

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: <ol style="list-style-type: none"> 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	<p>Wind - Definition and measurement of wind, Primary cause of wind, General global circulation, Local winds, Mountain waves (standing waves, lee waves), Turbulence, Jet streams.</p> <p>Thermodynamics – Humidity, Change of state of aggregation, Adiabatic processes.</p> <p>Clouds and Fog - Cloud formation and description, Fog, mist, haze.</p> <p>Precipitation - Development of precipitation, Types of precipitation.</p> <p>Air Masses and Fronts - Air masses and Fronts.</p> <p>Pressure Systems - The principal pressure areas, Anticyclone, Non-frontal depressions, Tropical revolving storms.</p> <p>Climatology - Climatic zones, Tropical climatology, Typical weather situations in the mid-latitudes, Local winds and associated weather.</p> <p>Flight Hazards – Icing, Turbulence, Wind shear, Thunderstorms, Tornadoes, Inversions, Stratospheric conditions, Hazards in mountainous areas, Visibility-reducing phenomena.</p> <p>Meteorological Information - Observation, Weather charts, Information for flight planning, Meteorological services.</p>

Teaching/Learning Methodology	<ol style="list-style-type: none"> 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. 																												
	<table border="1" data-bbox="473 590 1422 956"> <thead> <tr> <th data-bbox="473 590 997 743" rowspan="2">Teaching/Learning Methodology</th> <th colspan="4" data-bbox="997 590 1422 743">Intended subject learning outcomes to be covered</th> </tr> <tr> <th data-bbox="1044 698 1081 743">a</th> <th data-bbox="1105 698 1141 743">b</th> <th data-bbox="1165 698 1202 743">c</th> <th data-bbox="1225 698 1262 743">d</th> </tr> </thead> <tbody> <tr> <td data-bbox="473 743 997 810">1. Lecture</td><td data-bbox="1044 743 1081 810">✓</td><td data-bbox="1105 743 1141 810">✓</td><td data-bbox="1165 743 1202 810">✓</td><td data-bbox="1225 743 1262 810">✓</td></tr> <tr> <td data-bbox="473 810 997 878">2. Tutorial</td><td data-bbox="1044 810 1081 878">✓</td><td data-bbox="1105 810 1141 878">✓</td><td data-bbox="1165 810 1202 878"></td><td data-bbox="1225 810 1262 878"></td></tr> <tr> <td data-bbox="473 878 997 956">3. Homework assignment</td><td data-bbox="1044 878 1081 956">✓</td><td data-bbox="1105 878 1141 956">✓</td><td data-bbox="1165 878 1202 956">✓</td><td data-bbox="1225 878 1262 956">✓</td></tr> </tbody> </table>	Teaching/Learning Methodology	Intended subject learning outcomes to be covered				a	b	c	d	1. Lecture	✓	✓	✓	✓	2. Tutorial	✓	✓			3. Homework assignment	✓	✓	✓	✓				
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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	<ol style="list-style-type: none"> 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. 	

Oct 2025