

National Competency Standards for
“Dies and Moulds Technology”
(Machinist)
Level-2



**National Vocational and Technical
Training Commission (NAVTTTC)
Government of Pakistan**

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INTRODUCTION

Dies and mould technology is one of the booming industries of Pakistan. There is an increasing demand of the Dies and mould technologist. Therefore, the skills are required to be inducted in the future generation. If an individual is planning to pursue a career in dies and mould technology, this program will be helpful in targeting various industries including mechanical, electrical, automobile, hydraulics, computers, home appliances, ceramics, household products, plastic (especially furniture, Food packaging, crockery and aerospace sector) etc. If an individual is planning to take up a dies & mould technology course, this course will help him/her weigh their choices better.

Keeping in view of the above the competency based national vocational qualifications have been developed by NAVTTC to train the unskilled human resource on the technical and entrepreneurial skills to be employed / self-employed and inevitably set sustainable impact on their lives by increase in their livelihood income.

Training Course is based on competency standards which are defined by the industry and the traditional role of a trainer changes and shifts towards the facilitation of training. A trainer encourages and assists trainees to learn for themselves. Trainees are likely to work in groups (pairs) and all doing something different. Some are doing practical tasks in the workshop, some writing, some not even in the classroom or workshop but in another part of the building using specialist equipment, working on computers doing research on the Internet or the library. As trainees learn at different pace they might well be at different stages in their learning, thus learning must be tailored to suit individual needs. The following facilitation methods (teaching strategies) are generally employed

PURPOSE OF THE QUALIFICATION

The purpose of the training is to provide skilled manpower to improve the existing dies & mould industry. This will improve the quality in different industrial sectors by Die & Mould associate engineers and the availability of skilled professionals will bring socio-economic benefits to all stakeholders. The specific objectives of developing these qualifications are as under:

- Improve the professional competence of die & mould associate engineer
- Capacitate the local community and trainers in modern CBT training, methodologies and processes as envisaged under NVQF
- Provide flexible pathways and progressions in the Dies & mould sector.
- Enable the trainees to perform their duties in efficient manner
- Establish a standardized and sustainable system of training die & mould associate engineer in Pakistan

DATE OF VALIDATION

This national vocational qualification (NVQ) has been validated by the Qualifications Development Committee (QDC) in 25th to 29th Jan, 2021 and will remain in currency until 20th Jan 2031.

*Shall be reviewed after 3 years

CODE OF QUALIFICATION

Qualification Title	Code
National Vocational Certificate Level 2, in (Dies and Mould Technology) "Machinist"	

ENTRY REQUIREMENTS

- For National Vocational Certificate Level-2 in "Machinist" (Dies and Mould Technology), the entry requirement is Middle or Equivalent.

QUALIFICATIONS DEVELOPMENT COMMITTEE

The following members participated in the qualification development of these qualifications:

Sr. No.	Name	Designation	Organization	Email	Contact No.
1.	Mehwish Aisha Ahsan	DACUM Facilitator	CBT Expert/Certified Assessor	mehwish.aisha.ahsan@gmail.com	03015050713
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QUALIFICATIONS REVIEW AND VALIDATION COMMITTEE

The following members participated in the qualification development of these qualifications:

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13.	Mr. Fayaz Bashir	CEO	Dies and Moulds (Business)	(Absent)	03534502103
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SUMMARY OF COMPETENCY STANDARDS

Machinist in Dies and Mould Technology 6 Months								
Code	Competency Standards	Level	Theory		Practical		Total	
			C	Hr.	C	Hr.	C	Hr.
1.	A-Maintain Personal Health, hygiene and safety	2	2	20	1	10	3	30
2.	B-Perform basic communication skills	2	2	20	1	10	3	30
3.	C-Perform Basic Computer operations	2	2	20	3	30	5	50
4.	D-Perform Calculations and Estimation for Mechanical Work	2	1	10	4	40	5	50
5.	E-Carryout General Maintenance	2	1	10	4	40	5	50
6.	F-Perform Bench Works	2	1.1	11	3.9	39	5	50
7.	G-Perform Shaper and Planar Operations	2	1.1	11	3.9	39	5	50
8.	H-Perform Basic Grinding Operations	2	1.1	11	3.9	39	5	50
9.	I-Perform Lathe Operations	2	1.7	17	6.3	63	8	80
10.	J-Perform Basic Milling Operations	2	1.7	17	6.3	63	8	80
11.	K-Perform Engineering Drawing	2	1.7	17	6.3	63	8	80
Total			16.4	164	43.6	436	60	600

Competency Standard A: 101200829 Maintain Personal Health, Hygiene and Safety

Overview: This Competency Standard identifies the competencies required to protect/apply occupational Safety, Health and Environment at workplace according to the industry's approved guidelines, procedures and interpret environmental rules/regulations. Trainee will be expected to identify and use Personal Protective Equipment (PPE) according to the work place requirements. The underpinning knowledge regarding Observe Occupational Safety and Health (OSH) will be sufficient to provide the basis for the job at workplace.

Competency Units	Performance Criteria
CU1. Identify Hazards at Workplace	<p>You must be able to:</p> <p>P1: Interpret work processes and procedures correctly to identify risk to Health, hygiene and safety at workplace</p> <p>P2: Recognize processes, tools, equipment and consumable materials that have the potential to cause harm</p> <p>P3: Prepare Report of the identified risk to Health, hygiene and safety</p>
CU2. Apply Personal Protective and Safety Equipment (PPE)	<p>You must be able to:</p> <p>P1: Select personal protective equipment in terms of type and quantity according to work orders.</p> <p>P2: Wear, adjust, and maintain personal protective equipment to ensure correct fit and optimum protection in compliance with company procedures.</p> <p>P3: Ensure personal protective equipment is cleaned and stored in proper place.</p>
CU3. Observe Occupational Safety and Health (OSH)	<p>You must be able to:</p> <p>P1: Maintain cleanliness and hygiene as per organizational policy</p> <p>P2: Comply with Health, hygiene and safety precautions before starting work</p> <p>P3: Follow organizational Health, hygiene and safety guidelines during work</p> <p>P4: Deal with resolvable problems according to prescribed procedures</p> <p>P5: Report unresolved problems to immediate supervisor</p> <p>P6: Place the tools equipment etc at their prescribed place after completion of work</p>
CU4. Dispose of hazardous Waste/materials	<p>You must be able to:</p> <p>P1: Identify hazardous waste/ drug materials which needs to be disposed off</p>

	<p>P2: Collect hazardous or non-hazardous waste carefully from the designated area as per approved procedure</p> <p>P3: Use proper disposal hazardous containers for dispose-off hazardous waste as per procedure</p> <p>P4: Take necessary precautions like putting masks and gloves while disposing hazardous waste/ materials as per standard operating procedure</p>
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Knowledge & Understanding

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

- Safety rules and regulations of organization
- List of Personal protection and safety Equipment
- Meaning of Safety signs and symbols
- Safety related Standard Operating Procedure/guidelines
- Waste disposal SOP
- Best practices relating to clean work environment
- Best practices relating to safe work environment

Critical Evidence(s) Required

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

- Explain Health, hygiene and safety procedures/precautions
- Interpret Health, hygiene and safety signs and symbols
- Describe Techniques and methods to identify the risks of hazards at workplace
- Describe Techniques and methods to identify the risks of hazards at workplace
- Safety reporting procedures and documentation
- Use of Personal Protective Equipment
- First Aid treatment methods
- Identify possible hazards at workplace

Competency Standard B: 073200592 Perform Basic Communication Skills

Overview: This unit describes the skills and knowledge required to assist in the development of communication competence by providing information regarding different forms of communication and their appropriate use.

Competency Units	Performance Criteria
CU1. Work in Team	<p><i>You must be able to:</i></p> <p>P1. Treat team members with respect and maintain positive relationships to achieve common organizational goals</p> <p>P2. Listen to instructions carefully & comply with those instructions</p> <p>P3. Provide work related information to team members and identify interrelated work activities to avoid confusion</p> <p>P4. Adopt communication skills, appropriate to work activities and organizational/medical procedures</p> <p>P5. Identify problems and resolve them through discussion and mutual agreement</p>
CU2. Follow Supervisor's instructions	<p><i>You must be able to:</i></p> <p>P1. Carefully listen and note down the instructions of Supervisor</p> <p>P2. Carry out the instructions of the supervisor</p> <p>P3. Report to the supervisor as per organizational SOPs</p>
CU3. Demonstrate Basic IT Skills	<p><i>You must be able to:</i></p> <p>P1. Create folders and files and learn major commands of operating system/windows</p> <p>P2. Type text and use major commands such as printing, editing, creating tables and graphs etc</p> <p>P3. Generate office reports using appropriate computer applications</p> <p>P4. Use internet for sending/receiving emails and connecting through social or other media</p>

Knowledge & 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:

- Reporting techniques
- importance and application of Work ethics
- Explain the importance of good communication skills (7Cs of effective communication)
- Explain the importance of Basic computer skills
- Workplace dress code
- Describe the role of team members and functionality of the teams
- Describe team dynamics and stages of team development
- Describe Conflict resolution strategies
- Prepare relevant documents and reports

Critical Evidence(s) Required

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

- Effective communication with colleagues, clients and supervisors
- Office reports
- Computer literacy certificate

Competency Standard C: Perform Basic Computer Operations

Overview: This Competency Standard identifies the competencies required to Perform Basic Computer hardware, software, applications and troubleshooting. Trainee will be able to apply acquired skills in operating a computer system and software such as MS Word, MS PowerPoint, MS Excel, MS Visio as well as installation and troubleshooting of operating system and software. The underpinning knowledge regarding basic computer operations will be sufficient to provide the basis for trainee's work.

Competency Units	Performance Criteria
CU1. Configure Computer System	<p><i>You must be able to:</i></p> <p>P1. Connect computer components and peripherals as per requirement</p> <p>P2. Install drivers and applications according to the software specification</p> <p>P3. Troubleshoot applications to trace and fix faults in a specific application to bring it in a running condition</p>
CU2. Prepare a MS word document	<p><i>You must be able to:</i></p> <p>P4. Compose a document as per the requirement.</p> <p>P5. Format Word Document according to given requirements.</p> <p>P6. Print Word Documents according to requirements.</p>
CU3. Prepare Spreadsheet in MS Excel	<p><i>You must be able to:</i></p> <p>P1. Develop a worksheet as per given data.</p> <p>P2. Format the worksheet according to given criteria.</p> <p>P3. Apply Formulas according to the requirement.</p> <p>P4. Generate Charts/Graphs according to the given data.</p> <p>P5. Print Worksheet according to requirements.</p>

CU4. Prepare a presentation in MS Power Point	<p><i>You must be able to:</i></p> <p>P1. Insert Slides with different Layouts according to requirements of presentation.</p> <p>P2. Insert text, tables, images, etc. according to the requirement.</p> <p>P3. Apply a set of effects to animate the slide according to requirement.</p> <p>P4. Apply Slide Transitions on Slides according to requirement.</p> <p>P5. Apply Sound Effects on Objects/text/images according to requirement.</p> <p>P6. Present a presentation according to 7Cs of communication.</p>
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Knowledge & Understanding

The trainee 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:

- Describe Operating systems
- Describe Hardware and Software
- Define Troubleshooting
- Explain Internet and E-mailing
- Define Hyperlink and referencing
- Describe Printing
- Define Formulas
- Explain Short Keys
- Describe WPM (Word Per Minute)

Critical Evidence(s) Required

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

- Install MS Office Application correctly
- Prepare a formatted document using MS Word
- Enter data into the respective columns and rows as per given instructions
- Set page layouts and margins
- Apply any slide transition on entire presentation.

Competency Standard D: Perform Calculations and Estimation for Mechanical Work 071500500

Overview: This competency standard deal with learning the competencies needed to Calculations and Estimation for Mechanical Work. That includes perform the estimation of materials. It will also allow you to learn costing for the work. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
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CU1. Perform Estimation of Materials	<p><i>You must be able to:</i></p> <p>P1. Develop Basic Mechanical Drawing</p> <p>P2. Identify requirements of the material(s) for the work in accordance with the job specifications and drawing</p> <p>P3. Confirm the requirement of the materials from the client or supervisor for accurate estimation</p> <p>P4. Quantify the material as per drawing</p> <p>P5. Use required methods for the calculation of cost of material and accessories keeping in view the current market prices</p> <p>P6. Present the cost estimates to the client or supervisor for approval</p> <p>P7. Make necessary adjustments in estimates, where required</p>
CU2. Prepare Costing for the Work	<p><i>You must be able to:</i></p> <p>P1. Calculate man-hours and machine-hours for work in accordance with the job requirements</p> <p>P2. Prepare labour cost for the work using appropriate procedures</p>

Knowledge & 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:

- Basic mechanical terminologies including RPM, cutting speed, feed etc
- Use of measuring and marking tools
- Mathematical calculations of the machines
- Basic mathematical formulas & numerical solving skills
- Interpretation of layout plans/diagrams, service manuals and manufacturer specifications, technical sketches, graphic symbols etc.
- Prepare 2D drawing using manual techniques
- Common Types of materials used in Machinist work
- Method of calculating labour costs/overheads/profit margin etc.
- Norms in interacting and negotiating with customers/clients
- Norms and standard formats of preparing estimates
- Record keeping and reporting

Critical Evidence(s) Required

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

- Prepare a 2D drawing of a job including specifications

Competency Standard E: Carryout General Maintenance 071500502

Overview: This competency standard deal with learning the competencies needed to Carryout General Maintenance. That includes carryout General Maintenance, Preventive Maintenance and Maintenance of Tooling according to instructions. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Perform General Housekeeping & Maintenance	<p>You must be able to:</p> <p>P1. Apply appropriate methods and techniques for cleanliness and maintenance of machines & tools</p> <p>P2. Clean and maintain all workplace tools & machines as per housekeeping checklists or given instructions</p> <p>P3. Prepare checklist for daily cleanliness of the workplace</p> <p>P4. Respond appropriately to safety hazards on all bench-work tools and machines</p> <p>P5. Place all the tools & material in proper place to ensure safe work</p> <p>P6. Prepare specific guidelines and checklists to conduct maintenance and housekeeping of machines & tools</p>
CU2. Perform Preventive Maintenance	<p>You must be able to:</p> <p>P1. Read and interpret maintenance schedule carefully</p> <p>P2. Prepare oiling and greasing chart (daily, weekly as per machine requirement)</p> <p>P3. Prepare machine history record - date of installation, condition, oiling and maintenance</p> <p>P4. Inspect and assess the general condition of an assigned machine on regular basis</p> <p>P5. Observe problems and carry out routine maintenance as per given instructions and schedules</p> <p>P6. Identify faulty/damaged/ worn out parts and take appropriate steps to replace them</p> <p>P7. Report faults and problems of the machines, if not controllable, to the person concerned</p>
CU3. Perform Maintenance of Tooling	<p>You must be able to:</p> <p>P1. Clean and maintain all bench-work tools and machines as per housekeeping checklists or instructions provided</p> <p>P2. Prepare checklist for daily cleanliness of the workplace</p> <p>P3. Respond appropriately to safety hazards on all bench-work tools & machines</p> <p>P4. Identify all the tools and material in proper place to ensure safe work</p> <p>P5. Adopt methods and techniques for cleanliness and maintenance of tools</p>

Knowledge & 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:

- Guidelines and checklists to conduct maintenance and housekeeping of machines & tools
- Importance of daily cleanliness of workplace and lubrication of the machine as per given checklist of oiling

- Machine operations
- Importance of storing tools and material in specific place
- Oiling, greasing and function of machine
- Faulty/damaged/ worn out parts
- Importance of Record keeping
- Routine maintenance problems and their solution
- Report writing

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

- Clean and maintain all bench-work tools and machines as per housekeeping checklists or instructions given
- Interpret guidelines and checklists of conducting maintenance and housekeeping of machines and tools

Competency Standard F: Perform Bench Works

Overview: This competency standard deal with learning the competencies needed to Perform Bench Works. That includes Carry out Sawing, sawing, drilling, reaming, tapping and counter sinking according to instructions. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Carry out Sawing	<p><i>You must be able to:</i></p> <p>P1. Select appropriate blade according to the material and set in hacksaw frame</p> <p>P2. Mark layout of job as per drawing using appropriate marking tool</p> <p>P3. Perform clamping of the work piece according to the instructions</p> <p>P4. Perform sawing according to the instructions</p> <p>P5. Check quality of the component at suitable intervals.</p> <p>P6. Verify the final job with the given drawing</p>
CU2. Carry out Filing	<p><i>You must be able to:</i></p> <p>P1. Select appropriate file type according to the material & profile</p> <p>P2. Select appropriate marking tool and mark layout of job as per drawing</p> <p>P3. Select appropriate clamping device and clamp the work piece</p> <p>P4. Perform filing as per standard procedures</p> <p>P5. Check quality of the component at suitable intervals.</p> <p>P6. Verify the final job with the given drawing</p>

CU3. Carry out Drilling	<p><i>You must be able to:</i></p> <p>P1. Select appropriate tool & clamping device according to the job requirement.</p> <p>P2. Manage the marking tool and measuring instruments as per job requirement.</p> <p>P3. Clamp the work piece as per job requirement.</p> <p>P4. Set the machine RPM according to the drill size and work piece material</p> <p>P5. Perform drilling as per standard procedures</p> <p>P6. Perform post drilling operations</p> <p>P7. Check quality of the component at suitable intervals.</p> <p>P8. Verify the final job with the given drawing</p>
CU4. Carry out Reaming	<p><i>You must be able to:</i></p> <p>P1. Select appropriate reamer according to the job specification</p> <p>P2. Select appropriate marking tool and mark layout of job as per drawing</p> <p>P3. Select appropriate clamping device and clamp the work piece</p> <p>P4. Perform drilling to produce hole according to the size of reamer</p> <p>P5. Perform reaming as per job specification</p> <p>P6. Verify the final job with given drawing</p>
CU5. Carry out Tapping	<p><i>You must be able to:</i></p> <p>P1. Select appropriate tap according to the job specification</p> <p>P2. Select appropriate marking tool and mark layout of job as per drawing</p> <p>P3. Select appropriate clamping device and clamp the work piece</p> <p>P4. Perform drilling to produce hole according to tap size</p> <p>P5. Perform tapping as per job specification</p> <p>P6. Verify the final job with given drawing</p>
CU6. Carry out Counter Sinking	<p><i>You must be able to:</i></p> <p>P1. Select appropriate counter sinking tool according to the drawing</p> <p>P2. Select appropriate marking tool and mark layout of job as per drawing</p> <p>P3. Select appropriate clamping device and clamp the work piece</p> <p>P4. Perform drilling operation as per drawing</p> <p>P5. Set the machine RPM according to the counter sink size and work piece material</p> <p>P6. Perform counter sinking as per standard procedures</p> <p>P7. Verify the final job with the given drawing</p>

Knowledge & 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:

- Basic engineering drawings
- Types & application of clamping devices
- Types and uses of basic measuring instruments required during different operations
- Types and uses of layout tools
- Different types of hacksaw blades and its use
- File types and their uses
- Types and application of reamers
- Types of counter boring & counter sinking tools
- Types of polishing aid
- Methods of taping
- Types & properties of material
- Types of drilling machine and its uses.
- Types of drilling tools
- Methods to calculate & set RPM of machine

Critical Evidence(s) Required

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

- Utilization of tools (measuring, marking & cutting) equipment and their working method
- Produce a component containing the following operations marking, sawing & filing
- Produce a component containing the following operations with drilling, threading & reaming

Competency Standard G: Perform Shaper and Planar Operations

Overview: This competency standard deal with learning the competencies needed to Perform Shaper and Planar Operations. That includes prepare shaper and planar machine for operation, simple shaper operations, angular shaping operation and planar operation according to instructions. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Prepare Shaper Machine for Operation	<p><i>You must be able to:</i></p> <p>P1. Switch on the machine</p> <p>P2. Check oil levels</p> <p>P3. Run machine warm-up cycle</p> <p>P4. Select appropriate tool & clamping device according to the job requirement.</p> <p>P5. Manage the measuring instruments as per job requirement.</p>
CU2. Set tool and job for Shaper Machine for	<p><i>You must be able to:</i></p>

Operation	<p>P6. Clamp the material of work-piece and tool into its holding devices as per standard practice.</p> <p>P7. Maintain safe distance between surface of work-piece and tooltip as per prescribed method.</p> <p>P8. Adjust the ram placement and stroke length according to the length of job.</p> <p>P9. Adjust the parameters of shaping (speed and feed) from control unit as per prescribed method.</p> <p>P10. Start shaping operation by locating the initial touching point and adjust the depth of cut as per SOPs.</p>
CU3. Perform simple Shaping Operation (Square Job)	<p>You must be able to:</p> <p>P1. Perform the shaping operation at top surface of workpiece to get flatness as per initial requirements</p> <p>P2. Re-clamp the work-piece by rotating to next surface as per prescribed method</p> <p>P3. Shape entire work-piece by following the above stated method for next surfaces to get square shaped workpiece according to drawing</p> <p>P4. Check quality of the component at suitable intervals.</p> <p>P5. Shut down the machine at safe position after finishing the work.</p>
CU4. Perform Angular Shaping Operations	<p>You must be able to:</p> <p>P1. Mark work-piece according to the drawing</p> <p>P2. Ensure proper clamping of the work-piece and the tool according to standard practice</p> <p>P3. Set and align the sliding degree of head according to required angle</p> <p>P4. Start the angular shaping operation to get required angle as per marked lines of layout.</p> <p>P5. Shape entire work-piece to get angle and sizes of work-piece according to the drawing</p> <p>P6. Check quality of the component at suitable intervals.</p> <p>P7. Shut down the machine at safe position after finishing the work.</p>
CU5. Prepare planar machine for operation	<p>You must be able to:</p> <p>P1. Switch on the machine</p> <p>P2. Check oil levels</p> <p>P3. Run machine warm-up cycle</p> <p>P4. Select appropriate tool & clamping device according to the job requirement.</p> <p>P5. Manage the measuring instruments as per job requirement.</p>
CU6. Set tool and Job for Planar Machine Operation	<p>You must be able to:</p> <p>P1. Clamp the material of work-piece and tool into its holding devices as per standard practice.</p> <p>P2. Maintain safe distance between surface of work-piece and tooltip as per prescribed method.</p> <p>P3. Adjust the platen stroke length according to the length of job.</p>

	<p>P4. Adjust the parameters of planer (speed and feed) from control unit as per prescribed method.</p> <p>P5. Start planer operation by locating the initial touching point and adjust the depth of cut as per SOPs.</p>
CU7. Perform Planar Operation	<p>You must be able to:</p> <p>P1. Perform the planer operation at top surface of workpiece to get flatness as per initial requirements.</p> <p>P2. Re-clamp the work-piece by rotating to next surface as per prescribed method.</p> <p>P3. Complete entire work-piece by following the above stated method for next surfaces to get required shape and size of workpiece according to drawing</p> <p>P4. Check quality of the component at suitable intervals.</p> <p>P5. Shut down the machine at safe position after finishing the work.</p>

Knowledge & 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:

- Basic engineering drawings
- Shaper/ Planar cutting tools and holding devices
- Types and uses of basic measuring instruments required during shaper/planar operations
- Types and uses of layout tools
- Types of shaping machines and their working procedure
- Types of planar machines and their working procedure
- Ram and stroke settings
- Mechanical Properties and strength of materials
- Feed and speed settings

Critical Evidence(s) Required

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

- Prepare a component containing the following shaper/planar operations with marking:
 - Setting of machine tool and cutting parameters
 - Square job as prescribed method
 - Angular cutting of job as per requirement

Competency Standard H: Perform Basic Grinding Operations

Overview: This competency standard deal with learning the competencies needed to perform basic grinding operations. That includes hand grinding, single point tool grinding on pedestal grinder, mounting and dressing of grinding wheel on surface grinding machine. You can perform surface grinding. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Carry out Hand Grinding	<p><i>You must be able to:</i></p> <p>P1. Select appropriate hand grinder & grinding wheel / disk as per job specifications</p> <p>P2. Mount the grinding wheel / disk as per standard procedure</p> <p>P3. Perform grinding as per standard procedures</p>
CU2. Perform single point Tool Grinding on Pedestal Grinder	<p><i>You must be able to:</i></p> <p>P1. Perform tool grinding operation by holding the tool firmly against the rotating wheel by placing it on the tool rest.</p> <p>P2. Dip tool in coolant at intervals to avoid over heating of the job.</p> <p>P3. Adopt technique and methods as per requirements of tool geometry.</p> <p>P4. Check quality of the tool at suitable intervals.</p> <p>P5. Shut down the grinder after finishing the work.</p>
CU3. Perform Mounting and Dressing of Grinding Wheel on surface Grinding machine	<p><i>You must be able to:</i></p> <p>P1. Select appropriate grinding wheel according to the work piece material.</p> <p>P2. Mount the grinding wheel as per standard procedure</p> <p>P3. Dress the grinding wheel as per standard procedure</p> <p>P4. Shut down the machine after completion the task.</p>
CU4. Perform Surface Grinding	<p><i>You must be able to:</i></p> <p>P1. Select appropriate tool & clamping device according to the job requirement.</p> <p>P2. Manage the measuring instruments as per job requirement.</p> <p>P3. Switch on the machine and check coolant levels</p> <p>P4. Run machine warm-up cycle</p> <p>P5. Clamp the work piece as per standard procedure</p> <p>P6. Set travel length of machine table as per workpiece</p> <p>P7. Check the grinding machine safety covers before starting the process</p>

	<p>P8. Maintain safe distance between work piece & grinding wheel</p> <p>P9. Apply coolant on grinding surface</p> <p>P10. Perform grinding as per standard procedure.</p> <p>P11. Clean & deburr the workpiece</p> <p>P12. Verify dimensional and geometrical accuracy at suitable intervals.</p> <p>P13. Shut down the machine in safe position after finishing the work.</p>
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Knowledge & 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:

- Basic engineering drawings
- Types and uses of measuring instruments required during grinding operations
- Types of hand grinding and surface grinding machines
- Grinding Machine Operations
- Specification of grinding wheels & their application
- Dressing procedure of grinding wheel
- Defects of grinding wheel
- Coolant & procedure of application
- Calculating the RPM of grinding wheel according to the job requirement

Critical Evidence(s) Required

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

- Perform hand grinding
- Perform Single point tool grinding
- Perform surface grinding
- Must be able to maintain parallelism and perpendicularly (Where applicable)

Competency Standard I: Perform Lathe Operations

Overview: This competency standard deal with learning the competencies needed to perform lathe operations. That includes preparing a lathe machine and performs facing, turning, thread cutting, parting, drilling/boring and knurling according to instructions. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Prepare a Lathe machine for operation	<p><i>You must be able to:</i></p> <p>P1. Switch on the machine</p> <p>P2. Check oil levels</p>

	<p>P3.Run machine warm-up cycle</p> <p>P4.Select appropriate tool & clamping device according to the job requirement.</p> <p>P5. Manage the measuring instruments as per job requirement.</p>
CU2. Perform Facing	<p><i>You must be able to:</i></p> <p>P1.Clamping and centring the work piece as per SOPs</p> <p>P2.Ensure final clamping as per requirement.</p> <p>P3.Clamp the tool in tool post & set in required angle</p> <p>P3.Set machine parameter as per job specifications</p> <p>P4.Centring the work piece as per SOPs.</p> <p>P5.Ensure final clamping as per requirement.</p> <p>P6.Start facing operation by initial touching and adjust the depth of cut as per SOPs.</p> <p>P7.Carry out facing operation as per standard procedure</p> <p>P8.Check quality of the component at suitable intervals.</p> <p>P9.Shut down the machine at safe position after finishing the work.</p>
CU3. Perform Turning	<p><i>You must be able to:</i></p> <p>P1.Clamp the tool in tool post & set in required angle</p> <p>P2.Set machine parameter as per job specifications</p> <p>P3.Centring the work piece as per SOPs.</p> <p>P4.Ensure final clamping as per requirement.</p> <p>P5.Start turning operation by initial touching and adjust the depth of cut as per SOPs.</p> <p>P6.Carry out turning operation as per drawing.</p> <p>P7.Check quality of the component at suitable intervals.</p> <p>P8.Shut down the machine at safe position after finishing the work.</p>
CU4. Perform Thread Cutting	<p><i>You must be able to:</i></p> <p>P1.Clamping and centring the work piece as per SOPs</p> <p>P2.Ensure final clamping as per requirement.</p> <p>P3.Clamp and set the tool in tool post</p> <p>P4.Set machine gear drive mechanism and other parameters as per job specifications</p> <p>P5.Centring the work piece as per SOPs.</p> <p>P4.Ensure final clamping as per requirement.</p> <p>P6.Engage half nut lever at specific point on thread dial.</p> <p>P7.Start thread cutting operation by initial touching and adjust the depth of cut micro-meter at zero point.</p> <p>P8.Disengage half nut lever at the end of threading length.</p> <p>P9.Move back the cross slides to maintain appropriate clearance distance between tool and job.</p> <p>P10. Move back the carriage before starting point of thread.</p> <p>P11. Set the next depth of cut and repeat threading cycle up to the completion of thread according to required depth.</p> <p>P12. Check quality of the component at suitable intervals.</p> <p>P13. Shut down the machine at safe position after finishing the work.</p>

CU5. Perform Parting	<p>You must be able to:</p> <p>P1. Clamping and centring the work piece as per SOPs</p> <p>P2. Ensure final clamping as per requirement.</p> <p>P3. Clamp & set the tool in tool post.</p> <p>P4. Set machine parameter as per job specifications</p> <p>P5. Centring the work piece as per SOPs.</p> <p>P6. Ensure final clamping as per requirement.</p> <p>P7. Carry out parting operation as per standard procedure</p> <p>P8. Check quality of the component at suitable intervals.</p> <p>P9. Shut down the machine at safe position after finishing the work.</p>
CU6. Perform Drilling/Boring	<p>You must be able to:</p> <p>P1. Clamping and centring the work piece as per SOPs</p> <p>P2. Ensure final clamping as per requirement.</p> <p>P3. Clamp & set the tool in tail stock.</p> <p>P4. Set machine parameter as per job specifications.</p> <p>P5. Perform drilling to produce appropriate hole size for boring as per SOPs.</p> <p>P6. Clamp the boring tool in the tool post.</p> <p>P7. Carry out Boring operation as per standard procedure</p> <p>P8. Check quality of the component at suitable intervals.</p> <p>P9. Shut down the machine at safe position after finishing the work.</p>
CU7. Perform Knurling	<p>You must be able to:</p> <p>P1. Clamping and centring the work piece as per SOPs</p> <p>P2. Ensure final clamping as per requirement.</p> <p>P3. Clamping and centring the work piece as per SOPs</p> <p>P4. Ensure final clamping as per requirement.</p> <p>P5. Set machine parameter as per job specifications</p> <p>P6. Clamp the knurling tool in tool post.</p> <p>P7. Carry out machining operation for Knurling as per standard procedure</p> <p>P8. Check quality of the component at suitable intervals.</p> <p>P9. Shut down the machine at safe position after finishing the work.</p>

Knowledge & 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:

- Basic engineering drawings
- Types and uses of measuring instruments required during lathe operations
- Types of lathe machines & their applications
- Construction and working of lathe machine.
- Different types of attachment used in lathe machines
- Clamping devices & procedures
- Setting machine parameters
- Types of knurling & knurling tools
- Types of drilling /boring
- Types of turning
- Types of threads, relevant tools & its nomenclature

- Inspection tools & techniques
- Types of work piece material & cutting tool
- Sequence of operations to achieve the job requirements
- Tool types and tool geometry

Critical Evidence(s) Required

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

- Perform Facing, Turning, Thread cutting & boring in a metal workpiece according to given drawing

Competency Standard J: Perform Basic Milling Operations

Overview: This competency standard deal with learning the competencies needed to perform basic milling operations. That includes setting a milling machine for a job, work piece setting, prepare the job and inspect the job according to instructions. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Prepare Milling machine for job	<p><i>You must be able to:</i></p> <p>P1. Select appropriate tool & clamping device according to the job requirement.</p> <p>P2. Manage the measuring instruments as per job requirement.</p> <p>P3. Mount the cutter as per standard procedure</p> <p>P4. Set machine parameters according to the job requirement</p> <p>P5. Arrange cutting fluid as per job requirement</p>
CU2. Perform workpiece and tool setting for milling operation	<p><i>You must be able to:</i></p> <p>P1. Verify the dimension of material according to the drawing.</p> <p>P2. Identify appropriate clamping device and check its alignment on machine table</p> <p>P3. Clamp the workpiece as per requirement</p> <p>P4. Dial the work piece & ensure final clamping</p>
CU3. Prepare a job by performing basic Milling Operations	<p><i>You must be able to:</i></p> <p>P1. Perform Face milling as per given instructions</p> <p>P2. Perform Side milling as per given instructions</p> <p>P3. Perform Slot milling as per given instructions</p> <p>P4. Perform Drilling as per given instructions</p> <p>P5. Perform Counter boring as per given instructions</p> <p>P6. Check quality of the component at suitable intervals.</p> <p>P7. Shut down the machine at safe position after finishing the work.</p>

CU4. Inspect the job as per drawing	<p>You must be able to:</p> <p>P1. Perform cleaning/deburring of the job using appropriate tool</p> <p>P2. Final inspection of job according to drawing</p>
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Knowledge & 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:

- Basic engineering drawings
- Types and uses of measuring instruments required during milling operations
- Types of Milling machines & their usage
- Parts of milling machine
- Different types of attachment used on milling machine
- Types and applications of clamping devices for milling machine
- Machine parameter settings
- Sequence of operations to achieve the job requirements
- Types of milling cutters

Critical Evidence(s) Required

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

- Perform Face milling as per given instructions
- Perform Side milling as per given instructions
- Perform Slot milling as per given instructions
- Perform Drilling as per given instructions
- Perform Counter boring as per given instructions
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Competency Standard K: Perform Basic Engineering Drawing

Overview: This competency standard deal with learning the competencies needed to perform basic engineering drawing. That includes lettering/lines, different designs using geometrical shapes. It will also allow you to learn orthographic views, dimensioning and drawing symbols, developmental drawing and drawing of fasteners. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Explore the Lettering and Lines	<p>You must be able to:</p> <p>P1. Draw different types of lettering</p> <p>P2. Draw different types of lines</p>

CU2. Create a Design Using Different Geometrical Shapes	<p>You must be able to:</p> <p>P1. Draw different shapes through lines including:</p> <ul style="list-style-type: none"> • Circle • Triangle • Square • Rectangle • Curves <p>P2. Create a design using different shapes</p>
CU3. Explore Orthographic views of simple shapes	<p>You must be able to:</p> <p>P1. Draw first angle projection</p> <p>P2. Draw third angle projection</p> <p>P3. Draw missing views</p> <p>P4. Draw different section views</p>
CU4. Explore types of dimensioning and drawing symbols	<p>You must be able to:</p> <p>P1. Draw different types of dimensions.</p> <p>P2. Draw different drawing symbols.</p> <p>P3. Draw geometrical tolerance</p>
CU5. Draw drawing of fasteners	<p>You must be able to:</p> <p>P1. Draw different types of screw threads</p> <p>P2. Draw multi view of nut and bolt</p>
CU6. Explore Assembly and detailed drawings	<p>You must be able to:</p> <p>P1. Draw detailed drawings of different parts</p> <p>P2. Draw assembly drawings</p>

Knowledge & 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:

- Types of orthographic views
- Types of dimensioning and drawing symbols
- Types of fasteners
- Assembly drawings
- Types of development drawings
- Different types of drawing pencils (Clutch pencil Mechanical pencils, etc.)
- Different types of technical pens
- Different types of rulers
- Different drawing sheets (scholar sheet, chart paper, Canson Sheet, etc.)

Critical Evidence(s) Required

The candidate needs to produce any or all of the following documents/evidences:

1. Portfolio
2. Create a design using different geometrical shapes.
3. Draw first and third angle projection with symbols
4. Draw different assembly drawings with dimensioning and drawing symbols

COMPLETE LIST OF TOOLS AND EQUIPMENT

SR#	Tools & Equipment	Quantity
1.	Computer Systems	26
2.	Scanner	1
3.	Printer	1
4.	Hardness Testers	1
5.	Universal testing machine (UTM)	1
6.	Impact Testing Machines	1
7.	Lathe machine with accessories	5

8.	Lathe Tools (Facing, Threading, Knurling, parting off, Forming etc.)	10each
9.	Drilling machine with accessories	5
10.	Drilling tools (twist drill, center drill, counter boring tool, reamer, taps etc.)	10 each
11.	Milling Machine with accessories	5
12.	Milling tools (End mill, Ball nose, Face mill, Side and face mill, Slab mill, convex cutter, concave cutter, Dovetail cutter, Involute cutter, etc.)	10 each
13.	Surface Grinding Machine with accessories and consumables	2
14.	Cylindrical Grinding Machine with accessories and consumables	2
15.	Pedestal Grinder with accessories and consumables	2
16.	Tool and cutter Grinder with accessories and consumables	2
17.	Shaper Machine with accessories	2
18.	Planer Machine with accessories	1
19.	Steel Rules	10
20.	Tri Square	10
21.	Inside Vernier Caliper	10
22.	Odd leg Vernier Caliper	10
23.	Trammel Vernier Caliper	10
24.	Outside Vernier Caliper	10
25.	Vernier Depth gauge	5
26.	Vernier Bevel protractor	5
27.	Thread gauges	5
28.	Screw pitch gauges	5
29.	Fillet gauges	5
30.	Feeler gauges	5
31.	Vernier Height gauge	5
32.	Dial indicators with magnetic stand	5
33.	Vernier Micrometer	5
34.	Inside Micrometer	5
35.	Outside Micrometer	10
36.	Depth Micrometer	5
37.	Snap Gauge set	2
38.	Dial Bore Gauge	5
39.	Set of Adjustable Wrench	5

40.	Set of Spanners (Open end, Ring)	5 each
41.	Pipe wrench	2
42.	Pipe Dies	2
43.	L-key sets	5
44.	Nose pliers	5
45.	Grip pliers	5
46.	Straight peen Hammer	5
47.	Ball peen Hammer	5
48.	Mallets Hammer	5
49.	Claw Hammer	5
50.	Long nose Tong	5
51.	Short nose tong	5
52.	Flat Chisel	5
53.	Scraper of different shapes	5 each
54.	scriber	10
55.	Hand hacksaw	25
56.	Chipping hammer	10
57.	Oxy acetylene welding torch	10
58.	Tip cleaners	5
59.	Oxy acetylene welding cylinder set (oxygen, C ₂ H ₂)	5
60.	Oxy acetylene welding table	5
61.	Welding gloves	10 set
62.	Face screen	10
63.	Goggles	10
64.	Electric arc welding transformer	5
65.	Electric arc welding pliers	5
66.	Disc grinder 4 inch	5
67.	Disc cutter	5
68.	Electric arc welding table	5
69.	Welding electrode of different size & grade	10 packs
70.	3D scanner	1
71.	3D printer	1
72.	Rockwell Hardness tester	1

73.	Brinell Hardness tester	1
74.	Vicker Hardness tester	1
75.	Mould polishing stones (Mesh no 240 to 1200)	10 each
76.	Sand papers of different grade (Mesh no 180 to 2000)	10 each
77.	Diamond Paste tubes of different grades (Micron 2500 to 5000)	2 each
78.	Ceramics stones of different grades (Mesh no 300 to 1200)	5 each
79.	Diamond hand file set	5 set
80.	Riffle hand file set	5
81.	Needle hand file set	5
82.	Round hand file	5
83.	Half round hand file	5
84.	Triangular hand file	5
85.	Square hand file	5
86.	Flat hand file	5
87.	Ultra-sonic Polishing box	2
88.	Drawing board	25
89.		

Digital Skills

1- Operate digital media technology

Overview:

This unit describes the performance outcomes, skills and knowledge required to identify, select and use a digital media package and supporting technologies.

Unit of Competency	Performance Criteria
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CU1. Use appropriate OHS office work practices	<p>P1. Use safe work practices to ensure ergonomic, work organization, energy and resource conservation requirements are addressed</p> <p>P2. Use wrist rests and document holders where appropriate</p> <p>P3. Use monitors anti-glare and radiation reduction screens where appropriate</p>
CU2. 2. Identify and select appropriate digital media package	<p>P1. Identify the basic requirements of a design brief, including user environment</p> <p>P2. Research and review suitable available digital media packages</p> <p>P3. Select an appropriate digital media package to meet design brief requirements</p>
CU3. Use digital media package	<p>P1. Procure or create suitable data to meet requirements of the brief</p> <p>P2. Manipulate data using digital media package tools</p> <p>P3. Ensure naming and storing of documents in appropriate file format in directories or folders</p>
CU4. 4. Review digital media design	<p>P1. Evaluate design for creative, dramatic and technical quality, file size, and suitability to meet the brief</p> <p>P2. Test and run any incorporated graphics, video or sound as part of a digital media presentation and present designs in the appropriate format</p> <p>P3. Review final product against design brief</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:

- Basic principles of visual design
- Functions and features of digital media packages and technologies
- Graphic design and stylistic language conventions
- OHS principles and responsibilities for ergonomics, such as work periods and breaks
- Principles of digital imaging and file formats, video and sound file formats, file management and transfer systems
- Vendor product directions in digital media hardware and software
- Visualization and interpreting creative information, scripts (text) and images

Critical Evidence(s) Required

A person who demonstrates competency in this unit must be able to provide evidence of the ability to identify, select and use a digital media package and supporting technologies. 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.

Demonstrated evidence of the ability to:

- Identify basic requirements of a design brief
- Use digital media package to meet organizational requirements
- Use OHS principles and responsibilities for ergonomics, such as work periods and breaks
- Use help manuals and online help when appropriate
- Use digital media technologies to support design brief requirements.

2- Perform Computer Operations

Overview:

This unit covers the knowledge, skills and attitudes and values needed to perform computer operations which include inputting, accessing, producing and transferring data using the appropriate hardware and software.

Competency Unit	Performance Criteria
CU1. Plan and prepare for task to be undertaken	<p>P1. Determine the Requirements of task as per standard operating procedures</p> <p>P2. Select Appropriate hardware and software according to task assigned and required outcome</p> <p>P3. Plane the task properly</p>
CU2. Input data into computer	<p>P1. Enter the Data into the computer using appropriate program/application in accordance with company procedures</p> <p>P2. Check accuracy of information and information is saved in accordance with standard operating procedures</p> <p>P3. Input data are stored in storage media according to requirements</p> <p>P4. Perform the Work within ergonomic guidelines</p>
CU3. Access information using computer	<p>P1. Select the Correct program based on job requirements</p> <p>P2. Access the Program/application containing the information required according to company procedures</p>
CU4. Produce/output data using computer system	<p>P1. Process the entered data using appropriate software commands</p> <p>P2. Print the Data as required using computer hardware/peripheral devices in accordance with standard operating procedures</p> <p>P3. Transfer data between compatible systems using computer software, hardware/ peripheral devices in accordance with standard operating procedures</p>

Knowledge and Understanding

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

Basic ergonomics of keyboard and computer use

- K1.** Main types of computers and basic features of different operating systems
- K2.** Main parts of a computer
- K3.** Storage devices and basic categories of memory
- K4.** Relevant types of software
- K5.** General security

- K6.** Viruses
- K7.** OH & S principles and responsibilities
- K8.** Calculating computer capacity

Critical Evidence(s) Required

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

- Selected and used hardware components correctly and according to the task requirement
- Identified and explain the functions of both hardware and software used, their general Features and capabilities
- Produced accurate and complete data in accordance with the requirements
- Use appropriate devices and procedures to transfer files/data accurately
- Maintained computer system

Soft Skills

1- Maintain Professionalism in the Workplace

Overview:

This unit of competency describes the outcomes required maintain a professional image in the workplace, including behaving ethically, demonstrating motivation, respecting timeframes and maintaining personal appearance.

Unit of Competency	Performance Criteria
CU1. Respect work timeframes	<p>P1. Demonstrate punctuality in meeting, set working hours and times.</p> <p>P2. Utilize working hours only for working and follow company regulations.</p> <p>P3. Complete work tasks within deadlines according to order of priority</p> <p>P4. Supervisors are informed of any potential delays in work times or projects.</p>
CU2. Maintain personal appearance and hygiene	<p>P1. Clean hair, body and nails regularly.</p> <p>P2. Wear suitable cloths for the workplace, and respect local and cultural contexts</p> <p>P3. Meet specific company dress code requirements</p>
CU3. Maintain adequate distance with colleagues and clients	<p>P1. Respect personal space of colleagues and clients with reference to local customs and cultural contexts.</p> <p>P2. Keep enough distance from others</p> <p>P3. Avoid cross transmission of infections (especially through respiration).</p>
CU4. Work in an ethical manner	<p>P1. Follow company values/ethics codes of ethics and/or conduct, policies and guidelines.</p> <p>P2. Use company resources in accordance with company ethical standards.</p>

	<p>P3. Conduct personal behaviour and relationships in accord with ethical standards and company policies.</p> <p>P4. Undertake work practices in compliance with company ethical standards, organizational policy and guidelines.</p> <p>P5. Instruct co-workers on ethical, lawful and reasonable directives.</p> <p>P6. Share Company values/practices with co-workers using appropriate behaviour and language.</p> <p>P7. Report works incidents/situations and/or resolved in accordance with company protocol/guidelines.</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:

- Application of good manners and right conduct
- Basic practices for oral and personal hygiene
- Common products used for oral and personal hygiene
- Company code of conduct/values
- Company regulations, performance and ethical standards
- Work responsibilities/job functions
- Communication skills
- Workplace hygiene standards

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 maintain professionalism in the workplace. 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

2 - Work safely in an Office Environment

Overview:

This unit describes the performance outcomes, skills and knowledge required to participate in workplace occupational health and safety (OHS) processes to protect workers own health and safety, and that of others.

Unit of Competency	Performance Criteria
CU1. Work safely	P1. Follow established safety procedures when conducting P2. work P3. Carry out pre-start systems and equipment checks in P4. accordance with workplace procedures
CU2. Implement workplace safety requirements	P1. Identify designated persons for reporting queries and concerns about safety in the workplace P2. Identify existing and potential hazards in the workplace, report them to designated persons and record them in accordance with workplace procedures P3. Identify and implement workplace procedures and work instructions for controlling risks P4. Report emergency incidents and injuries to designated persons
CU3. Participate in OHS consultative processes	P1. Contribute to workplace meetings, inspections or other consultative activities P2. Raise OHS issues with designated persons in accordance with organizational procedures P3. Take actions to eliminate workplace hazards or to reduce risks
CU4. Follow safety procedures	P1. Identify and report emergency incidents P2. Follow organizational procedures for responding to emergency incidents

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:

- Explain responsibilities of employers and employees under relevant health and safety regulation
- Describe emergency procedures including procedures for fires, accidents and evacuation
- Outline commonly used hazard signs and safety symbols

Critical Evidence(s) Require

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 participate in workplace OHS processes. 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.