

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

TSC Category	Value Engineering					
TSC	Carbon Footprint Management					
TSC Description	Quantify and reduce the organisational carbon footprint					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
				PRE-ENV-4001-1.1	PRE-ENV-5001-1.1	PRE-ENV-6001-1.1
				Facilitate organisational carbon footprint reduction plans	Analyse the organisation's carbon footprint through the use of carbon footprint assessment tools	Perform product carbon footprint quantification
Knowledge				<ul style="list-style-type: none"> • ISO:14001, ISO:14064 and other relevant standards and guidelines • Fundamentals of environment management systems (EMS) • Methods to screen and identify potential 'hot spots' • Methods for projecting carbon reduction potentials • Methods to identify feasible technology to address carbon footprint 'hot spots' • Key components of carbon footprint reduction plans • Tools and techniques for analysing costs and benefits of implementing carbon footprint reduction initiatives • Tools and techniques for prioritising carbon footprint reduction initiatives • Tools and techniques to develop action plans for carbon footprint reduction 	<ul style="list-style-type: none"> • ISO:14001, ISO:14064 and other relevant standards and guidelines • Concept and principles of carbon footprint assessments • Product lifecycles and product configurations • Types of emissions and corresponding sources • Scopes of carbon footprints • Types of uncertainty factors • Industry benchmarks for specific products' carbon footprints • International guidelines and principles for carbon footprint assessments and documentation 	<ul style="list-style-type: none"> • ISO:14001, ISO:14064 and other relevant standards and guidelines • Objectives, purposes and applications of carbon footprint • Stages of product lifecycle and cut-off criteria • Techniques of process mapping • Types of emission sources and sinks • Tools and techniques of lifecycle inventory data collection • Procedures of data processing for lifecycle inventory data • Characterisation of data quality based on data attributes • Computation procedures for carbon footprint assessments • Requirements and guidelines for carbon footprint report summary

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

<p>Abilities</p>				<ul style="list-style-type: none"> • Analyse the potential of 'hot spots' for carbon footprint reduction • Prioritise carbon footprint reduction initiatives for implementation, based on organisational requirements • Develop carbon footprint reduction plans for implementation of initiatives 	<ul style="list-style-type: none"> • Develop process mappings, in accordance with products' lifecycle requirements • Define boundary conditions, assumptions and prioritisation for products' lifecycles, according to international guidelines and principles • Construct lifecycle inventory data based on the developed products' lifecycle boundaries • Assess carbon footprints of product lifecycles using carbon footprint assessment software tools • Determine uncertainty factors based on carbon footprint assessments • Evaluate carbon footprint performance of selected products against industry benchmarks • Determine emissions 'hot spots' and propose potential carbon footprint reduction approaches • Document results and prepare reports, according to international guidelines and principles 	<ul style="list-style-type: none"> • Establish goals and objectives for carbon footprint assessments • Establish system boundaries and cut-off criteria of chosen products' lifecycles • Construct process maps in accordance with system boundaries • Construct lifecycle inventory data, based on process maps • Process lifecycle inventory data according to reference flows • Perform carbon footprint assessments and computations
-------------------------	--	--	--	---	---	--