

**SKILLS FRAMEWORK FOR LANDSCAPE
TECHNICAL SKILLS AND COMPETENCIES (TSC) REFERENCE**

TSC Category	Landscape Engineering					
TSC	Automation of Landscape Operations					
TSC Description	Adopt and incorporate automation technology within landscape operations to improve productivity, efficiency and effectiveness					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
		LNS-RAO-2007-1.1	LNS-RAO-3007-1.1	LNS-RAO-4007-1.1	LNS-RAO-5007-1.1	
		Use automation in the execution of tasks within landscape operations	Supervise the use of automated systems for operational and monitor tasks within landscape operations	Implement automation within landscape operation	Lead the evaluation of new automation technology for application in landscape operations to meet the current and future needs of the organisation	
Knowledge		<ul style="list-style-type: none"> Automation and robotics technologies currently in use in landscape operations Operation of automation and robotics systems within landscape operations Landscape activities that can be executed by automated systems Use of smart sensors and monitoring devices Health and safety precautions when using automation Relevant workplace safety and health (WSH) guidelines 	<ul style="list-style-type: none"> Types of automated systems for landscape maintenance and their limitations Types of landscape maintenance activities that can be executed by automated systems Risks and hazards of using various automated systems Types of smart sensors and monitoring devices Data collection process Broad components of automated systems, smart sensors and monitoring devices Scope of automation in landscape operations Relevant workplace safety and health (WSH) guidelines 	<ul style="list-style-type: none"> Current and upcoming automated systems for landscape maintenance and their limitations Emerging trends in technologies for automation in the landscape industry Operating procedures of automated systems, smart sensors and monitoring devices Methods to analyse data collected from smart sensors and other monitoring devices Performance metrics for automated, semi-automated or robotic systems Principles for identifying scope of automation in landscape operations Safety considerations for implementation of automation in landscape operations Relevant workplace safety and health (WSH) guidelines 	<ul style="list-style-type: none"> Advantages and disadvantages of automated systems for landscape operations Current and upcoming technologies with scope for application in landscape operations Risk analysis of the new technologies and automated systems and implications on safety, legal and ethical regulations Implementation considerations regarding the introduction of new technologies and automated systems Performance metrics for automated, semi-automated or robotic systems Principles for identifying scope of automation in landscape operations Targeted performance levels for automation technology to be incorporated in landscape operations Relevant workplace safety and health (WSH) guidelines 	

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<p>Abilities</p>		<ul style="list-style-type: none"> • Prepare automated, semi-automated or robotic systems for landscape operations • Execute landscape tasks with the use of automated, semi-automated or robotic systems • Assist in the installation of smart sensors on landscape for monitoring purposes • Collate data from smart sensors for reporting • Perform routine maintenance on automated, semi-automated or robotic systems as per manufacturer's instructions • Adhere to relevant WSH guidelines 	<ul style="list-style-type: none"> • Train workers and technicians in the preparation, calibration, operation and maintenance of automated, semi-automated or robotic systems • Calibrate automated, semi-automated or robotic systems before operation • Lead the installation of smart sensors as per operational requirements • Supervise the operation of automated, semi-automated or robotic systems to meet operational requirements • Collate data from smart sensors to track performance and health of landscapes • Troubleshoot issues found in automated systems, smart sensors and monitoring devices • Identify processes that can be improved by the application of new technologies and automated systems • Lead adherence to relevant WSH guidelines 	<ul style="list-style-type: none"> • Establish metrics of performance and success for incorporation of automated, semi-automated or robotic systems in landscape operations • Establish Standard Operating Procedures (SOPs) for the operation of automated, semi-automated or robotic systems • Train supervisors in the operation of automated, semi-automated or robotic systems, and in the data collection and interpretation from smart sensors • Review performance of automated, semi-automated or robotic systems by evaluating performance metrics • Communicate value or benefits of automated, semi-automated or robotic systems based on performance • Evaluate existing landscape processes for scope for automation • Enforce adherence to relevant WSH guidelines 	<ul style="list-style-type: none"> • Lead the evaluation of new technologies and automated systems against organisation's current and future requirements • Establish the selection criteria for new technologies and automated systems based on organisational needs • Establish budgets, resource requirements and training needs to manage automated, semi-automated or robotic systems • Assess performance of automated, semi-automated or robotic systems to understand scope for capacity expansion • Communicate benefits of automation to existing and potential customers • Acquire access to new technologies and automated systems by building strategic collaborations • Establish organisation guidelines and procedures for adherence to relevant WSH guidelines 	
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