

1. Title	Basics Aerodynamics II (Mechanics Repair and Maintenance)
2. Code	EMAMBG435A
3. Range	The knowledge is needed for a wide range of aircraft repair and maintenance works, e.g. applicable to aircrafts, analysis, machineries, airworthiness, airframes, avionics, materials, tests, documentation, safety, health and tools etc.
4. Level	4
5. Credit	3
6. Competency	<p style="text-align: center;"><u>Performance Requirement</u></p> <p>6.1 Knowledge</p> <ul style="list-style-type: none"> ◆ Able to understand the physics of the Atmosphere <ul style="list-style-type: none"> • International Standard Atmosphere (ISA), application to aerodynamics. ◆ Able to understand the aerodynamics <ul style="list-style-type: none"> • Airflow around a body. • Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, upwash and downwash. vortices, stagnation. • The terms: camber, chord, mean aerodynamic chord, profile (parasite) drag, induced drag, centre of pressure, angle of attack, wash in and wash out, fineness ratio, wing shape and aspect ratio. • Thrust, Weight, Aerodynamic Resultant. • Generation of Lift and Drag: Angle of Attack, Lift coefficient, Drag coefficient, polar curve, stall. • Aerofoil contamination including ice, snow, frost.

	<ul style="list-style-type: none"> ◆ Able to understand the theory of flight <ul style="list-style-type: none"> • Relationship between lift, weight, thrust and drag. • Glide ratio. • Steady state flights, performance. • Theory of the turn. • Influence of load factor : stall, flight envelope and structural limitations. • Lift augmentation. ◆ Able to understand the flight stability and dynamics <ul style="list-style-type: none"> • Longitudinal, lateral and directional stability • (active and passive).
6.2 Theoretical and practical aspects	<ul style="list-style-type: none"> ◆ Able to apply the following knowledge in the aircraft maintenance. <ul style="list-style-type: none"> • Physics of the Atmosphere • Aerodynamics • Theory of Flight • Flight Stability and Dynamics
6.3 Professional approach	<ul style="list-style-type: none"> ◆ Able to understand the principal elements of the subjects. ◆ Able to understand the general knowledge of the theoretical and practical aspects of the following subjects. <ul style="list-style-type: none"> • Physics of the Atmosphere • Aerodynamics • Theory of Flight • Flight Stability and Dynamics ◆ Able to apply the knowledge in the aircraft maintenance task.

<p>7. Assessment Criteria</p>	<p>The integral outcomes requirement of this UoC are:</p> <ul style="list-style-type: none"> (i) Able to understand the theoretical fundamentals of the subjects. (ii) Able to give a general description of the subjects using, as appropriate, typical examples. (iii) Able to use mathematical formulae in conjunction with physical laws describing the subjects. (iv) Able to read and understand sketches, drawings and schematics describing the subjects. (v) Able to apply the knowledge relating to mechanics repair and maintenance in a practical manner using detailed procedures.
<p>8. Remarks</p>	<p>Ref: HKAR-66 Module 8: Basic Aerodynamics.</p>