

<b>TSC Category</b>	Engineering Construction, Operations and Maintenance					
<b>TSC</b>	Condition-based Assets Monitoring Management					
<b>TSC Description</b>	Formulate and implement condition-based maintenance procedures to enhance organisation maintenance regimes and operational reliability					
<b>TSC Proficiency</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>	<b>Level 5</b>	<b>Level 6</b>
	<b>EGS-MAI-1025-1.1</b>	<b>EGS-MAI-2025-1.1</b>	<b>EGS-MAI-3025-1.1</b>	<b>EGS-MAI-4025-1.1-1</b>	<b>EGS-MAI-5025-1.1</b>	
	Carry out routine inspection using condition-based monitoring methods on systems, equipment and components	Support implementation of condition-based monitoring procedures	Implement condition-based monitoring procedures to determine conditions and identify variances in systems, equipment and components	Develop condition-based monitoring regime to analyse, diagnose and mitigate systematic deterioration of systems, equipment and components	Review current and historical performance of systems, equipment and components to determine requirements of condition-based monitoring regime	
<b>Knowledge</b>	<ul style="list-style-type: none"> <li>Types and signs of observable wear and tears, stress signatures, and fault indicators</li> <li>Types of sampling and measurement methods and techniques</li> <li>Tolerance limits of components and systems</li> <li>Tools, gauges and instruments for measurement</li> <li>Organisational and/or original equipment manufacturer (OEM) guidelines, schedules and intervals for measurement sampling</li> <li>Organisational standards for documentation and reporting procedures</li> </ul>	<ul style="list-style-type: none"> <li>Methods to obtain process parameters sampling data</li> <li>Types and functionalities of monitoring instruments, equipment and sensors</li> <li>Procedure to set up and configure monitoring equipment, instrument and sensors</li> <li>Equipment calibration methods</li> <li>Organisational procedures and/or original equipment manufacturer (OEM) guidelines, schedules and intervals for condition-based monitoring</li> <li>Organisational standards for documentation and reporting procedures</li> </ul>	<ul style="list-style-type: none"> <li>Methods to obtain process parameters sampling data</li> <li>Types, functionalities and applications of different types of monitoring instruments, equipment and sensors</li> <li>Procedure to set up and configure monitoring equipment</li> <li>Types and causes of sampling data errors and rectification methods</li> <li>Data interpretation and statistical analysis techniques</li> <li>Types of abnormal performance and signs of faulty operational systems, equipment and components</li> <li>Tolerance limits and critical failure indexes of systems, equipment and components</li> <li>Instrumentation and control methods</li> <li>Organisational condition-based monitoring procedures and</li> </ul>	<ul style="list-style-type: none"> <li>Types of applied techniques to obtain process parameters sampling data</li> <li>Variable operational and/or environmental factors related to abnormal performances and sampling data errors</li> <li>Data interpretation and statistical analysis techniques</li> <li>Tolerance limits and critical failure indexes of systems, equipment and components</li> <li>Root cause analysis methods and processes</li> <li>Organisational condition-based monitoring procedures and implementation schedules</li> <li>Organisational standard operating procedures (SOPs) on monitoring operations and regime</li> <li>Engineering concepts and principles of system monitoring and predictive maintenance</li> </ul>	<ul style="list-style-type: none"> <li>Engineering concepts and principles</li> <li>Condition-based monitoring concepts and principles</li> <li>Requirements of data acquisition system relevant to condition-based monitoring applications</li> <li>Commercially viable diagnostic techniques, tools and equipment</li> <li>Variable operational and/or environmental factors and limitations of data generated from condition-based monitoring techniques</li> <li>Types of training programmes and certification requirements for maintenance personnel</li> <li>Organisational and original equipment manufacturer (OEM) quality standards</li> <li>Organisational maintenance regime and strategies</li> </ul>	

			implementation schedules			
<b>Abilities</b>	<ul style="list-style-type: none"> <li>Carry out visual inspection of systems, equipment and components</li> <li>Carry out scheduled sampling and measurement of systems, equipment and components at regular pre-determined intervals</li> <li>Adopt safe handling and operating procedure of tools and equipment</li> <li>Record observations, measurement and readings and highlight variances</li> </ul>	<ul style="list-style-type: none"> <li>Prepare systems, equipment and components for condition-based monitoring implementation at pre-determined schedules</li> <li>Assist to set up condition-based monitoring equipment and/or mount sensors for continuous data collection</li> <li>Collect spot readings of data to identify potential errors due to equipment pre-set-up and/or configuration errors</li> <li>Assist with equipment calibration</li> <li>Carry out established condition-based monitoring procedures during routine operations and/or maintenance of systems, equipment and components</li> <li>Collate reports and record data samples collected and highlight variances</li> </ul>	<ul style="list-style-type: none"> <li>Set up, configure and calibrate monitoring equipment with pre-defined monitoring parameters</li> <li>Implement established condition-based monitoring procedures during routine operations and/or maintenance of systems, equipment and components</li> <li>Ensure collected sample or measurement data are representative and accurate based on pre-defined monitoring parameters</li> <li>Identify measurement and readings indicative of development of potential faults and/or failure of systems, equipment and components</li> <li>Collate and document readings and data samples and report variances</li> </ul>	<ul style="list-style-type: none"> <li>Define operating and condition safety limits of systems, equipment and components</li> <li>Identify continuous monitoring methods or periodic monitoring cycles methods for condition-based monitoring applications</li> <li>Set effective quantitative and qualitative process parameters</li> <li>Develop condition-based monitoring regime and implementation methodologies</li> <li>Analyse data collected from various condition-based monitoring sources and assess data against historic data, performance trends and systems, equipment and components specifications to verify data integrity</li> <li>Apply root cause analysis methodologies to identify principal causes of indicative and developing faults and recommend corrective maintenance measures</li> <li>Review and recommend preventive and/or predictive maintenance procedures to existing monitoring regime</li> <li>Record and store information to maintain the integrity of the sample or data</li> </ul>	<ul style="list-style-type: none"> <li>Audit implementation and operational plans for condition-based monitoring regime</li> <li>Establish prioritisation of systems, equipment and components maintenance against cost benefits and requirements of implementing condition-based monitoring regime and applications</li> <li>Audit parameters for systems, equipment and components operating and condition safety limits</li> <li>Establish resources requirement and manpower capabilities to operationalise condition-based monitoring regime</li> <li>Audit acceptable data sample ranges to verify systems, equipment and components conditions for mitigation requirement</li> <li>Review organisational monitoring regime to incorporate procedural enhancements</li> </ul>	