## TSC Category
Manufacturing and Operations

## TSC
Production Shut-down and Re-start

## TSC Description
Manage shutdown and restarting of production process to minimise loss and/or damage of assets as well as ensure the safety of personnel during shut down and restarting

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<tr>
<th>TSC Proficiency Description</th>
<th>Level 1</th>
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- Coordinate the shut-down and re-start of the production process in a safe and efficient manner due to a planned or an unplanned shut-down or emergency situation
- Manage the shut-down and re-start of a production process while ensuring maximum safety to personnel and minimum impact to plant, environment and the organisation’s productivity

### Knowledge

- Possible causes of unplanned shutdowns that require immediate action
- Organisation procedures for controlling automatic shut-downs
- Procedures for assessing emergency situations in the plant
- Effects of unplanned shut-downs on the control systems
- Safe handling of equipment to protect oneself and others from risks
- Importance of minimising any loss and/or damage during shut-down
- Electrical and mechanical isolation
- Plant and equipment operating parameters during start-up
- Commissioning and pre-start checking of various associated equipment
- Safe de-isolation and commissioning
- Principles of operation of plant and/or equipment
- Routine problems, faults and their resolutions
- Methods of starting, stopping, operating and controlling process
- Corrective actions appropriate to the problems’ causes
- Functions and troubleshooting of major components and their problems
- Types and causes of problems within one’s scope of skill level and responsibility
- Emergency shut-down procedures
- Procedures relating to plant shut-down and re-start
- Applicable workplace safety and health (WSH) regulations

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

<table>
<thead>
<tr>
<th>Abilities</th>
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<tr>
<td>• Applicable workplace safety and health (WSH) regulations</td>
<td>• Respond to unplanned shut-downs in plant</td>
<td>• Check and verify safety systems to ensure that units have been made safe</td>
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<td>• Co-ordinate planned shut-downs in plant</td>
<td>• Identify the reasons for, or cause of the shut-down by troubleshooting the systems and utilising all available data and information systems</td>
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<td>• Co-ordinate start-up of plant</td>
<td>• Obtain confirmation of the identified shut-down from production team to verify both the nature and the reliability of the shut-down</td>
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<td>• Rectify, or initiate procedures to rectify, the faults or causes of shut-down by repairing operational faults or re-adjustments before returning the system to start-up status</td>
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<td>• Conduct start-up processes, in accordance with organisational and WSH procedures</td>
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<td>• Record any further ongoing production problems to appropriate persons or authority</td>
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