

MODULE 8. BASIC AERODYNAMICS

	Level		
	A	B1	B2
8.1 Physics of the Atmosphere	1	2	2
International Standard Atmosphere (ISA), application to aerodynamics.			
8.2 Aerodynamics	1	2	2
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.			

	Level		
	A	B1	B2
8.3 Theory of Flight	1	2	2
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.			
8.4 Flight Stability and Dynamics	1	2	2
Longitudinal, lateral and directional stability (active and passive).			