

Course Title	Meteorology				
Course Code	AVM212				
Course Type	Compulsory				
Level	Bachelor (1 st cycle)				
Year / Semester	2 nd Year / 1 st Semester				
Instructor's name	TBA				
ECTS	5	Lectures / week	3 Hours /14 Weeks	Laboratories / week	None
Course Purpose and Objectives	The purpose of the Meteorology course is to provide the student with the knowledge required in order to be able to understand the meteorological conditions that may have an effect on flight planning and the flight itself. The course aims in covering subjects that include the atmosphere, significant meteorological phenomena (wind, clouds, fog, precipitation, storms, fronts etc.), flight hazards and their avoidance and meteorological information sources.				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> • Define significant characteristics of the earth's atmosphere. • Analyse issues related to winds and the effect they may have on a flight. • Explain significant thermodynamic principles. • Describe a number of significant meteorological phenomena (e.g. cloud, fog, precipitation, storms etc.) and analyse the effect they may have on a flight. • Describe the issues relating to air masses, frontal weather and pressure systems. • Identify flight hazards due to weather phenomena and analyse the procedures followed in order to avoid them. • Interpret, understand and apply information from meteorological sources in order to plan or revise flight routes. 				
Prerequisites	AVM111	Co-requisites	None		
Course Content	<p>The material included in this course cover the following subjects:</p> <ul style="list-style-type: none"> • The atmosphere: Composition, extent, vertical division (Structure of the atmosphere, troposphere, stratosphere), Air temperature, Atmospheric pressure, Air density, ICAO Standard 				

Atmosphere (ISA), Altimetry (terminology and definitions, altimeter settings, calculations).

- **Wind:** Definition and measurement of wind, Primary cause of wind, General global circulation, Local winds, Mountain waves (standing waves, lee waves), Turbulence (Description and types of turbulence, Formation and location of turbulence, Clear Air Turbulence (CAT): Description, cause and location), Jet streams (Description, Formation and properties of jet streams, Location of jet streams and associated CAT areas, Jet stream recognition).
- **Thermodynamics:** Humidity (Water vapour in the atmosphere, Mixing ratio, Temperature/dew point, relative humidity), Change of state of aggregation (Condensation, evaporation, sublimation, freezing and melting, latent heat), Adiabatic processes (Adiabatic processes and stability of the atmosphere).
- **Clouds and Fog:** Cloud formation and description (Cloud formation, Cloud types and cloud classification, Influence of inversions on cloud development, Flying conditions in each cloud type), Fog, mist, haze (General aspects, Radiation fog, Advection fog, Steam fog, Frontal fog, Orographic fog (hill fog)).
- **Precipitation:** Development of precipitation (Process of development of precipitation), Types of precipitation (Types of precipitation, relationship with cloud types).
- **Air Masses and Fronts:** Air masses (Description, classification and source regions of air masses, Modifications of air masses), Fronts (General aspects, Warm front, Cold front, Warm sector, Occlusions).
- **Pressure Systems:** The principal pressure, 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 (Conditions for ice accretion, Types of ice accretion, Hazards of ice accretion, avoidance), Turbulence (Effects on flight, avoidance, CAT: effects on flight, avoidance), Wind shear (Definition of wind shear, Weather conditions for wind shear, Effects on flight, avoidance), Thunderstorms (Conditions for and process of development, forecast, location, type specification, Structure of thunderstorms, life history, Electrical discharges, Development and effects of downbursts, Thunderstorm avoidance), Tornadoes (Properties and occurrence), Inversions (Influence on aircraft performance), Stratospheric conditions (Influence on aircraft performance), Hazards in mountainous areas (Influence of terrain on clouds and precipitation, frontal passage, Vertical movements, mountain waves, wind shear, turbulence, ice accretion,

	<p>Development and effect of valley inversions), visibility reducing phenomena (Reduction of visibility caused by precipitation and obscuration, Reduction of visibility caused by other phenomena).</p> <ul style="list-style-type: none"> • Meteorological Information: Observation, Weather charts, Information for flight planning, Meteorological services, 						
Teaching Methodology	Face-to-face						
Bibliography	<ul style="list-style-type: none"> • Bristol ATPL (A) Groundschool Manual & CBT Software 						
Assessment	<table border="1"> <tr> <td>Examinations</td> <td>90%</td> </tr> <tr> <td>Participation</td> <td>10%</td> </tr> <tr> <td></td> <td>100%</td> </tr> </table>	Examinations	90%	Participation	10%		100%
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Language	English						