

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	<p>Upon completion of the subject, students will be able to:</p> <ul 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	<div><div><div>1. The teaching and learning methods include lectures/tutorial sessions, homework assignments, test, case study report and examination.</div><div>2. The continuous assessment and examination are aimed at providing students with integrated knowledge required for aircraft meteorology.</div><div>3. Technical/practical examples and problems are raised and discussed in class/tutorial sessions.</div><div>4. Special seminar(s) delivered by invited industrial professionals may be used to relate the concepts learnt in class to aviation practices.</div></div><table><tr><th rowspan="2">Teaching/Learning Methodology</th><th colspan="4">Intended subject learning outcomes to be covered</th></tr><tr><th>a</th><th>b</th><th>c</th><th>d</th></tr><tr><td>1. Lecture</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr><tr><td>2. Tutorial</td><td>✓</td><td>✓</td><td></td><td></td></tr><tr><td>3. Homework assignment</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr></table></div>	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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Assessment Methods in Alignment with Intended Learning Outcomes	<div><table><tr><th rowspan="2">Specific assessment methods/tasks</th><th rowspan="2">% weighting</th><th colspan="4">Intended subject learning outcomes to be assessed</th></tr><tr><th>a</th><th>b</th><th>c</th><th>d</th></tr><tr><td>1. Continuous Assessment</td><td>50%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr><tr><td>2. Examination</td><td>50%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr><tr><td>Total</td><td>100%</td><td colspan="4"></td></tr></table><p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p><p>Overall Assessment:</p><p>0.5 × End of Subject Examination + 0.5 × Continuous Assessment</p><p>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.</p><p>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.</p></div>	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%				
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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. 	

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