

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

TSC Category	Maintenance					
TSC	Maintenance Coordination					
TSC Description	Establish and implement organisational maintenance strategies and systems for equipment and plant					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
		PRE-MAI-2047-1.1	PRE-MAI-3047-1.1	PRE-MAI-4047-1.1	PRE-MAI-5047-1.1	PRE-MAI-6047-1.1
		Coordinate the conduct of maintenance, setting up maintenance work requirements and creating work plans for maintenance activities	Facilitate implementation of proactive maintenance strategies, determine maintenance-related schedules and providing maintenance-related assistance to non-maintenance personnel	Develop organisational maintenance plans, in accordance with overall maintenance strategies and systems	Evaluate the organisational maintenance strategies and systems for improvement and enhancement	Establish the organisation's maintenance strategies and systems, in accordance with organisational policies and procedures
Knowledge		<ul style="list-style-type: none"> • Planning and maintenance practices • Process and normal operating parameters • Organisational procedures and relevant regulatory requirements • Workplace safety and health (WSH) requirements 	<ul style="list-style-type: none"> • Equipment manufacturers' recommended inspection, servicing and related schedules • Requirements of proactive maintenance strategies being implemented • Operating principles and procedures for equipment and/or plants • Purposes and processes for data collection in proactive maintenance strategies • Workplace safety and health (WSH) requirements 	<ul style="list-style-type: none"> • Types of maintenance programmes and their benefits • Equipment functionality operation sequences, working purposes and interactions between individual units or components • Methods to determine resources needed for maintenance activities • Methods and parameters used to calculate duration of specific maintenance activities • Organisational policies and procedures relating to repair, maintenance documentation, and safe disposal of waste materials • Procedures for equipment operating and control, dismantling and reassembly, to be applied during maintenance activities 	<ul style="list-style-type: none"> • Types of maintenance programmes and their benefits • Equipment functionality operation sequences, working purposes and interactions between individual units or components • Methods to determine resources needed for maintenance activities • Methods to calculate durations of specific maintenance activities • Organisational policies and procedures relating to repair, maintenance documentation, and safe disposal of waste materials • Procedures for equipment operating and control, dismantling and reassembly, to be applied during maintenance activities • Hazards associated with manufacturing activities 	<ul style="list-style-type: none"> • Types of maintenance programmes and their benefits • Equipment functionality operation sequences, working purposes and interactions between individual units or components • Methods to determine resources needed for maintenance activities • Methods and parameters used to calculate duration of specific maintenance activities • Organisational policies and procedures relating to repair, maintenance documentation, and safe disposal of waste materials • Procedures for equipment operating and control, dismantling and reassembly, to be applied during maintenance activities

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				<ul style="list-style-type: none"> • Procedures to create standard operating procedures (SOPs) and co-relate work activities to them • Hazards associated with manufacturing activities and methods to minimise them • Methods to deal with changes to maintenance schedules • Workplace safety and health (WSH) requirements 	<p>and methods to minimise them</p> <ul style="list-style-type: none"> • Methods to complete and review risk assessments • Workplace safety and health (WSH) requirements 	<ul style="list-style-type: none"> • Hazards associated with manufacturing activities and methods to minimise them • Training and development programmes for maintenance personnel • Workplace safety and health (WSH) requirements
Abilities		<ul style="list-style-type: none"> • Set up maintenance activity requirements • Examine equipment and machine specifications, service requirements and procedures for maintenance intervals and process advisory • Develop work plans and work schedules for maintenance • Construct and compare readings, measurements and recordings to relevant specifications • Recognise and compare historical data, future equipment use, production requirements and standard operating procedures to be job ready • Contribute ideas to evaluate potential risks at the workplace • Improve work plans to ensure maintenance programmes retain workplace output 	<ul style="list-style-type: none"> • Consult with relevant personnel on appropriate inspections, servicing and schedules • Plan proactive maintenance tasks in alignment with maintenance and production schedules • Recommend changes to improve plant and/or equipment reliability in accordance with organisational procedures • Recommend improvements to reliability strategies 	<ul style="list-style-type: none"> • Develop overall maintenance schedules in consideration for staff movement, operations and optimum timings for plant and/or equipment shutdown • Develop maintenance procedures and plans • Verify maintenance schedules' and plans' capability for meeting all relevant and required outputs • Manage changes requested to maintenance schedules from the production function • Ensure maintenance activities are carried out correctly, in line with agreed organisational processes and procedures • Determine resources required to undertake maintenance activities • Maintain documentation of maintenance data 	<ul style="list-style-type: none"> • Evaluate the impact of maintenance programmes and improvement activities • Review risk assessments associated with maintenance strategies and systems • Consult and seek endorsement from stakeholders on improvements to maintenance processes and procedures • Keep abreast of new technological developments in maintenance strategies and systems 	<ul style="list-style-type: none"> • Develop matrix of competency and skills for maintenance teams • Establish departmental budgets to support maintenance strategies and systems • Create and maintain visual management records and documentation to support maintenance strategies and systems • Seek stakeholders' endorsement on budgets for maintenance strategies and systems • Keep abreast of new technologies in manufacturing systems and processes

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		<ul style="list-style-type: none">• Identify the unsafe acts or conditions present and recommend corrective actions to management• Attain clearances for any necessary costs for the maintenance• Acquire authorisation from management for maintenance timing to optimise processes and production				
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