

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

TSC Category	Aerospace and Engineering Fundamentals					
TSC	Mathematics Concepts Application					
TSC Description	Apply mathematical concepts to solve engineering problems					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
		AER-SYS-2009-1.1	AER-SYS-3009-1.1			
		Apply mathematical concepts for use in engineering applications	Apply mathematical concepts for use in engineering applications which include modelling polynomial and logarithmic functions			
Knowledge		<ul style="list-style-type: none"> • Arithmetic principles and methods • Algebraic expressions and solutions • Trigonometry • Vectors • Engineering functions 	<ul style="list-style-type: none"> • Arithmetic principles and methods • Matrix algebra and logarithms • Trigonometry • Vectors • Engineering functions 			
Abilities		<ul style="list-style-type: none"> • Sketch the graphs of exponential and modular functions • Perform calculations involving addition, subtraction and multiplication of matrices • Apply common trigonometric identities to solve trigonometric equations • Sketch the addition of sine and cosine waves • Apply principles of vectors, scalars and cartesian components to perform vector summation calculations • Apply triangle and parallelogram laws in vector addition 	<ul style="list-style-type: none"> • Derive the value of unknown variables through modelling polynomial, logarithmic, exponential and modular functions • Perform calculations involving determinants and inverse matrices • Apply matrix calculations to solve simultaneous linear equations • Apply principles of trigonometric functions, angles and radian measure to solve trigonometric equations • Perform calculations involving trigonometric functions in the four quadrants • Apply principles of vectors, scalars and cartesian components to perform vector 			

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			summation and dot product calculations <ul style="list-style-type: none">• Perform 3D vector addition in component form and calculate the unit vector			
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