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FAN MANUFACTURING TECHNICIAN



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COMPETENCY STANDARDS

National Vocational Certificate Level 2-4

Version 1 - May, 2019



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Table of Contents

Introduction	4
Purpose of the Qualification	4
Main Objectives of the Qualification	5
Date of Validation.....	7
Codes of Qualifications	8
Qualifications Development Committee	9
Validation Committee	10
Entry Requirements	11
Categorization and Levelling of the Competency Standards.....	13
Packaging of Qualifications	14
Detail of Competency Standards	17
102200844 Comply Personal Health and Safety Guidelines.....	17
041700839 Communicate the Workplace Policy and Procedure.....	20
001100851 Perform Basic Communication (Specific).....	22
061100856 Perform Basic Computer Application (Specific).....	24
071300695 Maintain Tools and Equipment	26
071300697 Measure Basic Electrical Units in Series and Parallel Circuits	28
071300698 Perform Packing and Storage	32
071300700 Perform Painting and Powder Coating.....	34
071300701 Perform Cast Iron Casting, Aluminium Die Casting and Centrifugal Casting.....	37
071300703 Perform Parts Fabrication	41
102200846 Apply Work Health and Safety Practices (WHS).. Error! Bookmark not defined.	
041700840 Identify and Implement Workplace Policy and Procedures.....Error! Bookmark not defined.	
001100852 Communicate at Workplace	Error! Bookmark not defined.
061100858 Perform Computer Application Skills..... Error! Bookmark not defined.	
041300867 Manage Personal Finances	Error! Bookmark not defined.
071300699 Perform Winding	56
071300705 Perform Parts Assembling	59
102200848 Contribute to Work Related Health and Safety (WHS) Initiatives.Error! Bookmark not defined.	
041700841 Analyse and Develop Workplace Policy and Procedures.....Error! Bookmark not defined.	
001100853 Perform Advanced Communication	Error! Bookmark not defined.
061100858 Develop Advance Computer Application Skills... Error! Bookmark not defined.	
041300869 Manage Human Resource Services..... Error! Bookmark not defined.	
071300706 Ensure quality.....	79
Supervise Production Process	82
Complete List of Tools, Equipment	84
Tools and Equipment.....	84
List of consumable supplies	89
Appropriate quantities of.....	89



Introduction

In order to build the capacity of technical and vocational training institutes in Pakistan through provision of demand driven competency- based trainings in Manufacturing sector the NAVTTTC, and TEVT Sector Support Program (TSSP) have joined hands together to develop qualifications for the manufacturing sector. These qualifications will not only build the capacity of existing workers of this sector but also support the youth to acquire skills best fit for this sector. The benefits and impact of development of these qualifications will be on both demand and supply side.

Based upon this demand of industry these competency-based qualifications for Fan Manufacturing Technician are developed under National Vocational Qualification Framework (NVQF) (Level 2 to 4). The qualifications mainly cover competencies along with related knowledge and professional skills which are essential for getting a job or self-employment.

The qualifications are also in line with the vision of Pakistan’s National Skills Strategy (NSS), National TVET Policy and National Vocational Qualification Framework (NVQF). NSS provides policy directions, support and an enabling environment to the public and private sectors to impart training for skills development to enhance the social and economic profile. The National Vocational & Technical Training Commission (NAVTTTC) has approved the Qualification Development Committee (QDC). The QDC consists experts from the relevant industries from different geographical locations across Pakistan and academicians, who were consulted during the development process to ensure input and ownership of all the stakeholders. The National Competency Standards could be used as a referral document for the development of curricula to be used by training institutions.

Purpose of the Qualification

The purpose of the training is to provide skilled manpower to improve the existing capacity of the manufacturing sector. This training will provide the requisite skills to the trainees to manufacture fans. It will enable the participants to meet the challenges in the field of the manufacturing industry. Further, to improve the skill level of the technician and to prepare them for the manufacturing industry to meet the market competition nationally and internationally.



The core purpose of this qualification is to produce employable fan manufacturing technicians, who could manufacture fans according to national and international standards. In addition, this qualification will prepare unemployable youths to find employment in manufacturing sector.

Main Objectives of the Qualification

The Fan manufacturing technician qualifications level 2 - 4 consists of theoretical and practical details required to manufacture fans in manufacturing industries. The main objectives of the qualification are as follows:

- Comply Personal Health and Safety Guidelines
- Communicate the Workplace Policy and Procedures
- Perform Basic Communication(Specific)
- Perform Basic Computer Application(Specific)
- Maintain Tools and Equipment
- Measure Basic Electrical Units in Series and Parallel Circuits
- Perform Packing and Storage
- Perform Painting and Powder Coating
- Perform Cast Iron Casting, Aluminum Die Casting and Centrifugal/Rotary Casting
- Perform Parts Fabrication
- 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 Winding
- Perform Parts Assembling
- Contribute to Work Related Health and Safety (WHS) Initiatives
- Analyse of Workplace Policy and Procedures
- Perform Advanced Communication



- Develop Advance Computer Application Skills
- Manage Human Resource Services
- Develop Entrepreneurial Skills
- Ensure quality
- Supervise Production process



Date of Validation

The level 2-4 of National vocational qualification of Fan Manufacturing Technician has been validated by the Qualifications Development Committee (QDC) members on August 29,2019 and will remain in currency August 2022.



Codes of Qualifications

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

ISCED Classification for Fan Manufacturing Technician level 2-4	
Code	Description
0722 FMT 012	National Vocational Certificate level 2, in “ Fan Manufacturing ” (Assistant Electrician)
0722 FMT 013	National Vocational Certificate level 2, in “ Fan Manufacturing ” (Fabricator)
0722 FMT 014	National Vocational Certificate level 2, in “ Fan Manufacturing ” (Foundry Man)
0722 FMT 015	National Vocational Certificate level 2, in “ Fan Manufacturing ” (Painter)
0722 FMT 016	National Vocational Certificate level 3, in “ Fan Manufacturing ” (Winder)
0722 FMT 017	National Vocational Certificate level 3, in “ Fan Manufacturing ” (Assembler)
0722 FMT 018	National Vocational Certificate level 4, in “ Fan Manufacturing ” (Supervisor)



Qualifications Development Committee

The following members participated in the qualifications development of this qualifications:

Sr#	Name	Designation	Organization
1	Mr.Ghazanfar Hussain	Quality Control	Super Asia
2	Mr.Javeed Butt	InCharge Winding	Khursheed Fans
3	Mr.M.Naeem	Manager HR/Technical Incharge	Royal Fans
4	Mr.Shahbaz Ud Din	Electrical Engineer	GFC Fans
5	Mr.Malik Izhar Ahmed	Mechanical Engineer/Quaity Control	STARCO Fans
6	Mr.Ali Usman Sb	Incharge Electrical Installations	PARWAZ Fans
7	Mr.M.Amir Aslam	Operations Incharge	Belvin Fans
8	Mr.Umair Suleman	Incharge Machinist	Al-Noor Fans
9	Mr.Bilal Ishaque Awan	Motor Designing Expert	Digital Fans
10	Mr.Iqbal Ahmed Dar	CNC Expert	Regal Fans
11	Mr Aslam Shamas	Instructor	Punjab TEVTA
12	Mr. Khurram Shahzad	Certified Accessor /Punjab TEVTA	GTTI Gujrat
13	Mr. Ihsan Mujtaba	Secretary General	PEFMA
14	Engr. Inayat ur Rehman	DACUM Facilitator	Ex. KP-TEVTA



Validation Committee

The following members participated in the validation of this qualifications:

Sr#	Name	Designation	Organization
1	Mr.Ghazanfar Ali	Quality Control	Super Asia
2	Mr. Muhammad Shahbaz	Assistant Manager Production	Starco Fan
3	Mr. Omair Ghazanfar	Incharge Electrical Department	Starco Fan
4	Mr.Shahbaz Ud Din	Electrical Engineer	GFC Fans
5	Mr.Muzammal Abbas	CEO	Muzammal Fans
6	Mr.Muhammad Usman	Assistant Secretary	PEFMA
7	Mr. Tanvir Akram Awan	Administrator	Fan Development Institute
8	Mr. Syed Naveed Hassan	Quality Incharge	Pak Fan
9	Mr. Amir Hamza	CNC incharge	Pak Fan
10	Mr. Aslam Shams	Instructor	Punjab TEVTA
11	Mr. Khurram Shahzad	Certified Accessor	GTTI Gujrat
12	Mr. Ihsan Mujtaba	Secretary General	PEFMA
13	Engr. Inayat ur Rehman	DACUM Facilitator	Ex. KP-TEVTA
14	Mr. Atif Anees	Provincial Coordinator	GFA Consulting Group GmbH
15	Mr. Mehmood Ahmad	Senior Instructor	LESC-TEVTA
16	Mr. Ali Suleman	GM	Al-Noor Fans
17	Mr. Muhammad Sajjad	Quality Incharge	Belvin Fan



Entry Requirements

The entry for National Vocational Certificate level 2-4, in (Manufacturing Sector) “Fan Manufacturing Technician” are given below:

Title	Entry requirements
National Vocational Certificate level 2, in “Fan Manufacturing” (Assistant Electrician)	Entry for assessment of this qualification is open. However, entry into formal training institutes, based on this qualification may require skills and knowledge equivalent to middle (Grade 8).
National Vocational Certificate level 2, in “Fan Manufacturing” (Fabricator)	Entry for assessment of this qualification is open. However, entry into formal training institutes, based on this qualification may require skills and knowledge equivalent to middle (Grade 8).
National Vocational Certificate level 2, in “Fan Manufacturing” (Foundry Man)	Entry for assessment of this qualification is open. However, entry into formal training institutes, based on this qualification may require skills and knowledge equivalent to middle (Grade 8).
National Vocational Certificate level 2, in “Fan Manufacturing” (Painter)	Entry for assessment of this qualification is open. However, entry into formal training institutes, based on this qualification may require skills and knowledge equivalent to middle (Grade 8).
National Vocational Certificate level 3, in “Fan Manufacturing” (Winder)	Entry for assessment of this qualification is open. However, entry requirement into formal training institute for this qualification is holding the National Vocational Certificate of level 2, in “Fan Manufacturing Technician” (Assistant Electrician)



National Vocational Certificate level 3, in “Fan Manufacturing” (Assembler)	Entry for assessment of this qualification is open. However, entry requirement into formal training institute for this qualification is holding the National Vocational Certificates of level 2, in “Fan Manufacturing Technician” Fabricator, Foundry Man and Painter.
National Vocational Certificate level 4, in “Fan Manufacturing” (Supervisor)	Entry for assessment of this qualification is open. However, entry requirement into formal training institute for this qualification is holding all the National Vocational Certificates of level 3, in “Fan Manufacturing Technician”

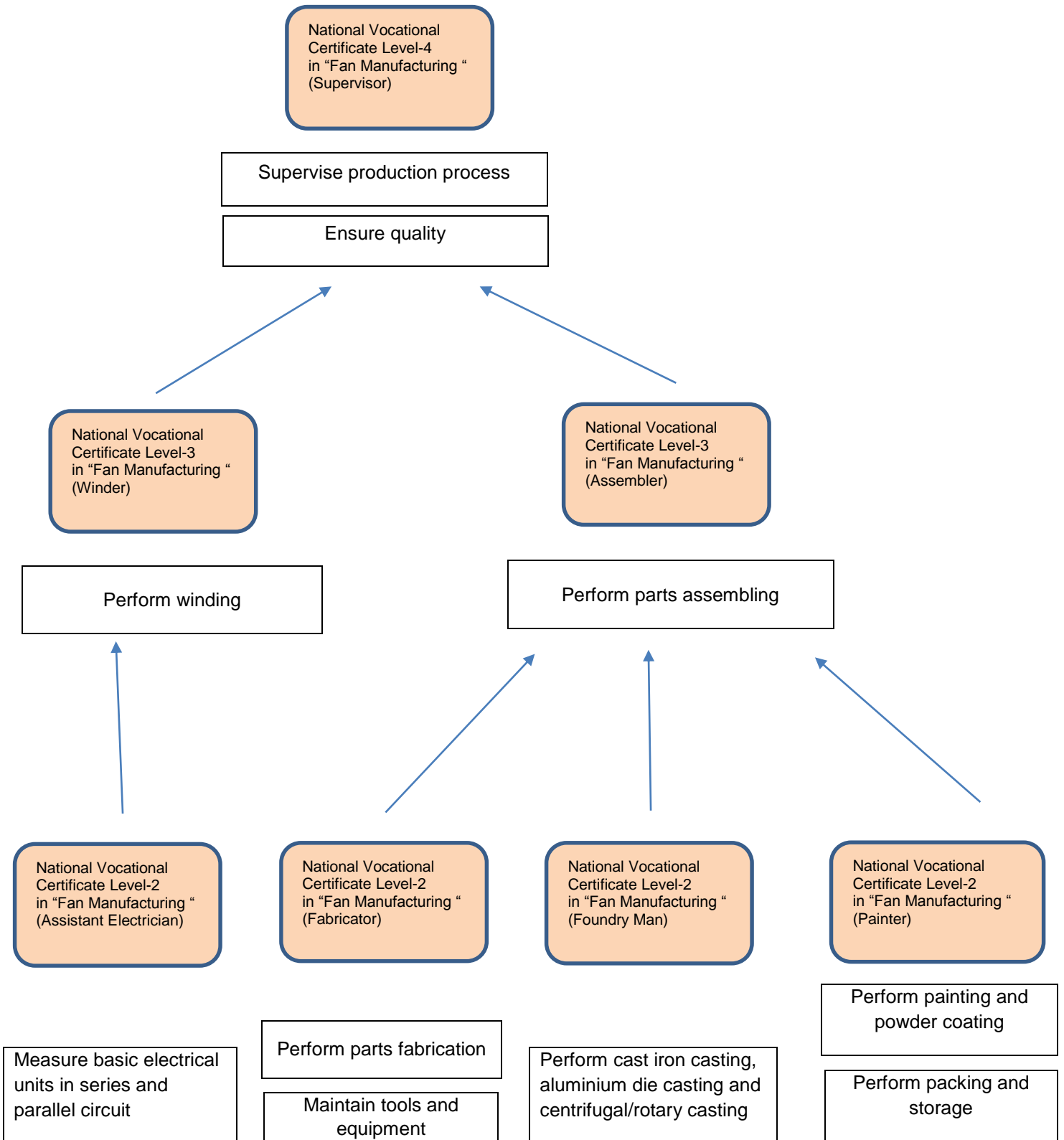


Categorization and Levelling of the Competency Standards

Code	Name of Duty or (Module)	Category	Level	Credit
1	Comply Personal Health and Safety Guidelines	Generic	2	3
2	Communicate the Workplace Policy and Procedure	Generic	2	2
3	Perform Basic Communication (Specific)	Generic	2	3
4	Perform Basic Computer Application (Specific)	Generic	2	4
5	Maintain Tools and Equipment	Technical	2	4.5
6	Measure Basic Electrical Units in Series and Parallel Circuits	Technical	2	9.5
7	Perform Packing and Storage	Technical	2	9
8	Perform Painting and Powder Coating	Technical	2	6
9	Perform Cast Iron Casting, Aluminum Die Casting and Centrifugal/Rotary Casting	Technical	2	18.5
10	Perform Parts Fabrication	Technical	2	13.5
11	Apply Work Health and Safety Practices (WHS)	Generic	3	3
12	Identify and Implement Workplace Policy and Procedures	Generic	3	2
13	Communicate at Workplace	Generic	3	3
14	Perform Computer Application Skills	Generic	3	4
15	Manage Personal Finances	Generic	3	3
16	Perform Winding	Technical	3	18
17	Perform Parts Assembling	Technical	3	16.5
18	Contribute to Work Related Health and Safety (WHS) Initiatives	Generic	4	3
19	Analyse Workplace Policy and Procedures	Generic	4	3
20	Perform Advanced Communication	Generic	4	3
21	Develop Advance Computer Application Skills	Generic	4	4
22	Manage Human Resource Services	Generic	4	2
23	Develop Entrepreneurial Skills	Generic	4	2
24	Ensure quality	Technical	4	11
25	Supervise Production process	Technical	4	14



Packaging of Qualifications





The National Vocational Qualifications have been packaged as detailed below:

National Vocational Certificate Level-4 in Fan Manufacturing (Supervisor)	Supervise Production Process
	Ensure quality
Generic Skills for Level-4 Certificate	Manage Human Resource Services
	Develop Advance Computer Application Skills
	Perform Advanced Communication
	Analyse Workplace Policy and Procedures
	Contribute to Work Related Health and Safety (WHS) Initiatives
	Develop Entrepreneurial Skills



National Vocational Certificate Level-3 in Fan Manufacturing (Winder)	Perform Winding
National Vocational Certificate Level-3 in Fan Manufacturing (Assembler)	Perform Parts Assembling
Generic Skills for all Level3 Certificates	Manage Personal Finances
	Perform Computer Application Skills
	Communicate at Workplace
	Identify and Implement Workplace Policy and Procedures
	Apply Work Health and Safety Practices (WHS)



National Vocational Certificate Level-2 in “Fan Manufacturing “ (Fabricator)	Perform Parts Fabrication
	Maintain Tools and Equipment
National Vocational Certificate Level-2 in “Fan Manufacturing “ (Assistant Electrician)	Measure Basic Electrical Units in Series and Parallel Circuits
National Vocational Certificate Level-2	Perform Painting and Powder Coating



in “Fan Manufacturing “ (Painter)	Perform Packing and Storage
National Vocational Certificate Level-2 in “Fan Manufacturing “ (Foundry Man)	Perform Cast Iron Casting, Aluminum Die Casting and Centrifugal/Rotary Casting
Generic Skills for all Level2 Certificates	Perform Basic Computer Application (Specific)
	Perform Basic Communication (Specific)
	Communicate the Workplace Policy and Procedure
	Comply Personal Health and Safety Guidelines



Detail of Competency Standards

102200844 Comply Personal Health and Safety Guidelines

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 Personal Hazards at Workplace	P1: Identify risk to personal health P2: Identify hygiene and safety at work place P3: Identify processes P4: Identify tools, equipment and consumable materials that have the potential to cause harm P5: Report, identified risk to Health, hygiene and safety to concerned
CU2. Apply Personal Protective and Safety Equipment (PPE)	P1: List the Personal Protective equipment P2: Select personal protective equipment in terms of type and quantity according to work orders. P3: Wear personal protective equipment according to job requirements. P4: Clean personal protective equipment P5: Stored Personal Protective equipments in proper place after use.



CU3. Comply Occupational Safety and Health (OSH)	P1: Maintain cleanliness and hygiene as per organizational policy P2: Comply with Health, hygiene and safety precautions before starting work P3: Comply organizational Health, hygiene and safety guidelines during work P4: Deal with resolvable problems according to prescribed procedures P5: Report un resolvable problems to concerned P6: Place the tools equipment etc. at their prescribed place after completion of work
CU4. Dispose of hazardous Waste/materials from the designated area.	P1: Identify hazardous waste materials which needs to be disposed off P2: Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure P3: Use proper disposal hazardous containers for dispose-off hazardous waste as per procedure P4: Take necessary precautions like putting masks and gloves while disposing hazardous waste/ materials as per standard operating procedure

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 safety rules and regulations of organization
- K2:** List Personal protection and safety Equipment
- K3:** Describe meaning of Safety signs and symbols
- K4:** Demonstrate understanding of safety related Standard Operating Procedure/guidelines



K5: Describe waste disposal SOPs

K6: Explain best practices relating to clean and safe work environment

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 maintaining personal health and hygiene 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.



0041700839 Communicate the Workplace Policy and Procedure

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
CU1. Identify workplace communication procedures	<p>P1. Identify organizational communication requirements and workplace procedures with assistance from relevant authority</p> <p>P2. Identify appropriate lines of communication with supervisors and colleagues.</p> <p>P3. Seek advice on the communication method/equipment most appropriate for the task</p>
CU2. Communicate at workplace	<p>P1. Use effective questioning, and active listening and speaking skills to gather and convey information</p> <p>P2. Use appropriate non-verbal behavior at all times</p> <p>P3. Encourage, acknowledge and act upon constructive feedback</p>
CU3. Draft Written Information	<p>P1. Identify and comply with required range of written materials in accordance with organizational policy and procedures</p> <p>P2. Draft and present assigned written information for approval, ensuring it is written clearly, concisely and within designated timeframes.</p> <p>P3. Ensure written information meets required standards of style, format and detail.</p> <p>P4. Seek assistance and/or feedback to aid communication skills development</p>
CU4. Review Documents	<p>P1. Check draft for suitability of tone for audience, purpose, format and communication style</p> <p>P2. Check draft for readability, grammar, spelling, sentence and paragraph construction and correct any inaccuracies or gaps in content.</p> <p>P3. Check draft for sequencing and structure</p>



	<p>P4. Check draft to ensure it meets organizational requirements</p> <p>P5. Ensure draft is proofread, where appropriate, by supervisor or colleague</p>
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Knowledge and Understanding

- K1:** Key provisions of relevant regulations that may affect aspects of business operations, such as privacy laws
- K2:** Organizational policies, plans and procedures.
- K3:** Barriers to communication
- K4:** Communication model
- K5:** Verbal and written communication techniques

Critical Evidence(s) Required

A person who demonstrates competency in this unit must be able to provide evidence of the ability to develop communication skills in the workplace. It covers gathering, conveying and receiving information, along with completing assigned written information under direct supervision. 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.

**001100851 Perform Basic Communication (Specific)**

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.

By the end of this program, learners will be able, to communicate more effectively and efficiently by: working in a team, follow supervisor’s instructions and develop generic communication work skills at workplace

Competency Units	Performance Criteria
CU1. Communicate in a team to achieve intended outcomes	<p>P1. Treat team members with respect</p> <p>P2. Maintain positive relationships to achieve common organizational goals</p> <p>P3. Get work related information from team</p> <p>P4. Identify interrelated work activities to avoid confusion</p> <p>P5. Adopt communication skills, which are designed in a team.</p> <p>P6. Identify problems in communication with a team</p> <p>P7. Resolve Communication barrier through discussion and mutual agreement</p>
CU2. Follow Supervisor’s instructions as per organizational SOPs	<p>P1. Receive the instructions from Supervisor</p> <p>P2. Carry out the instructions of the supervisor</p> <p>P3. Report to the supervisor as per organizational SOPs</p>
CU3. Develop Generic communication skills at workplace	<p>P1. Develop basic reading skills</p> <p>P2. Develop Basic Writing Skills</p> <p>P3. Develop basic listening skills</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:** Basic Learn and understand Types of communication
- K2:** Basic Reading Skills
- K3:** Basic Writing skills
- K4:** Basic Verbal communication skills



- K5:** Basic Problem solving skills
- K6:** Basic Self-Management Skills
- K7:** Basic Technology Skills
- K8:** Basic Interview Skills
- K9:** Basic Workplace dress code
- K10:** Basic The role of team members and functionality of the teams

Critical Evidence(s) Required

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

- Make a list of appropriate communication skills with colleagues and supervisors



061100856 Perform Basic Computer Application (Specific)

Overview: This unit describes the skills and knowledge required to use spreadsheet to prepare a page of document, 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
CU1. Create Word Documents	P1. Open word processing application P2. Create a word document P3. Customize page layout with relevant name setting P4. Set up page in a word document P5. Edit word document as required P6. Use simple formatting tools when creating the document P7. Save word document to directory P8. Insert table in a word document P9. Insert appropriate images into document as necessary P10. Insert header/footer in a word document P11. Insert section break in a word document P12. Set style in word document P13. Select basic Print settings P14. Print the document
CU2. Use internet for Browsing	P1. Use search engines to open website P2. Search data on different topics P3. Refine search to increase relevance of information or content P4. Navigate a website to access the information or content required



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:** Describing formatting styles and their effect on formatting, readability and appearance of documents
- K2:** Outline purpose, use and function of word-processing software.
- K3:** Editing in MS Word
- K4:** Formatting in MS word
- K5:** Use of different search engines
- K6:** Use of different web pages

Critical Evidence(s) Required

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

- Identify the components of computer
- Follow organizational ergonomic work health and safety (WHS) requirements and practices
- Create, open and retrieve documents using customized basic settings
- Format documents by creating tables and adding text, objects and images
- Save and prints documents.
- Download data through web browser



071300695 Maintain Tools and Equipment

Overview: This competency standard covers the skills and knowledge required to Arrange Tools & Equipment, Maintain Tool Kit, Insulate Tools and Equipment, calibrate measuring instruments and Manage Inventory of tools and equipment.

Competency Units	Performance Criteria
CU1. Arrange tools & equipment	P1: Identify tools and equipment P2: Prepare list of tools and equipment as per requirement P3: Check specifications of measuring instruments P4: Collect tools and equipment from store
CU2. Maintain Tool Kit	P5: Check the condition of tools & equipment before use P6: Perform preventive maintenance as per standards P7: Perform corrective maintenance (If required) P8: Clean Tools and equipment after use P9: Place tools and equipment at appropriate place
CU3. Calibrate measuring instruments	P10: Check calibration status of the measuring tools P11: Perform calibration of measuring tools as per standards P12: Record calibration test results
CU4. Manage Inventory of tools and equipment.	P13: Check number of tools and equipment as per record P14: Report for faulty tools and equipment P15: Identify demand for defective tools and equipment P16: Maintain record of all tools and equipment.

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:** Define correct use of different Tools & equipment
- K2:** Describe calibration techniques
- K3:** Explain importance of calibration
- K4:** Define inventory management
- K5:** Define preventive and corrective measures for tools and equipment



Critical Evidence(s) Required

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

- Prepare list of he required tools
- Calibrate measuring instruments
- Storing of tools and equipment at appropriate place
- Manage Inventory of tools and equipment.

Tools and Equipment

- Measuring tape
- Vernier calipers
- Micro meter
- Steel ruler
- Wire gauge
- Multi meter
- Electrical and Mechanical Tool kits
- Measuring tape
- Vernier calipers
- Micrometer
- Steel ruler
- Wire gauge
- Multi meter
- Master gauges of measuring instruments
- Data sheets (log books)
- Maintenance kit
- Inventory lists
- Computer
- Printer



071300697 Measure Basic Electrical Units in Series and Parallel Circuits

Overview: This competency standard covers the skills and knowledge required to measure electrical current and resistance, perform voltage measurement, measure electrical power, perform capacitor and inductor measurement/test, perform low voltage transformer test and construct rectifier circuit

Competency Units	Performance Criteria
<p>CU1. Measure electrical current and resistance</p>	<p>P1: Arrange tools, material and equipment for measurement of electric current</p> <p>P2: Construct series arrangement of resistances in a closed loop circuit</p> <p>P3: Construct parallel arrangement of resistances in a closed loop circuit</p> <p>P4: Perform measurement of electrical resistance in a series / Parallel circuit</p> <p>P5: Perform measurement of alternating current in a series / Parallel circuit</p> <p>P6: Perform measurement of direct current in a series / parallel circuit</p>
<p>CU2. Perform voltage measurement</p>	<p>P1: Arrange tools, material and equipment for measurement of voltage</p> <p>P2: Perform measurement of AC voltage in a series / parallel circuit</p> <p>P3: Perform measurement of DC voltage in a series / parallel circuit</p>
<p>CU3. Measure electrical power</p>	<p>P1: Arrange tools, material and equipment for measurement of electrical power</p> <p>P2: Perform measurement of electrical power for the series / parallel circuit</p>
<p>CU4. Perform capacitor and inductor measurement</p>	<p>P1: Arrange tools, material and equipment for measurement of Capacitor / Inductor</p> <p>P2: Perform measurement of capacitor / inductor with LCR meter</p> <p>P3: Perform open circuit / short circuit test for the capacitor</p>



CU5. Perform low voltage transformer test	P4: Arrange tools, material and equipment for the transformer test P5: Perform open circuit / short circuit test for the low voltage Transformer
CU6. Construct rectifier circuit	P1: Arrange tools, material and equipment for the Rectifier circuit P2: Construct half wave / full wave rectifier circuit P3: Construct bridge arrangement from diodes for full wave rectification P4: Measure output voltage of rectifier with oscilloscope

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:** Define voltage, current, resistance and power
- K2:** Define AC and DC
- K3:** Define Ohm's Law
- K4:** Describe voltmeter, ampere-meter, ohm meter, wattmeter, multi-meter
- K5:** Verify Ohm's Law
- K6:** Verify Kirchhoff's Voltage Law
- K7:** Verify Kirchhoff's Current Law
- K8:** Describe electrical power and energy
- K9:** Define voltage drop
- K10:** Define L.C.R meter
- K11:** Define dry cell
- K12:** Define semiconductor diode, transistor
- K13:** Describe diode rectifier circuit
- K14:** Describe basic functions of an oscilloscope
- K15:** Define rectifier circuits



Critical Evidence(s) Required

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

- Measure electrical current and resistance
- Perform voltage measurement
- Perform capacitor and inductor measurement/test
- Perform low voltage transformer test.
- Construct rectifier circuit

Tools and Equipment

- Ampere meter
- Ohm meter
- Resistance decade box
- AC/DC supplies
- Multimeter
- Volt meter
- Series and parallel circuits
- AC/DC power supply
- Watt meter
- AC/DC power supply
- Different types of load (lamp, fan, electric iron, single phase motor)
- Capacitors of different values
- Inductors of different values
- LCR meter
- Low voltage transformer
- Ampere meter
- Volt meter
- Step down transformer



- Capacitors of different values
- Diodes of different values
- Resistors of different values
- Oscilloscope
- Bread board
- AC/DC Power supply



071300698 Perform Packing and Storage

Overview: This competency standard covers the skills and knowledge required to perform packing of fans as per standards, store fans (according to types, size & color), ensure clear travel path in store, arrange separate section for raw materials, ensure firefighting equipment at store and maintain inventory of raw materials & finished products

Competency Units	Performance Criteria
CU1. Perform packing of fans as per industry standards	P1: Arrange packing material as per SOP. P2: Interpret warning signs on packing box P3: Place thermos-core in a packing box as per standard P4: Pack fan and its parts as per industry standard
CU2. Store fans (according to types, Size & color)	P1: Maintain tagging system at store P2: Follow instructions given on packing box P3: Store fans at appropriate place as per instructions
CU3. Ensure clear travel path in store	P1: Interpret SOPs of store layout P2: Follow SOPs of store layout P3: Adopt material handling as per SOP
CU4. Arrange separate section for Raw materials	P1: Maintain tagging system at store for raw material P2: Follow SOPs for raw material
CU5. Ensure firefighting equipment at store	P1: Check expiry of fire extinguisher P2: Place relevant firefighting equipment at store. P3: Operate fire extinguisher P4: Replace fire extinguisher
CU6. Maintain Inventory of raw materials & finished products	P1: Prepare list of items P2: Arrange items as per inventory list P3: Store tagged items

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:** Describe warning signs on packing box
- K2:** Define tagging system
- K3:** Describe inventory procedure

Critical Evidence(s) Required

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

- Perform packing of fans as per standards
- Store fans (types, size & color) wise
- Arrange separate section for raw materials
- Maintain Inventory of raw materials & finished products

Tools and Equipment

- Different types of corrugated sheets
- Thermo-pore sheets
- Coarse Paper sheet
- Bubble sheets
- Packing tape
- Electric fan
- Racks
- Trolleys
- Different packed fans
- Different tags
- Sample store layouts
- Samples of Standard Operating Procedures for store
- Sample material handling sheet
- Computer
- Printer
- Fire Extinguishers



00000000 Perform Painting and Powder Coating

Overview: This competency standard covers the skills and knowledge required to adopt personal protective equipment (PPEs), prepare painting station as per standard, prepare paint, prepare surfaces before painting, perform powder coating as per standard and paint fan & its parts as per standards.

Competency Units	Performance Criteria
CU1. Adopt personal Protective Equipment (PPE)	<p>P1: Arrange personal protective equipment as per requirements</p> <p>P2: Wear correct personal protective equipment</p> <p>P3: Store PPE at appropriate place after use.</p>
CU2. Prepare painting station as per standard	<p>P1: Start exhaust system</p> <p>P2: Ensure environmental concern as per standard</p> <p>P3: Arrange tools and equipment as per requirement</p> <p>P4: Maintenance of air compressor and filter unit</p>
CU3. Prepare paint	<p>P1: Select paint and material as per requirement</p> <p>P2: Mix paint and material as per SOP.</p> <p>P3: Test paint composition</p>
CU4. Prepare surfaces before painting	<p>P1: Remove dust from fan parts</p> <p>P2: Clean parts with required chemicals</p> <p>P3: Apply filler (synthetic undercoat) if required</p> <p>P4: Perform buffing/grinding for smooth surface</p>
CU5. Perform powder coating as per standard	<p>P1: Arrange tools and equipment for powder coating</p> <p>P2: Place parts in spray booth</p> <p>P3: Operating of powder coating machine</p> <p>P4: Spray powder on parts for coating</p> <p>P5: Bake coated parts in the oven for curing</p> <p>P6: Cleaning of spray booth</p>
CU6. Paint fan & its parts as per standards	<p>P1: Spray paint on fan parts</p> <p>P2: Dry painted parts as per painting material requirement</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:** Enlist Personal Protective Equipment used during Painting
- K2:** Describe Paint mixing procedure
- K3:** Describe surface preparation
- K4:** Define Powder coating

Critical Evidence(s)

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

- Adopt personal Protective Equipment (PPE)
- Prepare Painting station as per standard
- Prepare Paint
- Prepare surfaces before painting
- Perform powder coating as per standard
- Paint Fan & its parts as per standards

Tools and Equipment

- Assorted range of personal protective equipment
- Paint booth with accessories
- Spray gun
- Air compressor with filter unit
- Paints (stoving, metallic, enamel, matt, hammer)
- Paint additives (hardener, converter, shiner, solvents)
- Buffing Machine
- Grinding Machine
- Different filler material
- emery papers
- cleaning solvents
- soft cotton cloth



- steel wire brush
- Spray gun
- Zinc oxide powder
- Powder coating booth
- Spray Gun
- Curing Oven
- Powder coating machine
- Paint
- Solvent
- Additives
- Baking oven



071300701 Perform Cast Iron Casting, Aluminium Die Casting and Centrifugal Casting

Overview: This competency standard covers the skills and knowledge required to prepare pattern as per design, prepare sand mould as per pattern, perform aluminium melting, perform cast iron melting, perform aluminium casting and perform cast iron casting

Competency Units	Performance Criteria
CU1. Ensure personal protective equipment (PPE) for metal casting	<p>P1: Arrange personal protective equipment as per requirements</p> <p>P2: Wear correct personal protective equipment</p> <p>P3: Store PPE at appropriate place after use</p>
CU2. Prepare sand mold as per provided pattern	<p>P1: Ensure composition of molding sand as per requirement</p> <p>P2: Make mold as per provided pattern</p> <p>P3: Dry mold as per requirement</p>
CU3. Perform cast iron melting	<p>P1: Prepare crucible furnace for melting</p> <p>P2: Arrange tools & equipment as per requirement for melting of cast iron</p> <p>P3: Perform furnace charging for melting</p>
CU4. Perform Cast Iron Casting	<p>P1: Arrange tools & equipment as per requirement</p> <p>P2: Remove impurities from the surface of molten cast iron</p> <p>P3: Ensure required temperature of molten cast iron</p> <p>P4: Pour molten material in the sand mold</p> <p>P5: Remove extra material from finished product</p>
CU5. Melt aluminum for die casting and centrifugal casting	<p>P1: Prepare crucible furnace for melting</p> <p>P2: Arrange tools & equipment as per requirement</p> <p>P3: Fill aluminum material in crucible</p> <p>P4: Perform melting of Aluminum material as per requirement</p>
CU6. Perform Aluminum Die Casting	<p>P1: Set die with the die casting machine</p> <p>P2: Pour molten aluminum into the casting machine</p> <p>P3: Adjust temperature of machine as required for material</p> <p>P4: Perform aluminum die casting</p> <p>P5: Remove extra material from finished product</p>



CU7. Perform Centrifugal/rotary casting	P1: Perform preheating of mold P2: Mounting of mold on rotary casting machine P3: Pour molten aluminum into the mold P4: Perform Aluminum centrifugal casting P5: Remove extra material from finished product
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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:** Define pattern and its types
- K2:** Define mold and its making procedure
- K3:** Differentiate between aluminum, cast iron, and plastic
- K4:** Describe melting point of aluminum and cast iron
- K5:** Define furnace and its types
- K6:** Describe charging procedure of furnace
- K7:** Enlist flux material for removing impurities

Critical Evidence(s) Required

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

- Prepare pattern as per design
- Prepare sand mold as per pattern
- Perform aluminum / cast iron melting
- Perform aluminum / cast iron casting

Tools and Equipment

- PPEs (Goggles, Heat resistant fireproof gloves, Safety Helmet with protective glass shield, Safety Shoes, Heat resistant fireproof Apron with hood, Mask)
- Training materials (handouts)
- Core baking ovens
- Wheel barrow
- Flasks



- Trowels
- Slicks
- Lifters
- Bellows
- Vent wires
- Steel boards
- Riddles
- Shovels
- Rammers
- Strike off bars
- Draw spikes
- Sprue pins
- Molding sand
- Bentonite
- Molasses
- Chalk powder
- Graphite powder
- Pyrometer
- Thermocouple
- Skimmer
- Cast Iron Blocks/Scraps
- Flux (Limestone)
- Furnace Fuels
- Ladles
- Ladle shank
- Pyrometer
- Thermocouple
- Flux
- Grinder
- Hammer
- crucible furnace
- Aluminum blocks or its alloys
- Crucibles
- Fluxes for aluminum melting



- Furnace Fuels
- Aluminum die casting machine
- Mold for aluminum die casting machine
- Aluminum blocks or its alloys
- Lubricants
- Pouring cup
- Hand grinder
- Centrifugal/rotary casting machine
- Mold for aluminum Centrifugal/rotary casting machine
- Aluminum blocks or its alloys
- Lubricants
- Pouring cup
- Tong



71300703 Perform Parts Fabrication

Overview: This competency standard covers the skills and knowledge required to cut fan blades on die press machine, cut fan blades shank on die press machine, punch holes in fan blades, punch holes in shanks, bend blades as per design, bend shanks as per design, cut rotor / stator plates as per design, cut steel wires as per size, bend steel wires as per design, joint steel wires by spot weld, press shaft/axle in armature plates and rivet blades with shanks

Competency Units	Performance Criteria
CU1. Cut fan blades and fan blades shank on die press machine	P1: Mounting of cutting die (punch and cavity) on press machine as per design P2: Select gauge of the metallic sheet for blade and shank P3: Feed and cut the metallic sheet as per design
CU2. Punch holes in fan blades and fan blades shanks	P1: Mount punching die (punch and cavity) on the press machine P2: Adjust the press machine for blade and shank punching P3: Feed blade and shank for punching holes
CU3. Bend blades and fan blade shanks as per design	P1: Select die set as per design P2: Mount die set with the machine for blade and shank bending P3: Load and bend the blade and shank as per standard
CU4. Cut rotor and stator metal sheets as per design	P1: Select cutting die as per requirement P2: Mount cutting die on the press machine P3: Feed and cut metal sheet as per design
CU5. Prepare stator and punched sheets of rotor as per design	P1: Perform punching as per requirement for punching slots in stator and rotor sheets P2: Perform binding and riveting of stator
CU6. Prepare safe guard	P1: Select gauge of steel wire P2: Adjust machine as per length P3: Load wire into the machine P4: Cut sample and inspect P5: Select die according to design P6: Perform bending as per requirement



	P7: Select jig as per design P8: Insert wires into jig and perform welding work
CU7. Press shaft/axle in armature plates	P1: Select armature and axle as per size P2: Place and adjust jig on hydraulic press P3: Load armature on the jig P4: Insert axle in armature and press
CU8. Rivet blades with shanks	P1: Select rivets as per hole size P2: Insert rivet in the shank and place it on the jig P3: Place the blade and perform riveting.

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:** Define press and its types
- K2:** Define punch and die
- K3:** Describe sheet gauging
- K4:** Define blade and shank.
- K5:** Define blade angle
- K6:** Define rotor, stator, plates and body
- K7:** Define wire gauging
- K8:** Define spot welding
- K9:** Define riveting

Critical Evidence(s) Required

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

- Cut fan blades and shanks on die press machine
- Punch holes in fan blades and shanks.
- Bend blades and Shanks as per design
- Cut rotor, stator plates and steel wires as per design
- Bend steel wires as per design
- Joint steel wires by spot weld



- Rivet blades with shanks

Tools and Equipment

- Press Machine
- Cutting die for cutting fan blades and shanks on die press machine (punch and cavity)
- Micrometer
- Aluminum Sheet
- Press Machine
- Punching die for punching holes in fan blades and shanks
- Aluminum fan blades
- Fan blades shank
- Press Machine
- Bending die for bending fan blades and shanks as per design
- Aluminum fan blades
- shanks
- Press Machine
- Cutting die for cutting rotor/stator as per design (punch and cavity)
- Steel sheet
- Rivets
- Punching die
- Hydraulic press
- Weight machine
- Vernier caliper
- Fixture
- Rotor sheets
- stator
- Wire Gauge
- Wire cutting machine
- Measuring Tape
- Steel wire
- Press Machine
- Bending die for bending steel wires as per design (punch and cavity)
- Steel wire



- Spot Welding machine
- Jigs and fixtures for spot welding machine
- Steel wire
- Inner and outer mild steel ring
- Hydraulic Press
- Different types of jigs and fixtures for hydraulic press machine
- Axle / Shaft
- Stator
- rotor
- Riveting press
- Jigs and fixtures for riveting press
- Rivets of different types
- Fan blades shanks
- Aluminum fan blades
- Hammers



102200846 Apply Work Health and Safety Practices (WHS)

Overview: This unit describes the skills to work with safety and participate in hazard assessment activities, follow emergency procedures and participate OHS practices in process.

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

Demonstrate evidences of the Health and safety Processes to avoid any incident.



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
CU1. Identify workplace policy & procedures	P1. Identify the workplace policy & procedures P2. Apply appropriate strategies that can be used to measure whether your workplace health and safety obligations are being met. P3. Assure the policies are realistic, resources and personnel to implement P4. Implement the policy & procedures that reflects the organizations commitments P5. Ensure the appropriate methods of implementation, outcomes and performance indicators
CU2. Implement workplace policy and procedures	P1. Apply and assign responsibility for recording systems to track continuous improvements in policy & procedures P2. Implement strategies for continuous improvement in effective and efficient information
CU3. Communicate workplace policy and procedures	P1. Communicate procedures to help implement workplace policy P2. Inform those involved in implementing the policy about expected outcomes, activities to be undertaken and assigned responsibilities
CU4. Review the implementation of workplace policy and procedures	P1. Identify the trends that may require remedial actions P2. Record the trends that may require remedial actions. P3. Ensure policy and procedures as required 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) in order to be competent in this competency standard:

Identify evidences of the ability to implement work place policy and procedures. briefly identify work place procedures to avoid incident.



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



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



	P6. Perform Publisher applications
CU4. Perform computer graphics in basic applications	P1. Perform graphic fundamentals in basic applications P2. Draw Points and lines to make images P3. Draw Dots in space to make images P4. Draw lightening blot Shapes to make images P5. Enlarge circles and rectangles to block in forms
CU5. Create Email account for communications	P1. Make email account for communications P2. Compose text of an email message according to organizational guidelines as required P3. Create an automatic signature for the user P4. Attach files to email message where required P5. Send email message P6. Reply to / forward a received message using available features P7. Save an attachment to the relevant folder P8. Save email message using available settings P9. Adjust email accounts to restrict and quarantine possible email security problems P10. Print email message as per requirements

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
- Apply basic formulas
- Insert objects and charts in spreadsheets
- Save and print spreadsheets.



041300867 Manage Personal Finances

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

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

Demonstrates competency 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.



071300699 Perform Winding

Overview: This competency standard covers the skills and knowledge required to make winding coils, perform paper insulation, insert coils in relevant slots, connect coils, perform varnishing as per standard and perform winding continuity test.

Competency Units	Performance Criteria
CU1. Make winding Coils	P1: Select wire as per required gauge P2: Make coils as per fan motor
CU2. Perform stator insulation	P1: Select insulation paper and insulation cover (for DC inverter Fan motor) P2: Cut insulation paper as per slot size P3: Insert insulation paper in stator slots
CU3. Insert coils in relevant slots	P1: Insert coil in internal slot as per pitch P2: Insert coil in external slot as per pitch P3: Insert wedge/insulation paper
CU4. Operate fan winding machine (for AC and DC)	P1: Insertion of insulated winding wires P2: Data feeding on machine panel (No. of turns, pitch) P3: Adjustment of stator on machine bed P4: Operating the machine(winding outer coils, winding inner coils)
CU5. Connect coils	P1: Connect coil with each other as per circuit diagram P2: Perform lacing of coils
CU6. Perform winding continuity test	P1: Adjust test parameters of test bench as per requirement P2: Perform continuity, high voltage, and power input tests P3: Record warning indication and follow as per SOPs
CU7. Perform varnishing as per standard	P1: Select varnish grade as per standard P2: Apply varnish to motor P3: Dry varnish of motor

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:** Enlist types of winding wires
- K2:** Define wire gage.
- K3:** Describe wire gaging procedure
- K4:** Define coil and number of turn in a coil
- K5:** Define types of windings
- K6:** Describe winding procedure
- K7:** Describe varnishing procedure
- K8:** Define winding testing procedure

Critical Evidence(s)

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

- Make winding coils
- Perform paper insulation
- Insert coils in relevant slots
- Connect coils
- Perform varnishing as per standard
- Perform winding continuity test

Tools and Equipment

- Wire Gauge
- Different types of wire (Copper, Aluminum, Copper clad Aluminum)
- Fan motor
- Coil making machine
- Ceiling fan winding machine
- Scissor/cutter
- Different types of Insulation paper
- Fan Stator
- Insulation cover
- Paper cutting machine
- Paper insertion machine
- Fan Stator
- Insulated winding coils
- Coil tamping tools



- Ceiling fan Winding machine
- Fan winding machine (for AC and DC)
- Stator
- Enameled Copper wire
- Allen Key set
- Fixtures
- Rubber Hammer
- Soldering iron
- Scissor/cutter
- Lacing needle
- Rubber hammer
- Soldering Wire
- Soldering Paste
- Cotton tape
- Insulating paper
- Insulation Sleeves
- Test Bench (ampere meter, volt meter, ohm meter, watt meter, test lamp)
- Insulation tester (High voltage tester)
- Winded stator
- Winded stator
- Drying oven
- Insulation Varnish
- Varnishing booth



071300705 Perform Parts Assembling

Overview: This competency standard covers the skills and knowledge required to perform balancing of body & plates, mount bearings in body and plates, perform rotor balancing, fit armature (stator) in housing, assemble both housing, install fan blades and test fan speed

Competency Units	Performance Criteria
CU1. Perform balancing of ceiling fan body & plates	<p>P1: Mount ceiling fan body and plates on mandrel</p> <p>P2: Remove or add weights from body and plates for balancing if required</p>
CU2. Press bearings in body and plates	<p>P1: Set press machine as per requirement</p> <p>P2: Select bearing as per requirement</p> <p>P3: Press bearing in housing</p>
CU3. Perform rotor balancing	<p>P1: Load rotor on balancing machine as per requirement</p> <p>P2: Remove weights(if required) from rotor for balancing</p>
CU4. Press armature (for DC fans) stator (for AC fans) in fan body housing	<p>P1: Load fixture on press machine</p> <p>P2: Load fan body in the jig</p> <p>P3: Place stator/armature in the body and press accordingly</p> <p>P4: Check air gap with filler gauge</p>
CU5. Assemble fan body and plate	<p>P1: Place plate on the body</p> <p>P2: Align screw holes of fan body and plate accordingly.</p> <p>P3: Press the plate on the body and fasten the screws</p>
CU6. Perform fan motor testing	<p>P1: Mount the fan motor onto the hanger.</p> <p>P2: Connect to the power supply</p> <p>P3: Inspect eccentricity, noise and short circuit/ continuity</p> <p>P4: Inspect motor direction</p> <p>P5: Inspect volt, ampere, watts and power factor</p>
CU7. Install fan blade	<p>P1: Place gasket between plate and blades</p> <p>P2: Mount the blades with screws and spring washers</p>
CU8. Test fan with blades	<p>P1: Hang the fan on the ceiling hook</p> <p>P2: Make connections and supply power to the fan</p> <p>P3: Check speed with tachometer</p> <p>P4: Check ampere, volt, and watt</p> <p>P5: Check balancing and air flow of blades</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: Define balancing

K2: Describe balancing procedure for body, plates and rotor

K3: Define testing procedure of fan speed

Critical Evidence(s)

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

- Perform balancing of body & plates
- Mount Bearings in body and plates
- Perform rotor balancing
- Fit Armature (stator) in housing
- Assemble both housing.
- Install Fan blades
- Test Fan Speed

Tools and Equipment

- Balancing machine
- Drill machine
- Punching plier
- Weights for balancing machine
- Drill bits
- Ceiling fan body and plates
- Air compressor
- Adhesives
- Bearing press machine
- Bearings
- Fan body and plate
- Hydraulic press machine



- Fixture for holding fan body on hydraulic press machine
- Filler gauge
- Stator/armature
- Fan body housing
- Screw driver
- Filler gauge
- Fan motor
- Watt meter
- Volt meter
- Ampere meter
- Frequency meter
- Tachometer
- Sound level meter
- Fan blades
- Pneumatic screw driver along with compressor
- Fan motor
- Screws
- Jane
- Spring washers
- Assembled Fan



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
<p>CU1. Contribute to initiate work-related health and safety measures</p>	<p>P1. compile database on work-related health and safety</p> <p>P2. Identify measures that address legal obligations.</p> <p>P3. Consult with individuals/ parties to formulate measures and initiatives</p> <p>P4. Consult with individuals/parties to identify factors impacting on work-related health and safety</p> <p>P5. Participate in consultative meetings.</p>
<p>CU2. Contribute to establish work-related health and safety measures</p>	<p>P1. Assist in planning of work-related health and safety measures</p> <p>P2. Contribute to the development of work-related health and safety measures</p> <p>P3. Identify to implement work-related health and safety measures i.e.</p> <ul style="list-style-type: none"> • resourcing requirements, • timelines • responsibilities <p>P4. Assist to implement work-related health and safety measures and initiatives i.e.</p> <ul style="list-style-type: none"> • scheduling • liaison • administering resources • communication
<p>CU3. Contribute to ensure legal requirements of WHS measures</p>	<p>P1. Identify WHS legal requirements</p> <p>P2. Apply knowledge of all aspects of WHS measures to</p> <ul style="list-style-type: none"> • Consultation • workplace policies • participation processes



	P3. Ensure, WHS measures are in accordance with legal requirements
CU4. Contribute to review WHS measures	P1. Develop effective practices to review work-related health and safety measures P2. Assist individuals and parties related to WHS measures in following activities <ul style="list-style-type: none">• preparing reports• communicating review• evaluating outcomes
CU5. Evaluate the organization’s WHS system	P1. Assess ongoing compliance with OHS (Occupational Health and safety) P2. Take feedback from concerned persons regarding WHS measures. P3. Assess the overall effectiveness of WHS management practices P4. Assist the development process of WHS measures in following ways <ul style="list-style-type: none">• Suggest amendments• Document amendments• Implement amendments P5. Take feedback from concerned persons regarding WHS measures. P6. Communicate improvements in WHS Measures

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 worker's 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 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.



041700841 Comply with Workplace Policy and Procedures

Overview: This unit describes the skills and knowledge required to 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
CU1. Manage work timeframes	P1. Complete work tasks within deadlines in according to order of priority P2. Supervisors are informed of any delays in work times or projects
CU2. Manage to convene meeting	P1. Develop agenda in line with meeting purpose P2. Select participants and notify them accordingly P3. Carryout meeting arrangements according to the time P4. Record the minutes of the meeting
CU3. Decision making at workplace	P1. Identify the problem, challenge or opportunity P2. Generate an array of possible solutions or responses P3. Evaluate the costs and benefits associated with each option P4. Assess the impact of the decision and modify the course of action as needed
CU4. Set and meet own work priorities at instant	P1. Take initiative to prioritize and facilitate competing demands to achieve organizational goals and objectives P2. Use technology efficiently and effectively to manage work priorities and commitments P3. Maintain appropriate work-life balance
CU5. Develop and maintain professional competence	P1. Assess personal knowledge and skills against competency P2. Participate in networks to enhance personal knowledge, skills and work relationships P3. Seek feedback from employees, clients and colleagues to develop and improve competence



CU6. Follow and implement work safety requirements	P1. Identify and report emergency incidents P2. Practice organizational policy and procedures for responding to emergency incidents P3. 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



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

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



	<ul style="list-style-type: none">• Modify slide layout, including text and colours, to meet presentation requirements• Save presentation in another format• Save to storage device and close presentation <p>P4. Add slide show effect into presentation as required to enhance the presentation</p> <ul style="list-style-type: none">• Incorporate pre-set Animation• Apply Multimedia effects• Record Narration• Apply hyperlink• Apply video• Rehearse Timings• Test presentation for overall effect <p>P5. Print the presentation</p> <ul style="list-style-type: none">• Select appropriate print format for presentation• Select preferred slide orientation• Add notes and slide numbers• Preview slides and run spell check before presentation• Print selected slides and submit presentation to appropriate person for feedback <p>P6. Practice verbal presentation</p> <p>P7. Practice presentation through AV Aids</p>
<p>CU3. Use Microsoft Access to manage database</p>	<p>P1. Collect the data using a standard data base package.</p> <p>P2. Start access to manage database. i.e.</p> <ul style="list-style-type: none">• identify problem statement of Data• Develop a table with fields /attributes according to database usage/ user requirements• Create a primary key and establish an index for each table• Modify table layout and field attributes as required• Create a relationship between the two tables• Add data in a table according to information requirements• Add records as required



	<ul style="list-style-type: none">• delete records as required• Save database to storage area• close down database to storage area• Apply criteria in the following Query• SQL view of Query• Wildcards of query• Query Criteria <p>P3. Customize basic settings:</p> <ul style="list-style-type: none">• Adjust page layout to meet user requirements• Open and view different toolbars• Format font as appropriate for the purpose of the database entries• Create reports• Design reports to present data in a logical sequence• Modify reports to include or exclude additional requirements• Distribute reports to appropriate person in a suitable format <p>P4. Create forms</p> <ul style="list-style-type: none">• Use a wizard to create a simple form• Open existing database and modify records through a simple form• Rearrange objects within the form to accommodate information requirements
<p>CU4. Develop graphics for Design</p>	<p>P1. Develop graphic design concepts based on a thorough understanding of the communication need</p> <p>P2. Use design techniques confidently to produce designs</p> <p>P3. Integrate design tools skillfully to produce designs</p> <p>P4. Evaluate the success of completed designs to meet objectives</p> <p>P5. 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:** Explain Power point presentation
- K4:** Segregation of Data
- K5:** Define the relation among data
- K6:** Define criteria in the query
- K7:** Creates and modify reports and forms.
- K8:** Outline basic database design principles
- K9:** Current graphic design software
- K10:** 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
<p>CU1. Determine strategies for delivery of human resource services</p>	<p>P1. Analyze business strategy and operational plans to determine human resource requirements</p> <p>P2. Review external business environment that likely impact on organization’s human resource requirements</p> <p>P3. Consult line and senior managers to identify human resource needs in their areas</p> <p>P4. Review organization’s requirements for diversity in the workforce</p> <p>P5. Deliver human resource services that comply with business goals</p> <p>P6. Develop strategic action plan for delivery of human resource services</p> <p>P7. Develop roles and responsibilities of human resource team</p> <p>P8. Develop quality assurance policy</p>
<p>CU2. Manage the delivery of human resource services</p>	<p>P1. Communicate human resource strategies and services to internal and external stakeholders</p> <p>P2. Develop and negotiate service agreements between</p> <ul style="list-style-type: none"> • The human resource team, • Service providers • Client groups <p>P3. Document service specifications, performance standards and timeframes</p> <p>P4. Document /communicate service</p> <ul style="list-style-type: none"> • Specifications, • Performance standards • Timeframes <p>P5. Monitor Quality assurance processes</p>



	<p>P6. Ensure that services are delivered by appropriate providers, according to service agreements and operational plans</p> <p>P7. Identify underperformance of human resource team or service providers</p>
CU3. Evaluate human resource service delivery	<p>P1. Establish Management information system for human resource services</p> <p>P2. Conduct survey to determine level of satisfaction</p> <p>P3. Analyze feedback of survey</p> <p>P4. Recommend changes to service delivery</p> <p>P5. Support agreed change processes across the organization</p>
CU4. Manage integration of business ethics in human resource practices	<p>P1. Ensure ethics in personal behavior</p> <p>P2. Ensure code of conduct is observed across the organization,</p> <p>P3. Observe confidentiality requirements in dealing with all human resource information</p> <p>P4. Deal promptly with unethical behavior</p> <p>P5. Ensure all persons responsible for human resource functions understand requirements regarding their ethical behavior</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:** 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.



041300860 Develop Entrepreneurial Skills

Overview: This Competency Standard identifies the competencies required to develop entrepreneurial skills, in accordance with the organization’s approved guidelines and procedures. You will be expected to develop a business plan, collect information regarding funding sources, develop a marketing plan and develop basic business communication skills. Your underpinning knowledge regarding entrepreneurial skills will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
<p>CU1. Develop a business plan</p>	<p>P1. Conduct a market survey to collect following information</p> <ul style="list-style-type: none"> • Customer /demand • Tools, equipment, machinery and furniture with rates • Raw material • Supplier • Credit / funding sources • Marketing strategy • Market trends • Overall expenses • Profit margin <p>P2. Select the best option in terms of cost, service, quality, sales, profit margin, overall expenses</p> <p>P3. Compile the information collected through the market survey, in the business plan format</p>
<p>CU2. Collect information regarding funding sources</p>	<p>P1. Identify the available funding sources based on their terms and conditions, maximum loan limit, payback time, interest rate</p> <p>P2. Choose the best available option according to investment requirement</p> <p>P3. Prepare documents according to the loan agreement requirement</p> <p>P4. Include the information of funding sources in the business plan</p>
<p>CU3. Develop a marketing plan</p>	<p>P1. Make a marketing plan for the business including product, price, placement, promotion, people, packaging and positioning</p>



	P2. Include the information of marketing plan in the business plan
CU4. Develop basic business communication skills	P1. Communicate with internal customers e.g.: labor, partners and external customers e.g. suppliers, customers etc., using effective communication skills P2. Use different modes of communication to communicate internally and externally e.g. presentation, speaking, writing, listening, visual representation, reading etc. P3. Use specific business terms used in the market

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 7ps of marketing including product, price, placement, promotion, people, packaging and positioning
- K2:** Describe 7Cs of business communication
- K3:** Define different modes of communication and their application in the industry
- K4:** Enlist specific business terms used in the industry
- K5:** Enlist the available funding sources
- K6:** Explain how to get loan to start a new business
- K7:** Explain market survey and its tools e.g: questionnaire, interview, observation etc.
- K8:** Describe the market trends for specific product offering
- K9:** State the main elements of business plan
- K10:** Explain how to fill the business plan format

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 develop Entrepreneurial Skills.



Performance requirements

- Conduct market survey and formulate business plans in terms of feasibility, investment potential, risk, and completeness.
- Demonstrate the use of both verbal and non-verbal business communication.
- Effectively present business ideas and profile



071300706 Ensure quality

Overview: This competency standard covers the skills and knowledge required to adopt standard atmosphere at work place, ensure safe environmental concerns, ensure quality of materials, adopt accuracy in machining, Implement quality standards, adopt quality of workmanship and Perform electrical and mechanical tests as per relevant standards

Competency Units	Performance Criteria
CU1. Ensure good atmosphere at workplace	P1: Ensure proper lighting at workplace P2: Ensure appropriate ventilation P3: Ensure good housekeeping
CU2. Ensure safe environmental concerns are addressed	P1: Dispose-off waste chemicals as per environmental standards P2: Dispose-off cotton waste as per SOP. P3: Ensure and follow hazardous instructions
CU3. Ensure quality of materials	P1: Check gauge of supplied material as per specification P2: Check weight as per specification P3: Check dimensions as per specification P4: Inspect material quality as per specification
CU4. Implement quality standards	P1: Interpret national and international standards P2: Adopt national standard P3: Adopt international standard
CU5. Perform electrical and mechanical tests as per relevant standards	P1: Interpret electrical/mechanical tests as per relevant standards P2: Adopt electrical/mechanical tests as per relevant standards

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:** Define standard conditions at work place
- K2:** Describe safe environment concerns
- K3:** Define accuracy of machines
- K4:** Define quality standards



Critical Evidence(s)

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

- Ensure quality of materials
- Apply accuracy in machining
- Implement quality standards
- Apply quality of workmanship
- Perform electrical and mechanical tests as per relevant standards

Tools and Equipment

- LEDs and hooded lights with reflectors
- Exhaust fans
- Storage Drums
- Waste Box
- Magnifying glass
- Steel Rule
- Measuring tape
- Digital micrometre
- SWG gauge
- Go and Not Go gauges
- Digital Vernier calliper
- Digital weighing scale
- Mili Ohm Meter
- Jigs and Fixtures
- Relevant standard documents
- Anemometer
- Watt meter
- Volt meter
- Ampere meter
- Power factor meter
- Frequency meter



- Tachometer
- Sound level meter
- Temperature meter
- Insulation tester
- Die electric tester
- Multi meter
- Brinell, Rockwell and Vickers hardness testers
- Viscosity meter
- Gloss meter
- Film thickness meter



071300708 Supervise Production Process

Overview: This competency standard covers the skills and knowledge required to assess site hazards, ensure work procedures, follow symbols and markings, monitor drawings and plans, develop environmental concerns with site personnel, design layout as per production plan and develop coordination plan

Competency Units	Performance Criteria
CU1. Prepare departmental production plan	<p>P1. Identify the machinery required for relevant process</p> <p>P2. Ensure the availability of required tools and equipment for relevant process</p> <p>P3. Incorporate machine maintenance schedule in the production plan</p> <p>P4. Prepare machine wise production schedule to ensure in time delivery</p> <p>P5. Ensure the usage of PPE according to process requirement</p>
CU2. Acquire material from store	<p>P1. Generate the demand order to raw material store as per production schedule</p> <p>P2. Ensure availability of raw material as per required generated order (Metallurgical and Physical)</p> <p>P3. Distribute raw material to production processes in required quantities</p>
CU3. Assign duties to workers	<p>P1. Assign jobs to the workers along with work instructions</p> <p>P2. Train workers on their assigned tasks and work instructions</p> <p>P3. Monitor the workers' performance as per instructions</p>
CU4. Ensure production operations according to the plan	<p>P1. Ensure quality of product as per requirement</p> <p>P2. Ensure quantity of instrument produced as per production plan</p> <p>P3. Make sure the completion of production process within the lead time</p> <p>P4. Confirm data entry at every stage in process travel cards or process production reports</p>



CU5. Prepare production report	<p>P1. Gather and consolidate the production data in concise form for further analysis</p> <p>P2. Analyse data using relevant quality tools (control charts, bar graphs, normal charts etc.)</p> <p>P3. Compile production report and submit and present the report to management within defined timeline</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 knowledge of:

- K1:** Define layout and its types.
- K2:** Describe quality control management.
- K3:** Define production plan.
- K4:** Define coordination plan

Critical Evidence(s) Required

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

- Assess site hazards
- Ensure work procedures
- Follow symbols and markings
- Design layout as per production plan

Tools and Equipment

- Relevant Information material



Complete List of Tools, Equipment

Tools and Equipment

- Personal Protective Equipment (Goggles, Rubber Gloves, Safety Helmet, Safety Shoes, Apron, Safety Mask)
- First aid kit
- Insulation Tester
- Cupboards
- Cabinets
- Toolkits
- Tool board
- Brushes
- Computer System with Internet Connection
- Emergency alarms
- Fire extinguishers for solid, liquid, electrical and gas
- Sand buckets
- Water buckets
- Fire blankets
- Measuring tape
- Vernier caliper
- Micro meter
- Steel ruler
- Wire gauge
- Multi meter
- PVC insulation
- Paper insulation
- VRI insulation
- Vinyl coating
- Bakelite
- Master gauges of measuring instruments
- Inventory lists
- Computer system with MS Office software installed
- Printer



- Ampere meter
- Resistance decade box
- Volt meter
- Series/ parallel circuits
- AC/DC Power supply
- Watt Meter
- AC/DC Power Supply
- Different types of load (lamp, fan, electric iron, single phase motor)
- Capacitors of different values
- Inductors of different values
- LCR Meter
- Ohm Meter
- Transformer (220v/12v)
- Step down transformer (220v/12v)
- Diodes of different values.
- Resistors of different values
- Oscilloscope
- Bread board
- Electric fan
- Racks
- Trolleys
- Wire gauge
- Wire
- Coil winding machine
- Scissor/cutter
- Fan Stator
- Soldering iron
- Lacing needle
- Rubber hammer
- Fan Motor
- Drying Oven
- Test bench (Ampere Meter, Volt Meter, Ohm Meter, Watt Meter, Test Lamp)
- Spray gun
- Air compressor



- Buffing machine
- Spray booth
- Curing oven
- Wood turning lathe with tools & accessories
- Files
- Rasps
- Chisels
- Hammers
- Pliers
- Saws
- Bench vices
- Clamps
- Planners
- Marking and mortise gauges
- Screw drivers
- Dowels
- Measuring tapes
- Inside/Outside calipers
- Core baking oven
- Wheelbarrow
- Flasks
- Trowels
- Slicks
- Lifters
- Bellows
- Vent wires
- Steel boards
- Riddles
- Shovels
- Rammers
- Strike off bars
- Draw spikes
- Sprue pins
- Pit furnace with blower



- Crucible
- Skimmer
- Induction furnace
- Ladles
- Tong
- Pyrometer
- Skimmer
- Crucible shank
- Pyrometer
- Ladle shank
- Thermocouple
- Injection molding machine
- Molds for thermoplastic molding
- Thermosetting molding machine
- Molds for thermosetting molding
- Casting furnace
- Aluminium casting machine
- Casting furnace
- Aluminium casting machine
- Die for aluminium die casting process
- Press Machine
- Standard Wire Gauge
- Cutting die for cutting fan blades on die press machine (punch and cavity)
- Cutting die for cutting fan blades shank on die press machine (punch and cavity)
- Punching die for punching holes in fan blades (punch and cavity)
- Punching die for punching holes in fan blade shanks (punch and cavity)
- Bending die for bending fan blades as per design (punch and cavity)
- Bending die for bending fan blades shank as per design (punch and cavity)
- Wire Gauge
- Wire cutting machine
- Spot welding machine
- Jigs and fixtures for spot welding machine
- Hydraulic Press Machine
- Different types of jigs and fixtures for hydraulic press machine



- Riveting press
- Jigs and fixtures for riveting press
- Rivets of different types
- Lathe machine
- Work holding devices (chucks, mandrels, holding plates) for lathe machine
- Power hacksaw
- Thread pitch gauge
- Drill chuck
- Drill machine
- Tapping machine
- Work holding devices for drilling and tapping machine
- Threading machine
- Threading dies
- Cylindrical grinding machine
- Grinding wheels
- Balancing machine
- Punching plier
- Bearing adjuster press machine
- Jig for holding fan body on hydraulic press machine
- Filler gauge
- Frequency meter
- Tachometer
- Sound level meter
- Pneumatic screwdriver along with compressor
- Fan with blades installed
- LED and hooded lights with reflectors
- Exhaust fans
- Storage Drums
- Digital micrometre
- Magnifying glass
- SWG gauge
- Go and Not Go gauges
- Digital Vernier calliper
- Digital weighing scale



- Mili Ohm Meter
- Anemometer
- PF meter
- Temperature meter
- Insulation tester
- Die electric tester
- Multi meter
- Brinell, Rockwell and Vickers hardness testers
- Viscosity meter
- Gloss meter
- Water treatment plants
- Smoke/air purifying plants/equipment

List of consumable supplies

Appropriate quantities of

- De-greasing chemicals
- Cotton cloth
- Pages for printer
- Leatherized/ insulated paper
- Insulation paper
- Insulated winding wire
- Coarse cotton thread
- Insulation sleeves
- Soldering wire
- Soldering paste
- Varnish
- Paint
- Solvent
- Cotton cloth
- Sand paper
- Buffing mob
- Polishing lustre
- Powder paints
- Sand papers of different grains



- Different filler material
- Different types of corrugated sheets
- Thermo-pore sheets
- Coarse paper sheet
- Bubble sheets
- Packing tape
- Boring bits
- Fillet rods
- Wooden planks
- Different types of nails.
- Sandpapers
- Polishing material (spirit, lacquer, thinner & shellac)
- Soft cotton cloth
- Elfie
- Wooden glue
- Paint and paint brushes
- Putty
- Moulding sand
- Bentonite
- Molasses
- Chalk powder
- Graphite powder
- Dust bag
- Fuel for furnace (gas/coal/oil)
- Aluminium blocks/scrap
- Fire clay and fire bricks
- Cast iron blocks/scrap
- Flux (limestone) for cast iron casting
- Flux for aluminium melting
- Degasser
- Grain refiner
- Different types of thermoplastic materials
- Colorants
- Different types of cutters and knives



- Different types of thermoplastic materials
- Different types of cutters and knives
- Aluminium or its alloys
- Crucible
- Cotton cloth
- Fuel for aluminium casting furnace
- Lubricants used during aluminium melting process
- Aluminium sheet (for cutting of fan blades)
- Mild steel (for cutting of fan blades shank)
- Aluminium fan blade
- Mild steel shanks
- Electrical sheet
- Steel wire
- Inner and outer mild steel ring
- Axle/Shaft
- Armature
- Fan body and plate
- Cutting bits of lathe machine
- Taps
- Boring tool for lathe machine
- Lubricants used for lathe machine
- Coolants used for lathe machine
- Metal wire brush
- Rotor and stator
- Steel rod
- Threading tool for lathe machine
- Flat file for finishing 10”
- Drill bits
- Steel pipe



- Grinding wheel dresser
- Weights for balancing machine
- Bearings
- Screws
- Jane
- Spring washers
- Plastic bags

