vocabulary and Terminology in Air Transportation” is taught by CBS academic staff.

Teaching/Learning Methodology

Lectures are used to deliver the knowledge of airworthiness to the students. Site visits will be arranged to provide them the real insight of aircraft maintenance procedure and airport operations. Industrial experts will be invited to share their experience and provide case studies to the students.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed			
		a	b	c	d
1. Examination	50%	√	√	√	√
2. Assignment	10%	√		√	√
3. Reports and presentation (Case Study)	40%	√	√	√	√
Total	100%				

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

	<p>Overall Assessment:</p> <p style="text-align: center;">0.5 x End of Subject Examination + 0.5 Continuous Assessment</p> <p>Examination is adopted to assess students' understanding on aircraft regulations, maintenance process and procedure and basic airworthiness related information. Site visits are used to provide the students real insight on aircraft maintenance process and opportunities to communicate with aviation professionals in the field. Case study report provides the students self-study opportunity to study and analyze different cases of aircraft problems related to airworthiness.</p>	
<p>Student Study Effort Expected</p>	<p>Class contact:</p>	
	<ul style="list-style-type: none"> ▪ Lecture 	
	<p style="padding-left: 40px;">English Session</p>	20 Hrs.
	<p style="padding-left: 40px;">Chinese Session (CBS)</p>	10 Hrs.
	<ul style="list-style-type: none"> ▪ Tutorials 	9 Hrs.
	<p>Other student study effort:</p>	
	<ul style="list-style-type: none"> ▪ Assignments 	20 Hrs.
<ul style="list-style-type: none"> ▪ Report 	60 Hrs.	
<p>Total student study effort</p>	119 Hrs.	
<p>Reading List and References</p>	<ol style="list-style-type: none"> 1. Hong Kong Aviation Requirements. 2. Airport Planning & Management. Edited by Alexander T. Wells, latest edition, McGraw Hill. 3. Aircraft Safety: Accident Investigations, Analyses & Applications. Edited by Shari Stamford Krause, latest edition, McGraw Hill. 4. 民用航空術語編輯組（2002）《民用航空旅客運輸術語》。中國標準出版社。 5. 民用航空術語編輯組（2002）《民用航空貨物運輸術語》。中國標準出版社。 	