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ARTIFICIAL INTELLIGENCE DATA TECHNICIAN



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COMPETENCY STANDARDS

National Vocational Certificate Level 1-4

Version 1 - November, 2019



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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 Manufacturing sector. These qualifications will not only build the capacity of existing workers of this sector but also support the youth to acquire skills that 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 1 to 4). The qualifications mainly cover competencies along with related knowledge and professional skills which are essential for getting a job or self-employed.

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). This provides policy directions, support and an enabling environment to the public and private sectors to impart training for skills development to enhance 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.

Detail of National Vocational Certificate Levels

The details of the competency standards included in this qualification are given below:

National Vocational Certificate level 1, in (IT Sector) “Artificial Intelligence”

- Comply with Work Health and Safety Policies
- Obey the Workplace Policies and Procedures
- Follow Basic Communication Skills (General)
- Demonstrate Basic Literacy Skills
- Operate Computer Functions (General)
- Use Word Processing Software



National Vocational Certificate level 2, in (IT Sector) “Artificial Intelligence”

- Use of Spreadsheet
- Comply Personal Health and Safety Guidelines
- Communicate the Workplace Policy and Procedure
- Perform Basic Communication (Specific)
- Develop Entrepreneurial Skills
- Demonstrate Basic Numeracy Skills
- Use Multimedia Processing
- Pre-Process Data
- Perform Basic Computer Application (Specific)

National Vocational Certificate level 3, in (IT Sector) “Artificial Intelligence”

- Apply Work Health and Safety Practices (WHS)
- Identify and Implement Workplace Policy and Procedures
- Communicate at Workplace
- Manage Personal Finances
- Code in Programming Language suitable for AI
- Setup Environment
- Perform Computer Application Skills

National Vocational Certificate level 4, in (IT Sector) “Artificial Intelligence”

- Contribute to Work Related Health and Safety (WHS) Initiatives
- Comply with Workplace Policy and Procedures
- Perform Advanced Communication
- Manage Human Resource Services
- Scrape data from the web
- Process Images through Image Processing software
- Work with Data Manipulation Toolkit
- Work with Multidimensional Arrays’ Manipulation and Computation Package
- Develop Advance Computer Application Skills
- Develop Entrepreneurial Skills



Purpose of the Qualification

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

The core purpose of this qualification is to produce employable Artificial Intelligence Data Technicians who can work according to national and international standards. In addition, this qualification will prepare unemployable youth for the employers in Information Technology sector.

Main Objectives of the Qualification

The Artificial Intelligence Data Technician qualifications level 1-4 consists of theoretical and practical details required to perform job of Artificial Intelligence Data Technician in their relevant industry. The main objectives of the qualification are as follows:

- Follow Work Health and Safety Policies
- Understand the Workplace Policies and Procedures
- Follow Basic Communication Skills
- Demonstrate Basic Literacy Skills
- Perform Basic Computer Operations
- Use Word Processing Software
- Use of Spreadsheet
- Maintain Personal Health and Safety
- Communicate the Workplace Policy and Procedure
- Perform Basic Communication
- Develop Entrepreneurial Skills
- Demonstrate Basic Numeracy Skills
- Use Multimedia Processing
- Pre-Process Data
- Apply Work Health and Safety Practices (WHS)
- Identify and Implement Workplace Policy and Procedures
- Communicate at Workplace
- Manage Personal Finances
- Code in AI Programming Language



- Setup Environment
- Contribute to Work Related Health and Safety (WHS) Initiatives
- Analyze and Develop Workplace Policy and Procedures
- Perform Advanced Communication
- Manage Human Resource Services
- Scrape data from the web
- Process Images through Image Processing software
- Work with Data Manipulation Toolkit
- Work with Scientific Programming Toolkit

Date of Validation by the Industry

The level 1-4 of National vocational qualification on Artificial Intelligence Data Technician has been validated by the Qualifications Validation Committee (QVC) members on 25-06-2019 and will remain in currency until March 2022.

Code of Qualification

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 Artificial Intelligence Data Technician level 1-4	
Code	Description
0619ICT01	National Vocational Certificate level 1, in (IT) “AI Data Technician”
0619ICT02	National Vocational Certificate level 2, in (IT) “AI Data Technician”
0619ICT03	National Vocational Certificate level 3, in (IT) “AI Data Technician”
0619ICT04	National Vocational Certificate level 4, in (IT) “AI Data Technician”



Members of Qualifications Development Committee

The following members participated in validation of this qualification.

S#	Name	Designation / Occupation	Industry / Organization
1	Mr. Gouhar Pirzada	DACUM Facilitator	STEP, Lahore
2	Mr. Syed Mansoor Ahmed	Asstt. IT Manager	SBTE, Karachi
3	Mr. Hafeez Ur Rehman	Asstt. Professor	KP TEVTA
4	Mr. Jibrán Ullah	Asstt. Professor	KP-TEVTA
5	Mr. Sardar G. Mujtaba	Lecturer	TTC, Islamabad
6	Mr. Imran Khan	Service Engineer	Ashraf Group Lahore
7	Mr. Muhammad Usman	Instructor	PTEVTA
8	Mr. Muhammad Yasir	Asstt. Director	NAVTTC
9	Mr. Ayub Nasir	Regional Coordinator	GFA, Islamabad

Validation Committee

The following members participated in the validation of this qualification.

S#	Name	Designation	Organization
1	Brig® Kamran Bashir	Vice President	Incline Artificial Intelligence
2	Dr. Imran Malik	Asstt. Professor	SEECS, NUST
3	Brig® Munawar Hussain	CEO	Inductin
4	Brig® Dr. Masood Raza	HOD, AI	NUST
5	Engr. Faisal Jamal Nasir	Lecturer	KPTEVTA
6	Mr. Syed Shahroz Hayat	Networks Engineer	Lackson Group
7	Engr. Tahir Javed	Lecturer	PTEVTA
8	Mr. Kashif Ayub	CEO	MicroKosm



9	Mr. Muhammad Shiraz	Trainer	Shifa Intl Hospital
10	Mr. Waleed Malik	Data Scientist	Telenor
11	Mr. Nauman Ullah Khuram	Decision Scientist	VisionX Technologies
12	Dr. Sadia Shakil	Asstt. Prof	IST Islamabad
13	Dr. Rehana Kausar	NSTE	GFA
14	Mr. Ayub Nasir	Regional Coordinator	GFA

National Validation Committee

Following members from the TEVTAs, QABs, NAVTTC, Industry and BTE has proofread and validated the document on 30th August, 2019

S#	Name	Designation	Organization
1	Engr. Jibran Ullah	Asstt. Professor	KP-TEVTA
2	Engr. Hafeez Ur Rehman	Asstt. Professor	KP-TEVTA
3	Mr. Sardar Mujtaba	Consultant	Islamabad
4	Syed Mansoor Ahmed	Asstt. IT Manager	SBTE Karachi
5	Mr. Faisal Sarwar	IT Manager	PBTE Lahore
6	Mr. Muhammad Usman	Instructor	P-TEVTA
7	Mr. Muhammad Yasir	Asstt. Director	NAVTTC
8	Mr. Gouhar Pirzada	Facilitator	STEP, Lahore
14	Mr. Ayub Nasir	Regional Coordinator	GFA, Islamabad

Entry Requirements

The entry requirements for National Vocational Certificate level 1-4, in (IT Sector) “Artificial Intelligence Data Technician” are given below:

Title	Entry requirements
National Vocational Certificate level 1, in (IT) “AI Data Technician”	Entry for assessment for this qualification is 8 th Grade.



National Vocational Certificate level 2, in (IT) “AI Data Technician”	Entry for assessment for this qualification is 8 th Grade. However, entry into formal training institute for this qualification is person having National Vocational Certificate level 1, in (IT) “AI Data Technician”
National Vocational Certificate level 3, in (IT) “AI Data Technician”	Entry for assessment for this qualification is 9 th Grade. However, entry into formal training institute for this qualification is person having National Vocational Certificate level 2, in (IT) “AI Data Technician”
National Vocational Certificate level 4, in (IT) “AI Data Technician”	Entry for assessment for this qualification is 9 th Grade. However, entry into formal training institute for this qualification is person having National Vocational Certificate level 3, in (IT) “AI Data Technician”

Schedule of The Units:

Code	Name of Duty or (Module)	Level	Credit	Category
102200843	Comply with Work Health and Safety Policies	1		
041700838	Obeys the Workplace Policies and Procedures	1		
01100850	Follow Basic Communication Skills (General)	1		
101200828	Demonstrate Basic Literacy Skills	1	05	Generic
061100855	Operate Computer Functions (General)	1	10	Technical
061900924	Use Word Processing Software	1	10	Technical
061900925	Use of Spreadsheet	2	10	Technical
102200844	Comply Personal Health and Safety Guidelines	2		Generic
041700839	Communicate the Workplace Policy and Procedure	2		Generic
01100851	Perform Basic Communication (Specific)	2		Generic
061100856	Develop Entrepreneurial Skills	2		Generic



101200831	Demonstrate Basic Numeracy Skills	2	05	Generic
061900926	Use Multimedia Processing	2	10	Technical
061900927	Pre-Process Data	2	10	Technical
102200846	Perform Basic Computer Application (Specific)	2		
041700840	Apply Work Health and Safety Practices (WHS)	3		Generic
01100852	Identify and Implement Workplace Policy and Procedures	3		Generic
	Communicate at Workplace	3		Generic
041300867	Manage Personal Finances	3		Generic
061900928	Code in Programming Language suitable for AI	3	15	Technical
061900929	Setup Environment	3	10	Technical
061900930	Perform Computer Application Skills	3		
102200848	Contribute to Work Related Health and Safety (WHS) Initiatives	4		Generic
041700841	Comply with Workplace Policy and Procedures	4		Generic
061100858	Perform Advanced Communication	4		Generic
	Manage Human Resource Services	4		Generic
061900931	Scrape data from the web	4	12	Technical
061900932	Process Images through Image Processing software	4	12	Technical
061900933	Work with Data Manipulation Toolkit	4	14	Technical
061900934	Work with Multidimensional Arrays' Manipulation and Computation Package	4	15	Technical
	Develop Advance Computer Application Skills	4		
071300860	Develop Entrepreneurial Skills	4		



Packaging of Qualifications

The National Vocational Qualifications have been packaged as detailed below:

0619ICT04
“AI Data Technician”
National Vocational Certificate level 4,
in (IT)

Develop Entrepreneurial Skills

Develop Advance Computer Application Skills

Work with Multidimensional Arrays’ Manipulation and Computation Package

Work with Data Manipulation Toolkit

Process Images through Image Processing software

Scrape data from the web

Manage Human Resource Services

Perform Advanced Communication

Comply with Workplace Policy and Procedures

Contribute to Work Related Health and Safety (WHS) Initiatives



Perform Computer Application Skills

Setup Environment



0619ICT03
“AI Data Technician”
National Vocational Certificate level 3,
in (IT)

Code in Programming Language suitable for AI

Manage Personal Finances

Communicate at Workplace

Identify and Implement Workplace Policy and Procedures

Apply Work Health and Safety Practices (WHS)



0619ICT02
“AI Data Technician”
National Vocational Certificate level 2,
in (IT)

Perform Basic Computer Application (Specific)

Pre-Process Data

Use Multimedia Processing

Demonstrate Basic Numeracy Skills

Develop Entrepreneurial Skills

Perform Basic Communication (Specific)

Communicate the Workplace Policy and Procedure

Comply with Personal Health and Safety Guidelines

Use of Spreadsheet



Use Word Processing Software

Operate Computer Functions (General)



0619ICT01
“AI Data Technician”
National Vocational Certificate level 1,
in (IT)

Demonstrate Basic Literacy Skills

Follow Basic Communication Skills (General)

Obey the Workplace Policies and Procedures

Comply with Work Health and Safety Policies



Detail of Competency Standards

102200843 Comply with Work Health and Safety Policies

Overview: This unit describes the performance outcomes, skills and knowledge required to apply general work health and safety requirements in the workplace. Communicate work and health safety assess at work place. It describes generic work health and safety responsibilities applicable to employees without managerial or supervisory responsibilities.

Competency Units	Performance Criteria
<p>CU1. Work safely at work place</p>	<p>P1. Identify relevant organizational safety policies and procedures</p> <p>P2. Categorize tools and equipment as per requirements</p> <p>P3. Maintain tools and equipment</p> <p>P4. Follow established safety procedures during work activities</p> <p>P5. Identify existing or potential safety issues to designated persons</p> <p>P6. Report work-related incidents and accidents to supervisor</p> <p>P7. Take necessary measures to minimizing risks</p>
<p>CU2. Communicate work health and safety (WHS) assess at work place</p>	<p>P1. Raise work health and safety issues with supervisor.</p> <p>P2. Contribute to workplace meetings and other consultative processes for work health and safety management at the workplace</p> <p>P3. Make suggestions for improving work health and safety practices</p>
<p>CU3. Minimize risks to personal safety at work place</p>	<p>P1. Identify situations that may endanger the personal safety</p> <p>P2. Document the incident regarding personal safety at work place</p> <p>P3. Eliminate workplace hazards regarding personal safety</p> <p>P4. Identify damaged items and equipment for personal safety</p> <p>P5. Notify supervisor regarding damaged items and equipment for personal safety</p>



CU4. Minimize risks to public safety	P1. Identify situations that may endanger the public safety P2. Document the incident at work sites P3. Eliminate workplace hazards at work sites P4. Identify damaged items and equipment related to public safety P5. Notify Situation that may endanger situation for safety measures.
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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:** Identify the commonly used tools and equipment used at workplace.
- K2:** Rights and responsibilities of employers and employees
- K3:** Consultative processes to manage and monitor health and safety issues to enable active participation in maintaining a safe workplace
- K4:** State potential hazards in the workplace
- K5:** State commonly used hazard signs and safety symbols

Critical Evidence(s) Required

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

Identify health and safety policies to maintain and avoid any unwanted incident.



041700838 Obey the Workplace Policies 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. Obey the workplace personal appearance and hygiene	<p>P1. Wear suitable clothes for the workplace and respect local and cultural contexts</p> <p>P2. Meet specific company dress code requirements</p>
CU2. Follow work ethics	<p>P1. Follow company value/ ethics code/ conduct policies and guidelines</p> <p>P2. Use company resources in accordance with company ethical standards</p> <p>P3. Conduct personal behavior and relationships in accord with company policy & procedures</p> <p>P4. Demonstrate ethical behavior with co-workers</p> <p>P5. Report work incident situations or resolve accordingly</p>
CU3. Demonstrate the Work place behaviors	<p>P1. Practice the positive behavior</p> <p>P2. Avoid arguing</p> <p>P3. Adopt flexibility in behavior to accept the resistance</p>
CU4. Communicate workplace policy & procedures	<p>P1. Listen directions carefully</p> <p>P2. Ask relevant questions politely</p> <p>P3. Avoid to use abusive language/ expression</p> <p>P4. Respect co-workers and others</p>
CU5. Review the implementation of workplace policy & procedures	<p>P1. Ensure proper implementation of policies</p> <p>P2. Enlist the gaps for improvement</p> <p>P3. Follow the feedback, if any</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: Rules, regulations and SOPs applicable to the organization

K2: Turnaround time to achieve target/goal.

K3: Operational hierarchal levels in an organization.

Critical Evidence(s) Required

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

Follow work place policy personal appearances adopting company values/ ethics/ codes and broader policies for ensuring work place SOP's



001100850 Follow Basic Communication Skills (General)

Overview: After successful completion of this module you will be able to listen attentively, develop non-verbal communication, and identify communication barriers, interview preparation for job and different communication platforms in the workplace and throughout your career.

This unit of competency is designed to manage the workers and other personnel that can help in improving work quality and quantity through basic communication skills

Competency Units	Performance Criteria
CU1. Adopt Effective listening to Skills	<p>P1. Listen attentively to others to improve communication skills</p> <p>P2. Avoid interrupting while listening others</p> <p>P3. Ask questions to ensure understanding</p> <p>P4. Receive and follow instructions as given by supervisor</p> <p>P5. Give the speaker regular feedback to communicate appropriately</p>
CU2. Develop Non-verbal communication with peers	<p>P1. Maintain eye contact to improve communication</p> <p>P2. Use facial expressions and gestures</p> <p>P3. Use Body language to communicate appropriately</p> <p>P4. Participate within Peers</p>
CU3. Prepare for Interview to get a job	<p>P1. Prepare yourself for interview to employer</p> <p>P2. Follow schedule according to the sequence of interview</p> <p>P3. Use communication techniques used while appearing in interview</p> <p>P4. Provide basic evidence of related skill</p> <p>P5. Respond appropriately to strong client emotional reactions</p>
CU4. Use communication platform at workplace	<p>P1. Convey message using different communication plate forms</p> <ul style="list-style-type: none"> • Face to face • Video chat • Phone calls/messages • Social Media
CU5. Identify communication barriers to improve interpersonal skills	<p>P1. Identify communication barriers to improve communication skills with each other .i.e.</p> <ul style="list-style-type: none"> • Attitudinal barrier • Physical Barrier



	<ul style="list-style-type: none">• Long differences• Conflicting information• Differing status, position /self-expression <p>P2. Use strategies to overcome these barriers in the client-counsellor relationship</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:** Minimizing communication barriers
- K2:** Listening, and responding with an open mind in a more effective way.
- K3:** appropriate communication methods.
- K4:** verbal and non-verbal messages appropriately.
- K5:** Confidence building
- K6:** Body language
- K7:** Appropriate Voice tone
- K8:** Interpersonal skills
- K9:** listening Skills

Critical Evidence(s) Required

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

- Find a job through social media resources
 1. Prepare yourself to appear in interview by following points:
 - Effective listening skills
 - Body language
- Work in groups of 3-5 members.
 1. Think of a situation when you tried to communicate with another person. Or when somebody tried to communicate with you, and it failed.



2. Think about the problems or barriers that interfered with the communication.

- List the reasons for failure identified by your group.
- Non-verbal communication

Have activity cards:

- Worried
- Happy
- Disappointed
- Laughing
- Annoying

Participants to draw one of the activity cards. Without speaking, communicate the feeling or emotion on the card to the rest of the group. Have one participant at time get up in front of the group.



101200828 Demonstrate Basic Literacy Skills

Objective: This module covers the skills and knowledge required to demonstrate basic Literacy skills like reading, writing and speaking.

Competency Units	Performance Criteria
CU1. Apply basic Literacy skills	P1. Apply basic reading skills P2. Apply basic writing skills P3. Apply speaking skills P4. Recognize Alphabets P5. Prepare of words from Alphabets P6. Meanings of words P7. Prepare sentences from words P8. Write of simple sentences P9. Listen and interpret the instructions

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

- K1:** Recognize Alphabets
- K2:** words from Alphabets
- K3:** Meanings of words
- K4:** Prepare sentences from words
- K5:** Write simple sentences
- K6:** Importance of proper listening



Critical Evidence(s) Required

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

- Listening
- Reading
- Writing
- Speaking

**061100855 Operate Computer Functions (General)**

Overview: The competency Standard describe skills and knowledge required to setup a computer system, organize files in folders, and shutdown a computer system.

Competency Units	Performance Criteria
CU1. Set up the computer for use	<p>P1. Identify physical components of computer</p> <p>P2. Identify peripheral devices of the computer</p> <p>P3. Connect all components of computer</p> <p>P4. Follow procedures to turn on the computer system</p>
CU2. Organize files in folder	<p>P1. Create folders/subfolders with suitable names</p> <p>P2. Save files in relevant folders.</p> <p>P3. Rename and move folders in different drives.</p> <p>P4. Move folders and files using drag and drop techniques</p> <p>P5. Save folders and files on different media</p> <p>P6. Search for folders/subfolders and files using appropriate tool bars</p> <p>P7. Delete Folder files</p> <p>P8. Restore deleted folder files</p>
CU3. Shut down computer system	<p>P1. Save any work to be retained</p> <p>P2. Close open application programs correctly</p> <p>P3. Shut down computer</p> <p>P4. Switch off any unused peripheral devices</p> <p>P5. Ensure computer safety</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 parts of a computer
- K2:** Definition of computer
- K3:** Definition of Drives
- K4:** enlist computer component



Critical Evidence(s) Required

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

- Switch on the computer
- Attach Computer component
- Switch on Peripheral devices
- Make a folder in any partition(drive) in hard disk
- Give name to the folder
- Save file in the folder
- delete the folder/File
- Shut down computer

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



061900924 Use Word Processing Software

Overview: After the completion of this competency standard the candidate will be able to operate and execute specified set of commands and tasks over the Word processing software.

Competency Units	Performance Criteria
CU1. Create a File	P1. Launch word processing application P2. Create a blank document P3. Create from template P4. Create content P5. Identify saved location P6. Save a document in desired format
CU2. Edit a File	P1. Navigate in a document P2. Select text or object P3. Find desired text P4. Replace text P5. Paste copied text P6. Paste cut text P7. Paste selected text from Clipboard P8. Apply undo & redo operations P9. Apply spell check P10. Apply grammar check P11. Insert Objects
CU3. Perform Word Formatting	P1. Change font size P2. Change fontstyle P3. Change font family P4. Change font color P5. Highlightthe text P6. Apply predefined text style P7. Change case
CU4. Perform Paragraph Formatting	P1. Indent paragraph P2. Change line spacing P3. Align text P4. Create Lists with proper bullets and numbering
CU5. Perform Page Formatting	P1. Select page layout P2. Select page orientation



	<p>P3. Select page size</p> <p>P4. Set page margins</p> <p>P5. Insert headers & Footer</p> <p>P6. Insert line numbers</p> <p>P7. Insert page borders and Shading</p>
CU6. Print documents	<p>P1. Select printer</p> <p>P2. Preview print</p> <p>P3. Print selected pages</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:** Knowledge of typing
- K2:** Knowledge of types of word processors
- K3:** Knowledge of features of the word processing application
- K4:** Knowledge of Menu bar
- K5:** Knowledge of Task bar
- K6:** Knowledge of Scroll bar
- K7:** Knowledge of Ruler

Critical Evidence(s) Required

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

- Create a document from draft
- Edit an existing document
- Print multiple copies of document

Tools and Equipment

- Computer system
- Microsoft Office
- Printer and paper rim



061900925 Use the Spreadsheet

Overview: After this compete standard the candidate will be able to gain the skills to operate the spreadsheets and work with it to manage and manipulate the documents and the different types of data.

Competency Units	Performance Criteria
CU1. Perform Cell Data Manipulation	P1. Format cell as required P2. Insert data in multiple cells P3. Edit data in multiple cells P4. Delete data in multiple cells P5. Copy data from specified cells P6. Paste data into specified cells P7. Move data to or from specified cells P8. Merge multiple cells P9. Unmerge cells P10. Freeze specified cell P11. Hide specified row(s) P12. Unhide row(s) P13. Hide specified column(s) P14. Unhide column (s) P15. Insert row(s) at desired location in a worksheet P16. Delete specified row(s) P17. Insert column at desired location P18. Delete specified column(s) P19. Apply cell referencing P20. Import data from external source
CU2. Perform Filtering and Sorting of numerical data	P1. Sort data in ascending order P2. Sort data in descending order P3. Apply single level filter P4. Apply multi-level filter
CU3. Apply Basic and Database Formulae	P1. Create different types of data series P2. Apply arithmetic formula P3. Apply concatenation formula P4. Calculate string length using formula P5. Select desired part of string using formula



	<p>P6. Copy formula using different cell referencing.</p> <p>P7. Use Look-up function</p> <p>P8. Use Count Formula</p> <p>P9. Use Find formula</p> <p>P10. Take data sum, sub, max, min, variance, mean, median, average, round using formula</p> <p>P11. Take count of entities using formula</p> <p>P12. Take count of blanks using formula</p> <p>P13. Calculate minimum of entities using formula</p> <p>P14. Calculate maximum of entities using formula</p> <p>P15. Select entity based on condition</p>
CU4. Create Pivot Table	<p>P1. Select input data</p> <p>P2. Arrange data in an appropriate format</p> <p>P3. Specify output location</p> <p>P4. Apply pivot table operation</p>
CU5. Perform Data Plotting	<p>P1. Specify data to plot</p> <p>P2. Specify chart type</p> <p>P3. Format chart</p> <p>P4. Apply designs to chart</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: Understanding of tabular data

K2: Understanding of basic arithmetic functions

K3: Understanding of basic statistical functions

K4: Understanding of basic database functions

K5: Knowledge of basic types of plots

K6: Understanding application of pivot tables



Critical Evidence(s) Required

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

- Create worksheet based on provided data
- Process the worksheet to achieve desired results
- Apply data transformation using formula
- Visualize data as per the requirement



102200844 Comply with Personal Health and Safety Guidelines

Overview: This Competency Standard identifies the competencies required to apply occupational Safety, health and Environmental protection 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 Observing the Occupational Safety and Health (OSH) will be sufficient to provide the basis for the job at workplace.

Competency Units	Performance Criteria
<p>CU1. Identify Personal Hazards at Workplace</p>	<p>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</p>
<p>CU2. Apply Personal Protective and Safety Equipment (PPE)</p>	<p>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 equipment in proper place after use.</p>
<p>CU3. Comply with Occupational Safety and Health (OSH)</p>	<p>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</p>



CU4. Dispose the 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
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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:** 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 environment.



041700839 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
<p>CU1. Identify workplace communication procedures</p>	<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>
<p>CU2. Communicate at workplace</p>	<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>
<p>CU3. Draft the Written Information</p>	<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>
<p>CU4. Review the Documents</p>	<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 Develop Entrepreneurial Skills

Overview: This Competency Standard identifies the competencies required to develop entrepreneurial skills by Mosaic Artist, 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
CU1. Develop a business plan	<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>
CU2. Collect information regarding funding sources	<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>



CU3. Develop a marketing plan	P1. Make a marketing plan for the business including product, price, placement, promotion, people, packaging and positioning 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.



101200831 Demonstrate Basic Numeracy Skills

Overview:

This module covers the skills and knowledge required to Apply Basic Numeracy skills, Perform Measurement, perform basic mathematical calculations and Calculate Area and Volume of aggregate

Competency Units	Performance Criteria
CU1. Perform basic mathematical skills	P1. Perform addition P2. Perform subtraction P3. Perform multiplication P4. Perform division P5. Perform inter conversion of Measuring units P6. Record the results
CU2. Perform Measurement	P1. Describe identification and working of measuring tools P2. Collect appropriate measuring tools P3. Identify inch foot and yard P4. Identify millimeter, centimeter and meter
CU3. Calculate Area and Volume aggregate	P1. Calculate lengths of object(s) P2. Calculate area and volume of object(s) P3. Calculate surface area P4. Calculate volume of materials

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

K1: Describe basic principles of addition, subtraction, multiplication and division

K2: Describe measuring tools

K3: Describe basic measuring units and it's inter conversion.



Critical Evidence(s) Required

- The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:
- Perform addition
- Perform subtraction
- Perform multiplication
- Perform division
- Inter convert measuring units.
- Calculate Area and Volume.
- Record the results



061900926 Use Multimedia Processing

Overview: This competency standard deals with the skills and knowledge required to perform multimedia processing, manipulate AV data in various forms for further processing

Competency Units	Performance Criteria
CU1. Manipulate Image for Pre-processing	<p>P1. Convert image into specified format using suitable tools</p> <p>P2. Change resolution to the specified requirements</p> <p>P3. Crop the image to remove unwanted artifacts using suitable tools</p> <p>P4. Merge multiple images using suitable tools</p> <p>P5. Overlay text using suitable tools</p> <p>P6. Resize the image to specified size using suitable tools</p> <p>P7. Adjust image orientation to specified requirement using suitable tools</p> <p>P8. Prepare text based images for OCR(optical character recognition) using suitable tools</p>
CU2. Manipulate Video for Pre-processing	<p>P1. Convert video into specified format using suitable tools</p> <p>P2. Change resolution of the video to the specified requirements using suitable tools</p> <p>P3. Crop the video to remove unwanted duration using suitable tools</p> <p>P4. Crop the video to remove unwanted contents using suitable tools</p> <p>P5.</p> <p>P6. Merge multiple videos using suitable tools</p> <p>P7. Adjust frame rate of video</p> <p>P8. Extract frames from video to save them in image format</p> <p>P9. Modify audio tracks of video using suitable tools</p> <p>P10. Insert identifier in a video*</p>
CU3. Manipulate Audio for Pre-processing	<p>P1. Convert audio into specified format using suitable tools</p> <p>P2. Adjust bit rate of audio using suitable tools</p> <p>P3. Reduce noise from audio using suitable tools</p> <p>P4. Enhance audio for pre processing</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:** Knowledge of basic concepts of digital images
- K2:** Knowledge of basic concepts of digital video
- K3:** Knowledge of basic concepts of digital audio
- K4:** Knowledge of image, audio & video formats
- K5:** Knowledge of tools used for image, audio and video manipulation

Critical Evidence(s) Required

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

- Process the image to meet specific requirements using suitable tools
- Process the video to meet specific requirements using suitable tools
- Process the audio to meet specific requirements using suitable tools

Tools and Equipment

- Computer system with high performance GPU(s) and audio card
- High speed high capacity storage
- High quality sound system
- High resolution display
- Software application(s) for image manipulation
- Software application(s) for audio editing
- Software application(s) for video manipulation and processing
- Noise absorbers



061900927 Pre-Process Data

Overview:

Competency Units	Performance Criteria
CU1. Digitize Manual Data	P1. Scan text documents P2. Scan pictures P3. Perform OCR using suitable tool(s) P4. Enter data into text document P5. Enter data into spreadsheet P6. Digitize analogue video using suitable device P7. Digitize analogue audio using suitable device P8. Arrange audio data using suitable tools P9. Adjust image orientation to specified requirement using suitable tools P10. Prepare text based images for OCR(optical character recognition) using suitable tools
CU2. Prepare Data in required format	P1. Arrange data in specified order P2. Correct errors in digitized textual data P3. Organize data as per requirements P4. Remove unwanted data P5. Convert the digitized data into desired format and correct errors in transcribed data
CU3. Label Image Data	P1. Annotate images by text labels P2. Annotate images by bounding box P3. Type text contained in images
CU4. Label Audio Data	P1. Apply Timestamp to transcript P2. Label audio data with text as per requirements P3. Label audio data with noise as per requirement
CU5. Label Text Data	P1. Annotate text data based on desired features P2. Annotate text data word by word for identification (Name, City etc) P3. Annotate text data word by word for classification
CU6. Label Video Data	P1. Apply Timestamp P2. Label video data with text as per requirements



	<p>P3. Label video data with specified noise</p> <p>P4. Annotate image frames by text labels</p> <p>P5. Annotate image frames by bounding box</p> <p>P6. Type text contained in video</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: Knowledge of data labeling

K2: Knowledge of uses of data labeling

K3: Knowledge of types of labeling

K4: Basic knowledge of Artificial Intelligence

K5: Knowledge of Applications of Artificial Intelligence

K6: Knowledge of utility of labeling in machine learning

K7: Knowledge of relevant devices and tools

K8: Knowledge of important types of noises in audio, video, image and text data

Critical Evidence(s) Required

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

- Scan a document
- Prepare correct digital data from non-digital data
- Capture & digitize analogue audio and video file
- Label audio and video data as per the requirement

Tools and Equipment

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

- Computer system with high performance GPU(s) and audio card
- High speed high capacity storage



- High quality sound system
- High resolution display
- Software application(s) for image manipulation
- Software application(s) for audio editing
- Software application(s) for video manipulation and processing
- Scanner
- Digital Camera



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



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	<p>P1. Implement relevant rules and procedures of WHS at work place.</p> <p>P2. Comply with duty of care requirements</p> <p>P3. Use personal protective equipment according to safe work practices</p> <p>P4. Contribute to WHS consultative activities</p> <p>P5. Raise WHS issues with relevant personnel</p>
CU2. Participate in hazard assessment activities a work place	<p>P1. Identify hazards or WHS issues in the workplace to relevant personnel</p> <p>P2. Assess and control risks according to own level of responsibility, in line with workplace procedures</p> <p>P3. Report hazards or WHS issues in the workplace to relevant personnel</p> <p>P4. Document risk control actions as required</p>
CU3. Follow emergency procedures at workplace	<p>P1. Report emergencies or incidents promptly to relevant personnel</p> <p>P2. Deal with emergencies in line with own level of responsibility</p> <p>P3. Implement evacuation procedures as required</p>
CU4. Participate in OHS consultative processes	<p>P1. Contribute to workplace meetings, inspections or other consultative activities</p> <p>P2. Raise OHS (Occupational Health and Safety) issues with designated persons in accordance with organizational procedures</p> <p>P3. Take actions to eliminate workplace hazards or to reduce risks</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:** 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	<p>P1. Identify the workplace policy & procedures</p> <p>P2. Apply appropriate strategies that can be used to measure whether your workplace health and safety obligations are being met.</p> <p>P3. Assure the policies are realistic, resources and personnel to implement</p> <p>P4. Implement the policy & procedures that reflects the organizations commitments</p> <p>P5. Ensure the appropriate methods of implementation, outcomes and performance indicators</p>
CU2. Implement workplace policy & procedures	<p>P1. Apply and assign responsibility for recording systems to track continuous improvements in policy & procedures</p> <p>P2. Implement strategies for continuous improvement in effective and efficient information</p>
CU3. Communicate workplace policy & procedures	<p>P1. Communicate procedures to help implement workplace policy</p> <p>P2. Inform those involved in implementing the policy about expected outcomes, activities to be undertaken and assigned responsibilities</p>
CU4. Review the implementation of workplace policy & procedures	<p>P1. Identify the trends that may require remedial actions</p> <p>P2. Record the trends that may require remedial actions.</p> <p>P3. Ensure policy and procedures as required are made for continuous improvement of performance</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:** 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
CU1. Communicate within the organization	<p>P1. Communicate within a department</p> <p>P2. Communicate with other departments.</p> <p>P3. Use various media to communicate effectively</p> <p>P4. Communicate orally and written</p>
CU2. Communicate outside the organization	<p>P1. Deal with vendors</p> <p>P2. Deal with clients/customers</p> <p>P3. Interact with other organisations</p> <p>P4. Use various media to communicate effectively</p> <p>P5. Work with people of different cultures / backgrounds</p>
CU3. Communicate effectively in workgroup	<p>P1. Assess the issues to provide relevant suggestion to group members</p> <p>P2. Resolve the issues/ problems /conflicts within the group</p> <p>P3. Arrange group working sessions to increase the level of participation in the group processes</p> <p>P4. Communicate messages to group members clearly to ensure interpretation is valid</p> <p>P5. Communicate style /manner to reflect professional standards/ awareness of appropriate cultural practices</p> <p>P6. Act upon constructive feedback</p>
CU4. Communicate in writing	<p>P1. Identify relevant procedures for written information</p> <p>P2. Use strategies to ensure correct communication in writing .i.e.</p> <ul style="list-style-type: none"> • correct composition • clarity • comprehensiveness • accuracy



	<ul style="list-style-type: none">• 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).



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.



061900928 Code in Programming Language suitable for AI

Overview: This competency standard will give the candidate, skills that will be used for the programming purposes in the applied Languages in the field of AI.

Competency Units	Performance Criteria
CU1. Perform Python Installation	<p>P1. Navigate to python website to Downloads</p> <p>P2. Choose an appropriate Python version</p> <p>P3. Check system requirements</p> <p>P4. Download the chosen Python setup files</p> <p>P5. Double click on the downloaded setup files</p> <p>P6. Enter admin username-password to authorize installation</p> <p>P7. Choose appropriate install options</p> <p>P8. Click install</p> <p>P9. Click add python to PATH environment variable</p>
CU2. Create and Execute a Program	<p>P1. Open a text document</p> <p>P2. Code a python program</p> <p>P3. Save the text file as .py file</p> <p>P4. Open terminal/cmd application</p> <p>P5. Navigate to directory containing python program</p> <p>P6. Run the program with python</p>
CU3. Control Flow of Program	<p>P1. Code an “if” statement</p> <p>P2. Code an “elif” statement</p> <p>P3. Code an “else” statement</p> <p>P4. Code a “while” loop</p> <p>P5. Code a “for” loop</p> <p>P6. Write a “switch” statement</p> <p>P7. Use “continue” & “break” statements in loops</p>
CU4. Write Modular Programs	<p>P1. Write a “def” statement to define a function</p> <p>P2. Write a “class” statement to create a class with multiple functions and data elements</p>
CU5. Handle Errors and	<p>P1. Define a “try” block</p>



Exceptions	P2. Apply some error prone code in try block P3. Handle the possible exceptions using “except” block P4. Apply “finally” block to statements that will always run
CU6. Perform File Handling	P1. Open a python script file P2. Open a file with “r” flag in read mode using “open” statement P3. Read the file line by line or all at once into a python variable P4. Open a file with “w” flag in write mode P5. Write a python variable into the opened file
CU7. Use Package Manager	P1. Select an appropriate package to install P2. Open terminal/cmd application P3. Use “pip install <package name>” command to install the package P4. Uninstall a package with “pip uninstall <package name>” command

Knowledge and Understanding

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

- K1:** Knowledge of python syntax and semantics
- K2:** Knowledge of python data types
- K3:** Knowledge of Python Logical operators
- K4:** Knowledge of types of basic python data structures
- K5:** Knowledge of terminal/cmd usage
- K6:** Knowledge of conditional statements and loops in python
- K7:** Knowledge of functions and classes in python
- K8:** Knowledge of exception handling in python
- K9:** Knowledge of file handling in python



Critical Evidence(s) Required

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

- Create a python environment
- Write and execute a python script
- Change flow of python programs using conditions and loops
- Read and write files in python
- Handle errors and exceptions in a python program

Tools and Equipment

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

- Computer system with support for python
- Internet facility
- Terminal/cmd application
- Text/Code editing application



061900929 Setup Environment

Overview: After this competency standard the candidate will be able to setup environment in order to work on the programming and a variety of applications of the softwares/hardwares

Competency Units	Performance Criteria
<p>CU1. Initialize application program interface</p>	<p>P1. Open terminal/cmd P2. Change directories P3. Rename files P4. Move files from one directory to another P5. Copy files from one directory to another P6. Select/delete only particular types of files P7. Open a file P8. Open an application P9. Zip and unzip files/folders P10. Download files from a source (network location) P11. Connect to a server using ssh</p>
<p>CU2. Create and manage specific working environment</p>	<p>P1. Install virtual environment with pip P2. Create a virtual environment P3. Activate a virtual environment P4. Deactivate a virtual environment P5. Check if the environment is active for a python/pip version P6. Install packages in virtual environment P7. Run scripts in virtual environment</p>
<p>CU3. Install Packages with Pip</p>	<p>P1. Select an appropriate package to install P2. Open terminal/cmd P3. Activate a virtual environment if required P4. Use “pip install <package name>” command to install the package P5. Import package in a python environment P6. Uninstall a package with “pip uninstall <package name>” command</p>



Knowledge and Understanding

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

- K1:** Knowledge of terminals/command line usage
- K2:** Knowledge of virtual environments in python
- K3:** Knowledge of python package index and pip

Critical Evidence(s) Required

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

- Perform operations in a terminal/cmd application
- Create and activate a virtual environment
- Run a script in virtual environment
- Install a package with pip
- Uninstall a package with pip

Tools and Equipment

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

- Computer system with python and pip installed
- Stable internet connection
- Terminal/cmd application
- Text/Code editing application
- Virtual environment package



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



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 <ul style="list-style-type: none">• 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.



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
CU1. Contribute to initiate work-related health and safety measures	P1. compile database on work-related health and safety P2. Identify measures that address legal obligations. P3. Consult with individuals/ parties to formulate measures and initiatives P4. Consult with individuals/parties to identify factors impacting on work-related health and safety P5. Participate in consultative meetings.
CU2. Contribute to establish work-related health and safety measures	P1. Assist in planning of work-related health and safety measures P2. Contribute to the development of work-related health and safety measures P3. Identify to implement work-related health and safety measures i.e. <ul style="list-style-type: none"> • resourcing requirements, • timelines • responsibilities P4. Assist to implement work-related health and safety measures and initiatives i.e. <ul style="list-style-type: none"> • scheduling • liaison • administering resources • communication
CU3. Contribute to ensure legal requirements of WHS measures	P1. Identify WHS legal requirements P2. Apply knowledge of all aspects of WHS measures to <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 workers compensation) and common law rights and duties specific to work-related health and safety measures and initiatives
- K7:** Describe work-related health and safety measures and initiatives that either address specific legislative requirements and obligations, or support non-statutory health prevention programs, including:
- The factors impacting on worker health and safety that they address
 - Effectiveness
 - Costs and benefits
 - Criteria for decisions regarding their implementation in a specific workplace
 - How they should be implemented.

Critical Evidence(s) Required

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

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



	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

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
CU1. Demonstrate professional skills	<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>
CU2. Plan and Organize work	<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>
CU3. Provide trainings at workplace	<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 trainees feedback methods
- K5:** Direct and indirect communication methods
- K6:** Explaining the need of the training type at the work place

Critical Evidence(s) Required

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

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



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
CU1. Determine strategies for delivery of human resource services	<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>
CU2. Manage the delivery of human resource services	<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>
<p>CU3. Evaluate human resource service delivery</p>	<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>
<p>CU4. Manage integration of business ethics in human resource practices</p>	<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.



061900931 Scrape data from the web

Overview: After the completion of this competency standard the candidate will be able to Scrape different types of data from the Web, build web pages and extract data from a variety of e-sources

Competency Units	Performance Criteria
CU1. Build a static web page	P1. Implement basic HTML tags P2. Implement basic HTML attributes usage. P3. Implement basic JavaScript behaviors. P4. Perform inspection of a webpage. P5. Create a basic webpage
CU2. Extract data as per requirement	P1. Set request headers. P2. Set request cookie values where required P3. Configure a driver to some browser as required P4. Generate a request to webserver P5. Load response stream P6. Convert stream to page source/content P7. Read response headers
CU3. Parse a web page with appropriate package	P1. Perform installation of beautiful soup P2. Import package into program P3. Request a content to download P4. Find required content from page source P5. Append content P6. Convert content to a data frame P7. Export data
CU4. Extract data from an HTML tag	P1. Find tag by name P2. Find tag by attribute values P3. Navigate through values. P4. Retrieve tag values P5. Retrieve attribute values.
CU5. Parse xml /JSON	P1. Read xml/json file. P2. Create xml/json object. P3. Forward navigating through elements. P4. Backward navigation through elements. P5. Navigate through XPath.



Knowledge and Understanding

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

- K1:** Knowledge of Web-browsers.
- K2:** Knowledge of URLs.
- K3:** Understanding of synchronous and asynchronous webpage loading/data loading.
- K4:** Understanding of basic XML/JSON structure.

Critical Evidence(s)

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

- Should be able to generate web requests
- Should be able to retrieve required data
- Should be able to save data.

Tools/ Equipment/ Manual Required

- Computer system
- Internet facility
- Python
- BeautifulSoup
- Request
- Drivers



061900932 Process Images through Image Processing Software

Overview: This competency standard deals with the skills and knowledge required to perform basic image manipulation/Editing operation

Competency Units	Performance Criteria
CU1. Perform Basic Image Operations	<p>P1. Read image from file</p> <p>P2. Display an image from data</p> <p>P3. Perform global threshold</p> <p>P4. Perform adaptive thresholding</p> <p>P5. Perform image sharpening</p> <p>P6. Perform image blurring using averaging</p> <p>P7. Perform image blurring using median</p> <p>P8. Perform image blurring using Gaussian</p> <p>P9. Perform image cropping</p> <p>P10. Find image contours</p>
CU2. Apply Image Filters	<p>P1. Creating 2D convolution filter</p> <p>P2. Apply Laplacian filter for edge detection</p> <p>P3. Apply X,Y Sobel filter on noisy images</p> <p>P4. Apply canny edge detection filter</p> <p>P5. Plot filtered images</p>
CU3. Change Color Spaces	<p>P1. Perform RGB to greyscale conversion</p> <p>P2. Perform RGB to HSV conversion</p> <p>P3. Perform RGB to LAB colour conversion</p> <p>P4. Perform RGB to YCrCb colour conversion</p>
CU4. Perform Geometrical Transformation	<p>P1. Perform scaling operation on image</p> <p>P2. Perform image translation</p> <p>P3. Perform image rotation to any angle</p> <p>P4. Perform affine transformation</p>
CU5. Perform Morphological Operations	<p>P1. Perform image opening</p> <p>P2. Perform image erosion</p> <p>P3. Perform image dilation</p> <p>P4. Perform image closing</p> <p>P5. Perform morphological erosion</p> <p>P6. Perform top hating on image</p>



CU6. Match Image Templates for object Recognition	P1. Apply minmax lock function P2. Perform template based object matching P3. Perform feature based object matching P4. Perform area based object matching
CU7. Extract Foreground from the Image	P1. Apply grabcut technique for foreground extraction P2. Prepare image mask of suitable size P3. Apply image mask for foreground extraction P4. Perform series of basic image operations to extract foreground

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

K1: Define filter

K2: Define morphological operations

K3: Understand application of filters

K4: Understand image edges and their application

K5: Understand the effect of changing mask size in image filtering

K6: Understand basic convolution concepts

K7: Recognize different color spaces

Critical Evidence(s)

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

- Extract foreground from a given image
- Convert an image into desired color scale
- Plot an image
- Use suitable technique for edge detection
- Use suitable technique for contours finding
- Perform suitable series of morphological operations for image enhancement
- Match a template in a large size image.



Tools and Equipment

- Computer system with high performance GPU(s) with graphic card
- High speed high capacity storage
- High resolution display
- Suitable compiler to install and run OpenCV
- OpenCV software package, latest version



061900933 Work with Data Manipulation Toolkit

Overview: After the completion of this competency standard the candidate will be able to operate the manipulation toolkit, perform a variety of manipulation operations to import/export the data.

Competency Units	Performance Criteria
<p>CU1. Import Data</p>	<p>P1. Open a python script P2. Import pandas P3. Import a csv file using “read_csv” function P4. Import an excel file using “read_excel” function P5. Import from any other file type using appropriate “read” function</p>
<p>CU2. Index and Filter Data</p>	<p>P1. Import data in a python script P2. Index columns using a list of columns P3. Index rows based on a list of index values P4. Index rows based on a conditional statement (mask) P5. Index columns based on a conditional statement (mask) P6. Index columns based on a range of columns P7. Index rows based on a range of index value</p>
<p>CU1. Perform Basic Column Level Operations</p>	<p>P1. Rename column P2. Apply a function element-wise to a column using “apply” P3. Get value counts of a column P4. Get sum of values in a column P5. Get basic stats of a column (mean/median/standard deviation etc.) P6. Change type of a column P7. Perform a vectorized arithmetic operation on a column P8. Delete a column P9. Duplicate a column P10. Group values of a column and apply an operation on each group</p>



<p>CU2. Handle missing data</p>	<p>P1. Count number of missing values in each column P2. Fill missing values with a specific string P3. Fill missing values with mean of the column P4. Delete rows with missing values</p>
<p>CU3. Perform string level operations and Regex</p>	<p>P1. Convert a column to string P2. Divide a column into two based on a separator P3. Check if each row contains a specific substring P4. Extract substring out of each row in a column P5. Check if each row starts with a specific substring P6. Replace a specific substring in each row in a column P7. Change case of a string column P8. Strip spaces from the sides of each row in a column P9. Concatenate a value to each row in a column P10. Concatenate another column with a string column elementwise P11. Perform custom operations using “apply”</p>
<p>CU4. Merge Data</p>	<p>P1. Merge two data frames using merge functions P2. Perform different types of joins on two dataframes P3. Concatenate two or more dataframes row wise P4. Concatenate two or more dataframes column wise</p>
<p>CU5. Reshape Data</p>	<p>P1. Stack a dataframe P2. Unstack a dataframe P3. Create a pivot table P4. Melt a dataframe P5. Pivot a dataframe</p>
<p>CU6. Apply Row/Cell level Operations</p>	<p>P1. Count null values in a row P2. Drop/select specific rows based on a condition P3. Drop/select rows by index P4. Reset index of rows P5. Set a custom index of rows</p>



Knowledge and Understanding

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

- K1:** Knowledge of pandas Series and DataFrame
- K2:** Knowledge of Series operations
- K3:** Knowledge of DataFrame operations
- K4:** Knowledge of missing data imputation
- K5:** Knowledge of column and row operations
- K6:** Knowledge of string operations
- K7:** Knowledge of merging and reshaping data

Critical Evidence(s) Required

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

- Load data in any format using pandas
- Index and filter data based on conditions
- Clean dataframes
- Merge and reshape dataframes
- Perform operations on dataframe rows and columns.

Tools and Equipment

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

- Computer system with python installed
- Pip package manager
- Stable version of pandas
- Text/Code editing application
- Terminal/cmd application



061900934 Work with Multidimensional Arrays’ Manipulation and Computation Package

Overview: After the completion of this competency standard the candidate will be able to work efficiently with Multidimensional Arrays to perform variety of programming/control jobs

Competency Units	Performance Criteria
CU1. Handle ndarray	<p>P1. Read ndarray from pickle file</p> <p>P2. Write ndarray to a pickle file</p> <p>P3. Iterate over arrays</p> <p>P4. Append elements to an ndarray</p> <p>P5. Drop elements from ndarray</p>
CU2. Perform Index ndarray	<p>P1. Perform basic slicing and indexing on ndarray</p> <p>P2. Index ndarray using a mask (Boolean array indexing)</p> <p>P3. Index ndarray using integer array indexing</p>
CU3. Operate on ndarray	<p>P1. Perform binary operations on arrays</p> <p>P2. Perform string operations on arrays</p> <p>P3. Perform comparison operations on arrays</p> <p>P4. Change type of an array</p> <p>P5. Split arrays (split, dsplit, vsplit, hsplit)</p> <p>P6. Tile arrays</p> <p>P7. Rearrange array (reshape, roll, flip)</p>
CU4. Reshape ndarray	<p>P1. Change dimensions with “reshape”</p> <p>P2. Flatten array with “ravel”</p> <p>P3. Move axis of an array</p> <p>P4. Roll axis of an array</p> <p>P5. Swap axes of an array</p> <p>P6. Take transpose of an array</p> <p>P7. Broadcast an array</p>
CU5. Merge ndArrays	<p>P1. Concatenate arrays</p> <p>P2. Stack arrays</p> <p>P3. Stack 1D arrays as columns in a 2D array (column stack)</p> <p>P4. Perform stacking on particular axes (dstack, hstack, vstack)</p>



CU6. Process Text Data	P1. Read text documents into variables P2. Tokenize text documents P3. Count number of unique words in a document P4. Convert a text document into a label encoded array P5. Encode a document phrase using one hot encoding
CU7. Handle new sources of Data	P6. Read Audio data as numpy array P7. Read Image data as numpy array P8. Read LIDAR data as numpy array P9. Read Time Series data as numpy array

Knowledge and Understanding

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

- K1:** Knowledge of numpy arrays
- K2:** Knowledge of numpy data types
- K3:** Knowledge of numpy ndarray operations
- K4:** Knowledge of reading and writing arrays in pickle

Critical Evidence(s) Required

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

- Save array in a pickle format
- Load array from a pickle format
- Index arrays
- Split and merge arrays
- Reshape arrays
- Drop and add elements in an array



Tools and Equipment

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

- Computer system with python installed
- Pip package manager
- Stable version of numpy and pickle
- Text/Code editing application
- Terminal/cmd application



Complete List of Tools, Equipment and Machines

- Mouse
- Keyboard
- Monitor / LCD / LED
- Hard Disk / SSD (1 TB or more)
- DVD ROM / CD ROM / DVD Writer
- Cables (VGA / DVI / HDMI / Ps/2 Cable / Ethernet RJ45 / 3.5 mm Audio / USB / Computer Power Cord)
- Scanner
- Printer
- DSL Model
- CPU (Core i7 or better)
- Mother Board
- Power Supply
- NICs
- RAM (32 GB or better)
- Multimedia
- GPU (NVidia RTX2060 or better or at least 10% of total computers or 4 / lab whichever is greater)
- Laser Printer
- OS (Windows / Linux/ Mac)
- Word Processor (MS Office/ Libre Writer etc)
- Spreadsheet Software (MS Excel/ Libre Calc etc)
- Python (3.6/ 2.7/ Latest Stable Version)
- PIP Package Manager (19.0 / Latest Stable Version)
- Data Wrangling Package (Pandas etc)
- Scientific Programming Package (Numpy etc)
- Data Scrapping Packages (Beautiful Soup)
- Image Processing Package (Open CV / Mat Lab etc)
- Open Source Labeling Tools (Label Box / Label Image / Rect Label / Image Lab etc)



- Multimedia Projection System
- High definition video camera
- High resolution still camera
- Audio recording and sound system



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
<p>CU1. Manage Information System to complete a task</p>	<p>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</p> <ul style="list-style-type: none"> • Compress • Zip /unzip
<p>CU2. Prepare Presentation using computers</p>	<p>P1. Prepare presentation as per requirements, i.e.</p> <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 <p>P2. Customize basic settings to meet user requirements P3. Format presentation as require</p> <ul style="list-style-type: none"> • Develop organizational charts • Add objects and manipulate to meet presentation purposes • Modify slide layout, including text and colours, to meet



	<p>presentation requirements</p> <ul style="list-style-type: none">• 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.



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>CU5. Develop a business plan</p>	<p>P4. 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>P5. Select the best option in terms of cost, service, quality, sales, profit margin, overall expenses</p> <p>P6. Compile the information collected through the market survey, in the business plan format</p>
<p>CU6. Collect information regarding funding sources</p>	<p>P5. Identify the available funding sources based on their terms and conditions, maximum loan limit, payback time, interest rate</p> <p>P6. Choose the best available option according to investment requirement</p> <p>P7. Prepare documents according to the loan agreement requirement</p> <p>P8. Include the information of funding sources in the business plan</p>
<p>CU7. Develop a marketing plan</p>	<p>P3. Make a marketing plan for the business including product, price, placement, promotion, people, packaging and positioning</p> <p>P4. Include the information of marketing plan in the business</p>



	plan
CU8. Develop basic business communication skills	P4. Communicate with internal customers e.g.: labor, partners and external customers e.g. suppliers, customers etc., using effective communication skills P5. Use different modes of communication to communicate internally and externally e.g.: presentation, speaking, writing, listening, visual representation, reading etc. P6. 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:

- K11:** Explain the 7ps of marketing including product, price, placement, promotion, people, packaging and positioning
- K12:** Describe 7Cs of business communication
- K13:** Define different modes of communication and their application in the industry
- K14:** Enlist specific business terms used in the industry
- K15:** Enlist the available funding sources
- K16:** Explain how to get loan to start a new business
- K17:** Explain market survey and its tools e.g. questionnaire, interview, observation etc.
- K18:** Describe the market trends for specific product offering
- K19:** State the main elements of business plan
- K20:** 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

