Subject Description Form

Subject Code	AAE4904
Subject Title	Meteorology in Aviation
Credit Value	3
Level	4
Pre-requisite/ Co-requisite/ Exclusion	Pre-requisite: AAE2004 Introduction to Aviation System and Air Transport Regulation
Objectives	To provide students with general knowledge of a pilot completing a safe flight in given meteorological conditions and the effect of weather conditions within the atmosphere to aircraft operation.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Possess essential knowledge and skills in the area of aircraft meteorology; and b. Identify all the weather information which may affect a given flight; and c. Analyse and evaluate available weather information before flight as well as that collected in flight; and d. Apply a solution to any problems presented by weather conditions.
Subject Synopsis/ Indicative Syllabus	**Wind -** Definition and measurement of wind, Primary cause of wind, General global circulation, Local winds, Mountain waves (standing waves, lee waves), Turbulence, Jet streams. **Thermodynamics –** Humidity, Change of state of aggregation, Adiabatic processes. **Clouds and Fog -** Cloud formation and description, Fog, mist, haze. **Precipitation -** Development of precipitation, Types of precipitation. **Air Masses and Fronts -** Air masses and Fronts. **Pressure Systems -** The principal pressure areas, Anticyclone, Non-frontal depressions, Tropical revolving storms. **Climatology -** Climatic zones, Tropical climatology, Typical weather situations in the mid-latitudes, Local winds and associated weather. **Flight Hazards –** Icing, Turbulence, Wind shear, Thunderstorms, Tornadoes, Inversions, Stratospheric conditions, Hazards in mountainous areas, Visibility-reducing phenomena. **Meteorological Information -** Observation, Weather charts, Information for flight planning, Meteorological services.

Teaching/Learning Methodology

1. The teaching and learning methods include lectures/tutorial sessions, homework assignments, test, case study report and examination.

2. The continuous assessment and examination are aimed at providing students with integrated knowledge required for aircraft meteorology.

3. Technical/practical examples and problems are raised and discussed in class/tutorial sessions.

4. Special seminar(s) delivered by invited industrial professionals may be used to relate the concepts learnt in class to aviation practices.

Teaching/Learning Methodology	Intended subject learning outcomes to be covered			
	a	b	c	d
1. Lecture	✓	✓	✓	✓
2. Tutorial	✓	✓		
3. Homework assignment	✓	✓	✓	✓

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. Continuous Assessment	50%	✓	✓	✓	✓
2. Examination	50%	✓	✓	✓	✓
Total	100%				

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

Overall Assessment:

0.5 × End of Subject Examination + 0.5 × Continuous Assessment

The continuous assessment consists of two components: homework assignments, and test. They are aimed at evaluating the progress of students' study, assisting them in self-monitoring of fulfilling the respective subject learning outcomes, and enhancing the integration of the knowledge learnt.

The examination is used to assess the knowledge acquired by the students for understanding and analysing the problems critically and independently; as well as to determine the degree of achieving the subject learning outcomes.

Students must attend the final examination in order to attain a passing grade in the overall result.

Student Study Effort Expected	Class contact:	
	▪ Lecture	33 Hours
	▪ Tutorial	6 Hours
	Other student study effort:	
	▪ Self-Study	66 Hours
	Total student study effort	**105 Hrs.**
Reading List and References	1. Oxford ATPL Manual 9 - Meteorology – EASA, Oxford Publishing, Last Edition. 2. Roy Quantick, Climatology for Airline Pilots, John Wiley & Sons, Last Edition. 3. S. Raghavan, Radar Meteorology, Springer Science & Business Media, Last Edition.	

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