

# AUTOMOTIVE PARTS PRODUCTION MACHINE OPERATOR



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## COMPETENCY STANDARDS

National Vocational Certificate Level 3-4

Version 1 - November, 2019

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**Document Version**

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## Introduction

The “Automotive Parts Production Machine Operator” qualifications have been developed to meet the demand of the automotive parts manufacturing industry for training the youth of Pakistan in line with the demand of the automotive sector regarding multi-task specialisation. By acquiring these qualification graduates are able to apply skills, knowledge and understanding competently in the work place, and provide the country’s youth with current and future-oriented career and/or self-employment opportunities.

The National Vocational and Technical Training Commission (NAVTTC), in collaboration with the TVET-Sector Support Programme have developed these National Vocational Qualifications (Level 3-4) comprising of generic and technical competency standards for automotive parts production machine operator. Based upon the demand of the labour market analysis, sector studies and TNAs (Training needs analysis), NAVTTC has constituted the Qualification Development Committee,

comprising of relevant industry and TVET training provider institutes under the light of NVQF Manual-1 version 2 {Development of National Vocational Qualifications (NVQs)} to develop Competency Standards for the new NVQ “*Automotive Parts Production Machine Operator*”.

The National Competency Standards should be used as a **referral** document for the development of curriculum to be used by training institutions.



### Detail of National Vocational Certificate Levels

The detail of the competency standards included in this qualification is given below:

National Vocational Certificate level-3, in “Automotive parts production machine operator”

Apply Work Health and Safety Practices (WHS)

Identify and Implement Workplace Policy and Procedures

Communicate at Workplace

Perform Computer Application Skills

Manage Personal Finances

Perform welding

Apply thread rolling operations

Perform vacuum forming operations

Perform pressing operations

Perform periodic operator maintenance

National Vocational Certificate level-4, in “Automotive parts production machine operator”

Contribute to Work Related Health and Safety (WHS) Initiatives

Analyse and Develop Workplace Policy and Procedures

Perform Advanced Communication

Develop Advance Computer Application Skills

Manage Human Resource Services

Conduct moulding and extrusion operations

Perform hot forging operations

Perform metal die casting operations

Perform gear cutting operations



## Purpose of the Qualification

The purpose of the “Automotive Parts Production Machine Operator” course is to engage youth of this country with high demand training of automotive parts manufacturing sector that provides them relevant skill, knowledge and understanding to start their career as “*Automotive Parts Production Machine Operator*” in the automotive industry. The qualifications address a variety of skills required for parts production operation of automotive parts manufacturing industry like sheet metal, plastic, rubber, welding, forging, casting, threading and gear manufacturing and periodic maintenance with the aim to meet the skilled manpower requirement of the automotive parts manufacturing industry across the country and globe.

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## Main Objectives of the Qualification

The Automotive Parts Production Machine Operator qualifications level 3-4 consists of theoretical knowledge and practical skills required to operate machines used in automotive parts manufacturing industry. The main objectives of the qualifications are to impart competencies regarding the following:

- Apply Work Health and Safety Practices (WHS)
- Identify and Implement Workplace Policy and Procedures
- Communicate at Workplace
- Perform Computer Application Skills
- Manage Personal Finances
- Perform welding
- Apply thread rolling operations
- Perform vacuum forming operations
- Perform pressing operations
- Perform periodic operator maintenance
- Contribute to Work Related Health and Safety (WHS) Initiatives
- Analyse and Develop Workplace Policy and Procedures
- Perform Advanced Communication
- Develop Advance Computer Application Skills
- Manage Human Resource Services
- Conduct moulding and extrusion operations
- Perform hot forging operations
- Perform metal die casting operations
- Perform gear cutting operations

## Date of Validation

The National Vocational Qualifications on “Automotive Parts Production Machine Operator”(level 3-4) have been validated by the Qualifications Development Committee (QDC) members on June 14,2019 and will remain current for three years from the date of validation.





## Codes of Qualifications

The International Standard Classification of Education (ISCED) is a framework for assembling, compiling and analysing cross-nationally comparable statistics on education and training. ISCED codes for these qualifications are assigned as follows:

ISCED Classification for “Automotive Parts Production Machine Operator” level 3-4	
Code	Description
<b>0716 MSA 11</b>	National Vocational Certificate level 3, in “Automotive parts production machine operator”
<b>0716 MSA 12</b>	National Vocational Certificate level 4, in “Automotive parts production machine operator”



### Members of Qualification Development Committee

The following members participated in the Qualification development process.

S#	Name	Designation	Organization	Role in QDC
1	Mr.Safi-ur-Rehman	Assistant Manager Production	Novaplast	Chairman QDC
2	Mr.TahseenHaider	Executive Production	Agri Auto	QDC+OP+ Validation
3	Mr.Abrar Ahmed	Executive Assembly Line	Orient Automotive Industry	QDC+OP
4	Mr. Syed Munawar Ali	Executive Production	Alson Auto PatrsPvt. Ltd.	QDC+OP+CS
5	Mr.MazamilHussain	Instructor	GCT, Rawalpindi	QDC+OP+CS
6	Mr.Ijaz Hamid	Chief Instructor	GCT, Railway Lahore	QDC+OP+CS
7	Mr.SikandarShahzad	Sr. Instructor	Aman Tech, Karachi	QDC+OP+CS
8	Mr.NaseemAkhtar	Sr. Executive Production	Thal Engineering	QDC+OP+CS+ Validation
9	Mr. Muhammad Usama	Executive	PCI Automotive	QDC+OP
10	Mr. Muhammad Mohsin	Executive	Faraz Industry	QDC+OP+CS+ Validation
11	Mr.AbdulWaheed	CEO	Honda	QDC+OP+CS+ Validation
12	Ms.ShaikhAsimQamar	Deputy General Manager	Orient automotive	QDC+OP+CS
13	Mr.Muhammad Akbar	Executive	Orient	QDC+OP
14	Mr.ShahidIqbal	Instructor	P-TEVTA	QDC+OP
15	Mr.Ijaz Khan	Assistant Professor	GCT, KP-TEVTA	QDC+OP+ Validation
16	Mr.Liaqat Ali Jamro	Director (A&T)	STEVTA	QDC+OP+CS
17	Mr.Nawal Kishore	Associate Professor DACUM Facilitator	GPI, Sanghar STEVTA	DACUM Facilitator
18	Mr.ArshadHanifShaikh	Assistant Professor Co-Facilitator	GCT, Karachi STEVTA	QDC+OP
19	Mr.Fayaz Ahmed Soomro	Deputy Director	NAVTTC-HQ	QDC+OP
20				
21				



### Entry Requirements

The entry for National Vocational Certificate level 3-4, in “Automotive Parts Production Machine Operator “are given below:

Title	Entry Requirements
<b>National Vocational Certificate level-3</b>	Entry into training institute for this qualification, is candidate having Matriculation or National Vocational Certificate level 2, in (Machinist or relevant)
<b>National Vocational Certificate level-4</b>	Entry into training institute for this qualification is candidate 12having National Vocational Certificate level 3, in (Automotive Parts Production Machine Operator or relevant)



### Categorisation and Levelling of the Competency Standards

Code	Name of Duty	Level	Credit	Category
102200846	Apply Work Health and Safety Practices (WHS)	3	6	Generic
041700840	Identify and Implement Workplace Policy and Procedures	3	6	Generic
001100852	Communicate at Workplace	3	6	Generic
061100858	Perform Computer Application Skills	3	6	Generic
041300867	Manage Personal Finances	3	6	Generic
0716001041	Perform welding	3	35	Technical
0716001042	Apply thread rolling operation	3	20	Technical
0716001043	Perform vacuum Forming operations	3	20	Technical
0716001044	Perform pressing operations	3	35	Technical
0716001045	Perform periodic operator maintenance	3	20	Technical
102200848	Contribute to Work Related Health and Safety (WHS) Initiatives	4	6	Generic
041700841	Analyse and Develop Workplace Policy and Procedures	4	6	Generic
001100853	Perform Advanced Communication	4	6	Generic
061100858	Develop Advance Computer Application Skills	4	6	Generic
041300869	Manage Human Resource Services	4	6	Generic
0716001046	Conduct moulding and extrusion operations	4	45	Technical
0716001047	Perform hot forging operations	4	30	Technical
0716001048	Perform metal die casting operations	4	25	Technical
0714001049	Perform gear cutting operations	4	30	Technical



## Packaging of Qualifications

The National Vocational Qualifications have been packaged as below:

<b>0716 MSA 11</b> <b>“Automotive Parts Production Machine Operator”</b>  National Vocational Certificate level-4	<b>Conduct moulding and extrusion operations</b>
	<b>Perform hot forging operations</b>
	<b>Perform metal die casting operations</b>
	<b>Perform gear cutting operations</b>
	<b>Manage Human Resource Services</b>
	<b>Develop Advance Computer Application Skills</b>
	<b>Perform Advanced Communication</b>
	<b>Analyse and Develop Workplace Policy and Procedures</b>
<b>0716 MSA 12</b> <b>Automotive Parts Production Machine Operator”</b> National Vocational Certificate level-3	<b>Contribute to Work Related Health and Safety (WHS) Initiatives</b>
	<b>Perform periodic operator maintenance</b>
	<b>Perform pressing operations</b>
	<b>Perform vacuum forming operations</b>
	<b>Apply thread rolling operations</b>
	<b>Perform welding</b>
	<b>Manage Personal Finances</b>
	<b>Perform Computer Application Skills</b>
	<b>Communicate at Workplace</b>



**Identify and Implement Workplace Policy and Procedures**

**Apply Work Health and Safety Practices (WHS)**



## Detail of Competency Standards

### 102200846 Apply Work Health and Safety Practices (WHS)

**Overview:** This unit describes the skills and knowledge required to implement safe work, hazard assessment activities, OHS consultative and emergency procedures of effective participation and consultation processes as an integral part of managing work health and safety (WHS).

Competency Units	Performance Criteria
<b>CU1. Implement safe work practices at work place</b>	<b>P1.</b> Implement relevant rules and procedures of WHS at work place. <b>P2.</b> Comply with duty of care requirements <b>P3.</b> Use personal protective equipment according to safe work practices <b>P4.</b> Contribute to WHS consultative activities <b>P5.</b> Raise WHS issue with relevant personnel
<b>CU2. Participate in hazard assessment activities a work place</b>	<b>P1.</b> Identify hazards or WHS issues in the workplace to relevant personnel <b>P2.</b> Assess and control risks according to own level of responsibility, in line with workplace procedures <b>P3.</b> Report hazards or WHS issues in the workplace to relevant personnel <b>P4.</b> Document risk control actions as required
<b>CU3. Follow emergency procedures at workplace</b>	<b>P1.</b> Report emergencies or incidents promptly to relevant personnel <b>P2.</b> Deal with emergencies in line with own level of responsibility <b>P3.</b> Implement evacuation procedures as required
<b>CU4. Participate in OHS consultative processes</b>	<b>P1.</b> Contribute to workplace meetings, inspections or other consultative activities <b>P2.</b> Raise OHS issues with designated persons in accordance with organizational procedures <b>P3.</b> Take actions to eliminate workplace hazards or to reduce risks



## Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K1:** Outline the WHS rights and responsibilities that apply to own role
- K2:** Explain the term duty of care
- K3:** Describe typical health and safety roles in the workplace
- K4:** List and describe common safety signs and symbols
- K5:** Explain procedures for reporting hazards, risks, incidents and accidents
- K6:** Identify and describe common hazards and major causes of accidents relevant to the workplace
- K7:** Explain what the term risk control means
- K8:** List and describe potential emergency situations and how to respond to them

## Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) to be competent in this competency standard:

A person who demonstrates competency in this unit must be able to provide evidence of the ability to apply work health and safety practices. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

## Performance requirements

This competency is to be assessed using standard and authorized work practices, safety requirements and environmental constraints. Demonstrated evidence is required of the ability to:

- Complete work tasks according to work health and safety (WHS) legislative and workplace requirements, including:
  - Correctly using personal protective equipment (PPE)
  - Following safety signs and symbols
  - Communicating WHS issues to relevant personnel
- Participate in consultation about WHS issues
- Identify and report hazards according to workplace requirements
- Assess and control risks and document risk control measures according to own level of responsibility
- Follow procedures for responding to incidents and emergencies.





041700840 **Identify and Implement Workplace Policy and Procedures**

**Overview:** This unit describes the skills and knowledge required to develop and implement a workplace policy & procedures and to modify the policy to suit changed circumstances. It applies to individuals with managerial responsibilities who undertake work developing approaches to create, monitor and improve strategies and policies within workplaces and engage with a range of relevant stakeholders and specialists.

Competency Units	Performance Criteria
<b>CU1. Identify workplace policy &amp; procedures</b>	<b>P1.</b> Identify the workplace policy & procedures <b>P2.</b> Apply appropriate strategies that can be used to measure whether your workplace health and safety obligations are being met. <b>P3.</b> Assure the policies are realistic and has the time, resources and personnel to implement <b>P4.</b> Implement the policy & procedures that reflects the organizations commitments <b>P5.</b> Ensure the appropriate methods of implementation, outcomes and performance indicators
<b>CU2. Implement workplace policy &amp; procedures</b>	<b>P1.</b> Apply and assign responsibility for recording systems to track continuous improvements in policy & procedures <b>P2.</b> Implement strategies for continuous improvement in effective and efficient information
<b>CU3. Communicate workplace policy &amp; procedures</b>	<b>P1.</b> Communicate procedures to help implement workplace policy <b>P2.</b> Inform those involved in implementing the policy about expected outcomes, activities to be undertaken and assigned responsibilities
<b>CU4. Review the implementation of workplace policy &amp; procedures</b>	<b>P1.</b> Identify the trends that may require remedial action <b>P2.</b> Record the trends that may require remedial action. <b>P3.</b> Ensure policy and procedures are made for continuous improvement of performance



### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K1:** Legislation, regulations and codes of practice applicable to the organization
- K2:** internal and external sources of information and organizational policy & procedures
- K3:** Typical barriers to implementing policies and procedures in an organization.

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) to be competent in this competency standard:

A person who demonstrates competency in this unit must be able to provide evidence of the ability to understand workplace policy and procedures. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

### Performance requirements

This competency is to be assessed using standard and authorized work practices, safety requirements and environmental constraints. Demonstrated evidence is required of the ability to:

- Identify the policies and procedures that comply with legislative requirements and support the organization goals.
- Consult and communicate with relevant stakeholders
- Review and implement the policy and procedures.



001100852 **Communicate at Workplace**

**Overview:** This unit describes the performance outcomes, skills and knowledge required to develop communication skills in the workplace. It covers gathering, conveying and receiving information, along with completing assigned written information under direct supervision.

Competency Units	Performance Criteria
<b>CU1. Communicate within the organization</b>	<b>P1.</b> Communicate within a department for successful interaction <b>P2.</b> Communication with other departments. <b>P3.</b> Use various media to communicate effectively <b>P4.</b> Communicate verbally and non-verbally using professionalism
<b>CU2. Communicate outside the organization</b>	<b>P1.</b> Deal with vendors <b>P2.</b> Deal with clients/customers <b>P3.</b> Interact with other organisations <b>P4.</b> Use various media to communicate effectively <b>P5.</b> Work with people of different cultures / backgrounds
<b>CU3. Communicate effectively in workgroup</b>	<b>P1.</b> Assess the issues to provide relevant suggestion to group members <b>P2.</b> Resolve the issues/ problems /conflicts within the group <b>P3.</b> Arrange group working sessions to increase the level of participation in the group processes <b>P4.</b> Communicate messages to group members clearly to ensure interpretation is valid <b>P5.</b> Communicate style /manner to reflect professional standards/ awareness of appropriate cultural practices <b>P6.</b> Act upon constructive feedback
<b>CU4. Communicate in writing</b>	<b>P1.</b> Identify relevant procedures for written information <b>P2.</b> Use strategies to ensure correct communication in writing .i.e. <ul style="list-style-type: none"><li>• correct composition</li><li>• clarity</li><li>• comprehensiveness</li><li>• accuracy</li><li>• appropriateness</li></ul>



	<p><b>P3.</b> Draft assigned written information for approval, ensuring it is written within designated timeframes</p> <p><b>P4.</b> Ensure written information meets required standards of style, format and detail</p> <p><b>P5.</b> Seek assistance / feedback to aid communication skills development</p>
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### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1:** Importance of intra and inter organizational communication
- K2:** Basics of business communication
- K3:** Defining Modes of communication
- K4:** Effective communication in workgroup
- K5:** Communicating through writing
- K6:** The importance of teamwork

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

In your current position, what types of written communication do you use most often? (List them all).



061100858 **Perform Computer Application Skills**

**Overview:** This unit describes the skills and knowledge required to use spreadsheet applications, prepare in page documents, develops familiarity with Word, Excel, Access, PowerPoint, email, and computer graphics basics.

It applies to individuals who perform a range of routine tasks in the workplace using a fundamental knowledge of spreadsheets, Microsoft office and computer graphics in under direct supervision or with limited responsibility.

Competency Units	Performance Criteria
<b>CU1. Prepare In-page documents as per required information</b>	<b>P1.</b> Set keyboard preferences according to information requirements <b>P2.</b> Layout Page according to information requirements <b>P3.</b> Toggle between Languages <b>P4.</b> Identify the usage of tool bar <b>P5.</b> Insert Columns as per requirement <b>P6.</b> Print the document
<b>CU2. Prepare Spreadsheets as per required information</b>	<b>P1.</b> Create workbook according to information requirements <b>P2.</b> Insert sheet according to information requirements <b>P3.</b> Enter basic formulae / functions using cell referencing when required <b>P4.</b> Correct formulas when error messages occur <b>P5.</b> Use a range of common tools during spreadsheet development <b>P6.</b> Edit columns and rows within the spreadsheet Filter data <b>P7.</b> Save the spreadsheet to a folder on a storage device <b>P8.</b> Format spreadsheet using formatting features as required <b>P9.</b> Incorporate object and chart in spreadsheet <b>P10.</b> Print spreadsheet
<b>CU3. Use MS Office as per required information</b>	<b>P1.</b> Use Microsoft Word for documentation <b>P2.</b> Use Microsoft Excel for documentation <b>P3.</b> Use Microsoft PowerPoint for presentation <b>P4.</b> Perform OneNote <b>P5.</b> Perform Outlook for emails



	<b>P6.</b> Perform Publisher applications
<b>CU4. Perform computer graphics in basic applications</b>	<b>P1.</b> Perform graphic fundamentals in basic applications <b>P2.</b> Draw Points and lines to make images <b>P3.</b> Draw Dots in space to make images <b>P4.</b> Draw lightening blot Shapes to make images <b>P5.</b> Enlarge circles and rectangles to block in forms
<b>CU5. Create Email account for communications</b>	<b>P1.</b> Make email account for communications <b>P2.</b> . Compose text of an email message according to organizational guidelines as required <b>P3.</b> Create an automatic signature for the user <b>P4.</b> Attach files to email message where required <b>P5.</b> Send email message <b>P6.</b> Reply to / forward a received message using available features <b>P7.</b> Save an attachment to the relevant folder <b>P8.</b> Save email message using available settings <b>P9.</b> Adjust email accounts to restrict and quarantine possible email security problems <ul style="list-style-type: none"><li>• Print email message as required</li></ul>

### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1:** List basic technical terminology related to reading help files and prompts
- K2:** Explain the effect of formatting and appearance on the readability and usability of spreadsheets
- K3:** Outline log-in procedures relating to accessing a personal computer (PC)
- K4:** Describe the purpose, use and function of spreadsheet applications.
- K5:** Understand **MS Word** to create documents, flyers, publications



**K6:** Understand **MS PowerPoint** to create presentations

**K7:** Understand **MS Excel** to store, organize, and manipulate data

**K8:** Understand **OneNote** to organize data you collect including handwritten notes, drawings, screen captures, audio clips, and more

**K9:** Understand of **Publisher** to create extensive publications, posters, flyers, menus

**K10:** Understand **Outlook** to manage email and calendars, to do lists, and contacts

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Create spreadsheets
- Customize basic settings
- Format spreadsheets
- Create basic formulas
- Insert objects and charts in spreadsheets
- Save and print spreadsheets.
- Use of MS Office
- Convert the documents/files
- Create the e mail account
- Identify the page set up
- Aces the data and computer network



041300867 **Manage Personal Finances**

**Overview:** This unit of competency describes the outcomes required to develop, implement and monitor a personal budget in order to plan regular savings and manage debt effectively.

Competency Units	Performance Criteria
<b>CU1. Develop a personal budget</b>	<p><b>P1.</b> Calculate current living expenses using available information to prepare a personal budget.</p> <p><b>P2.</b> Keep a record of all income and expenses for a short period of time to help estimate ongoing expenses.</p> <p><b>P3.</b> Subtract total expenses from total income to determine a surplus or deficit budget for the specified period.</p> <p><b>P4.</b> Find reasons for a deficit budget and ways to reduce expenditure identified.</p> <p><b>P5.</b> Identify ways to increase income</p>
<b>CU2. Develop long term personal budget</b>	<p><b>P1.</b> Analyze income and expenditure and set long term personal financial goals.</p> <p><b>P2.</b> Develop a long-term budget based on the outcomes of short-term budgeting.</p> <p><b>P3.</b> Identify obstacles that might affect the business</p> <p><b>P4.</b> Formulate a regular savings plan based on budget</p>
<b>CU3. Identify ways to maximize future finances</b>	<p><b>P1.</b> Determine sources to maximize personal income.</p> <p><b>P2.</b> Get further education or training to maintain or improve future income.</p> <p><b>P3.</b> Identify the need for debt to finance living and other expenses.</p> <p><b>P4.</b> Determine the appropriate levels of debt and repayment.</p> <p><b>P5.</b> Consolidate existing debt, where possible, to minimize interest costs and fees.</p> <p><b>P6.</b> Seek professional money management services.</p>





## Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K1:** Explain the abilities to plan and organize to keep records and monitor a personal budget
- K2:** Describe abilities to set and review goals
- K3:** Explain basic financial management and record keeping to enable development and management of a personal budget
- K4:** Describe benefits of financial goal setting and personal budgeting to enable effective management of personal finances
- K5:** Outline numeracy skills to compare income and expenditure

## Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) to be competent in this competency standard:

A person who demonstrates competency in this unit must be able to provide evidence of the ability to manage personal finances. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

## Performance requirements

This competency is to be assessed using standard and authorized work practices, safety requirements and environmental constraints. Demonstrated evidence is required of the ability to:

- Develop a personal budget based on analysis of expenditure and income;
- Formulate goals and identify financial contingency plans; and
- Monitor expenditure for a period of up to 2 weeks.



**0716001041 Perform welding**

**Overview:** This competency standard covers the specific skills and knowledge related to Spot-, Seam-, MIG and TIG-welding operations in automotive parts manufacturing industries, material handling and maintains machine and workplace.

Competency Unit	Performance Criteria
<b>CU1. Prepare for welding</b>	<b>P1.</b> Arrange raw material as per part drawing or process sheet. <b>P2.</b> Arrange consumable material. <b>P3.</b> Arrange welding machine equipment as per specific job. <b>P4.</b> Arrange welding jig and fixture according to the job.
<b>CU2. Prepare welding equipment and accessories</b>	<b>P1.</b> Select electrodes for job, where applicable. <b>P2.</b> Select specified welding machine. <b>P3.</b> Select welding jig according to the job. <b>P4.</b> Select require PPEs according to the specific job.
<b>CU3. Perform spot welding operations</b>	<b>P1.</b> Set electrode tips. <b>P2.</b> Set material on spot welding electrodes. <b>P3.</b> Set ampere according to material. <b>P4.</b> Set holding time. <b>P5.</b> Proceed with operation.
<b>CU4. Perform seam welding operations</b>	<b>P1.</b> Set roller electrode. <b>P2.</b> Set job on seam welding rollers. <b>P3.</b> Set ampere according to material. <b>P4.</b> Set pressure and speed. <b>P5.</b> Proceed with operation.
<b>CU5. Perform MIG/TIG welding operations</b>	<b>P1.</b> Select wire according to the job for MIG welding. <b>P2.</b> Set welding machine as per job requirement. <b>P3.</b> Adjust wire spool, speed and ampere. <b>P4.</b> Adjust CO2 gas pressure as per requirement. <b>P5.</b> Attach ground clamp with work piece. <b>P6.</b> Proceed with operation. <b>P7.</b> Select the electrode for TIG welding.



Competency Unit	Performance Criteria
	<p><b>P8.</b> Insert electrode into the cullet.</p> <p><b>P9.</b> Set welding machine as per job requirement.</p> <p><b>P10.</b> Set argon gas pressure.</p> <p><b>P11.</b> Proceed with operation.</p>
<b>CU6. Inspect final work</b>	<p><b>P1.</b> Perform visual inspection of defects.</p> <p><b>P2.</b> Perform destructive testing as per job requirement.</p> <p><b>P3.</b> Measure dimensions for compliance as per job requirements.</p> <p><b>P4.</b> Complete inspection report.</p>
<b>CU7. Perform work place cleaning and maintenance</b>	<p><b>P1.</b> Disconnect electric connection after completion of work.</p> <p><b>P2.</b> Disconnect gas connections.</p> <p><b>P3.</b> Clean machines, work-station and floor.</p> <p><b>P4.</b> Apply anti-rust spray/cleaning agent.</p> <p><b>P5.</b> Maintain tools and equipment.</p> <p><b>P6.</b> Keep tools and equipment at appropriate place.</p> <p><b>P7.</b> Transfer wastage material into the wastage area</p> <p><b>P8.</b> Return excess material to store.</p>

### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the:

- K1:** Knowledge of define PPEs.
- K2:** Knowledge of define types of materials.
- K3:** Knowledge of define types of electrodes.
- K4:** Knowledge of define electrical/gas pressure setting.
- K5:** Knowledge of define types of welding machines.
- K6:** Knowledge of interpret drawing and welding symbols.
- K7:** Knowledge of explain electrode tip calculation for spot welding.



- K8:** Knowledge of explain the relation between holding time and ampere calculation for spot welding.
- K9:** Knowledge of define gases to be used in TIG/MIG welding.
- K10:** Knowledge of define welding inspection procedures.

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Perform seam welding operation.
- Perform MIG/TIG welding operation.
- Perform welding calculations.
- Identify defects.
- Identify welding symbols.

### Tools and Equipment

The tools and equipment required for this competency standard are given below:

- Spot welding machine with accessories
- Seam welding machine with accessories
- TIG welding machine with accessories
- MIG welding machine with accessories
- PPEs
- Welding helmet
- Protective shield
- Gauntlet cuff gloves
- Welding apron
- Leather gloves
- Chipping hammer
- Cross peen hammer
- Wire brush
- Wire cutter
- C-clamp
- Scriber
- Cooled chisel
- Channel lock pliers / Grip pliers



- Center punch
- CO2 Gas cylinder
- Argon Gas cylinder
- Sheet Gauges
- Bevel Protector
- Baby angle grinder
- Hand hacksaw
- Measuring tape
- Tri Square
- Set square
- Sprit level
- Bench Vice with bench
- Welding bench
- Welding gauge set
- First aid box



**0716001042 Apply thread rolling operations**

**Overview:** This competency standard covers the specific skills and knowledge related to perform for thread rolling operation, material handling, formulation/construction, defects & remedies and maintains machine and workplace.

Competency Unit	Performance Criteria
<b>Prepare for thread rolling</b>	<b>P1.</b> Arrange material as per drawing or process sheet. <b>P2.</b> Select tools and equipment. <b>P3.</b> Set the machine as per job specification.
<b>Conduct pre-operational checks on machine</b>	<b>P1.</b> Inspect all electrical connection. <b>P2.</b> Check all mechanical fitting and joints. <b>P3.</b> Check operation of emergency switches. <b>P4.</b> Check and maintain correct coolant level. <b>P5.</b> Check and maintain correct air pressure. <b>P6.</b> Check and maintain proper lubrication. <b>P7.</b> Change thread roller as per requirement. <b>P8.</b> Insert material in vibrating bowl. <b>P9.</b> Set the distance of tools according to the job. <b>P10.</b> Check material easily shifting from vibrating bowl to slide.
<b>Prepare thread rolling die</b>	<b>P1.</b> Replace the thread roller. <b>P2.</b> Check the die holder. <b>P3.</b> Hold the thread roller. <b>P4.</b> Fasten the die by using appropriate tools and/or equipment. <b>P5.</b> Set die alignment.
<b>Operate Machine</b>	<b>P1.</b> Set all parameters. <b>P2.</b> Proceed with operation. <b>P3.</b> Monitor operation to ensure compliance with job requirements.
<b>Inspect final product</b>	<b>P1.</b> Perform visual inspection of defects. <b>P2.</b> Check blank die before cutting.



	<p><b>P3.</b> Check the thread profile.</p> <p><b>P4.</b> Inspect with the thread gauge.</p> <p><b>P5.</b> Complete inspection report.</p>
<b>Perform workplace cleaning and maintenance</b>	<p><b>P1.</b> Maintain all check sheets and work instruction on machine.</p> <p><b>P2.</b> Perform cleaning of die, machine and floor.</p> <p><b>P3.</b> Apply anti-rust spray/cleaning agent.</p> <p><b>P4.</b> Perform lubrication on slides and die.</p> <p><b>P5.</b> Maintain tools and equipment.</p> <p><b>P6.</b> Keep tools and equipment at appropriate place.</p> <p><b>P7.</b> Transfer wastage material in to the wastage area.</p> <p><b>P8.</b> Return excess material to store.</p>

### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the:

- K1:** Knowledge of define threading technique.
- K2:** Knowledge of define different types of thread.
- K3:** Knowledge of describe thread standards.
- K4:** Knowledge of define material types.
- K5:** Knowledge of describe types of threading die and roller.
- K6:** Knowledge of describe types of thread operations.
- K7:** Knowledge of describe thread rolling defects.
- K8:** Knowledge of describe thread rolling machine parts.
- K9:** Knowledge of describe thread rolling applications.
- K10:** Knowledge of define advantages of thread rolling.
- K11:** Knowledge of define measuring instruments.
- K12:** Knowledge of define fits and limits system.
- K13:** Knowledge of describe speed and feed.



### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Demonstrate thread roller die setting.
- Perform machine parameter setting.
- Identify process defects.

### Tools and Equipment

The tools and equipment required for this competency standard are given below:

- PPEs
- Thread rolling machine
- Thread gauges' different standards (ISO & BSI)
- Different types and size of dies
- Wrenches
- Allen-Keys Set
- Socket Set with handle
- Combination spanner set
- Brass Hammer
- Profile Projector
- Vernier caliper
- Micro meter
- Thread pitch gauge set (ISO & BSI standard)
- Thread ring gauge set (ISO & BSI standard)
- First aid box





**0716001043 Perform vacuum forming operations**

**Overview:** This competency standard covers the specific skills and knowledge related to perform vacuum forming operation, material handling, formulation/construction, defects & remedies and maintains machine and workplace.

Competency Unit	Performance Criteria
<b>CU1. Prepare for Vacuum forming</b>	<b>P1.</b> Arrange material as per drawing or process sheet. <b>P2.</b> Select the tools and equipment. <b>P3.</b> Set machine as per job specification.
<b>CU2. Conduct pre-operational checks on machine</b>	<b>P1.</b> Inspect all electrical connection. <b>P2.</b> Check all mechanical fitting and joints. <b>P3.</b> Check operation of emergency switches. <b>P4.</b> Check the pneumatic connections. <b>P5.</b> Check pneumatic filters. <b>P6.</b> Check vacuum pump pressure. <b>P7.</b> Check and maintain vacuum pump oil level. <b>P8.</b> Check heater condition. <b>P9.</b> Check shifting of bed gear system. <b>P10.</b> Check and maintain correct hydraulic and lubrication oil levels.
<b>CU3. Prepare vacuum mould</b>	<b>P1.</b> Lift mould with lifting equipment. <b>P2.</b> Place the mould on the mould platen. <b>P3.</b> Set mould alignment. <b>P4.</b> Clamp mould with the help of bolts/ hydraulic clamps.
<b>CU4. Operate machine</b>	<b>P1.</b> Set all parameters. <b>P2.</b> Pull the sheet on mould. <b>P3.</b> Set heater on defined temperature. <b>P4.</b> Perform pre-heat the sheet on defined time. <b>P5.</b> Proceed with operation. <b>P6.</b> Monitor operation to ensure compliance with job requirements.
<b>CU5. Inspect final</b>	<b>P1.</b> Perform visual inspection of defects.



<b>product</b>	<b>P2.</b> Check dimensionally. <b>P3.</b> Check part on checking fixture. <b>P4.</b> Complete inspection report.
<b>CU6. Perform workplace cleaning and maintenance</b>	<b>P1.</b> Maintain all check sheets and work instruction on machine. <b>P2.</b> Maintain compressor lines. <b>P3.</b> Maintain heaters connections. <b>P4.</b> Perform cleaning of die, machine and floor. <b>P5.</b> Perform lubrication on gears, slides and die. <b>P6.</b> Apply anti rust spray/cleaning agent. <b>P7.</b> Maintain tools and equipment. <b>P8.</b> Keep tools and equipment at appropriate place. <b>P9.</b> Transfer wastage material in to the wastage area. <b>P10.</b> Return excess material to store.

### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the:

- K1:** Knowledge of define vacuum moulding.
- K2:** Knowledge of define deformation temperature.
- K3:** Knowledge of define vacuum system.
- K4:** Knowledge of describe materials used in vacuum moulding.
- K5:** Knowledge of describe vacuum moulding machines.
- K6:** Knowledge of describe vacuum moulding parts applications.
- K7:** Knowledge of define advantages of vacuum moulding.
- K8:** Knowledge of define vacuum moulding defects.
- K9:** Knowledge of define fits and limits.
- K10:** Knowledge of describe measuring instrument.



### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Demonstrate the mould clamping and alignment method.
- Perform parameter setting.
- Identify defects of product.

### Tools and Equipment

The tools and equipment required for this competency standard are given below:

- PPEs
- Vacuum forming machine
- Vacuum mould
- Checking fixture
- Eye bolts
- chains
- Shackles
- Fork lifter
- Hoist
- Wrenches
- Allen-Keys
- Socket set with handle
- Pliers set
- Screw driver set
- Brass hammer
- Digital clamp meter
- Testing table
- Measuring equipment
- Heater (For Vacuum forming Sheet)
- Knife
- Checking Fixture
- Measurement tape
- Vernier caliper
- First Aid box



**0716001044 Perform pressing operations**

**Overview:** This competency standard covers the specific skills and knowledge related to perform Pressing/stamping operations, material handling, inspection techniques and maintain hydraulic, pneumatic and mechanical press machines and work place.

Competency Unit	Performance Criteria
<b>CU1. Prepare for pressing</b>	<b>P1.</b> Arrange material as per drawing or process sheet. <b>P2.</b> Select tools and equipment. <b>P3.</b> Select die. <b>P4.</b> Set machine as per job specification.
<b>CU2. Conduct pre-operational checks on machine</b>	<b>P1.</b> Inspect all electrical connections. <b>P2.</b> Check all mechanical fitting and joint. <b>P3.</b> Check operation of emergency switches. <b>P4.</b> Check friction brakes on mechanical press. <b>P5.</b> Inspect master cylinder for external leaks and proper operation in hydraulic or pneumatic press. <b>P6.</b> Inspect brake lines, hosepipes and fittings for dents, leaks, rust, crack and loose fittings. <b>P7.</b> Ensure working of two hand operational button. <b>P8.</b> Check and maintain correct brake fluid and hydraulic fluid level. <b>P9.</b> Check all limit switches.
<b>CU3. Prepare die</b>	<b>P1.</b> Lift the die with lifting equipment. <b>P2.</b> Set die alignment. <b>P3.</b> Clamp the die on press with bolts/ hydraulic clamps.
<b>CU4. Operate mechanical press machine</b>	<b>P1.</b> Load die-set. <b>P2.</b> Set all parameters. <b>P3.</b> Fasten the bolts of ram. <b>P4.</b> Proceed with operation. <b>P5.</b> Monitor operation to ensure compliance with job requirements.



<b>CU5. Operate hydraulic press machine</b>	<b>P1.</b> Load die-set. <b>P2.</b> Set all parameters. <b>P3.</b> Fasten the bolts of ram. <b>P4.</b> Proceed with operation. <b>P5.</b> Monitor operation to ensure compliance with job requirements.
<b>CU6. Operate pneumatic press machine</b>	<b>P1.</b> Load die-set. <b>P2.</b> Set all parameters <b>P3.</b> Fasten the bolts of ram. <b>P4.</b> Proceed with operation. <b>P5.</b> Monitor operation to ensure compliance with job requirements.
<b>CU7. Inspect final product</b>	<b>P1.</b> Perform visual inspection of defects. <b>P2.</b> Check dimensionally. <b>P3.</b> Check fitment on checking fixture. <b>P4.</b> Complete inspection report.
<b>CU8. Perform workplace cleaning and maintenance</b>	<b>P1.</b> Maintain all check sheets and work instruction on machine. <b>P2.</b> Perform cleaning of die, machine and floor. <b>P3.</b> Apply Anti-rust spray/Cleaning agent. <b>P4.</b> Perform lubrication on slides and die <b>P5.</b> Maintain tools and equipment. <b>P6.</b> Keep tools and equipment at appropriate place. <b>P7.</b> Transfer wastage material in to the wastage area. <b>P8.</b> Return Excess material to store.

### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the:

- K1:** Knowledge of interpret drawing and basic symbols.
- K2:** Knowledge of define types of stamping machines and tools.
- K3:** Knowledge of define uses of stamping machine and tools.
- K4:** Knowledge of define repair of stamping machine and their maintenance procedures.



- K5:** Knowledge of define lifting machines and its applications.
- K6:** Knowledge of define Inspection procedures for braking system (Mechanical, Hydraulic & Pneumatic) components.
- K7:** Knowledge of define measuring equipment types and its uses.
- K8:** Knowledge of define limits and fit System.

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Identify breaking system components.
- Set die.
- Control stamping operations of press.
- Set parameters.

### Tools and Equipment

The tools and equipment required for this competency standard are given below:

- PPEs
- Tool trolley
- Lifter
- Hoist
- Shackle
- Chain
- Mechanical press
- Hydraulic press (with Hydraulic Pump)
- Pneumatic press
- Press brake
- Repair manual
- Socket set with handle
- Socket Wrench
- Allen Key Set
- Screwdriver set
- Shop towel
- Needle nose pliers



- Impact screw driver
- Inspection lamp
- Hydraulic Jack
- Adjustable barrier guard
- Sheet metal dies (i.e. Blanking, Bending, Piercing, Draw etc.)
- Checking fixture
- Combination spanner set
- Vernier caliper
- Micro meter
- Sheet gauge set
- Air Compressor
- First aid box



**0716001045 Perform periodic operator maintenance**

**Overview:** This competency standard covers the specific skills and knowledge related to work on periodic maintenance, making the workplace free from hazards and capable to report and record the maintenance activity performed on the machine and workplace.

Competency Unit	Performance Criteria
<b>CU1. Prepare for maintenance</b>	<p><b>P1.</b> Arrange the recommended machine oil and oil filter.</p> <p><b>P2.</b> Arrange the recommended hydraulic seals and fluid.</p> <p><b>P3.</b> Arrange the recommended hydraulic hose and clamps.</p> <p><b>P4.</b> Arrange recommended bearings.</p> <p><b>P5.</b> Arrange the recommended pneumatic hose and couplers.</p> <p><b>P6.</b> Arrange the recommended relays, fuses, Sensors, switches and circuit breakers.</p> <p><b>P7.</b> Arrange the machine cleaning agents and cotton rag.</p> <p><b>P8.</b> Select the repairing tools and equipment.</p> <p><b>P9.</b> Arrange the recommended floor marking and machine colours.</p>
<b>CU2. Isolate and shut down equipment and machine</b>	<p><b>P1.</b> Clean the workplace and identify the faulty components.</p> <p><b>P2.</b> Identify and eliminate hazards at the workplace.</p> <p><b>P3.</b> Change the oil and oil filter under specified procedure.</p> <p><b>P4.</b> Replace the hydraulic oil, seals and hoses.</p> <p><b>P5.</b> Replace the pneumatic hoses and coupler.</p> <p><b>P6.</b> Replace the recommended relay, sensors, fuses and circuit breakers.</p> <p><b>P7.</b> Paint the recommended floor marking and machine floor area.</p>
<b>CU3. Inspect</b>	<p><b>P1.</b> Operate the machine and verify all functions.</p>





<b>equipment and machine</b>	<b>P2.</b> Inspect the leakage in hydraulic system. <b>P3.</b> Inspect the leakage in pneumatic hoses with soap water. <b>P4.</b> Inspect and verify the correct installation, working of electronics parts. <b>P5.</b> Check the dryness of paint on floor.
<b>CU4. Conduct preventive maintenance</b>	<b>P1.</b> Follow preventive maintenance chart and update according to time period. <b>P2.</b> Identify the minor hazards and eliminate it.
<b>CU5. Report faults</b>	<b>P1.</b> Create job card as per the machine faults. <b>P2.</b> Coordinate with maintenance/service department for further necessary action. <b>P3.</b> Follow up for the repair/maintenance performed.
<b>CU6. Record Maintenance</b>	<b>P1.</b> Maintain logbook. <b>P2.</b> Record the consumable and spare parts used. <b>P3.</b> Prepare comprehensive report.

### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the:

- K1:** Knowledge of define importance of maintenance and its types.
- K2:** Knowledge of define KAIZEN and 5S techniques.
- K3:** Knowledge of define types of relay, switches, sensors, fuses and circuit breakers.
- K4:** Knowledge of define types of hydraulic fluids, hoses and joints.
- K5:** Knowledge of define pneumatic hoses and couplers.
- K6:** Knowledge of define importance of oiling and greasing.
- K7:** Knowledge of define types of air compressors and their working principals.



### Critical Evidence(s)

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Prepare chart for periodic maintenance
- Inspect the equipment.
- Perform preventive maintenance.
- Diagnose fault and make report.
- Maintain log book.

### Tools and Equipment

The tools and equipment required for this competency standard are given below:

- PPEs
- Machine oil (Different grades)
- Grease
- Machine service manual
- Fusses
- Relays
- Switches
- Pneumatic hoses
- Hydraulic hoses
- Couplers
- Hydraulic joints
- Adjustable Spanner
- Pipe Wrench
- Combination Spanner Set
- Socket Set with handle
- Torque Wrench
- Screw Driver Set
- Allen Key Set
- Tool Box/trolley
- Circuit breakers
- Ladder
- Manual Lifter
- Safety Harness Belt
- Measurement Tape



- Sprit Level
- Vernier Caliper
- Plier Set
- Digital clamp meter
- Wire Stripper
- Wire crimper
- Blower
- Tongue & groove plier
- Hand hacksaw
- Hammer
- Mallet (Soft Hammer)
- Flash light
- Anti-rust spray (WD40)
- Bench vise with bench
- Hand grinder
- Hand drill
- Drill bits
- Impact screw driver
- Utility knife
- Marking tape
- Retractable safety barrier with post
- First aid box
- Bearing puller



102200848 **Contribute to Work Related Health and Safety (WHS) Initiatives**

**Overview:** This unit describes the skills and knowledge required to manage the identification, review, development, implementation and evaluation of effective participation and consultation processes as an integral part of managing work health and safety (WHS).

Competency Units	Performance Criteria
<b>CU1. Contribute to initiate work-related health and safety measures</b>	<p><b>P1.</b> Assist to compile database on work-related health and safety Identify measures that address legal obligations.</p> <p><b>P2.</b> Consult with individuals/ parties to assist in designing measures and initiatives</p> <p><b>P3.</b> Consult with individuals/parties to assist in evaluating factors impacting on work-related health and safety</p> <p><b>P4.</b> Participate in consultative meetings.</p>
<b>CU2. Contribute to establish work-related health and safety measures</b>	<p><b>P1.</b> Assist in planning of work-related health and safety measures</p> <p><b>P2.</b> Contribute to the development of work-related health and safety measures</p> <p><b>P3.</b> Identify to implement work-related health and safety measures i.e.</p> <ul style="list-style-type: none"><li>• resourcing requirements,</li><li>• timelines</li><li>• responsibilities</li></ul> <p><b>P4.</b> Assist to implement work-related health and safety measures and initiatives i.e.</p> <ul style="list-style-type: none"><li>• scheduling</li><li>• liaison</li><li>• administering resources</li><li>• communication</li></ul>
<b>CU3. Contribute to ensure legal requirements of WHS measures</b>	<p><b>P1.</b> Apply knowledge of all aspects of WHS measures to</p> <ul style="list-style-type: none"><li>• Consultation</li><li>• workplace policies</li><li>• participation processes</li></ul> <p><b>P2.</b> Make sure that WHS measures are in accordance with legal requirements</p>



<b>CU4. Contribute to review WHS measures</b>	<b>P1.</b> Develop effective means to review work-related health and safety measures <b>P2.</b> Assist individuals and parties related to WHS measures in following activities <ul style="list-style-type: none"><li>• preparing reports</li><li>• communicating review</li><li>• evaluating outcomes</li></ul>
<b>CU5. Evaluate the organization's WHS system</b>	<b>P1.</b> Assess ongoing compliance with OHS <b>P2.</b> Take feedback from concerned persons regarding WHS measures. <b>P3.</b> Assess the overall effectiveness of WHS management practices <b>P4.</b> Assist the development process of WHS measures in following ways <ul style="list-style-type: none"><li>• Suggest amendments</li><li>• Document amendments</li><li>• Implement amendments</li><li>• Communicate improvements</li></ul>

### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K1:** Explain the application of relevant mandatory health monitoring, including biological monitoring, to help secure work health and safety
- K2:** Explain the difference between work-related health and safety measures and initiatives designed to meet specific legislative requirements and obligations, and those designed to support non-statutory health promotion programs, and give examples of each
- K3:** List factors that impact on work-related health and safety and their potential effects
- K4:** Identify internal and external sources of WHS information and data, and how to access them
- K5:** Outline organizational WHS and other relevant policies, procedures, processes and systems, including human resources



- K6:** Summarize relevant WHS legislation, other legislation (such as privacy and workers compensation) and common law rights and duties specific to work-related health and safety measures and initiatives
- K7:** Describe work-related health and safety measures and initiatives that either address specific legislative requirements and obligations, or support non-statutory health prevention programs, including:
- The factors impacting on worker health and safety that they address
  - Effectiveness
  - Costs and benefits
  - Criteria for decisions regarding their implementation in a specific workplace
  - How they should be implemented.

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) to be competent in this competency standard:

A person who demonstrates competency in this unit must be able to provide evidence of the ability to contribute to work-related health and safety measures and initiatives. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

### Performance requirements

This competency is to be assessed using standard and authorized work practices, safety requirements and environmental constraints. Demonstrated evidence is required of the ability to:

- Contribute to scoping, establishing, reviewing and evaluating work health and safety (WHS) measures and initiatives to:
  - Address specific legislative requirements and obligations
  - Support non-statutory health promotion programs
- Contribute to ensuring work-related health and safety measures and initiatives comply with legislative requirements and obligations
- Liaise with relevant people internal and external to the organization.



041700841 **Analyse and Develop Workplace Policy and Procedures**

**Overview:** This unit describes the skills and knowledge required to develop and implement a workplace policy & procedures and to modify the policy to suit changed circumstances. It applies to individuals with managerial responsibilities who undertake work developing approaches to create, monitor and improve strategies and policies within workplaces and engage with a range of relevant stakeholders and specialists.

Competency Units	Performance Criteria
<b>CU1. Respect work timeframes</b>	<b>P1.</b> Demonstrate punctuality in meeting, working hours and schedules <b>P2.</b> Complete work tasks within deadlines in according to order of priority <b>P3.</b> Supervisors are informed of any delays in work times or projects
<b>CU2. Preparation for meeting</b>	<b>P1.</b> Develop agenda in line with meeting purpose <b>P2.</b> Selection of participants and notify them accordingly <b>P3.</b> Confirm meeting arrangements according to the time <b>P4.</b> Record the minutes of the meeting
<b>CU3. Decision making at workplace</b>	<b>P1.</b> Define the problem, challenge, or opportunity <b>P2.</b> Generate an array of possible solutions or responses <b>P3.</b> Evaluate the costs and benefits, or pros and cons, associated with each option <b>P4.</b> Assess the impact of the decision and modify the course of action as needed
<b>CU4. Set and meet own work priorities</b>	<b>P1.</b> Take initiative to prioritize and facilitate competing demands to achieve organization goals and objectives <b>P2.</b> Use technology efficiently and effectively to manage work priorities and commitments <b>P3.</b> Maintain appropriate work-life balance
<b>CU5. Develop and maintain professional competence</b>	<b>P1.</b> Assess personal knowledge and skills against competency <b>P2.</b> Participate in networks to enhance personal knowledge, skills and work relationships <b>P3.</b> Seek feedback from employees, clients and colleagues to develop and improve competence



<b>CU6. Follow and implement work safety requirements</b>	<b>P1.</b> Identify and report emergency incidents <b>P2.</b> Practice organizational policy and procedures for responding to emergency incidents <b>P3.</b> Identify and implement workplace procedures and work instructions for controlling risks
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### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K1:** Healthy work life balance
- K2:** Meeting terminologies, structures and arrangements
- K3:** Relevant organizational procedures and policies regarding meetings, chairing and minutes.
- K4:** Barriers to implement policies and procedures in an organization and possible strategies to address them.

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) to be competent in this competency standard:

A person who demonstrates competency in this unit must be able to provide evidence of the ability to understand workplace policy and procedures. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments

### Performance requirements

This competency is to be assessed using standard and authorized work practices, safety requirements and environmental constraints. Demonstrated evidence is required of the ability to:

- Develop the policies and procedures that comply with legislative requirements and support the organization goals.

Demonstrate conventions and procedures formal and informal meeting including;

- Establish meeting agenda
- Nominate & invite meeting participants
- Organize and confirm meeting participants
- Record and store the meeting document





001100853 **Perform Advanced Communication**

**Overview:** This unit describes the performance outcomes, skills and knowledge required to develop communication skills used professionally. It covers plan and organise work and conduct trainings at workplace, along with demonstrating professional skills independently.

Competency Units	Performance Criteria
<b>CU1. Demonstrate professional skills</b>	<p><b>P1.</b> Use different modes of communication to communicate</p> <ul style="list-style-type: none"><li>• Speaking</li><li>• Reading</li><li>• Writing</li><li>• Listening</li><li>• Presentation</li><li>• visual representation etc.</li></ul> <p><b>P2.</b> Illustrate business terms used at workplace</p> <p><b>P3.</b> Upgrade professional skills by attending trainings, webinars, conferences etc.</p> <p><b>P4.</b> Perform Continuous professional development required at workplace</p> <p><b>P5.</b> Develop interview skills</p>
<b>CU2. Plan and Organize work</b>	<p><b>P1.</b> Identify task requirements.</p> <p><b>P2.</b> Plan steps to complete tasks.</p> <p><b>P3.</b> Organize work.</p> <p><b>P4.</b> Review planning and organizing process.</p>
<b>CU3. Provide trainings at workplace</b>	<p><b>P1.</b> Assess the need for training</p> <p><b>P2.</b> Prepare trainees for the learning experience</p> <p><b>P3.</b> Present training session</p> <p><b>P4.</b> Support trainees in managing their own learning</p> <p><b>P5.</b> Facilitate group learning</p> <p><b>P6.</b> Provide opportunity for practice</p> <p><b>P7.</b> Provide feedback on progress on trainees</p> <p><b>P8.</b> Review delivery experience</p>



## Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1:** Explaining the training skills
- K2:** Identification of the professional skills
- K3:** Describing the advanced language skills
- K4:** Understanding of the assessment and trainees feedback methods
- K5:** Direct and indirect communication methods
- K6:** Explaining the need of the training type at the work place

## Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Job sheet
- Office emails and coordination reports
- Feedback proforma



061100858 **Develop Advance Computer Application Skills**

**Overview:** This unit provides an overview of Microsoft Office programs to create personal, academic and business documents following current professional and/or industry standards, i.e. Data Entry, Power Point Presentation and managing data base and graphics for Design

It applies to individuals employed in a range of work environments who need to be able to present a set range of data in a simple and direct form.

Competency Units	Performance Criteria
<b>CU1. Manage Information</b>  <b>System to complete a task</b>	<b>P1.</b> Perform Data Entry in MS office <b>P2.</b> Manage File/folder in MS office <b>P3.</b> Perform Scanning of document <b>P4.</b> Maintain Office Record in drives <b>P5.</b> Perform Printing of document <b>P6.</b> Search required Files/Folders <b>P7.</b> Convert Files in <ul style="list-style-type: none"><li>• PDF</li><li>• JPG etc.</li></ul> <b>P8.</b> Manage sizes of Files/Folders <ul style="list-style-type: none"><li>• Compress</li><li>• Zip /unzip</li></ul>
<b>CU2. Prepare Presentation using computers</b>	<b>P1.</b> Prepare presentation as per requirement .i.e. <ul style="list-style-type: none"><li>• Create a simple design for a presentation</li><li>• Open blank presentation and add text / graphics</li><li>• Apply existing styles within a presentation</li><li>• Use presentation template and slides to create a presentation</li><li>• Use various tools to improve the look of the presentation</li><li>• Save presentation to the appropriate storage device and folder</li></ul> <b>P2.</b> Customize basic settings to meet user requirements <b>P3.</b> Format presentation as require <ul style="list-style-type: none"><li>• Use organizational charts</li><li>• Add objects and manipulate to meet presentation</li></ul>



	<p>purposes</p> <ul style="list-style-type: none"><li>• Modify slide layout, including text and colours, to meet presentation requirements</li><li>• Save presentation in another format</li><li>• Save to storage device and close presentation</li></ul> <p><b>P4.</b> Add slide show effect into presentation as required to enhance the presentation</p> <ul style="list-style-type: none"><li>• Incorporate pre-set Animation</li><li>• Multimedia effects</li><li>• Apply sound effect</li><li>• Record Narration</li><li>• Apply hyperlink</li><li>• Apply video</li><li>• Rehearse Timings</li><li>• Test presentation for overall effect</li></ul> <p><b>P5.</b> Print the presentation</p> <ul style="list-style-type: none"><li>• Select appropriate print format for presentation</li><li>• Select preferred slide orientation</li><li>• Add notes and slide numbers</li><li>• Preview slides and run spell check before presentation</li><li>• Print selected slides and submit presentation to appropriate person for feedback</li></ul> <p><b>P6.</b> Practice verbal presentation</p> <p><b>P7.</b> Practice presentation through AV Aids</p>
<p><b>CU3. Use Microsoft Access to manage database</b></p>	<p><b>P1.</b> Start access to manage database .i.e.</p> <ul style="list-style-type: none"><li>• identify problem statement of Data</li><li>• Develop a table with fields /attributes according to database usage/ user requirements</li><li>• Create a primary key and establish an index for each table</li><li>• Modify table layout and field attributes as required</li><li>• Create a relationship between the two tables</li><li>• Add data in a table according to information requirements</li><li>• Add records as required</li></ul>



	<ul style="list-style-type: none"><li>• delete records as required</li><li>• Save database to storage area</li><li>• close down database to storage area</li><li>• Apply criteria in the Query</li><li>• SQL view of Query</li><li>• Wildcards of query</li><li>• Query Criteria</li></ul> <p><b>P2.</b> Customize basic settings:</p> <ul style="list-style-type: none"><li>• Adjust page layout to meet user requirements</li><li>• Open and view different toolbars</li><li>• Format font as appropriate for the purpose of the database entries</li><li>• Create reports</li><li>• Design reports to present data in a logical sequence</li><li>• Modify reports to include or exclude additional requirements</li><li>• Distribute reports to appropriate person in a suitable format</li></ul> <p><b>P3.</b> Create forms</p> <ul style="list-style-type: none"><li>• Use a wizard to create a simple form</li><li>• Open existing database and modify records through a simple form</li><li>• Rearrange objects within the form to accommodate information requirements</li></ul>
<b>CU4. Develop graphics for Design</b>	<p><b>P1.</b> Develop graphic design concepts based on a thorough understanding of the communication need</p> <p><b>P2.</b> Use design techniques confidently to produce designs</p> <p><b>P3.</b> Integrate design tools skillfully to produce designs</p> <p><b>P4.</b> Evaluate the success of completed designs to meet objectives</p> <p><b>P5.</b> evaluate feedback from client / peers</p>



## Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1:** List basic technical terminology to read help files and prompts
- K2:** Outline the different types of formal and informal presentations
- K3:** Explaining Power point presentation
- K4:** Collection of Data using a standard database package
- K5:** Segregation of Data
- K6:** Define the relation among data
- K7:** Define criteria in the query
- K8:** Creates and modify reports and forms.
- K9:** Outline basic database design principles
- K10:** Current graphic design software
- K11:** Discuss features of current and emerging technologies used in graphic design practice and the options they present for effective graphic design solution

## Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Design and develop a simple database using a standard database package
- Create, format and prepare presentations for distribution and display
- Customize basic settings
- Add slide show effects.
- Generate employment report from given data by using Microsoft Access.



041300869 **Manage Human Resource Services**

**Overview:** This unit describes the skills and knowledge required to plan, manage and evaluate delivery of human resource services, integrating business ethics. It applies to individuals with responsibility for coordinating a range of human resource services across an organization. They may have staff reporting to them.

Competency Units	Performance Criteria
<b>CU1. Determine strategies for delivery of human resource services</b>	<p><b>P1.</b> Analyze business strategy and operational plans to determine human resource requirements</p> <p><b>P2.</b> Review external business environment that likely impact on organization's human resource requirements</p> <p><b>P3.</b> Consult line and senior managers to identify human resource needs in their areas</p> <p><b>P4.</b> Review organization's requirements for diversity in the workforce</p> <p><b>P5.</b> Deliver human resource services that comply with business goals</p> <p><b>P6.</b> Develop strategic action plan for delivery of human resource services</p> <p><b>P7.</b> Develop roles and responsibilities of human resource team</p> <p><b>P8.</b> Develop quality assurance policy</p>
<b>CU2. Manage the delivery of human resource services</b>	<p><b>P1.</b> Communicate human resource strategies and services to internal and external stakeholders</p> <p><b>P2.</b> Develop and negotiate service agreements between</p> <ul style="list-style-type: none"><li>• The human resource team,</li><li>• Service providers</li><li>• Client groups</li></ul> <p><b>P3.</b> Document service specifications, performance standards and timeframes</p> <p><b>P4.</b> Document /communicate service</p> <ul style="list-style-type: none"><li>• Specifications,</li><li>• Performance standards</li><li>• Timeframes</li></ul> <p><b>P5.</b> Monitor Quality assurance processes</p> <p><b>P6.</b> Ensure that services are delivered by appropriate providers,</p>



	according to service agreements and operational plans <b>P7.</b> Identify underperformance of human resource team or service providers
<b>CU3. Evaluate human resource service delivery</b>	<b>P1.</b> Establish Management information system for human resource services <b>P2.</b> Conduct survey to determine level of satisfaction <b>P3.</b> Analyze feedback of survey <b>P4.</b> Recommend changes to service delivery <b>P5.</b> Support agreed change processes across the organization
<b>CU4. Manage integration of business ethics in human resource practices</b>	<b>P1.</b> Ensure ethics in personal behavior <b>P2.</b> Ensure code of conduct is observed across the organization, <b>P3.</b> Observe confidentiality requirements in dealing with all human resource information <b>P4.</b> Deal promptly with unethical behavior <b>P5.</b> Ensure all persons responsible for human resource functions understand requirements regarding their ethical behavior

### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K1:** Identify the key provisions of legal and compliance requirements that apply to managing human resources
- K2:** Summarize the organization's code of conduct
- K3:** Explain human resource strategies and planning processes and their relationship to business and operational plans
- K4:** Describe performance and contract management
- K5:** Explain how feedback is used to modify the delivery of human resources.





### **Critical Evidence(s) Required**

The candidate needs to produce following critical evidence(s) to be competent in this competency standard:

A person who demonstrates competency in this unit must be able to provide evidence of the ability to manage human resource services. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

### **Performance requirements**

This competency is to be assessed using standard and authorized work practices, safety requirements and environmental constraints. Demonstrated evidence is required of the ability to:

- Plan and manage human resource delivery within legislative, organizational and business ethics frameworks
- Communicate effectively with a range of senior personnel
- Identify and arrange training support where appropriate
- Calculate human resource return on investment within the organization.



**0716001046 Conduct moulding and extrusion operations**

**Overview:** This competency standard covers the specific skills and knowledge related to the plastic and rubber parts manufacturing operation on moulding and extrusion machines, material handling, inspection techniques and maintenance of machines and workplace.

Competency Unit	Performance Criteria
<b>CU1. Prepare for moulding and extrusion</b>	<b>P1.</b> Arrange material as per drawing or process sheet. <b>P2.</b> Select the tools and equipment. <b>P3.</b> Set machine as per job specification.
<b>CU2. Conduct pre-operational checks on machine</b>	<b>P1.</b> Inspect all electrical connections. <b>P2.</b> Check all mechanical fitting and joints. <b>P3.</b> Check operation of emergency switches. <b>P4.</b> Check and maintain correct machine lubricant levels. <b>P5.</b> Check chiller temperature. <b>P6.</b> Check function by operate machine manually.
<b>CU3. Prepare moulds (Injection, Compression, blow, rubber injection, PU)</b>	<b>P1.</b> Place the mould on machine (Moulding/Extrusion) <b>P2.</b> Align the mould on machine. <b>P3.</b> Operate machine manually and match the upper and lower mould. <b>P4.</b> Clamp the mould. <b>P5.</b> Install the cooling water lines on mould. <b>P6.</b> Set the parameters. <b>P7.</b> Perform the trial of mould to verify the operation.
<b>CU4. Prepare Die</b>	<b>P1.</b> Place the die on machine with lifting equipment. <b>P2.</b> Align the die on machine. <b>P3.</b> Operate machine manually and match the upper and lower dies. <b>P4.</b> Clamp the die. <b>P5.</b> Set parameters <b>P6.</b> Perform the trial of die to verify the operation.
<b>CU5. Operate injection moulding machine</b>	<b>P1.</b> Set all parameters. <b>P2.</b> Proceed with operation.



	<p><b>P3.</b> Monitor operation to ensure compliance with job requirements.</p>
<p><b>CU6. Operate rubber compression moulding machine</b></p>	<p><b>P1.</b> Perform degassing on mould.</p> <p><b>P2.</b> Set all parameters.</p> <p><b>P3.</b> Proceed with operation.</p> <p><b>P4.</b> Monitor operation to ensure compliance with job requirements.</p>
<p><b>CU7. Operate blow moulding machine</b></p>	<p><b>P1.</b> Set all Parameters.</p> <p><b>P2.</b> Proceed with operation.</p> <p><b>P3.</b> Monitor operation to ensure compliance with job requirements.</p>
<p><b>CU8. Operate rubber injection moulding machine</b></p>	<p><b>P1.</b> Perform degassing on mould.</p> <p><b>P2.</b> Set all parameters.</p> <p><b>P3.</b> Proceed with operation.</p> <p><b>P4.</b> Monitor operation to ensure compliance with job requirements.</p>
<p><b>CU9. Operate Polyurethane moulding machine</b></p>	<p><b>P1.</b> Mix the raw material polyurethane part A (Polyols) in the drum of mixing machine.</p> <p><b>P2.</b> Mix the raw material polyurethane part B (Diisocyanates) in the drum of mixing machine.</p> <p><b>P3.</b> Fill the tank of polyurethane machine part A (Polyols) by using the pump.</p> <p><b>P4.</b> Fill the tank of polyurethane machine part B (Diisocyanates) by using the pump.</p> <p><b>P5.</b> Fasten the machine tank cover to avoid the moisture.</p> <p><b>P6.</b> Circulate the water on machine tank to maintain the required temperature of raw material.</p> <p><b>P7.</b> Set the water temperature according to the weather condition.</p> <p><b>P8.</b> Set all parameters (Ratio A &amp; B).</p> <p><b>P9.</b> Operate the material circulating pump A (Polyols) and B (Diisocyanates) on operating position.</p> <p><b>P10.</b> Fill the de-flashing tank by hand and ensure safety.</p>



	<p><b>P11.</b> Set the die on platform.</p> <p><b>P12.</b> Proceed with operation.</p> <p><b>P13.</b> Monitor operation to ensure compliance with job requirements.</p>
<b>CU10. Operate extrusion machine.</b>	<p><b>P1.</b> Set all parameters.</p> <p><b>P2.</b> Fix the nozzle in extruder according to job material.</p> <p><b>P3.</b> Fill the water tank.</p> <p><b>P4.</b> Set the cutting distance of material as per requirement.</p> <p><b>P5.</b> Proceed with operation.</p> <p><b>P6.</b> Monitor operation to ensure compliance with job requirements.</p>
<b>CU11. Inspect the final product</b>	<p><b>P1.</b> Perform visual inspection of defects.</p> <p><b>P2.</b> Check dimensionally.</p> <p><b>P3.</b> Check by go nogo gauge.</p> <p><b>P4.</b> Complete inspection report.</p>
<b>CU12. Perform workplace Cleaning and maintenance</b>	<p><b>P1.</b> Maintain all check sheets and work instructions on the machine.</p> <p><b>P2.</b> Maintain the tools and equipment.</p> <p><b>P3.</b> Keep tools and equipment at appropriate place.</p> <p><b>P4.</b> Perform cleaning of machine, mould/die and floor.</p> <p><b>P5.</b> Apply anti-rust spray/cleaning agent.</p> <p><b>P6.</b> Perform lubrication.</p> <p><b>P7.</b> Transfer wastage material into the wastage area.</p> <p><b>P8.</b> Return excess material to store.</p>

### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the:

- K1:** Knowledge of define mould installation methods.
- K2:** Knowledge of define different parts of moulding machine
- K3:** Knowledge of define types of plastics/rubber/polyurethane material.
- K4:** Knowledge of explain types of injection moulding moulds.



- K5:** Knowledge of define moulding and extrusion defects.
- K6:** Knowledge of explain different applications of plastics/rubber/polyurethane material.
- K7:** Knowledge of explain rubber compression process.
- K8:** Knowledge of explain rubber injection process.
- K9:** Knowledge of explain plastic injection process.
- K10:** Knowledge of define blow moulding moulds.
- K11:** Knowledge of explain PU process.
- K12:** Knowledge of define the parameter settings.
- K13:** Knowledge of fits and limits system.
- K14:** Knowledge of maintenance of PU machine.

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Perform mould/die clamping on machine.
- Set ratio of material.
- Set parameter.

### Tools and Equipment

The tools and equipment required for this competency standard are given below:

- PPEs
- Plastic injection moulding machine
- Extrusion machine
- Moulds (Injection, Compression, Blow, Rubber Injection, Extrusion and PU)
- Rubber compression moulding machine
- Blow moulding machine
- Rubber injection moulding machine
- Polyurethane moulding machine
- Mixer (for Rubber Compounding)
- Dryer
- Maintenance tools kit
- Air compressor
- Water chiller



- Heater
- Lifter
- Hoist with stand
- Adjustable Spanner
- Pipe Wrench
- Combination Spanner Set
- Socket Set with handle
- Screw Driver Set
- Allen Key Set
- Tool Trolley
- Measurement Tape
- Micrometer
- Vernier Caliper
- Plier Set
- Blower
- Tongue & Groove Plier
- Hammer
- Mallet (Soft Hammer)
- First aid box



**0716001047 Perform Hot Forging Operations**

**Overview:** This competency standard covers the specific skills and knowledge related to the process of hot forging parts manufacturing operation on hot forging and press forging machines, material handling, inspection techniques and maintain of machines and workplace.

Competency Unit	Performance Criteria
<b>CU1</b> <b>Prepare for hot press forging</b>	<b>P1.</b> Arrange material as per drawing or process sheet. <b>P2.</b> Select tools and equipment. <b>P3.</b> Set machine as per job specification.
<b>CU2</b> <b>Conduct pre-operational checks on machine</b>	<b>P1.</b> Inspect all electrical connection. <b>P2.</b> Check all mechanical fitting and joints <b>P3.</b> Check operation of emergency switches. <b>P4.</b> Check air connections. <b>P5.</b> Check the control panel buttons. <b>P6.</b> Check and maintain oil tank lubrication. <b>P7.</b> Check the manual stroke for proper ram working.
<b>CU3</b> <b>Prepare mould/die</b>	<b>P1.</b> Install mould/die with lifting equipment. <b>P2.</b> Set all parameters. <b>P3.</b> Turn on gas burner for pre-heating mould/die. <b>P4.</b> Maintain the idle temperature of mould/die.
<b>CU4</b> <b>Operate machine</b>	<b>P1.</b> Release the mult/blank from induction heater. <b>P2.</b> Adjust mult/blank on mould/die. <b>P3.</b> Proceed with operation. <b>P4.</b> Monitor operation to ensure compliance with job requirements.
<b>CU5</b> <b>Inspect final product</b>	<b>P1.</b> Perform visual inspection of defects. <b>P2.</b> Check dimensionally. <b>P3.</b> Inspect the part for non-filling. <b>P4.</b> Complete the inspection report.
<b>CU6</b> <b>Perform workplace cleaning and maintenance</b>	<b>P1.</b> Maintain all check sheets and work instruction on machine. <b>P2.</b> Perform cleaning of mould, machine and floor. <b>P3.</b> Apply Anti rust spray/cleaning agent.



	<p><b>P4.</b> Perform lubrication on slides and mould/die.</p> <p><b>P5.</b> Maintain tools and equipment.</p> <p><b>P6.</b> Keep tools and equipment at appropriate place.</p> <p><b>P7.</b> Transfer wastage material in to the wastage area.</p> <p><b>P8.</b> Return excess material to store.</p>
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### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the:

- K1:** Knowledge of define mould installation methods.
- K2:** Knowledge of define different parts of forging machine.
- K3:** Knowledge of define types of forging material.
- K4:** Knowledge of define forging defects.
- K5:** Knowledge of define process methods.
- K6:** Knowledge of define parameter settings.

### Critical Evidence(s)

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Perform mould/die setting.
- Perform induction heater setting.
- Perform forging process.
- Identify types of moulds/die.
- Identify defects in final product





### Tools and Equipment required

The tools and equipment required for this competency standard are given below:

- PPEs
- Hot forging Press machine (hydraulic/pneumatic)
- Mould/die set
- Manual toggle
- Mould/die setter on machine
- Mould/die lifting crane
- Gas burner
- Shekels
- Eye bolt
- Tool kit trolley
- Adjustable spanner
- Combination spanner set
- Socket Set with handle
- Screw driver set
- Allen key set
- Measurement tape
- Vernier Caliper
- Pliers set
- Hammer
- Chisel
- First aid box



**0716001048 Perform Metal Die Casting Operations**

**Overview:** This competency standard covers the specific skills and knowledge related to prepare a machine for die casting process, material handling, formulation/ construction, defects & remedies and maintains machine and workplace.

Competency Unit	Performance Criteria
<b>CU1. Prepare for die casting</b>	<b>P1.</b> Arrange material as per drawing or process sheet. <b>P2.</b> Select tools and equipment. <b>P3.</b> Prepare the melting furnace (Crucible). <b>P4.</b> Set machine as per job specification.
<b>CU2. Conduct pre-operational checks on machine</b>	<b>P1.</b> Inspect all electrical connections. <b>P2.</b> Check all mechanical fittings and joints. <b>P3.</b> Check operation of emergency switches. <b>P4.</b> Check plunger. <b>P5.</b> Check cooling lines. <b>P6.</b> Check and maintain proper lubrication. <b>P7.</b> Check air pressure. <b>P8.</b> Check water connection.
<b>CU3. Prepare the casting moulds</b>	<b>P1.</b> Lift mould with lifting equipment. <b>P2.</b> Place the mould between the mould platen. <b>P3.</b> Align mould in the centre of platen. <b>P4.</b> Set cutting part size. <b>P5.</b> Connect hydraulic and water connection. <b>P6.</b> Clamp mould with bolts/ hydraulic clamps. <b>P7.</b> Apply releasing spray/beads.
<b>CU4. Operate machine</b>	<b>P1.</b> Set all parameters. <b>P2.</b> Lift the material with ladle from the holding furnace. <b>P3.</b> Pour the material in the plunger. <b>P4.</b> Proceed with operation. <b>P5.</b> Monitor operation to ensure compliance with job requirements.
<b>CU5. Inspect final product</b>	<b>P1.</b> Perform visual inspection of defects. <b>P2.</b> Check dimensionally.



	<p><b>P3.</b> Check part on checking fixture.</p> <p><b>P4.</b> Complete inspection report.</p>
<p><b>CU6. Perform workplace cleaning and maintenance</b></p>	<p><b>P1.</b> Maintain all check sheets and work instruction on machine.</p> <p><b>P2.</b> Perform Cleaning of die, machine and floor.</p> <p><b>P3.</b> Perform lubrication on slides, tie bar and mould.</p> <p><b>P4.</b> Apply anti rust spray/cleaning agent.</p> <p><b>P5.</b> Maintain the tools and equipment.</p> <p><b>P6.</b> Keep tools and equipments at appropriate place.</p> <p><b>P7.</b> Transfer wastage material into the wastage area.</p> <p><b>P8.</b> Return excess material to store.</p>

### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the:

- K1:** Knowledge of define die casting process.
- K2:** Knowledge of describe die casting material.
- K3:** Knowledge of describe die casting mould.
- K4:** Knowledge of define temperature and melting point.
- K5:** Knowledge of describe types of casting.
- K6:** Knowledge of describe die casting machines.
- K7:** Knowledge of describe die casting applications.
- K8:** Knowledge of define advantages of die casting.
- K9:** Knowledge of define die casting defects.
- K10:** Knowledge of describe measuring instrument.
- K11:** Knowledge of define fit & limit system.



### Critical Evidence(s)

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Demonstrate the mould clamping.
- Perform parameter setting.
- Identify defects in final product.

### Tools and Equipment Required

The tools and equipment required for this competency standard are given below:

- PPEs
- Cold Chamber Die Casting Machine
- Die Casting Mould
- Holding furnace
- Melting furnace (Crucible)
- Eye bolts
- Lifting chains
- Shackles
- Fork lifter
- Hoist
- Different size of plunger
- Wrenches
- Combination Spanner Set
- Allen-Key Set
- Socket Set with Handle
- Pliers Set
- Screw Driver Set
- Brass Hammer
- Micrometer
- Go & NoGo Gauges
- Checking Fixture
- Vernier Caliper
- First aid box



**0714001049 Perform Gear Cutting Operations**

**Overview:** This competency standard covers the specific skills and knowledge related to perform gear hobbing process, material handling, inspection techniques and maintain the machine and workplace.

Competency Unit	Performance Criteria
<b>CU1. Prepare for gear cutting</b>	<b>P1.</b> Arrange material as per drawing or process sheet. <b>P2.</b> Select the tools and equipment. <b>P3.</b> Set machine as per job specification.
<b>CU2. Conduct pre-operational checks on hobbing machine</b>	<b>P1.</b> Inspect all electrical connections. <b>P2.</b> Check all mechanical fitting and joints. <b>P3.</b> Check all emergency switches. <b>P4.</b> Check and maintain correct machine lubricant and coolant levels.
<b>CU3. Select tools</b>	<b>P1.</b> Select the cutter as per gear type and module. <b>P2.</b> Select the clamping device as per job. <b>P3.</b> Select measurement tools.
<b>CU4. Operate machine</b>	<b>P1.</b> Clamp the tool. <b>P2.</b> Clamp the work piece. <b>P3.</b> Set all parameters. <b>P4.</b> Align the tool according to work piece. <b>P5.</b> Proceed with operation. <b>P6.</b> Monitor operation to ensure compliance with job requirements.
<b>CU5. Inspect final product</b>	<b>P1.</b> Perform visual inspection of defects. <b>P2.</b> Check dimensionally. <b>P3.</b> Complete inspection report.
<b>CU6. Perform workplace cleaning and maintenance</b>	<b>P1.</b> Maintain all check sheets and work instructions on machine. <b>P2.</b> Perform cleaning of machine and floor. <b>P3.</b> Apply anti-rust spray/cleaning agent. <b>P4.</b> Perform lubrication.



	<p><b>P5.</b> Maintain tools and equipment.</p> <p><b>P6.</b> Keep tools and equipment at appropriate place.</p> <p><b>P7.</b> Transfer wastage material into the wastage area.</p> <p><b>P8.</b> Return excess material to store.</p>
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### Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the:

- K1:** Knowledge of define tools & equipment.
- K2:** Knowledge of define types of gear.
- K3:** Knowledge of explain gear module.
- K4:** Knowledge of define limits and fits system.
- K5:** Knowledge of define clamping devices and gear cutting tools.
- K6:** Knowledge of explain cutting speed and feed.

### Critical Evidence(s)

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Interpret drawing.
- Identify gear cutting tools.
- Set parameter.
- Set cutting tools.
- Identify defects.



## Tools and Equipment

The tools and equipment required for this competency standard are given below:

- PPEs
- Gear hobbing machine
- Cutting tools
- Clamping devices
- Pliers set
- Screw driver set
- Spacers
- Combination spanner set
- Socket set with Handle
- Vernier caliper
- Micro meter
- Dial indicator with stand
- Profile projector
- Gear tooth pitch gauge
- First aid box

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## Complete List of Tools and Equipment

### List of Machines and Tools

- PPE: (Personal protective equipment):
- Helmet, Goggles, Gloves, Dungaree, Protective Shoes, face masks
- Fire safety equipments
- Fire extinguisher, sand buckets, blankets
- First aid box
- Protective guards (walk way barriers, welding apron) gauges, leather gloves
- Tool kit (Ring spanner, open end spanner, retched handle, hammer, socket set, chisel, mallet, torque wrench, clamp)
- Measuring tools/inspection gauges (Vernier caliper ,micrometer mm, Thread gauge, radius gauge, ring gauge, plug gauge, height gauge, bevel protector, measuring tape, ruler, dial indicator with stand, Profile projector)
- Thread Rolling machine (2 or 3 roller type with 5HP motor)
- Thread gauges different standards
- Different types and size of dies
- Injection moulding machine (min: 150 tons)
- Rubber compression moulding machine (Min: 150 tons with mixture 5 HP motor)
- Vacuum forming machine with heater (Bed size 120x240 mm )
- Mechanical press machine (Min: 40 tons, C-type, with two push buttons hand controlled)
- Press brake
- Repair manual.
- Small socket set
- Screwdriver set
- Shop towel
- Needle nose pliers
- Impact screw driver
- Inspection lamp.
- Hydraulic jack
- Adjustable barrier guard
- Hot forging press machine (Forging Press min : 300 Tons, Trimming Press 300 Tons, Induction heater 200 KW with two push buttons hand controlled)
- Blow moulding machine (Shot weight minimum 700 gm)





- Rubber injection machine (Min: 100 ton)
- High Pressure PU (Poly urethane) machine 50Ltr
- Hydraulic press machine (Min 50 Tons with two push buttons hand control)
- Pneumatic machine with compressor (Min 50 Tons with two push buttons hand control)
- Extrude machine (Single screw extrusion machine, screw size min: 50 mm dia)
- Air compressor 45 KW
- Water chiller 10 tons
- Heater (I type, U type, ceramic)
- Die casting machine (Min 120 tons with crucible type furnace)
- Mixer (for Rubber Compounding)
- Dryer 50 Kg
- Die casting mould
- Holding furnace
- Plunger Tips
- Plunger adopter
- Plunger rod
- Flanged Nuts
- Ladle /Auto Ladle
- Die casting shoot sleeves
- Lubrication Spray Gun
- Allen Bolts 4mm-24mm
- Temperature Gun
- Manifolds
- Tee bolt
- Gear Hobbing machine (Min: 200 mm dia of gear)
- Spot welding Machine (Pedestal type, 25 KVA)
- Seem welding machine (Roller type, 45 KA)
- MIG/TIG welding machine (Multi welding machine 300 A /350A)
- Chipping hammer
- Cross pein hammer
- Wire brush
- Wire cutter
- C-clamp
- Scriber
- Cooled chisel



- Channel lock pliers / Grip pliers
- Canter punch
- CO2 Gas cylinder
- Argon gas cylinder
- Welding gauges
- Sheet gauges
- Bevel protector
- Baby angle grinder
- Hand hacksaw
- Measuring tape
- Tri Square
- Set square
- Sprit level
- Bench Vice
- Chipping hammer
- Lifting equipments (Manual lifter, tool trolley, overhead crane, shackle, I bolt, sling wire, chain, Hoist, Hoist stand)
- Digital clamp meter
- Machine oil (Different grades)
- Grease
- Circuit breakers
- Fuses
- Relays
- Switches
- Pneumatic hoses
- Hydraulic hoses
- Couplers
- Hydraulic joints
- Machine oil (Different grades)
- Rubber sharing machines
- PU mixture
- PU filling pump
- Cooling tower
- White/Black board
- Flap chart board (Different size)



- Geometrical tools
- PC, Multimedia (Latest)/LCD(Smart TV), Internet.
- Telephone and cell phones

### Consumable Items:

The consumable/raw materials required for this trade are given below:

- Roller bearings
- Shutter pulley
- Rib peeling cutting blades
- Upsetting chaser
- Parallel chaser
- Coupler
- Metal band saw machine
- Adjustable coupler
- Taper thread anchor plate
- Parallel thread anchor plate
- Standard coupler
- Raw Material (Aluminum, Mild Steel, Stainless Steel Shafts )
- Lubrication oil
- Hydraulic oil
- Gear oil
- Grease
- Bins
- Gas kits
- Jubilee clip
- Hydraulic seals
- Different forming materials sheets (PP, HIPS, PE, ABS, pin seal ABS, ABS Carbon effect, PETG)
- Heaters (I Type, U Type, Ceramic) according to the machine
- Thermocouples
- Temperature controllers
- Compressor oil
- Clamp set
- Vacuum oil



- Gas kits
- Hydraulic seals
- Pneumatic seals
- O Ring set
- Hydraulic Clamps
- Depoxy
- Pattern paste
- Connectors (PVC, Ceramic, Jacks) according to the machine
- Trimming knife
- Bulbs (For Pin Hole Inspection)
- Safety signs
- Clamp frame Handle
- Toggle clamps
- Control buttons
- Vacuum gauge
- Heater handle
- Heater transit lock
- Heater guard
- Counter balance weights
- Steel band strips
- Ejector pins
- Ladle cup
- Wire mash filters
- Nitrogen degassing unit / powder
- Slap Stick Lubricants
- Thermocouples with guard
- Spray head
- Plunger cleaner
- High temp oil
- Safety signs
- Copper spray
- High temperature
- Aluminum blocks of different grades
- Cleaning beads
- Pressure Gauges



- Hydraulic Gauge
- Hot rolled and Cold rolled Sheets
- CO2 Welding Coil
- Argon Welding Torch
- Argon Welding Filler rod (SKD 61 and SKD 11)
- CO2 Welding torch
- Grinding Disks
- Cutting Disks
- Welding rods different grades according to the job
- Welding holder
- Gas burner
- Gas burner flame
- Methylene chloride
- ISO
- POLYOLE
- PU Head Nozzles
- Plastic resin (PP, HIPS, PE, ABS, pin seal ABS, ABS Carbon effect, PETG, PC, NOYL ,etc)
- Contact cleaner
- Pipe pneumatic different sizes
- Pneumatic nozzle and connector
- Anti-rust spray
- Round bar raw material (MS, low carbon steel, High carbon steel, (aluminum)
- Copper (for Spot welding electrode tip)
- Synthetic Rubber with additives (for injection and Compression Rubber Moulding)
- Mild Steel and Aluminum Shaft in different die meters (for Gear Hobbing)
- Heater Insulation coil
- Gear Cutters
- Thread Rolling Dies
- Releasing spray/ beads
- Damar tape
- Insulating tape
- Teflon tape
- Nylon thread
- Carbon
- Zinc Oxide



- Calcium
- DOP Oil
- Sulfuric Acid
- TMQ
- Wax
- CBS
- TMTR
- Sulphur
- TPG
- MBTS

### List of Stationary

- Organization SOPs
- Equipment Maintenance Manuals
- Log Book
- Handbooks
- Design Books/ Sheets
- Pencils
- Erasers
- Pencil Sharpeners
- Paper Cutter
- Scissors
- Color Pencils
- White chart paper
- Brown Sheets
- White Board Markers (red, blue, green, black)
- Permanent markers(black)
- File covers

