

**SKILLS FRAMEWORK FOR AEROSPACE
TECHNICAL SKILLS AND COMPETENCIES (TSC) REFERENCE DOCUMENT**

TSC Category	Aerospace and Engineering Fundamentals					
TSC	Aerodynamics Principles Application					
TSC Description	Apply and use principles of aerodynamics to optimise and solve problems related to aircraft performance and flight safety					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
			AER-ACO-3011-1.1	AER-ACO-4011-1.1		
			Apply principles of aerodynamics to identify the physics behind the flight and performance of heavier than air flying machines	Apply principles of aerodynamics to identify the effects of atmospheric factors, aerofoil and structural characteristics on aircraft flight performance from take-off to climb, cruise, manoeuvre, descend and landing		
Knowledge			<ul style="list-style-type: none"> • Atmospheric factors affecting flight performance • Theory of flight at various flight phases and manoeuvres • Conditions that impact flight stability and dynamics • Characteristics of an aerofoil • Aerofoil contamination • International standard atmosphere (ISA) application to aerodynamics • Workplace safety practices • Organisational standard operating procedures (SOPs) 	<ul style="list-style-type: none"> • Atmospheric factors affecting flight performance • Theory of flight at various flight phases and manoeuvres • Conditions that impact flight stability and dynamics • Functions and operating principles of an aerofoil • Aerofoil contamination and types of ground anti-icing and de-icing techniques • International standard atmosphere (ISA) application to aerodynamics • Workplace safety practices • Organisational standard operating procedures (SOPs) 		
Abilities			<ul style="list-style-type: none"> • Identify atmospheric factors that affect flight performance 	<ul style="list-style-type: none"> • Explain the relationship between atmospheric factors and how they affect flight performance 		

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			<ul style="list-style-type: none"> Analyse the aerodynamics that an aeroplane experiences during flight, including factors such as airflow, lift, weight, thrust, drag, glide ratio, load factor and lift augmentation Identify aeroplane performance improvement methods affected by aerodynamics during a flight Evaluate the impact of different conditions on flight stability and dynamics, including longitudinal, lateral and directional stability Apply aerodynamic concepts to assess the characteristics of an aerofoil Evaluate the design and aerodynamic performance of an aerofoil with regards to the generation of lift and drag Analyse impact of contamination of aerofoil including snow, ice and dust on the aerofoil 	<ul style="list-style-type: none"> Evaluate the impact of aerodynamics forces experienced by an aeroplane during flight, including factors such as lift and drag generation, polar curve, stall, thrust, weight, aerodynamic resultant, wing shape and centre of pressure Recommend performance improvement methods for an aeroplane affected by aerodynamics during a flight Guide installation of hardware and software to simulate flight conditions and aerodynamics forces acting on an aeroplane during various manoeuvres Evaluate the impact of conditions on flight stability and dynamics, including longitudinal, lateral and directional stability Determine the concepts of aerodynamics affecting aerofoil development and selection Evaluate the design and aerodynamic performance of an aerofoil with regards to the generation of lift and drag Recommend types of ground anti-icing and de-icing techniques 		
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