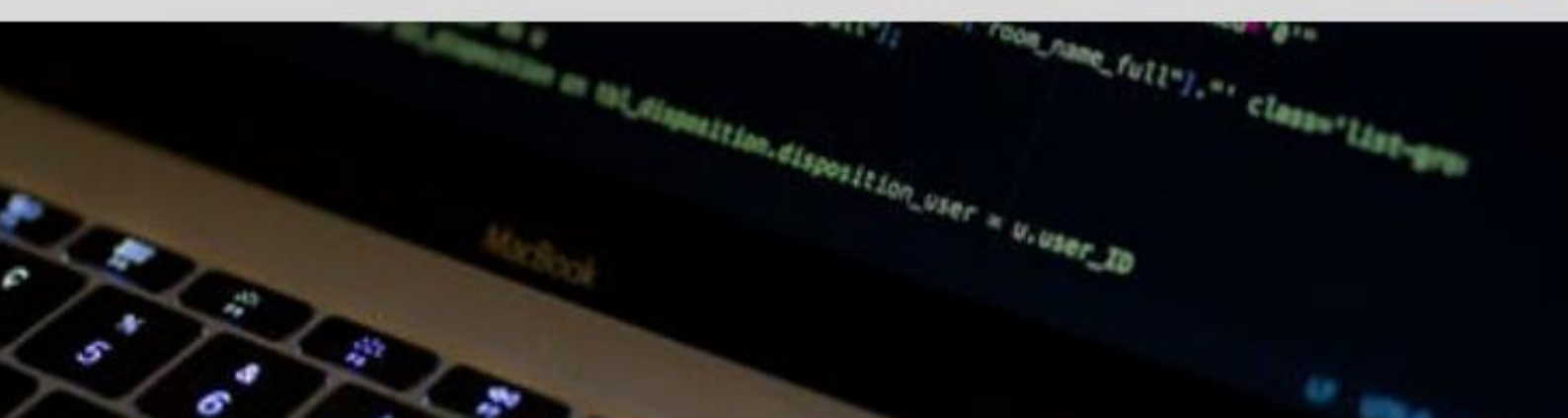


COMPETENCY STANDARDS

OF

INFORMATION COMMUNICATION TECHNOLOGY (DAE - Level- 5)



ACKNOWLEDGEMENTS

National Vocational and Technical Training Commission (NAVTTTC) extends its gratitude and appreciation to many representatives of business, industry, academia, government agencies, Provincial TEVTAs, Sector Skill Councils and trade associations who spared their time and expertise to the development and validation of these National Vocational Qualifications (Competency Standards, Curricula, Assessments Packs and related material). This work would not have been possible without the financial and technical support of the TVET Sector Support Programme co-funded by European Union, Norwegian and German Governments implemented by GIZ Pakistan. NAVTTTC is especially indebted to *Dr. Muqeem ul Islam*, who lead the project from the front. The core team was comprised on:

- *Dr. Muqeem ul Islam*, Director General (Skills,Standards and Curricula) NAVTTTC
- *Mr. Muhammad Naeem Akhtar*, Senior Technical Advisor TSSP-GIZ,
- *Mr. Muhammad Yasir*, Deputy Director (SS&C Wing) NAVTTTC
- *Mr. Muhammad Ishaq*, Deputy Director (SS&C Wing) NAVTTTC
- *Mr. Muhammad Fayaz Soomro*, Deputy Director (SS&C Wing) NAVTTTC

NAVTTTC team under the leadership of Dr. Muqeem ul Islam initiated development of CBT & A based qualifications of diploma level-5 as a reform project of TVET sector in November 2018 and completed 27 NVQF diplomas of Level-5 in September, 2019. It seems worth highlighting that during this endeavor apart from developing competency standards/curricula in conventional trades new dimensions containing high-tech trades in TVET sector in the context of generation IR 4.0 trades have also been developed which inter alia includes Robotics, Mechatronics, artificial intelligence, industrial automation, instrumentation and process control. Moreover, trades like entrepreneurship, green/environmental skills and variety of soft/digital skill have also been developed to equip the Pakistani youth with skills set as per requirement of the global trends. These skills have been made integral part of all the 27 diplomas.

Nobody has been more important in the pursuit of this project than Dr. Nasir Khan, Executive Director, NAVTTTC, whose patronage and support remain there throughout the development

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1. INTRODUCTION

Computer science and the fundamentals of computer programming, which is specifically designed for students with no prior programming experience, and touches upon a variety of fundamental topics. This course will cover a brief history of software development, and show how human thought and computer programming are related. This training programme will also build upon these general concepts to cover object-oriented programming terminology such as objects, classes, inheritance, and polymorphism. During this process, use Java to show how those fundamentals are implemented in a real programming language. Trainee will do this by demonstrating Java's primitive data types, relational operators, control statements, exception handling, and file input/output.

This specialization covers topics ranging from basic computing principles to the mathematical foundations required for computer science. You will learn fundamental concepts of how computers work, which can be applied to any software or computer system. You will also gain the practical skill set needed to write interactive, graphical programs at an introductory level. The numerical mathematics component will provide you with numerical and computational tools that are essential for the problem solving and modeling stages of computer science. By the end of this course, trainee will understand the basics of computer science and the Java programming language, net working web development which will help to further as you progress through the computer science discipline.

The National Skills Strategy (NSS) aims at achieving a paradigm shift from time-bound and supply led to competency-based and demand driven training in Pakistan. Competency-based training approach focuses on the demonstration of actual skills required in the workplace/industry. To achieve this strategy, NAVTTC in collaboration with GIZ is involved in the development process of CBT program to ensure competent skilled labor in demand driven vocational trades.

National Vocational Qualification Framework (NVQF) as designed in consultation with the stakeholders including academia, researchers, industry, chambers and TEVTAs. Its aim is to identify knowledge & skills required for a qualification, determine equivalence, provide guidelines for Recognition of Prior Learning (RPL) and assure quality of training. NVQF designed for the Vertical and horizontal progression for learners, recognition of qualification, meeting with the national and international standards, facilitate conversion of informal training to formal training through RPL, improvement in quality of training and increased options for learners for selecting training programs in different trades. Competency Standards are performance specification that identify the *knowledge* and *competencies* an individual need to succeed in the workplace.

2. PURPOSE OF THE QUALIFICATION

The purpose of this qualification is to give the candidate a thorough understanding and skills of the Information Sector with special reference to computer application in three years training programme. The information technology industry needs skilled labour for meeting the national and international standards. It is therefore important to stress the need for a multidisciplinary approach to meet the challenges within the sector. Upon successful completion of this course the trainee should be able to know:

- Core elements and the development of information technology industry
- Give an account of essentials of information technology and future of this industry
- Demonstrate an understanding of different
- Point out relevant industry stakeholders & their roles in driving innovative in information technology
- Improve the professional competence of the trainees
- Provide opportunities for recognition of skills attained through non-formal or informal pathways
- Improve the quality and effectiveness of training and assessment for information technology industry skilled labour
- Enhance information technology industry activities at regional/provincial/national levels through better approach

3. DATE OF VALIDATION

These national qualifications have been validated by the Qualification Development Committee (QVC) on 20-22 May, 2019 in Lahore and will remain currency until May 2029.

4. DATE OF REVIEW

These national qualifications may be reviewed in May, 2022

5. 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 as assigned as follow:

Qualification Title	Code
National Vocational qualification Level-3 in Computer Operator	0610-I&CT
National Vocational qualification Level -3 in IT Office Assistant	0610-I&CT
National Vocational qualification Level -4 in IT Lab Assistant	0610-I&CT
National Vocational qualification Level -5 in Assistant System Administrator	0610-I&CT
National Vocational qualification Level -5 in Assistant Network Administrator	0610-I&CT
National Vocational qualification Level -5 in Assistant Programmer	0610-I&CT
National Vocational qualification Level -5 in Assistant Web Developer	0610-I&CT
National Vocational qualification Level -5 in Assistant Graphic Designer	0610-I&CT

6. QUALIFICATION DEVELOPMENT COMMITTEE

The following members participated in the qualifications development workshop 2019 in Peshawar

Sr.N	Name & Designation	Organization
1.	Dr. Muhammad Bakhsh Deputy Director (IT/CS)	Pakistan Academy for Rural Development
2.		
3.		
4.		
5.		
6.	Muhammad Nasir Khan DACUM Facilitator	EX-DD, SS&C Wing-NAVTTTC, Islamabad, DACUM Expert

***missing**

7. QUALIFICATION VALIDATION COMMITTEE

The following members participated in the qualification validation workshop from 20-22 May 2019, in Lahore:

S.No.	Name & Designation	Organization
1.	Dr. Muhammad Bakhsh Deputy Director (IT/CS)	Pakistan Academy for Rural Development
2.	Engr. Amjad Ali, Assistant Professor	GCT, SWAT
3.	Shaikh Humayun Bashir Sr. Instructor	GCT, Allam Iqbal Town, Lahore
4.	Syed Shadab Ali Shah, Assistant Professor	GPI Karak
5.	Ms. Afshan Aziz, Administrator	GTVC Gulbahar KP TEVTA
6.	Ms. Uzma, Chief Instructor (IT)	GATC, Township, Lahore
7.	Ch. Amanullah, Sr. Research Officer	Punjab Technical Education Board
8.	Fayaz A. Soomro Deputy Director (TE)	Quality Assurance
9.	Muhammad Nasir Khan	EX-DD, SS&C Wing-NAVTTTC, Islamabad, DACUM Expert

8. ENTRY REQUIREMENTS

Entry requirements of this qualification are Matric Science or level 4 or equivalent

9. REGULATIONS FOR THE QUALIFICATION AND SCHEDULE OF UNITS

Not applicable

10. PACKAGING OF QUALIFICATION

The national vocational qualifications are packaged as per following:

LEVEL-1 (core competency)	
0610-I&CT	Identify Main Components of Computer
LEVEL-2 (core competencies)	
0610-I&CT	Maintain Computer System (Desktop)
0610-I&CT	Create Document in MS Word

0610-I&CT	Apply Basic formulas in MS Excel
0610-I&CT	Create Presentation in MS PowerPoint
LEVEL-3 (core competencies)	
0610-I&CT	Assemble a Computer System (Server)
0610-I&CT	Install Office Application Suit
0610-I&CT	Develop Static Web Pages using Hyper Text Markup Language (HTML)
0610-I&CT	Install Computer Operating System (Desktop)
0610-I&CT	Format Document in MS Word
0610-I&CT	Design Graphs in MS Excel
0610-I&CT	Troubleshoot Network Connectivity
0610-I&CT	Perform Basic Structured Computer Programming
LEVEL- 4 (core competencies)	
0610-I&CT	Maintain Peripheral Devices
0610-I&CT	Develop Database in MS Access
0610-I&CT	Design Computer Network
0610-I&CT	Develop interactive Web Pages
0610-I&CT	Configure a Web Server/ Hosting Server
0610-I&CT	Configure File Server
0610-I&CT	Apply formulas with conditional formatting in MS Excel
0610-I&CT	Perform Advanced structured Computer Programming
0610-I&CT	Configure Work Group Computer Network
0610-I&CT	Perform Basic Coral Draw Operations
0610-I&CT	Perform Basic Photoshop Operations
LEVEL-5 (core competencies)	
0610-I&CT	Configure Computer Network
0610-I&CT	Develop Database with MySql
0610-I&CT	Develop Mobile Based Webpage
0610-I&CT	Develop Website in PHP
0610-I&CT	Assemble Computer System(Server)
0610-I&CT	Assemble and De-assemble Central Processing Unit Components
0610-I&CT	Configure Domain Controller (Server)
0610-I&CT	Configure Clinet Server Based Computer Network
0610-I&CT	Extract Data using Pivot Table
0610-I&CT	Perform Object Oriented Programming using Java
0610-I&CT	Perform Advanced Photoshop Operations
0610-I&CT	Perform Advanced Coral Draw operations
0610-I&CT	Perform Basic AutoCAD Operations

*Numbering to be added

12.SUMMARY OF COMPETENCY STANDARDS

Code	Competency Standards	Level	Theory Contact Hours	Practical Contact Hours	Total Contact Hours	Category
Level 2						
1.	Operate digital media technology	2	10	30	40	Generic
2.	Use social media tools for collaboration and engagement	3	10	30	40	Generic

3.	Work safely in an office environment	2	20	40	60	Generic
4.	Identify Main Components of Computer	2	20	40	60	Technical
5.	Maintain Computer System (Desktop)	2	20	40	60	Technical
6.	Create Document in MS Word	2	20	40	60	Technical
7.	Apply Basic formulas in MS Excel	2	10	30	40	Technical
8.	Create Presentation in MS PowerPoint	3	20	40	60	Technical
9.	Assemble a Computer System (Server)	2	10	30	40	Technical
Total			140	330	470	
Level 3						
1.	Develop Entrepreneurial Skills	3	20	40	60	Generic
2.	Develop workplace documents	3	20	40	60	Generic
3.	Install Office Application Suit	3	10	30	40	Technical
4.	Develop Static Web Pages using Hyper Text Markup (HTML)	3	30	60	90	Technical
5.	Install Computer Operating System (Desktop)	3	20	40	60	Technical
6.	Format Document in MS Word	3	10	30	40	Technical
7.	Design Graphs in MS Excel	3	20	40	60	Technical
8.	Troubleshoot Network Connectivity	3	20	60	80	Technical
9.	Perform Basic Structured Computer Programming	3	20	40	60	Technical
Total			170	380	550	
Level 4						

1.	Maintain professionalism in the workplace	4	20	40	60	Generic
2.	Manage meetings	3	10	30	40	Generic
3.	Develop Database in MS Access	4	40	100	140	Technical
4.	Design Computer Network	4	20	60	80	Technical
5.	Develop interactive Web Pages	4	20	40	60	Technical
6.	Configure a Web Server/ Hosting Server	4	10	60	70	Technical
7.	Configure File Server	4	20	80	100	Technical
8.	Apply formulas with conditional formatting in MS Excel	4	20	40	60	Technical
Total			160	450	610	
Level 4						
1.	Create technical documentation	4	20	40	60	Generic
2.	Apply project information management and communications techniques	4	20	60	80	Generic
3.	Apply project human resources management approaches	5	20	60	80	Generic
4.	Perform Advanced structured Computer Programming	5	20	50	70	Technical
5.	Configure Work Group Computer Network	4	20	60	80	Technical
6.	Perform Basic Coral Draw Operations	4	10	50	60	Technical
7.	Perform Basic Photoshop Operations	5	20	40	60	Technical
8.	Configure Computer Network	5	20	80	100	Technical
9.	Develop Database with MySql	5	20	40	60	Technical

Total		170	480	650		
Level 5						
1.	E-Commerce Social Media Marketing	5	20	50	70	Generic
2.	Develop a project management plan	5	10	40	50	Generic
3.	Develop a sales plan	5	10	40	50	Generic
4.	Develop Mobile Based Webpage	5	10	40	50	Technical
5.	Develop Website in PHP	5	10	30	40	Technical
6.	Assemble Computer System(Server)	5	20	80	100	Technical
7.	Configure Domain Controller (Server)	5	20	80	100	Technical
8.	Configure Client Server Based Computer Network	5	20	40	60	Technical
9.	Extract Data using Pivot Table	5	20	30	50	Technical
Total		140	430	570		
Level 5						
1.	Direct human resources management of a project program	5	10	40	50	Generic
2.	Manage personal work priorities and professional development	5	10	40	50	Generic
3.	Undertake project work	5	10	40	50	Generic
4.	Apply interpersonal skills	5	10	40	50	Generic
5.	Assemble and De-assemble Central Processing Unit Components	5	10	40	40	Technical
6.	Maintain Peripheral Devices	5	10	40	50	Technical
7.	Perform Object Oriented Programming using Java	5	30	70	90	Technical

8.	Perform Advanced Photoshop Operations	5	20	50	70	Technical
9.	Perform Advanced Coral Draw operations	5	10	40	50	Technical
10.	Perform Basic AutoCAD Operations	5	10	50	60	Technical
Total			110	470	580	
Grand Total			890	2540	3430	

11. OCCUPATIONS OF COMPUTER TECHNOLOGY (ICT)

S. N	Name of Occupation/Nomenclature	Level	Digital Skills required	Soft Skills required	Entrepreneurship	Technical Skills required
	Computer Operator	3	1	---	----	1,2,5,6,7,9,11,12,13, 21, 33
	IT Office Assistant	3	1	----	----	1,2,5,6,7,8,9,11,12,13,21, 33,14,24, 25
	IT Lab Assistant	4	3,4,5	2,11	1,2	2,3,4,8,9,11,14,17,20, 22,23
	Assistant System Administrator	5	6,7	1,3,4,5,6,7,8, 9,10,12, 13,14	3,4,5,6,7,8, 9, 10	2,3,4,8,9,11,14,17,20, 22,23, 19,20,30
	Assistant Network Administrator	5	6,7	1,3,4,5,6,7,8, 9,10,12, 13,14	3,4,5,6,7,8, 9, 10	2,3,4,8,11,14,17,19,20,23,26,30, 31,32

	Assistant Programmer	5	6,7	1,3,4,5,6,7,8, 9,10,12, 13,14	3,4,5,6,7,8, 9, 10	13,14,20,25, 32
	Assistant Web Developer	5	6,7	1,3,4,5,6,7,8, 9,10,12, 13,14	3,4,5,6,7,8, 9, 10	8,11,14,16,17,22,23, 25.26 ,27,
	Assistant Graphic Designer	5	6,7	1,3,4,5,6,7,8, 9,10,12, 13,14	3,4,5,6,7,8, 9, 10	22,23,25,27, 33,34,35

0610-I&CT-1. Identify Main Components of Computer

Overview:

This competency standard covers the skills and knowledge required to identify the main components of the computer system (system software, application software, peripherals). It consists of competencies to identify computer hardware, operating system, application software and peripherals.

Competency Units	Performance Criteria
1. Identify input peripheral	P1. Identify key board P2. Identify mouse P3. Identify Camera P4. Identify Scanner P5. Identify microphone P6. Identify Joysticks P7. Identify Read only Memory (ROM) drive
2. Identify output peripherals	P1. Identify monitor P2. Identify printer P3. Identify headphone / earphone P4. Identify speaker P5. Identify multimedia project
3. Identify processing unit	P1. Identify processor P2. Identify Random Access Memory (RAM) P3. Identify Read only Memory (ROM)
4. Identify storage devices	P1. Identify hard disk P2. Identify pen drive/ Universal Serial Bus (USB) storage device P3. Identify compact disk (CD) P4. Identify Digital Versatile Disk (DVD) P5. Identify External Portable USB storage device

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:

- Computer components
- Define different components of computer system
- Devices
- Differentiate system software's and application software's
- Types of computers
- Computer operating systems
- Power ON and power OFF
- Multimedia systems
- Motherboards
- Multimedia storage devices:
- Video cards

- Sound cards

Critical Evidence(s) Required

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

- Draw computer system block diagram

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	Printer
3.	Scanner
4.	Microphone
5.	USB
6.	DVD/ CD
7.	Joystick

0610-I&CT-2. Maintain Computer System (Desktop)

Overview:

This competency standard covers the skills and knowledge required to assemble the main components of the computer system, operating system installation, application installation, configuration of applications and installation of peripheral device. This competency standard also covers drivers installation, testing and diagnostic.

Competency Units	Performance Criteria
1. Assemble computer Hardware	<p>P1. Assemble computer Hardware in accordance with the OH&S policies and procedures</p> <p>P2. Complete the work in accordance with established procedures and check against systems requirements</p> <p>P3. Identify tools, equipment and testing devices needed to carry out the installation work in accordance with established procedures</p> <p>P4. Assemble Computer hardware in accordance with established procedures and systems requirements</p> <p>P5. Perform basic-input-output-system (BIOS) in accordance with hardware requirements</p>
2. Prepare installer	<p>P1. Create portable bootable devices in accordance with software manufacturer instructions</p> <p>P2. Prepare customized installers in accordance with Software utilization guide & end-user agreement</p> <p>P3. Install portable applications in accordance with software user guide and software license</p>
3. Install operating system and drivers for peripherals	<p>P1. Perform operating system (OS) in accordance with established installation procedures and to comply with end-user requirements</p> <p>P2. Perform device drivers are installed and configured in accordance with manufacturer's instructions and/or OS installation procedures</p> <p>P3. Assess OS and drivers updates/patches in accordance with manufacturer's recommendations and requirements</p>
4. Install Application Softwares	<p>P1. Apply software as per installation guides and end-user requirements/license agreement</p> <p>P2. Identify variation to application software installation in accordance to customer/client requirements</p>

	P3. Update software in accordance with manufacturer's recommendations and requirements
5. Troubleshooting	P1. Test devices / systems and installation to determine whether it conforms to the requirements or otherwise P2. Ensure reliability of tested equipment in accordance with manufacturer's instructions and system requirements P3. Complete documentation in relation to the test P4. Send test report to the individual concerned
6. Perform windows scan	P1. Ensure necessary precautions before performing window scanning P2. Perform Window scan on any infected system. P3. Detect the viruses available on the hard disk associated with windows software P4. Delete / quarantine all the viruses successfully which are detected as a result of scan
7. Format External Mass Storage	P1. Ensure necessary precautions as taken before formatting an external mass storage P2. Format external mass storage on a PC / computer P3. Ensure emptiness of the device after formatting
8. Configure basic internet connectivity	P1. Configure basic internet connectivity of a system P2. Perform Ethernet connectivity successfully P3. Perform wireless connectivity successfully

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:

- Define different components of computer system
- Differentiate between data and information.
- Device drivers
- Differentiate system software's and application software's
- Types and parts of computers
- Computer operating systems
- Windows / MAC OS X /Linux
- Peripherals
- Computer systems design
- Computer assembly procedures
- Installers' preparation and OS installation procedures
- Application and devices/drivers installation procedures
- Desktop PC interface/ hook-up procedures
- Power ON self-test and BIOS configuration procedures
- Application packages & use of application programs
- Multimedia systems
- Motherboards
- Multimedia storage devices
- Video cards
- Sound cards

- Graphical user interface (GUI)
- Risk management
- Use of utilities/software
 - Virtualization software
 - Disk management software
 - Anti-virus / Diagnostic software
 - Device drivers
- Drivers/Software update procedures
- Application software license agreements
- Troubleshooting
- Window scan on any infected system

Critical Evidence(s) Required

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

- Make partitions of the hard disk
- Perform installation of operating system
- Virus scan
- Perform customized application software installation

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	Bootable Operating system Software USB/CD [Windows, Unix/Linux]
3.	Application Software
4.	Device Drivers

0610-I&CT-3. Assemble and De-assemble Central Processing Unit Components

Overview: This competency standard covers the skills and knowledge required to cover the basics of computer hardware as well as some issues which can be handled in lab if there is some problem in hardware systems.

Competency Units	Performance Criteria
1. Draw basic gates	P1. Draw OR gate with two inputs P2. Draw AND gate with two inputs.
2. Develop a counter by using Flip Flops.	P1. Add AND gates P2. Draw connections between the gates P3. Write truth table of designed 2-bit counter
3. Install buses and memory	P1. Open CPU box P2. Install memories on PCI slots P3. Fix data buses between the different components
4. Install CD/DVD drive and Hard Disk	P1. Open CPU box P2. Install ROM drive P3. Fix data cable P4. Fix power cable P5. Install Hard Disk P6. Fix data cable P7. Fix power cable

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:

- Develop a concept of Binary Number system.
- Describe the role of gates in Computer hardware.
- Distinguish between Diagrams of various gates.
- Basic Logic Gates.
- Boolean laws
- Concept of truth tables
- Understand the working principal of Universal gates.
- Distinguish between Half adder, Full adder and adder-subtractor
- Distinguish between Multiplexer and De multiplexer
- Distinguish between Decoder and Encoder.
- Expansion of Multiplexer and Decoder.
- Explain multiplexing and its types
- Concept of Memory elements.

- Types of Flip Flops
- Differences between registers and counters
- Distinguish between various components of CPU
- Understand the concept and practicality of component interfacing, clock and buses.
- Concept of RAM and ROM
- Explain Cache mechanism
- Explain interfacing of different CPU components.
- Explain Instruction Set of Assembly Language
- Concept of reduced Instruction Set and Complex Instruction Set Computer
- Explain various registers of Intel Processors
- Concept of Flag and Pin diagram of 8085 and its sub-variants
- Clock cycle and clocking requirements of 8085
- Explain data bases

Critical Evidence(s) Required

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

- Perform data buses fixation in CPU box

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	Screw Driver
3.	Hard Disk
4.	CD/DVD Drive

0610-I&CT-4. Maintain Peripheral Devices

Overview:

This competency standard covers the skills and knowledge required to fix power supply, connection and disconnection of mouse, keyboard, printer, scanner and camera. This unit will cover the knowledge of assembling and de-assembling of CD/DVD drive, Power supply, printer toner and in refilling of printer toner.

Competency Units	Performance Criteria
1. Assemble Power supply	P1. Screw the power supply components P2. Install power supply in CPU box P3. Fix power cables to all devices
2. Assemble Printer	P1. Open printer tray P2. Place papers in the tray P3. Open printer main cabin P4. Install toner P5. Print test page
3. Scan page with scanner	P1. Install scanner P2. Scan page and save it as PDF document.

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:

- Preventive and Practical Maintenance of Contributors to Failures, Scheduled Maintenance and Error/Fault Record
- Use of Testing/Measuring Instruments
- Introduction of Input / Output Devices, Second Level of Maintenance, Hardware Diagnostic Routines and Diagnostic Software
- Motherboard, CPU Architectures along with CPU Socket Types
- Expansion of Bus and BIOS / CMOS, Commonly Occurring Faults and Important Signals for Fault Tracing, Diagnostic Tests, Preventive Measures
- Troubleshooting, Repair and Operating Principle of Power Supply
- Connectors and supply safety of Power Supply
- Troubleshooting Procedures and Commonly Occurring Faults
- Overview and Installation of RAM Module Types
- Maintenance and Repair of Printers and its types.
- Maintenance and Repair of Scanners and its types
- Maintenance and Repair of Display Devices
- Maintenance and Repair of Keyboard & Mouse
- Troubleshooting Basic I/O Interface Card and Surface Mount PCB
- Theory of Basic Input and Output Ports

- Fault Diagnosis and Repairs of I/O card.

Critical Evidence(s) Required

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

- Perform toner refilling operation with ink

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	Printer
3.	Scanner
4.	Device Drivers

0610-I&CT-5. Create Document in MS Word

Overview:

This competency intends to provide knowledge and skills on preparation of word documents. It also deals with basic interface, tools/menu management and word processing software handling techniques.

Competency Units	Performance Criteria
1. Install MS Office suit	P1. Ensure that necessary precautions have been taken before installing any software application P2. Register a software with the help of its key P3. Install MS Office application carefully as per instructional manual
2. Type a Word Document	P1. Open a new word file P2. Give a name and location to save the word file P3. Type in a MS word file P4. Ensure typed document is error free P5. Develop the typing speed as per standards
3. Set-up page in a Word Document	P1. Apply the page margins on the word document P2. Set a suitable orientation P3. Set the suitable size of the page P4. Divide word page in columns in the word file P5. Add new page
4. Edit Word Document	P1. Edit a typed word document P2. Insert a new word or delete a word in the MS word file P3. Insert a new paragraph or delete a paragraph in the MS word file P4. Add or delete a page or group of paragraph through selection P5. Check the spellings in the word file through available dictionary P6. Edit a MS document is as per the given specification / criteria / demand

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:

- Understand different software applications.
- Explain the procedure to install a software application as per given instructional manual.
- Explain how to open a new or saved file in MS Word.
- Explain how to save file in MS Word.
- Give details for use of Key Board for typing
- Explain how to apply the page margins in a word document.
- Define page set-up for word format.
- Explain editing, Add or delete a word, add or delete a paragraph, Add or delete a page and Apply spell checking

Critical Evidence(s) Required

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

- Perform installation of a software application as per given instructional
- Set up page margins in a word document

Tools and Equipment required

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

Sr. No	Items
1.	Computer System
2.	MS Office suit

0610-I&CT-6. Apply Basic Formulas in MS Excel

Overview:

This competency intends to provide knowledge and skills on preparation of spreadsheets. It also deals with basic interface, tools/menu management and spreadsheets handling techniques.

Competency Units	Performance Criteria
1. Design a Basic Excel sheet	P1. Open a blank workbook P2. Give a name and location to save the workbook P3. Enter data in Excel Sheet P4. Ensure typed document is error free
2. Set-up page in Excel Sheet	P1. Apply the page margins on the Excel sheet P2. Set a suitable orientation P3. Set the suitable size of the page P4. Add new worksheet
3. Design a marks sheet in MS Excel	P1. Create a mark sheet of the class student having roll#, name ,Subject marks P2. Use sum formula for adding subject marks P3. Use average formula for calculating average of student

Knowledge and Understanding

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

- Explain how to open a new or saved workbook in MS Excel.
- Explain how to save file in MS Excel.
- Explain how to apply the page margins in MS Excel.
- Define page set-up for MS Excel.
- Define Basic Formulas.
- Explain editing, Add or delete data in MS Excel.

Critical Evidence(s) Required

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

- Create a workbook
- Add sheets in workbook
- Apply arithmetic operation on data (addition, subtraction, division, multiplication)

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	MS Excel

0610-I&CT-7. Create presentation in MS PowerPoint

Overview:

This competency intends to provide knowledge and skills on preparation of presentation. It also deals with basic interface, tools/menu management and presentation handling techniques.

Competency Units	Performance Criteria
1. Design a Basic PowerPoint presentation	P1. Open a new powerpoint presentation P2. Give a name and location to save the powerpoint presentation P3. Enter text / graph / picture in slide P4. Ensure typed presentation is error free
2. Set-up presentation templates	P1. Open the existing slide design P2. Apply the desired design P3. Set the suitable size of the slide P4. Add new / delete slide P5. Set the slide view as per requirement
3. Run a PowerPoint slide show	P1. Open a power point presentation P2. Click on slide show icon on task bar P3. Press arrow key to move to the next slide P4. Press escape to end a slide show

Knowledge and Understanding

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

- Explain how to open a new or saved power point presentation,
- Explain how to save file in MS Power point,
- Explain how to apply slide design in MS power point,

- Explain editing, Add or delete text image graph in power point slides.

Critical Evidence(s) Required

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

- Prepare a power point presentation containing images, graphs and text as per given requirements

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	MS Power point

0610-I&CT-8. Assemble a Computer System (Server)

Overview:

This competency standard covers the skills and knowledge required to assemble the main components of server machines, server operating system installation, configuration of server machines, client machine configuration, installation of peripherals, network configuration. The trainee will be able to perform troubleshooting.

Competency Units	Performance Criteria
1. Maintain server computer Hardware	<p>P1. Assemble unit in accordance with systems requirements</p> <p>P2. Gather necessary materials for completion of the work as identified/obtained in accordance with the established procedures and checked against systems requirements</p> <p>P3. Identify tools, equipment and testing devices as needed for installation work obtained in accordance with the established procedures and checked for correct operation and safety</p> <p>P4. Assemble <i>computer hardware</i> in accordance with the established procedures and systems requirements</p> <p>P5. Perform basic-input-output-system (BIOS) configuration in accordance with the hardware requirements</p>
2. Prepare installer.	<p>P1. Create portable bootable devices in accordance with the software manufacturer instructions</p> <p>P2. Prepare customized installers in accordance with the software utilization guide and end user agreement</p>

	<p>P3. Carry out Installation of portable applications in accordance with software user guide and software license</p>
<p>3. Install server operating system and drivers</p>	<p>P1. Install operating system (OS) in accordance with the established installation procedures and to comply with end-user requirements</p> <p>P2. Install device drivers and configured in accordance with manufacturer's instructions or OS installation procedures</p> <p>P3. Carry out drivers updates/patches as installed in accordance with manufacturer's recommendations and requirements</p> <p>P4. On-going checks of the quality of the work are undertaken in accordance with the established procedures</p>
<p>4. Create and setup user access</p>	<p>P1. Create users and groups</p> <p>P2. Create user folder in accordance with server operating system features</p> <p>P3. Access configured based for user on operating system features</p> <p>P4. Check security according to user's requirements</p>
<p>5. Configure Network</p>	<p>P1. Install required modules/patches according to operating system</p> <p>P2. Configure network services on system as per requirements</p> <p>P3. Test the network cable before fixation</p> <p>P4. Fix network cable in the network devices.</p> <p>P5. Troubleshoot the network configuration</p> <p>P6. Confirm the connectivity</p>
<p>6. Setup User preferences and groups</p>	<p>P1. Carry out sufficient research to determine the needs and preferences of user groups</p> <p>P2. Identify the features of software products that meet the needs and preferences of user groups</p> <p>P3. Add or delete features in line with the needs and preferences of user groups</p> <p>P4. Finalize software packages ready for distribution to users</p> <p>P5. Obtain advice and guidance on packaging software products from appropriate people, where required</p> <p>P6. Comply with your organization's policies, standards, procedures and guidelines when packaging software products</p>
<p>7. Set server operating system services</p>	<p>P1. Enable remote access service according to user requirements as per specified operating system (Microsoft or Linux/Unix based server operating system)</p> <p>P2. Configure security firewall in operating system as per user requirements</p> <p>P3. Configure file server to store and access files as per user requirements</p> <p>P4. Share a printer on network as per user and network requirements</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:

- Server computer components,
- Define different components of server machine,
- Device drivers,
- Differentiate between types of operating system,
- Types of computers,
- Windows / MAC OS X /Linux,
- Peripheral devices,
- Computer assembly procedures,
- Installers preparation and server OS installation procedures,
- Drivers installation procedures,
- Desktop PC interface/ look up procedures,
- Power ON self-test and BIOS configuration procedures,
- Disk management,
- Use of utilities/software,
 - Virtualization software , Disk management software
 - Anti-virus / Diagnostic software, Device drivers
- Drivers/Software update procedures,
- Server operating system license agreements,
- Troubleshooting,
- Internet transfer control protocol,
- Internet Protocol (IP),
- User permission and rights,
- File sharing,
- Printer sharing,
- Firewall,

Critical Evidence(s) Required

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

- Demonstrate server services according to instructions.

Tools and Equipment required

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

Sr. No	Items
1.	Server computer system
2.	Server operating system

0610-I&CT-9. Install office application suit

Overview:

This competency intends to provide knowledge and skills on preparation of MS Office suit installations and up-gradation. It also deals with MS Office suit component addition, repair, and removal.

Competency Units	Performance Criteria
1. Install software applications	<p>P1. Ensure that necessary precautions have been taken before installing MS Office suit</p> <p>P2. Register a software with the help of its key</p> <p>P3. Install a software application carefully as per given instructional manual</p> <p>P4. Select required MS Office component for customized / full installation</p> <p>P5. Select appropriate location for installation of the components</p> <p>P6. Finish installation</p>
2. Up grade the MS Office suit	<p>P1. Select the upgradation package of the MS Office (Offline / Online)</p> <p>P2. Run the selected package</p> <p>P3. Perform the required actions i.e. restart to apply the changes</p>
3. Add or remove MS Office suit components	<p>P1. Select the office suit package</p> <p>P2. Run the selected office suit</p> <p>P3. Select the add / remove option to perform the task</p> <p>P4. Restart the computer to ensure add/ remove task</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:

- Understand different software applications.
- Explain the procedure to install a software application as per given instructional manual.

Critical Evidence(s) Required

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

- Perform MS Office suit installation compatibility

Tools and Equipment required

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

Sr. No	Items
1.	Computer System
2.	MS Office Suit Installation Package

0610-I&CT-10. Develop Static Web Pages using Hyper Text Mark-up Language (HTML)

Overview:

This competency standard covers the skills and knowledge required to know about the web and its uses, functionality of the website in the browser. It will create the knowledge how to use different tags of html and how it works on the website. Know about the installation of different website.

Competency Units	Performance Criteria
1. Design a static webpage.	<p>P1. Install the Text Editor (Notepad++, or Dream viewer) for development.</p> <p>P2. Prepare Mark-ups using basic HTML tags.</p> <p>P3. Ensure the Mark-ups, exactly approved design of the website requirement.</p> <p>P3. Identify a web browser and open website in Browsers (Internet Explorer, Google Chrome, Firefox) and checks the compatibility.</p> <p>P4. Ensure that all tags are properly opened and closed with their pair tags.</p> <p>P5. Able to check the code according to world wide web consortium (w3c) validation</p> <p>P6. Save a web page with HTML extension</p>
2. Design formatting of the HTML page	<p>P1. Apply title tag of HTML</p> <p>P2. Implement following HTML tags:</p> <ul style="list-style-type: none"> • Elements • Attributes • Headings • Paragraphs • Formatting (Bold, underline,) • Links • Lists • Colours • Media (Audio, video , images)
3. Design a table in web page	<p>P1. Add table tag in the body of HTML</p> <p>P2. Add sub tags in the table of HTML</p> <p>P3. Add the attributes of the table tag of HTML</p> <p>P4. Close table tag in the HTML</p>
4. Make image in the web page	<p>P1. Add the image tag in the body of the HTML</p> <p>P2. Add the attributes of the image tag according to user requirements</p> <p>P3. Close the image tag</p>
5. Run a web page in browser	<p>P1. Open the web page in the web browser</p> <p>P2. View the page at runtime</p> <p>P3. Close the web page</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:

- Introduction to HTML
- HTML Document Structure
- Notepad++, Dreamweaver, Sublime, etc.
- Text Formatting related tags in HTML
- Table related tags in HTML such as “table”, “t”, “td”.
- Forms related tags in HTML.

Critical Evidence(s) Required

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

- Design the webpage in the HTML by showing information containing text, graphics and tables according to the user requirement

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	Set up of browser

0610-I&CT-11. Install Computer Operating System (Desktop)

Overview:

This competency standard covers the skills and knowledge required to assemble the main components of computer system, operating system installation, configuration of computer system, installation of peripherals, network configuration. The trainee will be able to perform troubleshooting.

Competency Units	Performance Criteria
1. Prepare installer.	<p>P1. Create portable bootable devices in accordance with the software manufacturer instructions</p> <p>P2. Prepare customized installers in accordance with the software utilization guide and end user agreement</p> <p>P3. Carry out Installation of portable applications in accordance with software user guide and software license</p>
2. Install operating system and drivers	<p>P1. Install operating system (OS) in accordance with the established installation procedures and to comply with end-user requirements</p> <p>P2. Install device drivers and configured in accordance with manufacturer's instructions or OS installation procedures</p> <p>P3. Carry out drivers updates/patches as installed in accordance with manufacturer's recommendations and requirements</p> <p>P4. On-going checks of the quality of the work are undertaken in accordance with the established procedures</p>
3. Create and setup user accounts	<p>P1. Create users accounts</p> <p>P2. Assign passwords to user accounts</p> <p>P3. Assign privileges to user accounts</p>
4. Configure Network	<p>P1. Install required modules/patches according to operating system</p> <p>P2. Configure network services on system as per requirements</p> <p>P3. Test the network cable before fixation</p> <p>P4. Fix network cable in the network devices.</p> <p>P5. Troubleshoot the network configuration</p> <p>P6. Confirm the connectivity</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:

- Define different components of computer system,
- Device drivers,
- Differentiate between types of operating system,
- Types of computers,
- Windows / MAC OS X /Linux,
- Peripherals,
- Computer assembly procedures,
- Installers preparation and OS installation procedures,

- Drivers installation procedures,
- Desktop PC interface/ look up procedures,
- Power ON self-test and BIOS configuration procedures,
- Disk management,
- Use of utilities/software,
 - Virtualization software
 - Disk management software
 - Anti-virus / Diagnostic software
 - Device drivers
- Drivers/Software update procedures,
- Server operating system license agreements,
- Troubleshooting,
- Define TCP-IP,
- Firewall,

Critical Evidence(s) Required

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

- Demonstrate disk management on computer system as per instructions

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	Single user operating system installation package

0610-I&CT-12. Format Document in MS Word

Overview:

This basic module intends to provide knowledge and skills on preparation of word documents. It also deals with basic interface, tools/menu management, safety aspects, and word processing software handling techniques.

Competency Units	Performance Criteria
1. Install software applications	<p>P1. Ensure that necessary precautions have been taken before installing any software application</p> <p>P2. Register a software with the help of key</p> <p>P3. Install a software application carefully as per given instructional manual</p>
2. Type a Word Document	<p>P1. Open a new word file</p> <p>P2. Give a name and location to save the word file</p> <p>P3. Type in a MS word file with the help of any suitable typing tutor</p> <p>P4. Ensure that typed document is spelling error free</p> <p>P5. Develop the typing speed at least 20 words per minute</p> <p>P6. Open and use some typing tutor programs</p> <p>P7. Use systematic keyboard / finger setting preferably with both hands</p> <p>P8. Perform some online typing test and to make sure that required typing outcome has been achieved through online evaluation</p> <p>P9. Make typing in MS word</p>
3. Set-up page in a Word Document	<p>P1. Apply the page margins on the word document</p> <p>P2. Set a suitable orientation</p> <p>P3. Set the suitable size of the page</p> <p>P4. Insert some columns in the word file where appropriate</p> <p>P5. Perform Page set-up in the given any word file document</p> <p>P6. Ensure new page is added to be edited/worked on.</p>
4. Edit Word Document	<p>P1. Edit a typed word document</p> <p>P2. Insert a new word or delete a word in the MS word file</p> <p>P3. Insert a new paragraph or delete a paragraph in the MS word file</p> <p>P4. Add or delete a page or group of paragraph through selection</p> <p>P5. Check the spellings in the word file through available dictionary</p> <p>P6. Edit a MS document is as per the given specification / criteria / demand</p>
5. Add image in the MS word document	<p>P1. Open the MS word document</p> <p>P2. Select image insert option</p> <p>P3. Select the required image</p> <p>P4. Add caption to the image</p> <p>P5. Adjust image as per requirement</p>
6. Insert header , footer in MS word	<p>P1. Open the MS word document</p> <p>P2. Insert header / footer as per requirement</p> <p>P3. Insert page number in footer</p>

document	P4. Insert document title in header P5. Close header and footer veiw
7. Apply basic formatting to MS word document	P1. Add bullets and number to list in MS word document P2. Apply indentation P3. Apply line spacing as per requirement in MS word document P4. Apply super scripts and sub scripts P5. Insert text box P6. Apply word art P7. Apply font setting
8.Insert table	P1. Insert table P2. Add/Delete Row P3. Add/Delete Column

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:

- Define header and footer
- Explain indentation
- Explain Font Setting
- Explain Table setting

Critical Evidence(s) Required

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

- Produce a word documents which contains the information in form of text, image, table .

Tools and Equipment required

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

Sr. No	Items
1.	Computer System
2.	MS Office Suite

0610-I&CT-13. Design Graphs in MS Excel

Overview:

This competency standard covers the skills and knowledge required to know about the arithmetic operations in MS Excel .This unit will also cover the knowledge and skill required to draw graphs from data.

Competency Unit	Performance criteria
1.Design a marks sheet in MS Excel	P1. Create a mark sheet of the class student having roll#, name ,Subject marks P2. Use sum formula for adding subject marks P3. Use average formula for calculating average of student P4. Use IF formula to calculate Grade of student
2.Calculate values by using formula and functions	P1. Create list of values in a column P2. Use formula bar and enter formula using the list of values in a column P3. Use arguments for the formula and press enter
3.Design graphs in MS Excel	P1. Enter your data into Excel. P2. Choose one of nine graph and chart options to make. P3. Highlight your data and 'Insert' your desired graph. P4. Switch the data on each axis, if necessary. P5. Adjust your data's layout and colors. Change the size of your chart's legend and axis labels.
4.Extract information by using Pivot table in MS Excel	Trainee will be able to P1. Select the pivot table by clicking a cell within it. P2. Click the Analyze tab's Select command and choose Entire PivotTable from the menu that appears. P3. Copy the pivot table. ... P4. Select a location for the copied data by clicking there. P5. Paste the pivot table into the new range.

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:

- Understanding basic arithmetic and logical operations
- Differentiate graphs types
- Explain the Purpose of pivot table

Critical Evidence(s) Required

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

- Produce Excel sheet which shows the information in the form of charts

Tools and Equipment required

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

Sr. No	Items
1.	Computer System
2.	MS Excel

0610-I&CT-14. Troubleshoot Network Connectivity

Overview:

This competency standard covers the skills and knowledge required to create, check and trouble shoot connectivity between computers. It includes configuration of network devices and communication end points.

Competency Units	Performance Criteria
1. Configure Communication settings.	P1. Login in to a computer with Windows Operating system. P2. Check if the system is already configured with a valid IP address and subnet mask.
2. Check Network Media.	<i>Trainee will be able to:</i> P1. Check the cables through cable tester. P2. Check the cables are properly plugged-in P3. Perform Ping operation

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:

- Define Network components
- Knowledge of transmission control protocol and internet Protocol(TCP/IP)
- Explain the purpose of subnetting and gateway
- Define MAC address

Critical Evidence(s) Required

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

- Demonstrate ping command attributes

Tools and Equipment required

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

Sr. No	Items
1.	Computer System
2.	Network Interface Card(NIC)
3.	Cables (STP/UTP)
4.	RJ 45 connectors
5.	Switch
6.	Cable Tester

0610-I&CT-15. Perform Basic Structured Computer Programming

Overview:

This competency standard covers the skills and knowledge required to protect from all security threats by ensuring personal safety, work place safety Machines/tools and equipment safety, interpret environmental regulation preparation and safety of all tools and equipment.

Competency Units	Performance Criteria
1. Develop a computer program (simple)	P1. Analyse a given problem P2. Open the IDE for coding P3. Code a simple program P4. Compile a code P5. Debug the code (in case of error) P6. Run a code
2. Develop a program based on control structures	P1. Use of IF statement P2. Use of IF ELSE statement P3. Use of SWITCH statement
3. Develop program using loop structures	P1. Use of FOR loop P2. Use of WHILE loop P3. Use of DO-WHILE loop P4. Use of nested loop

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:

- Define a given problem
- Describe the basic programming concept
- Define IDE
- Define basics of C language
- Define Data Types, Variables, Constants and Variables.
- Define basic input and output statements.
- Define debugging of a code
- Define IF statement
- Define IF ELSE statement
- Describe the use of SWITCH statement
- Define loop structure
- Define FOR loop
- Define WHILE loop
- Define DO-WHILE loop
- Define nested loop
- Define language translator

Critical Evidence(s) Required

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

- Develop program using loops

Tools and Equipment required

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

Sr. No	Items
1.	Computer
2.	IDE

0610-I&CT-16. Develop Database in MS Access

Overview:

This competency standard covers the skills and knowledge required to know about the uses and functionalities of databases. This unit will cover database, database implementation using MS Access, Data retrieval using select query, Data extraction, comparison and validation through operators and expressions and Normalizing a database.

Competency Units	Performance Criteria
1. Develop database	P1. Installation of DBMS tools P2. Identify entities and relationship P3. Develop conceptual model
2. Database implementation using MS Access	P1. Open MS Access P2. Create Database P3. Create Table P4. Identify keys P5. Entering data P6. Retrieving and filtering records
3. Data retrieval using select query	P1. Open query wizard P2. Write the required query for record selection P3. Apply filters using query design mode P4. Run the query
3. Data extraction, comparison and validation through operators and expressions	P1. Use of arithmetic operators P2. Use of comparison operators P3. Use of logical operators P4. Use of special operators
4. Normalizing a database	P1. Remove duplicate groups P2. Solve problem inconsistency P3. Remove transitive dependency

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:

- Understanding database concepts
- Define database types (Hierarchical, Relational)
- Describe entities and their association
- Define attributes, keys and its types
- Define different data types
- Describe MS Access
- Define Tables
- Define Quires and Forms
- Define Reports

- Differentiate QBE and SQL
- Define different types of queries
- Define DDL and DML queries.
- Define operators and its various types
- Define different types of expressions
- Explain the concept of validation
- Define normalization
- Explain first normal form
- Explain second normal form
- Explain third normal form
- Explain functional dependencies

Critical Evidence(s) Required

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

- Extract required data fields from a relation.

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	Database Management System (MS Access)

0610-I&CT-17. Design Computer Network

Overview:

This competency standard covers the skills and knowledge required to know about the computer network and its use. This unit will cover the knowledge of media, network components, configuration, network types, and Splice network cables.

Competency Unit	Performance Criteria
1.Classify Network types	<p>P1. Use of LAN, WAN technologies</p> <p>P2. Implement basic LAN in a computer Lab.</p> <p>P3. Design/Develop a prototype for WAN</p>
2.Classify Network Devises	<p>P1. Select/Differentiate LAN/WAN based devices</p> <p>P2. Install core devices of LAN/WAN</p> <p>P3. Link interconnected devices of LAN/WAN</p>
3.Design Prototype Model	<p>P1. Develop an actual prototype model for a real LAN network mentioning all necessary devices and requirements.</p> <p>P2. Develop a prototype model for a real WAN network</p> <p>P3. Implement network configuration for a real LAN/WAN</p>
4.Troubleshoot a Computer Network	<p>P1. Figure out the problem(s) related to hardware/software of a LAN/WAN</p> <p>P2. Troubleshoot the basic LAN computer network</p> <p>P3. Identify possible alternatives of network troubleshooting</p>
5.Splice network cables	<p>P1. Identify which cable media is suitable for a given LAN technology.</p> <p>P2. Make appropriate network cable using tools and connectors</p> <p>P3. Test the validation of the cable using networking tools</p> <p>P4. Troubleshoot an existing network cable(s)</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:

- Understanding Network types
- Define Network devices
- Identify prototype models
- Explain local area network (LAN)
- Explain wide area network (WAN)
- Define IP Schemes
- Differentiate cable types

Critical Evidence(s) Required

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

- Demonstrate a work group network

Tools and Equipment required

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

Sr. No	Items
1.	Computer system(s)
2.	Net work switches
3.	Net work interface cards
4.	Network Cables (STP/ UTP)
5.	Network connectors
6.	Cable Testers

0610-I&CT-18. Develop Interactive Web Pages

Overview:

This competency standard covers the skills and knowledge required to know about the web and their uses, functionality of the website in the browser. Know about the installation of different website development related software and their difference, configuration of the website in the server and their browser compatibility. This unit will cover the knowledge of front end and backend web technologies and their difference, tools and languages which is used in the website development.

Competency Units	Performance Criteria
1. Designe formatted pages containing Forms	<p>P1. Apply appropriate features and options of different HTML tags</p> <p>P2. Identify different types of Designs.</p> <p>P3. Recognize Basic Elements of Design</p> <p>P4. Express Web Design Standards and Principles</p> <p>P5. Identify difference between web design and web development.</p> <p>P6 Spot the difference between web design and graphic design.</p> <p>P7. Show the importance of design in a website formatting.</p> <p>P8. Implement HTML concepts such as:</p> <ul style="list-style-type: none"> Elements Attributes Headings Paragraphs Formatting (Bold, underline,) Links Lists Colours Media (Audio, video , images) <p>P9. Enhancements of Basic Form and their controls.</p>
2. Format a page through Cascading Style Sheets (CSS)	<p>P1. Create basic Cascading Style Sheets (CSS).</p> <p>P2. Import CSS file.</p> <p>P3. Embed the External style sheet to HTML pages.</p> <p>P4. Implement relevant formatting as used in the CSS file according to the business needs.</p> <p>P5. Apply Common tasks, such as fonts, links and pseudo class are useful to documents to ensure uniformity with design requirements.</p> <p>P6. Implement style attribute to an individual element.</p> <p>P7.Chose style attributes are applied to HTML selectors /elements</p> <p>P7. Select pproperty and values (for example to define colour, font size) according to design specifications</p> <p>Multiple style declarations for single selectors are correctly separated.</p> <p>P8. Check the website into different browser to ensure business and customer expectations are met.</p>
3. Design responsive webpages with	<p>P1. Download Bootstrap or include a Include Bootstrap from a CDN</p>

<p>Bootstrap.</p>	<p>P2. Ensure the setup process of responsive Bootstrap website. P3. Arrange the content section area and build the navigation bar of the website P4. Arrange the right sidebar. P5. Build the footer of the website. P6. Create First Web Page with Bootstrap P7. Apply the Bootstrap Templates. P8. View the website using many different devices to ensure business and customer expectations are met.</p>
<p>4. Hide and Show elements using Java Script</p>	<p>P1. Identify of client side scripting language. P2. Add JavaScript to a Page P3. Attach an External JavaScript File P5. Use conditional statements P6. Handle repetitive tasks with loops P7. Complete Document Object Model P8. Add JavaScript Libraries into the webpage. P9. Include JQuery library. P10. Hide element by suing JQuery functions. P11. Show element by suing JQuery functions. P12. Apply validations on forms using JavaScript</p>
<p>5. Install Web server for PHP and Create PHP Website.</p>	<p>P1. Ensure availability of system specifications i.e. hardware, RAM, hard drive, processor. P2. Ensure the availability of required software/ licenses. (Xamp or Wamp) P3. Install App server or Xamp or Wamp. P4. Testing on a remote Server P5. Decide on Development tools P6. Use of Local host and PHPMyAdmin P8. Write PHP code in a website editor (Dreamviewer or Notepad++) P9. Implement the PHP Variable Types PHP Constants Numbers Strings Different Types of Operator. Control structures in PHP GET and POST Different form field types Self-referencing forms</p>
<p>6. Implement Sessions and cookies.</p>	<p>P1.Start a PHP Session P2.Access the PHP Session Variable Values P3.Modify PHP Session Variable P4.Remove all global session variables and destroy the session. P5.Creates a cookie. P6.Retrieve the value of the cookie. P7.Modify cookie.</p>

	<p>P8.Delete a cookie.</p> <p>P9.Test for the cookie status (enable, disable).</p>
<p>7. Implement CRUD operations in PHP</p>	<p>P1.Install and configure MySQL database by Using PHPmyAdmin</p> <p>P2.Create a Database adding a table.</p> <p>P3.Create a Field in the table.</p> <p>P4.Implement a different data type of table Column according to user requirements.</p> <p>P5.Browse a table and checks their type of the column / field.</p> <p>P6.Connect PHP with mysql database. Implement the mysql_connect() function mysql_select_db() function</p> <p>P7.Test a connection</p> <p>P8.Implement SQL queries Using Select, Insert, Update and Delete</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:

- Introduction to HTML
- HTML Document Structure
- Notepad++, Dreamweaver, Sublime, etc.
- Text Formatting related tags in HTML
- Table related tags in HTML.such as “table”, “t”, “td”.
- Forms related tags in HTML.
- Purpose of CSS
- Related CSS tags for background colors tables, inline, internal and external.
- Concept of Responsive webpages.
- Purpose of Bootstrap and its related libraries.
- Concept of JavaScript and JQuery.
- JQuery functions. .
- Concepts of data validation.
- Purpose and concept of PHP.
- Purpose and concept of App server.
- Purpose and concept of sessions
- Purpose and concept of cookies.
- Concept of mysql database.
- Concept of CRUD operations.

Critical Evidence(s) Required

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

- Demonstrate an interactive web page by using server side scripting

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	Dream viewer /PHP
3.	Apache server
4.	Java Virtual Machine (JVM)

0610-I&CT-19. Configure Web Server/ Hosting Server (IIS)

Overview:

This competency standard covers the skills and knowledge required to install, configure and test a Web Server in Microsoft Server. The competency includes the installation and testing of Microsoft Internet Information Service (IIS) as an example.

Competency Units	Performance Criteria
1. Install IIS	P1. Configure the server P3. Use the Server Manager P4. Use Add roles and Features P4. Choose IIS from server roles P5. Add IIS as a feature and install
2. Test IIS	P1. Launch IIS P2. Open browser P3. Write local host in address bar of browser
3. Create virtual directory	P1. Locate IIS folder P2. Create virtual directory in IIS folder P3. Place a page in virtual directory P4. Open browser P5. Write local host in address bar of browser

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:

- Purpose of a Web Server
- Basic Software installation knowledge.
- Knowledge of Website Hosting.
- Knowledge of IIS and other technologies.
- Use of the Server Manager
- Working knowledge of Windows Server operating systems

Critical Evidence(s) Required

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

- Demonstrate the configuration of web server n

Tools and Equipment required

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

Sr. No	Items
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1.	Computer system
2.	Windows operating system
3.	Web server (IIS)

0610-I&CT-20. Configure file server

Overview:

This competency standard covers the skills and knowledge required to install and configure the file server or storage server. The trainee will also be able to configure the access permissions/ resource sharing and troubleshooting.

Competency Units	Performance Criteria
1. Install server operating system and drivers	<p>P1. Install operating system (OS) in accordance with the established installation procedures and to comply with end-user requirements</p> <p>P2. Install device drivers and configured in accordance with manufacturer's instructions or OS installation procedures</p> <p>P3. Carry out drivers updates/patches as installed in accordance with manufacturer's recommendations and requirements</p> <p>P4. On-going checks of the quality of the work are undertaken in accordance with the established procedures</p>
2. Configure file server	<p>P1. Enable file server manager services</p> <p>P2. Allow remote access</p>
3. Develop access control scenarios	<p>P1. Configure quota management</p> <p>P2. Configure stored file classification according to requirements</p> <p>P3. Configure file screening</p> <p>P4. Configure user access /permission</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:

- Server computer components,
- Define different components of server machine,
- Device drivers,
- Differentiate between types of operating system,
- Types of computers,
- Windows / MAC OS X /Linux,
- Peripheral devices,
- Disk management,
- Use of utilities/software,
 - Virtualization software

- Disk management software
- Anti-virus / Diagnostic software
- Device drivers
- Drivers/Software update procedures,
- Server operating system license agreements,
- Troubleshooting,
- Internet transfer control protocol,
- Internet Protocol (IP),
- User permission and rights,
- File sharing,
- Printer sharing,
- Firewall,

Critical Evidence(s) Required

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

- Demonstrate file server resource manager service.

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	Server operating system

0610-I&CT-21. Apply formulas with conditional formatting in MS Excel

Overview:

This competency standard covers the skills and knowledge required to know about the advanced features of MS Excel. This unit will cover the knowledge of the advanced conditional formatting and its applications

Competency unit	Performance criteria
1. Design a marks sheet in MS Excel	<p>P1. Create a mark sheet of the class student having roll#, name ,Subject marks</p> <p>P2. Use sum formula for adding subject marks</p> <p>P3. Use average formula for calculating average of student</p> <p>P4. Use IF formula to calculate Grade of student</p>
2. Calculate values by using formula and functions	<p>P1. Create list of values in a column</p> <p>P2. Use formula bar and enter formula using the list of values in a column</p> <p>P3. Use arguments for the formula and press enter</p>
3. Design graphs in MS Excel	<p>P1. Enter your data into Excel.</p> <p>P2. Choose one of nine graph and chart options to make.</p> <p>P3. Highlight your data and 'Insert' your desired graph.</p> <p>P4. Switch the data on each axis, if necessary.</p> <p>P5. Adjust your data's layout and colors. Change the size of your chart's legend and axis labels.</p>
4. Design a conditional formatting statement	<p>P1. Add formula operator in specific cell</p> <p>P2. Add the conditional formatting statement</p> <p>P3. Apply control shift at a specified concerned cell</p>
5. Extract information by using Pivot table in MS Excel	<p>P1. Select the pivot table by clicking a cell within it.</p> <p>P2. Click the Analyze tab's Select command and choose Entire PivotTable from the menu that appears.</p> <p>P3. Copy the pivot table. ...</p> <p>P4. Select a location for the copied data by clicking there.</p> <p>P5. Paste the pivot table into the new range.</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:

- Understanding basic arithmetic and logical operations
- Differentiate graphs types
- Explain conditional formatting
- Define formula operators
- Explain the Purpose of pivot table

Critical Evidence(s) Required

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

- Demonstrate conditional formatting as per user requirements

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	MS Excel

0610-I&CT-22. Perform Advanced Structured Computer Programming

Overview:

This competency standard covers the skills and knowledge required to develop how to write a computer program. It will create the knowledge to write lists of instructions for a computer to follow and to develop the software programs, the scripts, or other sets of instructions for the computers to execute. This unit will cover the knowledge of programming language C which has variety of data types and powerful operators. Due to this, students will be able to write computer programs efficiently and easily.

Competency Units	Performance Criteria
1. Develop a program using Arrays	P1. Use of Arrays P2. Use of one dimension array declaration. P3. Use of Array declaration. P4. Use of Array initialization. P5. Use of Array elements accessing. P6. Use of Two dimension array declaration.
2. Develop a program using Functions	P1. Use of simple FUNCTIONS. P2. Use of Function Declaration. P3. Use of Function Prototype. P4. Use of Function definition. P5. Use of Function Call. P6. Use of passing parameters to Function.
4. Develop a program using pointers	P1. Declare the pointer variable P2. Assign the value to the pointer variable P3. Access value of pointer variable by address operator
5. Develop a computer program using structures	P1. Declare the structure P2. Declare the elements of the structures P3. Assign value to structure variables

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:

- Define Relational operators
- Define Logical operators.
- Define conditional operator.
- Define Arrays.
- Explain one dimension array declaration.
- Explain the initialization of array.
- Explain the accessing of array elements.
- Define the declaration of two dimension array.
- Define Functions.

- Explain types of functions
- Explain function prototype
- Explain function definition.
- Explain the use of function call.
- Explain the passing parameters to Function.
- Define the pointer
- Define structure
- Declare and initialize the structure elements

Critical Evidence(s) Required

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

- Develop a computer program using structures

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	Integrated Development Environment (IDE)
3.	Turbo C, C++, Code block

0610-I&CT-23. Configure Work Group Computer Network

Overview:

This competency standard covers the skills and knowledge required to know about the computer network, its types, IP Schemes and resource sharing. This unit will cover the knowledge of TCP /IP, typologies, cable types, network devices and Splice network cables.

Competency unit	Performance criteria
1. Design Network	P1. Use of LAN Technologies P2. Implement basic LAN in a computer Lab. P3. Design/Develop a prototype for LAN
2. Select Network Device	P1. Select/Differentiate LAN based devices P2. Install core devices of LAN P3. Link interconnected devices of LAN
3. Troubleshoot a Computer Network	P1. Figure out the problem(s) related to hardware/software of a LAN P2. Troubleshoot the basic LAN computer network P3. Identify possible alternatives of network troubleshooting
4. Splice network cables	P1. Identify which cable media is suitable for a given LAN technology. P2. Make appropriate network cable using tools and connectors P3. Test the validation of the cable using networking tools P4. Troubleshoot an existing network cable(s)
5. Design IP Scheme	P1. Identify the number of computers on LAN P2. Select appropriate IP Scheme P3. Implement the selected IP Scheme P4. Ensure the implementation of selected IP Scheme
6. Validate the IP Scheme	P1. Check the physical connectivity of computers on LAN P2. Apply ping command to validate the connectivity
7. Troubleshoot LAN	P1. Check the network connectivity of computers on LAN P2. Validate the IP Scheme P3. Validate the subnet mask P4. Open command prompt console. P5. Identify network error by applying ping 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 knowledge of:

- Understanding Network types
- Define Network devices
- Identify prototype models
- Explain local area network (LAN)

- Define IP Schemes
- Differentiate cable types
- Define different components of computer system
- Differentiate between data and information.
- Windows / MAC OS X /Linux

Critical Evidence(s) Required

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

- Demonstrate logical network typology

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	Network switches
3.	Network cables
4.	Connectors

0610-I&CT-24. Perform Basic Corel Draw Operations

Overview:

This competency standard covers the skills and knowledge required to know about the basic graphic designing tools Corel Draw, its interface (menus, drawing area and tools). This unit will also cover the knowledge of image editing, resolution setting, new drawings (2D drawings).

Competency Unit	Performance Criteria
1. Install a graphic designing tool	P1. Install CorelDraw P2. Follow all the steps of installation. P3. Check the graphic tools after installation
2.Format an Image in Coral Draw	P1. Open the Image. P2. Select the required tool and apply on image P3. Check the image.
3.Design layers in moving objects	P1. Insert layers and open image or draw object or image on layer. P2. Select all objects on a specific layer and also move object from one layer to another layer and also copy past the object on different layer P3. Duplicate specific layer and also inert new layer P4. Show or hide layers and objects. P5. Lock or unlock the object or layers. And also merge the layers.
4.Design an object in Coral Draw	P1. Install Coral Draw P2. Work on different text style, images, line or shape P3. Draw different shapes as required P4. Reshape the objects P5. Align the objects as required P6. Transform the objects as required P7. Save edited object
5. Design Shapes in Coral Draw	P1. OpenCoral Draw P2. Design shapes in coral draw using different tools like rectangle,ellipse,polygon etc P3. Design the Shapes as required P4. Save the Shapes or objects in jpg, png etc formatt.

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:

- Corel draw interface
- Set up drawing page
- Customizing the command bar
- Saving and printing drawing

- Basic shapes and working paths
- Adding text to object
- Customs strokes
- Drop shadows
- Wrap text
- Import image text
- Text effects
- Modify objects
- Create symbols

Critical Evidence(s) Required

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

- Demonstrate objects creation and spraying

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	Corel draw
3.	printer

0610-I&CT-25. Perform Basic Photoshop Operation

Overview:

This competency standard covers the skills and knowledge required to know about the computer graphics application Adobe Photoshop, its interface, workspace and navigation tools. This unit will also cover the knowledge of image editing, setting colour space, image enhancement, spraying, and animation.

Competency unit	Performance Criteria
1. Install Adobe Photoshop	P1. Locate Adobe Photoshop Package P2. Install the package P3. Validate the tool after installation
2. Format an Image in Adobe Photoshop	P1. Open the Image. P2. Select the required tool and apply on image P3. Check the image.
3. Design layers in moving objects	P1. Create layers and open image or draw object or image on layer. P2. Select all objects on a specific layer and also move object from one layer to another layer and also copy past the object on different layer P3. Duplicate specific layer and also insert new layer P4. Show or hide layers and objects. P5. Lock or unlock the object or layers. And also merge the layers.
4. Design an object	P1. Draw different shapes as required P2. Reshape the objects P3. Align the objects as required P4. Transform the objects as required P5. Save edited object
5. Design Shapes	P1. Open Adobe Photosop P2. Design shapes in coral draw using different tools like rectangle, ellipse, polygon etc P3. Design the Shapes as required P4. Save the Shapes or objects in jpg, png etc format.

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:

- Photoshop interface
- Customized the workspace
- Use of pen tool
- Lasso tool
- Setting color space
- Image conversion

- Layer panel
- Filter effects
- Layers and layers merging
- Image save with different graphic extensions

Critical Evidence(s) Required

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

- Demonstrate image flattening in Photoshop

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	Adobe Photoshop
3.	Printer

0610-I&CT-26. Configure Computer Network

Overview:

This competency standard covers the skills and knowledge required to know about the network configuration, IP Schemes, TCP/IP, WAN Technologies, Virtual Private Network (VPN) and different type of switches. This unit will also cover the knowledge of layered switches, switches configuration and cables splicing.

Competency unit	Performance Criteria
1.Install Network device	P1. Select the appropriate network device P2. Fix network cables P3. Validate network connectivity
2. Configure TCP / IP	P1. Open Network connections P2. Assign appropriate IP address to nodes with subnet mask P3. Use Ping command to validate the connectivity
3. Configure firewall	P1. Open firewall from control panel P2. Turn on windows firewall P3. Select appropriate network type P4. Configure allowed application list as per requirement P5. Allow a specific port in windows firewall as per requirement P5. Set firewall notifier
4. Add Virtual Private Network (VPN)	P1. Open network setting P2. Select VPN as a connection type P3. Add a VPN connection P4. Select VPN Provider P5. Select Connection names P6. Add server name and addresses P7. Select connection protocol P8. Select sign in method P9. Select connect / disconnect

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:

- LAN, WAN and VPN technologies
- IP Schemes
- Operating System
- Firewall

Critical Evidence(s) Required

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

- Block specific port through firewall

Tools and Equipment required

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

Sr. No	Items
1.	Computer Systems
2.	Operating system
3.	Switches
4.	Network cables
5.	Connectors
6.	Cable testers

0610-I&CT-27. Develop Database with Mysql

Overview:

This competency standard covers the skills and knowledge required to know about the databases and their uses, functionality of the databases. It will create the knowledge how to use different Tools of Database and how they work on the MySQL. Know about the installation of different Databases. This unit will cover the knowledge of databases especially the MySQL database and all the queries and relational database management system Concept with Practical touch

Competency Units	Performance Criteria
1. Install Mysql Database	P1. Locate MySQL data base package for installation P2. Install the MySQL Software as per requirement
2. Create databas in Mysql	P1. Open MySQL in browser P2. Log in to MySQL with default credentials P3. Create database by using create clause
3. Format Database.	P1. Open database from browser or in SQLYog Tool P2. Create Tables for database P3. Identify keys P4. Identify normalization rules P5. Enter the Data.
4. Select data retrival query	P1. Open database or database tool SQLYog P2. Write the required query for record retrieval P3. Apply filters for specific record P4. Data Retrieval from multiple Table using different join quires P5. Run the query
5. Extract data , comparison and validation through operators and expressions	P1. Use of arithmetic operators P2. Use of comparison operators P3. Use of logical operators P4. Use of Logical operators.
6. Normalize a database	P1. Remove duplication P2. Solve problem inconsistency P3. Remove transitive dependency strings P4. Using Conditional Statements

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:

- MySQL packages
- MySQL compatibility
- Understanding database concepts
- Define database types (Hierarchical, Relational)
- Describe entities and their association

- Define attributes, keys and its types
- Define different data types
- Define Tables
- Define Quires
- Differentiate Between Different Databases
- Define different types of quires
- Define DDL and DML quires.
- Define operators and its various types
- Define different types of expressions
- Define normalization
- Explain first normal form
- Explain second normal form
- Explain third normal form
- Explain functional dependencies

Critical Evidence(s) Required

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

- Demonstrate connectivity with MySql sever

Tools and Equipment required

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

Sr. No	Items
1.	Computer System
2.	MySql package
3.	Web browser

0610-I&CT-28. Develop Mobile Based Web Page

Overview:

This competency standard covers the skills and knowledge required to know about the web and their uses, functionality of the website in the browser. It will create the knowledge how to use different tags of html and how they work on the website. Know about the installation of different mobile based frameworks for website development. This unit will also cover the knowledge of front end and backend web technologies and their difference, tools and languages which is used in the website development.

Competency Units	Performance Criteria
<p>1. Designe formatted pages containing Forms</p>	<p>P1. Apply appropriate features and options of HTML 5 tags</p> <p>P2. Identify different types of Designs.</p> <p>P3. Recognize Basic Elements of Design</p> <p>P4. Express Web Design Standards and Principles</p> <p>P5. Identify difference between web design and web development.</p> <p>P6 Spot the difference between web design and graphic design.</p> <p>P7. Show the importance of design in a website formatting.</p> <p>P8. Implement HTML 5 concepts such as:</p> <ul style="list-style-type: none"> Elements Attributes Headings Paragraphs Formatting (Bold, underline,) Links Lists Colours Media (Audio, video , images) <p>P9. Enhancements of Basic Form and their controls.</p>
<p>2. Format a page through Cascading Style Sheets (CSS)</p>	<p>P1. Create basic Cascading Style Sheets (CSS).</p> <p>P2. Import CSS file.</p> <p>P3. Embed the External style sheet to HTML 5 pages.</p> <p>P4. Implement relevant formatting as used in the CSS file according to the business needs.</p> <p>P5. Apply Common tasks, such as fonts, links and pseudo class are useful to documents to ensure uniformity with design requirements.</p> <p>P6. Implement style attribute to an individual element.</p> <p>P7.Chose style attributes are applied to HTML 5 selectors /elements</p> <p>P8. Select pproperty and values (for example to define colour, font size) according to design specifications Multiple style declarations for single selectors are correctly separated.</p> <p>P9. Check the website into different browser to ensure business and customer expectations are met.</p>

3. Hide and Show elements using Java Script	P1. Identify of client side scripting language. P2. Add JavaScript to a Page P3. Attach an External JavaScript File P5. Use conditional statements P6. Handle repetitive tasks with loops P7. Complete Document Object Model P8. Add JavaScript Libraries into the webpage. P9. Include JQuery library. P10. Hide element by suing JQuery functions. P11. Show element by suing JQuery functions. P12. Apply validations on forms using JavaScript
4. Implement Sessions and cookies.	P1. Start a PHP Session P2. Access the PHP Session Variable Values P3. Modify PHP Session Variable P4. Remove all global session variables and destroy the session. P5. Creates a cookie. P6. Retrieve the value of the cookie. P7. Modify cookie. P8. Delete a cookie. P9. Test for the cookie status (enable, disable).
5. Access native APIs	P1. Locate mobile application development framework P2. Install mobile application development framework P3. Develop a webpage by using HTML 5 and native APIs

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:

- Introduction to HTML
- HTML Document Structure
- Notepad++, Dreamweaver, Sublime, etc.
- Text Formatting related tags in HTML
- Table related tags in HTML.such as “table”, “t”, “td”.
- Forms related tags in HTML.
- Purpose of CSS
- Related CSS tags for background colors tables, inline, internal and external.
- Concept of Responsive webpages.
- Purpose of Bootstrap and its related libraries.
- Concept of JavaScript and JQuery.
- JQuery functions. .
- Concepts of data validation.
- Purpose and concept of PHP.
- Purpose and concept of App server.
- Purpose and concept of sessions
- Purpose and concept of cookies.

- Mobile application development framework
- Native APIs
- HTML 5

Critical Evidence(s) Required

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

- Design a mobile based application form by using mobile application development framework and native APIs

Tools and Equipment required

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

Sr. No	Items
1.	Computer System
2.	Mobile Application Development Framework
3.	HTML 5 Editor
4.	Application Package Developer

0610-I&CT-29. Develop Website in php

Overview:

This competency standard covers the skills and knowledge required to know about the web and their uses, functionality of the website in the browser. It will create the knowledge how to use PHP development tools and application packages for the development of website. This unit will also cover the knowledge of front end, backend web technologies, MySql package, Database connectivity and required tools which are used in the website development.

Competency Units	Performance Criteria
1. Designe a basic PHP web page	<p>P1. Install the PHP Editor (Notepad++, or Dream viewer) for development.</p> <p>P2. Identify a web browser and open website in Browsers (Internet Explorer, Google Chrome, Firefox) and checks the compatibility.</p> <p>P3. Design a basic webpage by using PHP</p> <p>P4. Able to check the code according to w3c validation</p> <p>P5. Save the developed webpage</p> <p>P6. Run the saved webpage on local host</p>
2. Format a page through Cascading Style Sheets (CSS)	<p>P1. Create basic Cascading Style Sheets (CSS).</p> <p>P2. Import CSS file into a PHP Page</p> <p>P3. Implement relevant formatting as used in the CSS file according to the business needs.</p> <p>P4. Apply Common tasks, such as fonts, links and pseudo class are useful to documents to ensure uniformity with design requirements.</p> <p>P5. Check the website into different browser to ensure business and customer expectations are met.</p>
3. Install Apache server for PHP and Create PHP Website.	<p>P1. Ensure availability of system specifications i.e. hardware, RAM, hard drive, processor.</p> <p>P2. Ensure the availability of required software/ licenses. (Xamp or Wamp)</p> <p>P3. Install App server or Xamp or Wamp.</p> <p>P4. Testing on a remote Server</p> <p>P5. Decide on Development tools</p> <p>P6. Use of Local host and PHPMyAdmin</p> <p>P8. Write PHP code in a website editor (Dreamviewer or Notepad++)</p> <p>P9. Implement the</p> <ul style="list-style-type: none"> PHP Variable Types PHP Constants Numbers Strings Different Types of Operator. Control structures in PHP GET and POST Different form field types Self-referencing forms

4. Connect a PHP webpage with MySql data base	P1. Open a PHP editor P2. Design a form in PHP editor P3. Ensure connectivity with MySql P4. Save web page P5. Run web page on local host
5. Implement Sessions and cookies.	P1. Start a PHP Session P2. Access the PHP Session Variable Values P3. Modify PHP Session Variable P4. Remove all global session variables and destroy the session. P5. Creates a cookie. P6. Retrieve the value of the cookie. P7. Modifiy cookie. P8. Delete a cookie. P9. Test for the cookie status (enable, disable).
6. Implement CRUD operations in PHP	P1. Install and configure MySQL database by Using PHPmyAdmin P2. Create a Database adding a table. P3. Create a Field in the table. P4. Implement a different datatype of table Column according to user requirements. P5. Browse a table and checks their type of the column / field. P6. Connect PHP with mysql database. Implement the mysql_connect() function mysql_select_db() function P7. Test a connection P8. Implement SQL queries Using Select, Insert, Update and Delete

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:

- Notepad++, Dreamweaver, Sublime, etc.
- Text Formatting related tags in HTML
- Table related tags in HTML.such as “table”, “t”, “td” .
- Forms related tags in HTML.
- Purpose of CSS
- Related CSS tags for background colors tables, inline, internal and external.
- Concept of Responsive webpages.
- Purpose of Bootstrap and its related libraries.
- Concept of JavaScript and JQuery.
- JQuery functions. .
- Concepts of data validation.

- Purpose and concept of PHP.
- Purpose and concept of App server.
- Purpose and concept of sessions
- Purpose and concept of cookies.
- Concept of MySql database.
- Concept of CRUD operations.
- PHP Development Framework

Critical Evidence(s) Required

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

- Demonstrate a registration form with MySql database connectivity

Tools and Equipment required

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

Sr. No	Items
1.	Computer System
2.	Operating System
3.	PHP Editor
4.	MySql data base package

0610-I&CT-30. Configure Domain Controller

Overview:

This competency standard covers the skills and knowledge required to configure a Domain Controller in Windows Server with active directory configuration. This competency also includes configuring the access control list user permission and backup domain in windows server.

Competency Units	Performance Criteria
1. Prepare installer.	<p>P1. Create portable bootable devices in accordance with the software manufacturer instructions</p> <p>P2. Prepare customized installers in accordance with the software utilization guide and end user agreement</p> <p>P3. Carry out Installation of portable applications in accordance with software user guide and software license</p>
2. Install server operating system and drivers	<p>P1. Install operating system (OS) in accordance with the established installation procedures and to comply with end-user requirements</p> <p>P2. Install device drivers and configured in accordance with manufacturer's instructions or OS installation procedures</p> <p>P3. Carry out drivers updates/patches as installed in accordance with manufacturer's recommendations and requirements</p> <p>P4. On-going checks of the quality of the work are undertaken in accordance with the established procedures</p>
3. Install Active Directory on the Backup Server.	<p>P1. Check if the Computer is configured with a valid IP address.</p> <p>P2. Use the Power Shell to load the Server Manager.</p> <p>P3. Select the Roles and Features.</p> <p>P4. Install active directory domain services</p> <p>P5. Install Active Directory Domain Services role</p>
4. Configure the new Backup Domain Controller	<p>P1. Promote the new server to a domain controller.</p> <p>P2. Add a domain controller to an existing domain.</p> <p>P3. Replicate settings from Primary Domain Controller.</p>
5. Configure DNS settings	<p>P1. Configure the Primary Domain Controller as Preferred DNS server in network Settings on the Backup Domain Controller.</p> <p>P2. Configure all clients' computers with Preferred DNS to primary domain controller and alternate DNS to Backup DNS controller.</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:

- Concept of a Backup Server
- Importance of Backup Server
- Configuration of Active Directory Service
- Working knowledge of Windows Server operating systems
- Configuration of Network Settings.
- Domain Controller
- Domain Name System (DNS) and its purpose
- Difference between Preferred and Alternate DNS

Critical Evidence(s) Required

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

- Demonstrate ACL permission according to the user requirements.

Tools and Equipment required

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

Sr. No	Items
1.	Computer System
2.	Server Operating System Package
3.	Additional Server Packages

0610-I&CT-31. Configure Client /Server Based Computer Network

Overview:

This competency standard covers the skills and knowledge required to know about the installation and configuration of the client and server operating systems. This unit will also cover the user creation, access permission and active directory setting.

Competency Unit	Performance Criteria
1. Install server operating system and drivers	<p>P1. Install operating system (OS) in accordance with the established installation procedures and to comply with end-user requirements</p> <p>P2. Install device drivers and configured in accordance with manufacturer's instructions or OS installation procedures</p> <p>P3. Carry out drivers updates/patches as installed in accordance with manufacturer's recommendations and requirements</p> <p>P4. On-going checks of the quality of the work are undertaken in accordance with the established procedures</p>
2. Install Active Directory	<p>P1. Check if the Computer is configured with a valid IP address.</p> <p>P2. Use the Power Shell to load the Server Manager.</p> <p>P3. Select the Roles and Features.</p> <p>P4. Install active directory domain services</p> <p>P5. Install Active Directory Domain Services role</p>
3. Configure DNS and IP settings	<p>P1. Configure the Primary Domain Controller as Preferred DNS server in network Settings on the Backup Domain Controller.</p> <p>P2. Configure all clients' computers with Preferred DNS to primary domain controller and alternate DNS to Backup DNS controller.</p>
4. Troubleshoot a Computer Network	<p>P1. Figure out the problem(s) related to hardware/software of a LAN/WAN</p> <p>P2. Troubleshoot the basic LAN computer network</p> <p>P3. Identify possible alternatives of network troubleshooting</p>
5. Add a Client Computer System	<p>P1. Install Client computer</p> <p>P2. Fix the Network cable</p> <p>P3. Ensure Network connectivity</p> <p>P4. Open Network connection</p> <p>P5. Change Adaptor setting according to Network configuration</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:

- Server Operating System
- Add-on components of server operating system
- Active Directory

- TCP/IP
- Domain Name Server

Critical Evidence(s) Required

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

- Demonstrate user permissions in Active Directory

Tools and Equipment required

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

Sr. No	Items
1.	Server Operating System Package
2.	Client Operating System Package
3.	Network Switch
4.	Network Cables
5	Network Connectors

0610-I&CT-32. Extract Data using Pivot table

Overview:

This competency standard covers the skills and knowledge required to know about the MS Excel interface, data extraction techniques, table groups and filters.

Competency Unit	Performance Criteria
1. Create Pivot Table	P1. Transfer control to new Excel sheet P2. Highlight the Cell where you would like to create Pivot table P3. Select Insert Tab P4. Select Table Button P5. Select Pivot tables P6. Select table or data range or external data source P7. Select worksheet for placement of Pivot table
2. Filter Data in Pivot Table	P1. Select Fields from field list P2. Drop the fields in relevant sequence area P3. Drag and drop fields in sum area. P4. Drop field to rows or column for labeling
3. Extract information by using Pivot table in MS Excel	P1. Select the pivot table by clicking a cell within it. P2. Click the Analyze tab's Select command and choose Entire PivotTable from the menu that appears. P3. Copy the pivot table. ... P4. Select a location for the copied data by clicking there. P5. Paste the pivot table into the new range.

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:

- Understanding basic arithmetic and logical operations
- Differentiate graphs types
- Explain the Purpose of pivot table
- Filters
- Sum Values
- Column Labeling

Critical Evidence(s) Required

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

- Demonstrate the sum of values of a column by using Pivot table

Tools and Equipment required

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

Sr. No	Items
1.	Computer System
2.	MS Excel

0610-I&CT-33. Advance Formatting in MS Word

Overview:

This competency standard covers the skills and knowledge required to format MS Word Document which includes document protection, section brake insertion, hyperlink and creation of table of contents.

Competency Unit	Performance Criteria
1.Import Document	P1. Import some contents / material in a word document from any other file format. P2. Import some material and contents from internet available online. P3. Import some material from external memory devices.
2.Protect the Word Document	P1. Demonstrate the procedure of protecting a word document with a particular password. P2. Change a password on a word file by

	<p>selecting stronger password.</p> <p>P3. Perform different kinds of protections in a word document such as editing restrictions, read only, restricted users or users with passwords only etc.</p>
3.Hyperlink Data in a Word Document	<p>P1. Associate data as Hyperlink at a given location of a word document.</p> <p>P2. Access hyperlinked data when required.</p>
4.Insert Section Break in a Word Document	<p>P1. Demonstrate procedure of inserting section break in a word document.</p> <p>P2. Differentiate between section break and page break and their purpose and utility.</p> <p>P3. Perform the different attributes of inserting section breaks in a word file.</p>
5.Insert Table contents in a Word Document	<p>P1. Insert a table of contents in a given word document.</p> <p>P2. Perform different heading options in the toolbars for inserting table of content in a word document.</p> <p>P3. Perform the various steps to insert table of content in a word file</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:

- Document Protection and security
- Password Convention
- Hyperlink
- Table of Contents

Critical Evidence(s) Required

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

- Demonstrate the Table of contents

Tools and Equipment required

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

Sr. No	Items
1.	Computer System
2.	MS Word

0610-I&CT-34. Develop Object Oriented Programming

Overview:

This competency standard covers the knowledge and skills on Java Virtual Machine (JVM), Classes, Object, Inheritance, Polymorphism and Encapsulation .It also deals with the functionalities of interface generics and exceptional handling techniques

Competency Units	Performance Criteria
1. Install Net Beans	P1. Locate the Java Language Software Package. P2. Install Java Development Kit P3. Start the setup of the Net Beans and follow the installation instruction P4. Set the Environment Variable and Class path
2. Developing object oriented programs (OOP)	P1. Open the IDE for coding P3. Code a simple program P4. Compile a code P5. Debug the code (in case of error) P6. Run a code
3. Develop OOP based program by using control structures	P1. Use of IF statement P2. Use of IF ELSE statement P3. Use of SWITCH statement
4. Develop program using loop structures	P1. Use of FOR loop P2. Use of WHILE loop P3. Use of DO-WHILE loop
5. Develop Class in OOPs	P1. Use of Class in a program P2. Create Objects in classes in heap area P3. Use of Constructors and Destructor
6. Develop Interface	P1. Create the interface unit P2. Declare the reference variable of the object class P3. Make the methods for child object using encapsulation

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:

- Define object oriented programming (OOP).
- Define the characteristics of OOP
- Differentiate between object and class
- Define IDE
- Define IF statement
- Define IF ELSE statement

- Describe the use of SWITCH statement
- Define loop structure
- Define FOR loop
- Define WHILE loop
- Define DO-WHILE loop
- Define a Class
- Define Object
- Define Constructors and Destructors by using programming examples
- Define operator overloading using different operators.
- Define access specifiers
- Define Inheritance
- Define types of inheritance
- Define polymorphism

Critical Evidence(s) Required

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

- Demonstrate a JAVA Class for student record using classes, objects and inheritance

Tools and Equipment required

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

Sr. No	Items
1.	Computer System
2.	JAVA language Package
3.	Net beans IDE

0610-I&CT-35. Perform Advanced Photoshop Operations

Overview: This competency standard covers the skills and knowledge required to know about the transformation layers, bridging, creation of webpage backgrounds, pattern creations, gradients, custom patterns and image sharpening.

Competency Units	Performance Criteria
1. Image retouching.	P1. Open image in Photoshop P2. Change image shade P3. Embed text in image P4. Save edited image
2. Makeup an image	P1. Open image in Photoshop P2. Add eye lashes and other face effects P3. Add light colour effect on cloths. P4. Save edited image
3. Design object in Adobe Photoshop	P1. Draw shapes as required P2. Reshape the objects P3. Align the objects as required P4. Transform the objects as required P5. Save the object
4. Export file in image format	P1. Design object in Adobe Photoshop P2. Save as an image in jpeg or tif format
5. Design text effects using layer comps	P1. Add image into Adobe Photoshop P.2. Add effects on image using layer comps in a single Photoshop file

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:

- Define graphic designing
- Explain different graphic designing tools
- Differentiate between graphic designing and illustration
- Explain different layers of designing in adobe photoshop
- Explain magic wand tools in adobe
- Define pen tool in adobe
- What is quick mask mode
- Illustrate brush tool, sponge tool, smudge tool in adobe
- Illustrate Coral Draw interface.
- Define pick tool
- Define duplicate command.
- Illustrate welding, trimming and intersecting the objects.
- Define crop tool

- Explain knife and erase.
- Define different image types
- Comp Layer

Critical Evidence(s) Required

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

- Demonstrate image gradient by using comp layer in a single Photoshop file

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	Adobe Photoshop

0610-I&CT-36. Perform Advanced Corel Draw Operations

Overview:

This competency standard covers the skills and knowledge required to know about the text effects, working with styles, templates, symbol creation, bit map tracing, and drawing mergers.

Competency Units	Performance Criteria
1. Image retouching.	P1. Open image in CorelDraw P2. Change image shade P3. Embed text in image P4. Save edited image
2. Makeup an image	P1. Open image in CorelDraw P2. Add eye lashes and other face effects P3. Add light colour effect on cloths. P4. Save edited image
3. Manipulate images	P1. Draw rectangular images of equal size P2. Reshape these images into fruits and face parts P3. Save edited image
4. Design object in Corel Draw	P1. Draw shapes as required P2. Reshape the objects P3. Align the objects as required P4. Transform the objects as required P5. Save the object
5. Export file in image format	P1. Design object in Coral Draw P2. Save as an image in jpeg or tif format
6. Manipulate layers	P1. Check the existing layer P2. Create a layer P3. Import image on a layer
7. Import and Adjust Bitmaps	P1. Add an image P2. Select trace tool P3. Lockdown the image P4. Trace the image P5. Save the image

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:

- Define graphic designing
- Explain different graphic designing tools
- Differentiate between graphic designing and illustration
- Explain different layers of designing in CorelDraw
- Explain magic wand tools in adobe
- Define pen tool in adobe

- What is quick mask mode
- Illustrate brush tool, sponge tool, smudge tool in adobe
- Illustrate Coral Draw interface.
- Define pick tool
- Define duplicate command.
- Illustrate welding, trimming and intersecting the objects.
- Define crop tool
- Explain knife and erase.
- Define different image types
- Image types
- Layers manipulation
- Bitmap tracing

Critical Evidence(s) Required

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

- Demonstrate text merger with drawing

Tools and Equipment required

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

Sr. No	Items
1.	Computer system
2.	CorelDraw

0610-I&CT-37. Perform AutoCAD 2D Basic Operations

Overview:

Perform AutoCAD 2D Fundamentals Overview: The competency standard is designed to provide knowledge and skills to create geometric entities quickly and accurately. In learning to use CAD system, lines and circles are the first two, and perhaps the most important two, geometric entities that one should master the skills of creating and modifying

Competency Unit	Performance Criteria
Control display in drawings	<p>P1. Create AutoCAD drawing files.</p> <p>P2. Save AutoCAD drawing files in proper format.</p> <p>P3. Operate the AutoCAD visual reference commands Including:</p> <ul style="list-style-type: none"> • Zoom Extent • Drawing LIMITS • Status Bar • GRID Display
Create basic drawings	<p>P1. Draw Lines using all possible combination</p> <p>P2. Draw Circle using all possible combination</p> <p>P3. Draw Arc using all possible Combination</p> <p>P4. Draw Ellipse using all possible Combination</p> <p>P5. Draw Rectangle using all possible combination</p> <p>P6. Draw Polygon using all possible combination</p> <p>P7. Draw Square using all possible combination</p> <p>P8. Draw rectangle using all possible combination</p> <p>P9. Save the drawing</p>
Manipulate objects as desired	<p>P1. Execute ERASE command</p> <p>P2. Execute Pan command</p> <p>P3. Execute Real time option</p> <p>P4. Execute Stretch Command</p> <p>P5. Execute Copy command</p> <p>P6. Execute Move command</p> <p>P7. Execute Rotate Command</p>

Knowledge and Understanding

Describe the quality, condition, or fact of being exact and accurate which is also called Precision

Identify the different AutoCAD visual reference commands

Recognize the various Line commands

Knowledge of coordinates

Critical Evidence(s) Required

- Demonstrate the execution of the basic drawing commands

Tools and Equipment required

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

Sr. No	Items
1.	Computer System
2.	Auto CAD

Digital Skills

0610-I&CT-38. Operate digital media technology

Overview:

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

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

Knowledge and Understanding

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

- Basic principles of visual design

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

Critical Evidence(s) Required

A person who demonstrates competency in this unit must be able to provide evidence of the ability to identify, select and use a digital media package and supporting technologies. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

Demonstrated evidence of the ability to:

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

0610-I&CT-39. Create user documentation

Overview:

This unit describes the performance outcomes, skills and knowledge required to create user documentation that is clear to the target audience and easy to navigate.

Unit of Competency	Performance Criteria
1. Determine documentation standards and requirements	P1. Determine documentation requirements P2. Investigate documentation and industry standards for requirements and determine appropriate application to user documentation P3. Design documentation templates using appropriate software and obtain approval from appropriate person
2. Produce user documentation	P1. Conduct a review of the subject system, program, network or application in order to understand its functionality P2. Gather existing technical, design or user specifications and supporting documentation P3. Create user documentation based on template to record the operation of the subject system, program, network or application
3. Review and obtain sign-off	P1. Submit user documentation to target audience for review P2. Gather and analyze feedback P3. Make changes to user documentation P4. Submit user documentation to appropriate person for approval

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:

- Content features, including clarity and readability
- Document design, web design and usability
- Functions and features of templates and style guides
- Instructional design principles

Critical Evidence(s) Required

A person who demonstrates competency in this unit must be able to provide evidence of the ability to create user documentation that is clear to the target audience and easy to navigate. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

Demonstrated evidence is required of the ability to create user documentation that:

- Meets business requirements
- Caters for a diverse readership
- Is clear to the target audience
- Is easy to navigate.

0610-I&CT-40. Create technical documentation

Overview:

This unit describes the performance outcomes, skills and knowledge required to create technical documentation that is clear to the target audience and easy to navigate.

Unit of Competency	Performance Criteria
1. Identify and analyze documentation requirements and client needs	<p>P1.Consult with client to identify documentation requirements</p> <p>P2.Interpret and evaluate documentation requirements and confirm details with client</p> <p>P3.Investigate industry and documentation standards for requirements</p> <p>P4.Define and document the scope of work to be produced</p> <p>P5.Consult with client to validate and confirm the scope of work</p>
2. Design documentation	<p>P1. Identify information requirements with reference to layout and document structure</p> <p>P2.Create document templates and style guides consistent with information requirements</p> <p>P3.Conduct a review of the system in order to understand its functionality</p> <p>P4.Extract content that meets information requirements according to copyright restrictions</p> <p>P5.Develop the structure of the technical documentation giving focus to the flow of information, style, tone and content format</p> <p>P6.Validate the technical documentation structure with the client</p>
3. Develop documentation	<p>P1. Write technical documentation based on the template and scope of work using the information gathered</p> <p>P2.Translate technical terminology into plain English where appropriate</p> <p>P3.Apply content format and style according to documentation standards and templates</p>
4. Evaluate and edit documentation	<p>P1. Submit technical documentation to appropriate person for review</p> <p>P2. Gather and analyze feedback</p> <p>P3.Incorporate alterations into the technical documentation</p> <p>P4.Edit the technical documentation for technical and</p>

	grammatical accuracy
5. Prepare documentation for publication	<p>P1. Check that the completed technical documentation meets client requirements and scope of work</p> <p>P2. Submit the technical documentation to appropriate person for approval</p> <p>P3. Prepare the technical documentation for publication and distribution using appropriate channels</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:

- Content features, such as clarity and readability
- Document design, web design and usability
- Functions and features of templates and style guides
- Instructional design principles
- Organizational policies, procedures and standards that cover document design.

Critical Evidence(s) Required

A person who demonstrates competency in this unit must be able to provide evidence of the ability to create technical documentation that is clear to the target audience and easy to navigate. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

Demonstrated evidence is required of the ability to:

- Establish customer needs
- Design and develop technical documentation, such as system, procedures, training material and user guides, incorporating appropriate standards
- Update document with client feedback
- Prepare documentation for publication.

0610-I&CT-41. Use social media tools for collaboration and engagement

Overview:

This unit describes the performance outcomes, skills and knowledge required to establish a social networking presence using social media tools and applications. The unit specifically identifies the requirement to review, compare and use different types of social networking tools and applications.

Unit of Competency	Performance Criteria
1. Describe different types of social media tools and applications	<p>P1. Explain characteristics of the term social media</p> <p>P2. Identify different types of social-media tools and applications</p> <p>P3. Illustrate some of the issues associated with the use of social media tools and applications</p>
2. Compare different types of social media tools and applications	<p>P1. Select one social media type for review</p> <p>P2. Review most popular tools and applications within that social media type</p> <p>P3. Itemize benefits across a range of the most popular tools and applications</p> <p>P4. Select most appropriate social media tool or application</p>
3. Set up and use popular social media tools and applications	<p>P1. Identify social media tools and applications for possible implementation</p> <p>P2. Initiate preferred social media tools and applications for use</p> <p>P3. Establish social media interface using text and file content</p> <p>P4. Initiate social networking interaction</p> <p>P5. Test and evaluate tools and applications for ease of use</p> <p>P6. Present findings</p>

Knowledge and Understanding

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

- Basic technical terminology in relation to social networking and social media applications and tools
- Basic knowledge of uploading images, text files, pdf files, audio files, video files and link associated files
- Features and functions of social media applications
- Import and export software functions
- Linking documents
- OHS principles and responsibilities for ergonomics, including work periods and breaks
- Tagging to facilitate collaborative folksonomy
- Social media applications and procedures for connecting to social networking sites
- Use of input and output devices

- Use of RSS feeds to connect a social network.

Critical Evidence(s) Required

A person who demonstrates competency in this unit must be able to provide evidence of the ability to create technical documentation that is clear to the target audience and easy to navigate. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

Demonstrated evidence is required of the ability to:

- Establish customer needs
- Design and develop technical documentation, such as system, procedures, training material and user guides, incorporating appropriate standards
- Update document with client feedback
- Prepare documentation for publication.

0610-I&CT-42. E-Commerce – SEO (Search Engine Optimization)

Overview:

This competency unit covers to develop efficient E-Marketing strategies in accordance with the Vision and Mission statement of the organization driven by Electronic means.

Unit of Competency	Performance Criteria
1. SEO (Search Engine Optimization)	P1. Apply SEO techniques P2. Employ SEO key words P3. Demonstrate SEO techniques to priorities their site or web application using automated tools

Knowledge and Understanding

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

- Explain different SEO Methods including but not limited to Getting Indexed, Preventing Crawling, and Increasing Prominence.
- Elaborate White-hat, Black-hat SEO techniques for web application
- Knowledge of SEO key words for web pages translation.

Critical Evidence(s) Required

A person who demonstrates competency in this unit must be able to provide evidence of the ability to write and edit copy that is clear to the target audience and easy to navigate. 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.

0610-I&CT-43. E-Commerce – SCM (Supply Chain Management)

Overview:

This competency unit covers to develop efficient E-Marketing strategies in accordance with the Vision and Mission statement of the organization driven by Electronic means.

Unit of Competency	Performance Criteria
1. SCM (Supply Chain Management)	P1. Identity potential Suppliers P2. Select the appropriate supplier P3. Place order as per requirement/inventory P4. Inspect received order P5. Maintain Inventory as per Inventory Control / store keeping techniques P6. Identity different available transportation mode P7. Identify steps of reverse SCM i-e from consumer to organization

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:

- Elaborate knowledge of procurement Cycle (Launch of RFP/RFQ, Tender, Bidding, Comparative Statement, Award of Contract, Maintenance)
- Explain different techniques to manage
- Explain product delivery and their traceability
- Knowledge of Incorporation of Outsourcing in logistics.
- Information about electronic Data Interchange methodologies and format

Critical Evidence(s) Required

A candidate who demonstrates competency in this unit must be able to provide evidence of the ability to write and edit copy that is clear to the target audience and easy to navigate. 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.

0610-I&CT-44. E-Commerce – Social Media Marketing

Overview:

This competency unit covers to develop efficient E-Marketing strategies in accordance with the Vision and Mission statement of the organization driven by Electronic means.

Unit of Competency	Performance Criteria
1. Social Media Marketing	P1. Identify different Social media marketing techniques P2. Apply suitable Classified Advertisement techniques on social media P3. Perform Electronic Mail Marketing P4. Creation of Blogs

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:

Describe Knowledge of different social media sites that is Facebook, Twitter, LinkedIn, Google+ etc., Comparative Statement, Award of Contract, Maintenance)

- Explain Brand pages creation on social media sites.
- Evaluate familiarity of banner ads integration on different web sites like newspaper site in any demographic region.
- Mention skills to regularly update brand/product/service blogs.K5: Information about electronic Data Interchange methodologies and format
- Elaborate direct marketing techniques e.g. Email, SMS (Mobile- Commerce) for the projection of company newsletters

Critical Evidence(s) Required

A candidate who demonstrates competency in this unit must be able to provide evidence of the ability to implement e-marketing strategies that is clear to the target audience and easy to navigate. 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.

Entrepreneurial Skills

0610-I&CT-45. 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.

Unit of Competency	Performance Criteria
1. 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>
2. 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>
3. Develop a marketing plan	<p>P1. Make a marketing plan for the business including product, price, placement, promotion, people, packaging and positioning</p> <p>P2. Include the information of marketing plan in the business plan</p>
4. Develop basic business communication skills	<p>P1. Communicate with internal customers e.g.: labor, partners and external customers e.g.: suppliers, customers etc., using effective communication skills</p>

	<p>P2. Use different modes of communication to communicate internally and externally e.g.: presentation, speaking, writing, listening, visual representation, reading etc.</p> <p>P3. Use specific business terms used in the market</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:

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

- List 7 Ps
- List 7Cs

0610-I&CT-46. Apply project information management and communications techniques

Overview:

This unit describes the skills and knowledge required to provide a critical link between people, ideas and information at all stages in the project life cycle. It involves assisting the project team to plan communications, communicating information related to the project, and reviewing communications. It applies to individuals who are project practitioners working in a project support role.

Unit of Competency	Performance Criteria
1. Contribute to communications planning	<p>P1 Identify, source and contribute relevant information requirements to initial project documentation</p> <p>P2 .Contribute to developing and implementing the project communications plan and communications networks</p>
2. Conduct information-management activities	<p>P1.Act on and process project information according to agreed procedures as directed, to aid decision-making processes throughout project life cycle</p> <p>P2.Maintain information to ensure data is secure and auditable</p>
3. Communicate project information	<p>P1.Communicate with clients and other stakeholders during project using agreed networks, processes and procedures to ensure flow of necessary information</p> <p>P2 .Ensure reports are prepared and released according to authorization, or produced for release by others</p> <p>P3.Seek information and advice from appropriate project authorities as required</p>
4. Contribute to assessing effectiveness of communication	<p>P1 . Assist in ongoing review of project outcomes to determine effectiveness of communications-management activities</p> <p>P2 . Report communications-management issues and responses to higher project authorities for application of lessons learned to future projects</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:

- Summarize models and methods of communications management in context of project life cycle and other project management functions
- Explain importance of managing risk by treating information securely
- Outline methods of reviewing outcomes

- Identify organizational policies and procedures relevant to this role in a specific context.

Critical Evidence(s) Required

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

A person who demonstrates competency in this unit must be able to provide evidence of the ability to apply project information management and communications techniques. 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.

0610-I&CT-47. Apply Project Human Resources Management

Overview:

This unit describes the skills and knowledge required to assist with aspects of human resources management of a project. It involves establishing human resource requirements, identifying the learning and development needs of people working on the project, facilitating these needs being met, and resolving conflict in the team. It applies to individuals who are project practitioners working in a project support role.

Unit of Competency	Performance Criteria
1. Assist in determining human resource requirements	<p>P1. Analyze work breakdown structure to determine human resource requirements</p> <p>P2. Prepare a skills analysis of project personnel against project task requirements</p> <p>P3. Assist in assigning responsibilities for achieving project deliverables</p>
2. Contribute to establishing and maintaining productive team relationships	<p>P1. Actively seek views and opinions of team members during task planning and implementation</p> <p>P2. Promote cooperation and effective activities, goals and relationships within team</p> <p>P3. Communicate with others using styles and methods appropriate to organizational standards, group expectations and desired outcomes</p> <p>P4. Communicate information and ideas to others in a logical, concise and understandable manner</p> <p>P5. Regularly seek feedback on nature and quality of work relationships, and use feedback as basis for own improvement and development</p>
3. Assist with human resource monitoring	<p>P1. Monitor work of project personnel against assigned roles and responsibilities within delegated authority levels</p> <p>P2. Monitor and control actual effort against project plan</p> <p>P3. Review skill levels against allocated tasks and recommend solutions, where required, to others</p> <p>P4. Advise others within delegated authority when assigned responsibilities are not met by project personnel</p>

	<p>P5. Undertake work in a multi-disciplinary environment according to established human resource management practices, plans, guidelines and procedures</p> <p>P6. Resolve conflict within delegated authority according to agreed dispute-resolution processes</p> <p>P7. Assist in offering human resource development opportunities to individuals with skill gaps</p>
4. Contribute to evaluating human resource practices	<p>P1. Contribute to assessing effectiveness of project human resources management</p> <p>P2. Document lessons learned to support continuous improvement processes</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:

- Identify alternative project personnel engagement options
- Explain job design principles and work breakdown structures
- Describe learning and development approaches that can be incorporated into project life cycle
- List methods for skills analysis
- Identify and describe project roles, responsibilities and reporting requirements for human resources.

Critical Evidence(s) Required

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

A candidate who demonstrates competency in this unit must be able to provide evidence of the ability to apply project human resources management approaches. 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.

0610-I&CT-48. Develop Project Management Plan

Overview:

This unit describes the skills and knowledge to develop a plan for a telecommunications project, including assessing project requirements and planning for all stages to completion and final documentation. It applies to individuals who are likely to have responsibility for the provision of installations, maintenance, upgrades and new services.

Unit of Competency	Performance Criteria
1. Prepare project management plan	P1. Evaluate and assess project brief and related documents P2. Produce document on project tasks and associated timelines, including installation processes and test requirements P3. Assess and produce document on resource requirements to assist allocation of appropriate resources P4. Produce training plan assessing training needs and associated timelines for efficient project implementation P5. Determine and document budgetary requirements P6. Discuss roles of all identified parties associated with

	<p>project to ensure their involvement</p> <p>P7. Produce project verification document, including monitoring and control processes, and review processes such as quality audits</p> <p>P8. Consult with all relevant parties prior to finalizing draft plan and make changes as appropriate</p>
2. Develop and evaluate management plan	<p>P1. Produce preliminary plan for consultation, including identified factors that may impact on realization of project and observance of relevant legislation, codes, regulation and standards</p> <p>P2. Consult with client and clarify any amendments</p> <p>P3. Develop final plan with recommendations</p>
3. Communicate project information	<p>P1. Produce and document final plan to include implementation details and training needs</p> <p>P2. Present plan to client and obtain sign off</p>
4. Contribute to assessing effectiveness of communication	<p>P1. Assist in ongoing review of project outcomes to determine effectiveness of communications-management activities</p> <p>P2. Report communications-management issues and responses to higher project authorities for application of lessons learned to future projects</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:

- Explain the key attributes of common telecommunications applications and related equipment
- Identify and evaluate the connections to carrier infrastructure or equipment
- Identify current legislation relating to the design of installation of telecommunications equipment and connection to carrier services
- Evaluate the advantages of leasing and purchase options to assist in delivering cost effective solutions
- Identify and evaluate network and transmission equipment
- Outline network topologies, and interface and interconnect solutions
- Outline work health and safety (WHS) issues that need to be built into a plan, with consideration of:
 - electrical safety
 - materials handling
 - physical hazards
 - confined spaces
 - heights
 - lifting
- Describe and evaluate the power requirements and electrical safety aspects of the installation plan

- Describe typical performance parameters and typical faults that may be encountered in client equipment and related connection and transmission media
- Identify various test equipment types suitable for tests to be made
- Identify warranty information for equipment supplies and contractor work guarantees.

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 a project management plan. 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.

- determine the project attributes and specifications
- prepare a coherent draft project management plan
- consult on and revise a project management plan
- document final project management plan and obtain sign off

0610-I&CT-49. Develop sales Plan

Overview:

This unit describes the skills and knowledge required to develop a sales plan for a product or service for a team covering a specified sales territory based on strategic objectives and in accordance with established performance targets. It applies to individuals working in a supervisory or managerial sales role who develop a sales plan for a product or service.

Unit of Competency	Performance Criteria
1. Identify organizational strategic direction	<p>P1, Obtain and analyze assessment of market needs and strategic planning documents</p> <p>P2 .Review previous sales performance and successful approaches to identify factors affecting performance</p> <p>P3 ,Analyze information on market needs, new opportunities, customer profiles and requirements as a basis for decision making</p>
2. Establish performance targets	<p>P1.Determine practical and achievable sales targets</p> <p>P2 .Establish realistic time lines for achieving targets</p> <p>P3 .Determine measures to allow for monitoring of performance</p> <p>P4 .Ensure objectives of the sales plan and style of the campaign are consistent with organizational strategic objectives and corporate image</p>
3. Develop a sales plan for a product	<p>P1.Determine approaches to be used to meet sales objectives</p> <p>P2 .Identify additional expertise requirements and allocate budgetary resources accordingly</p> <p>P3.Identify risks and develop risk controls</p> <p>P4 .Develop advertising and promotional strategy for product</p> <p>P5 .Identify appropriate distribution channels for product</p> <p>P6 .Prepare a budget for the sales plan</p> <p>P7 .Present documented sales plan to appropriate personnel for approval</p>
4. Identify support requirements	<p>P1.Identify and acquire staff resources to implement sales plan</p> <p>P2 .Develop an appropriate selling approach</p> <p>P3 .Train staff in the selling approach selected</p> <p>P4 .Develop and assess staff knowledge of product to be sold</p>
5. Monitor and review sales plan	<p>P1 .Monitor implementation of the sales plan</p> <p>P2 .Record data measuring performance versus sales targets</p> <p>P3 . Make adjustments to sales plan as required to ensure required results are obtained</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:

- Outline principles and techniques for selling

- Outline methods for monitoring sales outcomes
- Explain the statistical techniques for analyzing sales and market trends
- Outline internal and external sources of information that are relevant to identifying organizational strategic direction and developing a product sales plan.

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 a sales plan. 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.

- analyze information from a range of sources to develop a sales plan for a product and sales territory that meets organizational strategic direction including:
 - resource requirements and budget
 - achievable sales targets
 - performance measures
 - approaches to be used to meet objectives
 - risk management
 - advertising and promotional strategy
 - product distribution channels
- acquire staff, develop selling approach and provide training support on product knowledge and sales approach
- Monitor and evaluate performance and adjust the plan as appropriate.

0610-I&CT-50. Address customer needs

Overview:

This unit describes the skills and knowledge required to manage an ongoing relationship with a customer over a period of time. This includes helping customers articulate their needs and managing networks to ensure customer needs are addressed. It applies to individuals who are expected to have detailed product knowledge in order to recommend customized solutions. In this role, individuals would be expected to apply organizational procedures and be aware of, and apply as appropriate, broader factors involving ethics, industry practice and relevant government policies and regulations.

Unit of Competency	Performance Criteria
1. Assist customer to articulate needs	<p>P1. Ensure customer needs are fully explored, understood and agreed</p> <p>P2. Explain and match available services and products to customer needs</p> <p>P3. Identify and communicate rights and responsibilities of customers to the customer as appropriate</p>
2. Satisfy complex customer needs	<p>P1. Explain possibilities for meeting customer needs</p> <p>P2. Assist customers to evaluate service and/or product options to satisfy their needs</p> <p>P3. Determine and prioritize preferred actions</p> <p>P4. Identify potential areas of difficulty in customer service delivery and take appropriate actions in a positive manner</p>
3. Manage networks to ensure customer needs are addressed	<p>P1. Establish effective regular communication with customers</p> <p>P2. Establish, maintain and expand relevant networks to ensure appropriate referral of customers to products and services from within and outside the organization</p> <p>P3. Ensure procedures are in place to ensure that decisions about targeting of customer services are based on up-to-date information about the customer and the products and services available</p> <p>P4. Ensure procedures are put in place to ensure that referrals are based on the matching of the assessment of customer needs and availability of products and services</p> <p>P5. Maintain records of customer interaction in accordance with organizational procedures</p>
4. Convert customer enquiries into sales	<p>P1. Use information provided by customers or accessed from the customer relationship management (CRM) system to identify any needs</p> <p>P2. Identify suitable products/services to meet needs</p> <p>P3. make convincing sales pitches to customers following standard scripts</p> <p>P4. Handle customer queries, objections and rebuttals following standard scripts</p> <p>P5. Adapt your approach and style to customer preferences,</p>

	<p>within the limits of your competence and authority</p> <p>P6. Refer issues outside your area of competence and authority to appropriate people, following your organization's procedures</p> <p>P7. Identify and act on opportunities to up-sell or cross-sell other products/services to customers</p> <p>P8. Confirm customer wishes and needs in order to close sales</p> <p>P9. Obtain required financial information from customers, following your organization's procedures</p> <p>P10. Complete your organization's post-sales procedures in order to complete/ fulfill sales</p> <p>P11. Comply with relevant standards, policies, procedures and guidelines when converting customer enquiries into sales</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:

- Explain organizational procedures and standards for establishing and maintaining customer service relationships
- Describe informed consent
- Explain consumer rights and responsibilities
- Describe ways to establish effective regular communication with customers
 - Outline details of products or services including with reference to:
 - possible alternative products and services
 - Variations within a limited product and service range.

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 address customer needs. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

- . Demonstrated evidence is required of the ability to:
- address customer s needs
 - check your work is complete and free from errors
 - use organizational procedures to document customer satisfaction
 - develop and maintain networks to support meeting customer needs
 - Identify potential difficulties in meeting customer needs and taking appropriate action.
 - communicate effectively with customers including
 - helping customers to articulate their needs and evaluate options
 - explaining products/services and how they match customer needs
 - establishing regular communication
 - explaining customer rights and responsibilities

0610-I&CT-51. Manage personal finances

Overview:

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

Unit of Competency	Performance Criteria
1. 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, if possible</p>
2. Develop longer term personal budget	<p>P1. Analyze income and expenditure and set longer term personal, work and financial goals.</p> <p>P2. Develop a longer-term budget based on the outcomes of short-term budgeting, and adjust to meet living, work and future career requirements.</p> <p>P3. Identify obstacles that might affect finances such as job loss, sickness or unexpected expenses contingency savings</p> <p>P4. Formulate a regular savings plan based on budget, using secure savings products and services.</p> <p>P5. Monitor expenditure against budget and identify areas of possible expenditure saving</p>
3. Identify ways to maximize future finances	<p>P1. Determine sources and ways to maximize personal income, including from work, investments or available government payments/allowances.</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, and determine the appropriate levels of debt and repayment.</p> <p>P4. Consolidate existing debt, where possible, to minimize interest costs and fees.</p> <p>P5. Seek professional money management services, where available, to ensure financial plans are effective and achievable.</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:

- Explain the abilities to plan and organize to keep records and monitor a personal budget
- Describe abilities to set and review goals

- Explain basic financial management and record keeping to enable development and management of a personal budget
- Describe benefits of financial goal setting and personal budgeting to enable effective management of personal finances
- Outline numeracy skills to compare income and expenditure

Critical Evidence(s) Required

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

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

Demonstrated evidence is required of the ability to:

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

0610-I&CT-52. Solve problems which jeopardize safety and security

Overview:

This unit is focus on negotiation in critical incidents and the development of strategic responses designed to resolve threatening incidents.

Unit of Competency	Performance Criteria
1. Identify a problem	<p>P1. Form a problem statement and analyze root cause.</p> <p>P2. Take initiative in tackling problems rather than relying solely on directives</p> <p>P3. Follow logic steps in understanding root cause and analyzing potential solutions.</p>
2. Determine strategies for a required solution	<p>P1. Analyze all aspects of the incident for degree of hazard, priorities, optional outcomes and appropriate strategies</p> <p>P2. Analyze and determine strategies and priorities on the incident sought from a range of sources</p> <p>P3. Assess long term objectives against resources and priorities</p> <p>P4. Apply a range of communication techniques to make and maintain contact with the key people</p> <p>P5. Provide clear and factual information to enable an honest and realistic assessment of the interests of the key people and their positions</p> <p>P6. Resolve the conflict and express their likely consequences clearly and do an analysis of the benefits</p> <p>P7. Reassess points of disagreements for common positive Positions</p>
3. Coordinate support services	<p>P1. Assess the need for support services in terms of the determined strategies and priorities</p> <p>P2. Negotiate the resources of support services according to established procedures and availability</p> <p>P3. Provide information on strategies to support services and maintain the communication</p> <p>P4. Delegate roles and responsibilities according to expertise and resources</p>
4. Restore order	<p>P1. Assess the incidents for degree of risk and take appropriate action to reduce and remove the impact of the incident and restore order</p> <p>P2. Take action designed to minimize risk and the preserve the safety and security of all involved</p> <p>P3. Take action to prevent the escalation of the incident appropriate to the circumstances and agreed procedures.</p> <p>P4. Carry out the use of force for the restoration of control and the maintenance of security in the least restrictive manner.</p> <p>P5. Complete reports accurately and clearly provided to the appropriate authority promptly</p> <p>P6. Review, evaluate and analyze the incident and the</p>

	organizational response to it and report it promptly and accurately.
5. Provide leadership. direction and guidance to the work group	<p>P1. Link between the function of the group and the goals of the organization</p> <p>P2 .Participate in decision making routinely to develop, implement and review work of the group and to allocate responsibilities where appropriate</p> <p>P3 .Give opportunities and encouragement to others to develop new and innovative work practices and strategies</p> <p>P4. Identify conflict and resolve with minimum disruption to work group function</p> <p>P5.Provide staff with the support and supervision necessary to perform work safely and without risk to health</p> <p>P6 .Allocate tasks within the competence of staff and support with appropriate authority, autonomy and training</p> <p>P7 .Supervise appropriately the changing priorities and situations and takes into account the different needs of individuals and the requirements of the task</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:

- Explain organization's policies, guidelines and procedures related to control and surveillance, safety and preventing and responding to incidents and breaches of orders covered in the range of variables.
- Explain organization's management and accountability systems
- Describe teamwork principles and strategies
- Outline the principles of effective communication
- Outline the guidelines for use of equipment and technology
- Explain code of conduct

Critical Evidence(s) Required

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

A candidate who demonstrates competency in this unit must be able to provide evidence of the ability to resolve problems which jeopardize safety and security. 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.

Soft Skills

0610-I&CT-53. Manage meetings

Overview:

This unit describes the skills and knowledge required to manage a range of meetings including overseeing the meeting preparation processes, chairing meetings, organizing the minutes and reporting meeting outcomes. It applies to individuals employed in a range of work environments who are required to organize and manage meetings within their workplace, including conducting or managing administrative tasks in providing agendas and meeting material. They may work as senior administrative staff or may be individuals with responsibility for conducting and chairing meetings in the workplace.

Unit of Competency	Performance Criteria
1. Prepare for meetings	<p>P1. Develop agenda in line with stated meeting purpose</p> <p>P2. Ensure style and structure of meeting are appropriate to its purpose</p> <p>P3. Identify meeting participants and notify them in accordance with organizational procedures</p> <p>P4. Confirm meeting arrangements in accordance with requirements of meeting</p> <p>P5. Dispatch meeting papers to participants within designated timelines</p>
2. Conduct meetings	<p>P1. Chair meetings in accordance with organizational requirements, agreed conventions for type of meeting and legal and ethical requirements</p> <p>P2. Conduct meetings to ensure they are focused, time efficient and achieve the required outcomes</p> <p>P3. Ensure meeting facilitation enables participation, discussion, problem-solving and resolution of issues</p> <p>P4. Brief minute-taker on method for recording meeting notes in accordance with organizational requirements and conventions for type of meeting</p>
3. Follow up meetings	<p>P1. Check transcribed meeting notes to ensure they reflect a true and accurate record of the meeting and are formatted in accordance with organizational procedures and meeting conventions</p> <p>P2. Distribute and store minutes and other follow-up documentation within designated timelines, and according to organizational requirements</p> <p>P3. Report outcomes of meetings as required, within designated timelines</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:

- Outline meeting terminology, structures, arrangements
- Outline responsibilities of the chairperson and explain group dynamics in relation to managing meetings
- Describe options for meetings including face-to-face, teleconferencing, web-conferencing and using webcams
- Identify the relevant organizational procedures and policies regarding meetings, chairing and minutes including identifying organizational formats for minutes and agendas.

Critical Evidence(s) Required

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

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

Demonstrated evidence is required of the ability to:

- apply conventions and procedures for formal and informal meetings including:
 - developing and distributing agendas and papers
 - identifying and inviting meeting participants
 - organizing and confirming meeting arrangements
 - running the meeting and following up
- organize, take part in and chair a meeting
- record and store meeting documentation
- Follow organizational policies and procedures.

0610-I&CT-54. Manage workforce planning

Overview:

This unit describes the skills and knowledge required to manage planning in relation to an organization's workforce including researching requirements, developing objectives and strategies, implementing initiatives and monitoring and evaluating trends. It applies to individuals who are human resource managers or staff members with a role in a policy or planning unit that focuses on workforce planning.

Unit of Competency	Performance Criteria
1. Research workforce requirements	<p>P1. Review current data on staff turnover and demographics</p> <p>P2. Assess factors that may affect workforce supply</p> <p>P3. Establish the organization's requirements for a skilled and diverse workforce</p>
2. Develop workforce objectives and strategies	<p>P1. Review organizational strategy and establish aligned objectives for modification or retention of the workforce</p> <p>P2. Consider strategies to address unacceptable staff turnover, if required</p> <p>P3. Define objectives to retain required skilled labor</p> <p>P4. Define objectives for workforce diversity and cross-cultural management</p> <p>P5. Define strategies to source skilled labor</p> <p>P6. Communicate objectives and rationale to relevant stakeholders</p> <p>P7. Obtain agreement and endorsement for objectives and establish targets</p> <p>P8. Develop contingency plans to cope with extreme situations</p>
3. Implement initiatives to support workforce planning objectives	<p>P1. Implement action to support agreed objectives for recruitment, training, redeployment and redundancy</p> <p>P2. Develop and implement strategies to assist workforce to deal with organizational change</p> <p>P3. Develop and implement strategies to assist in meeting the organization's workforce diversity goals</p> <p>P4. Implement succession planning system to ensure desirable workers are developed and retained</p> <p>P5. Implement programs to ensure workplace is an employer of choice</p>
4. Monitor and evaluate workforce trends	<p>P1. Review workforce plan against patterns in exiting employee and workforce changes</p> <p>P2. Monitor labor supply trends for areas of over- or under-supply in the external environment</p> <p>P3. Monitor effects of labor trends on demand for labor</p> <p>P4. Survey organizational climate to gauge worker satisfaction</p> <p>P5. Refine objectives and strategies in response to internal and external changes and make recommendations in response to global trends and incidents</p>

	<p>P6. Regularly review government policy on labor demand and supply</p> <p>P7. Evaluate effectiveness of change processes against agreed objectives</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:

- Explain current information about external labor supply relevant to the specific industry or skill requirements of the organization
- Outline industrial relations relevant to the specific industry
- Describe labor force analysis and forecasting techniques

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 workforce planning. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

Demonstrated evidence is required of the ability to:

- review and interpret information from a range of internal and external sources to identify:
 - current staff turnover and demographics
 - labor supply trends factors that may affect workforce supply
 - organization’s workforce requirements objectives and strategies
- manage workforce planning including developing, implementing, monitoring and reviewing strategies to meet workforce needs
- review relevant trends and supply and demand factors that will impact on an organization’s workforce
- Develop a workforce plan that includes relevant research and specific strategies to ensure access to a skilled and diverse workforce.

0610-I&CT-55. Undertake project work

Overview:

This unit describes the skills and knowledge required to undertake a straightforward project or a section of a larger project. It covers developing a project plan, administering and monitoring the project, finalizing the project and reviewing the project to identify lessons learned for application to future projects. This unit applies to individuals who play a significant role in ensuring a project meets timelines, quality standards, budgetary limits and other requirements set for the project.

Unit of Competency	Performance Criteria
1. Define project	<p>P1. Access project scope and other relevant documentation</p> <p>P2. Define project stakeholders</p> <p>P3. Seek clarification from delegating authority of issues related to project and project parameters</p> <p>P4. Identify limits of own responsibility and reporting requirements</p> <p>P5. Clarify relationship of project to other projects and to the organization's objectives</p> <p>P6. Determine and access available resources to undertake project</p>
2. Develop project plan	<p>P1. Develop project plan in line with the project parameters</p> <p>P2. Identify and access appropriate project management tools</p> <p>P3. Formulate risk management plan for project, including Work Health and Safety (WHS)</p> <p>P4. Develop and approve project budget</p> <p>P5. Consult team members and take their views into account in planning the project</p> <p>P6. Finalize project plan and gain necessary approvals to commence project according to documented plan</p>
3. Administer and monitor project	<p>P1. Take action to ensure project team members are clear about their responsibilities and the project requirements</p> <p>P2. Provide support for project team members, especially with regard to specific needs, to ensure that the quality of the expected outcomes of the project and documented time lines are met</p> <p>P3. Establish and maintain required recordkeeping systems throughout the project</p> <p>P4. Implement and monitor plans for managing project finances, resources and quality</p> <p>P5. Complete and forward project reports as required to stakeholders</p> <p>P6. Undertake risk management as required to ensure project outcomes are met</p> <p>P7. Achieve project deliverables</p>
4. Finalize project	<p>P1. Complete financial recordkeeping associated with project and check for accuracy</p> <p>P2. Ensure transition of staff involved in project to new roles or reassignment to previous roles</p> <p>P3. Complete project documentation and obtain necessary sign-offs for concluding project</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:

- Give examples of project management tools and how they contribute to a project
- Outline types of documents and other sources of information commonly used in defining the parameters of a project
 - Explain processes for identifying and managing risk in a project
 - Outline the organization's mission, goals, objectives and operations and how the project relates to them
 - Explain the organization's procedures and processes that are relevant to managing a project including:
 - lines of authority and approvals
 - quality assurance
 - human resources
 - budgets and finance
 - recordkeeping
 - reporting
- Outline the legislative and regulatory context of the organization in relation to project work, including work health and safety (WHS) requirements.

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 undertake project work. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

Demonstrated evidence is required of the ability to:

- define the parameters of the project including:
 - project scope
 - project stakeholders, including own responsibilities
 - relationship of project to organizational objectives and other projects
 - reporting requirements
 - resource requirements
- use project management tools to develop and implement a project plan including:
 - deliverables
 - work breakdown
 - budget and allocation of resources
 - timelines
 - risk management
 - recordkeeping and reporting
- consult and communicate with relevant stakeholders to generate input and engagement in planning, implementing and reviewing the project

- provide support to team members to enable them to achieve deliverables and to transition them as appropriate at completion of the project
- finalize the project including documentation, sign-offs and reporting
- review and document the project outcomes.

0610-I&CT-56. Identify and communicate trends in career development

Overview:

This unit describes the skills and knowledge required to conduct research to identify and communicate career trends. It establishes the need to interact professionally with others in assessing career needs, to effectively assist clients identify competencies they require for a career and employability in a given context. It also examines how to maintain quality of career development services and professional practice. It applies to individuals seeking to identify and communicate trends in career development.

Unit of Competency	Performance Criteria
1. Research and confirm career trends	<p>P1. Apply knowledge of changing organizational structures, lifespan of careers and methods of conducting work search, recruitment and selection processes</p> <p>P2. Analyze changing worker and employer issues, rights and responsibilities in context of changing work practices</p> <p>P3. Examine importance of quality careers development services</p> <p>P4. Maintain all research, documentation, sources and references (electronic or physical) to a high degree of currency and relevance</p> <p>P5. Analyze implications of relevant policy, legislation, professional codes of practice and national standards relating to worker and employer issues</p> <p>P6. Research changes and trends in theory of career development counseling and practice</p> <p>P7. Confirm clusters, levels and combinations of transferable employability skills and preferences that may open employment options spanning more than one occupation or career pathway</p>
2. Assess and confirm	P1. Analyze history and records in assessing needs of target

<p>ongoing career development needs of target group</p>	<p>group P2. Assess success of previous career development services and techniques used for individual or target group P3. Deploy other means to investigate appropriate care and counseling approaches as required P4. Maintain privacy and security of all data, research and personal records according to relevant policy, legislation, professional codes of practice and national standards P5. Establish existing work-life balance requirements, issues and needs</p>
<p>3. Maintain quality of career development services and professional practice</p>	<p>P1. Analyze and review relevance of career theories, models, frameworks and research for target group P2. Incorporate into career development services and professional practice, major changes and trends influencing workplace and career-related options and choices P3. Comply with all relevant policy, legislation, professional codes of practice and national standards that influence delivery of career development 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:

- Explain client care and counseling techniques and processes in the context of career development services
- Describe diversity and its potential effects on career choices
- Outline human psychological development and needs in relation to careers development
- Outline relevant policy, legislation, codes of practice and standards relevant to career development
- Explain recruitment and selection processes in the context of career development services
- Describe a range of data gathering and research techniques
- Explain techniques used to analyze trends.

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 identify and communicate trends in career development. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

Demonstrated evidence is required of the ability to:

- research and analyze current economic, labor market, employment, career and vocational, educational and training trends

- identify choices and career development needs for individuals and target groups within a given context
- report and document management of research and career development materials
- Comply with all relevant local, state/territory and national legislation, policies and practices.

0610-I&CT-57. Apply interpersonal skills

Overview:

This unit describes the skills and knowledge required to use advanced and specialized communication skills in the client-counselor relationship. This unit applies to individuals whose job role involves working with clients on personal and psychological issues within established policies, procedures and guidelines.

Unit of Competency	Performance Criteria
1. Communicate effectively	<p>P1. Identify communication barriers and use strategies to overcome these barriers in the client-counselor relationship</p> <p>P2. Facilitate the client-counselor relationship through selection and use of micro skills</p> <p>P3. Integrate the principles of effective communication into work practices</p> <p>P4. Observe and respond to non-verbal communication cues</p> <p>P5. Consider and respond to the impacts of different communication techniques on the client-counselor relationship in the context of individual clients</p> <p>P6. Integrate case note taking with minimum distraction</p>
2. Use specialized counseling interviewing skills	<p>P1. Select and use communication skills according to the sequence of a counseling interview</p> <p>P2. Identify points at which specialized counseling interviewing skills are appropriate for inclusion</p> <p>P3. Use specialized counseling communication techniques based on their impacts and potential to enhance client development and growth</p> <p>P4. Identify and respond appropriately to strong client emotional reactions</p>
3. Evaluate own communication	<p>P1. Reflect on and evaluate own communication with clients</p> <p>P2. Recognize the effect of own values and beliefs on communication with clients</p> <p>P3. Identify and respond to the need for development of own skills and knowledge</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:

- Legal and ethical considerations for communication in counseling practice, and how these are applied in individual practice:
 - codes of conduct/practice
 - discrimination
 - duty of care
 - human rights

- practitioner/client boundaries
- privacy, confidentiality and disclosure
- rights and responsibilities of workers, employers and clients
- work role boundaries responsibilities and limitations of the counselor role
- work health and safety
- Principles of person-centered practice
- Potential impacts of using different communication skills and techniques in counseling contexts
- **Communication techniques and micro-skills including:**
 - attending behaviors active listening, reflection of content feeling, summarizing
 - questioning skills open, closed, simple and compound questions
 - client observation skills
 - noting and reflecting skills
 - providing client feedback
- **Specialized counseling communication techniques, and how they are used, including:**
 - challenging
 - reframing
 - focusing
- **Components of the communication process including:**
 - encoder
 - decoder
- **Primary factors that impact on the communication process including:**
 - context
 - participants
 - rules
 - messages
 - channels
 - noise
 - feedback
- **Communication barriers and resolution strategies, including:**
 - environmental
 - physical
 - individual perceptions
 - cultural issues
 - language
 - age issues
 - disability
- **Observational techniques including:**
 - facial expressions
 - non-verbal behavior
 - posture
 - silence
- **Ways, including:**
 - visual in which different people absorb information
 - auditory
 - kinesthetic

- **Impacts of trauma and stress on the communication process, including on:**
 - concentration and attention
 - memory
 - use of verbal and written language
 - use of body language
 - challenging within the counseling session
- **Self-evaluation practices, including:**
 - how to recognize own biases
 - Impact of own values on the counseling relationship.

Critical Evidence(s) Required

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

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

Demonstrated evidence is required of the ability to:

- interviewed at least 3 different clients using specialized interpersonal communication and counseling interviewing skills, including:
- micro-skills and communication techniques, including:
 - attending behaviors active listening,
 - reflection of content, summarizing
 - questioning skills open, closed, simple and compound questions
 - client observation skills
 - noting and reflecting skills
 - providing client feedback
- specialized counseling interviewing skills, including:
 - challenging
 - reframing
 - focusing
- integrated clear case note taking into the interview process
- Completed a structured process of self-reflection and evaluation of own communication used during the 3 interviews.

0610-I&CT-58. Work safely in an office environment

Overview:

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

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

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

Critical Evidence(s) Required

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

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

Assessment must ensure the safety processes; hazards and risk are relevant to the area of work. Evidence of the following is essential:

- Accurately following all relevant safety procedures
- Identifying and reporting hazards to designated personnel
- Knowledge of relevant health and safety regulations
- Knowledge of relevant materials, equipment and work processes.

0610-I&CT-59. Develop workplace documents

Overview:

This unit covers interpreting and composing a range of workplace documents from a number of sources. It includes interpreting written information for workplace purposes as well as planning, drafting and reviewing a basic document before writing the final version. The focus is on the content and structure of written materials and not on the use of computer technology

Unit of Competency	Performance Criteria
1. Interpret written information	<p>P1 Read workplace materials to identify the subject and key information for using or reporting to others.</p> <p>P2 Read procedural manuals and codes of practice to locate specific information to carry out work functions in accordance with policy and standards.</p> <p>P3 Read a range of written materials to locate and select required information for summaries, short reports and responses to requests.</p> <p>P4 Identify the cultural context and prior knowledge required to interpret workplace information and obtain assistance when required.</p> <p>P5. Determine audience and purpose for the document</p> <p>P6 Seek assistance with interpretation of complex materials in accordance with organizational procedures.</p>
2. Develop written materials	<p>P1 Identify and comply with established requirements for a range of written materials in accordance with organizational procedures and standard templates.</p> <p>P2. Determine format and structure</p> <p>P3. Establish key points for inclusion</p> <p>P4. Identify organizational requirements</p> <p>P5. Establish method of communication</p> <p>P6. Establish means of communication</p>
3. Draft document	<p>P1 Develop draft document to communicate key points</p> <p>P2. Obtain and include any required additional information</p> <p>P3 Prepare written information in an accurate, concise and unambiguous manner that meets intended audience and organizational requirements.</p>
4. Review document	<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>
5. Write final document	<p>P1 Make and proofread necessary changes</p> <p>P2. Ensure document is sent to intended recipient within required time frames</p>

	P3. File copy of document in accordance with organizational policies and procedures
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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:

- Explain the reading and writing procedures at a level to cope with a range of workplace materials
- Explain the integration of information from a number of sources in order to generate meaning
- Describe the ways to write and sequence paragraphs according to the required purpose of written material
- Outline the linking ideas in written material through selection and use of words, grammatical structures, headings and punctuation appropriate to the purpose
- Elaborate spelling, punctuation and grammar for workplace documents at an experienced level
- Explain the response to diversity, including gender and disability
- Explain the implementation of ergonomic requirements for office work
- Explain the environmental policies such as those relating to paper use/wastage/recycling
- Describe the preparation of general information and papers according to target audience
- Elaborate the ways of proofreading and editing documents to ensure clarity of meaning and conformity to organizational requirements
- Describe the problem-solving skills to determine document design and production processes
- Explain the usage of resources to assist in document production, such as dictionary, thesaurus, templates, style sheets
- Describe the ways to produce business letters, memos, job applications, resumes, meeting agendas and minutes
- Explain the ways to fold and insert letters into a standard and window faced envelope.

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 interpret written information for workplace purposes and plan, draft and review a basic document before writing the final version. 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.

Evidence of the following is essential:

- Producing a range of documents that accurately convey required information including single and multipage business letters, memos, job applications, resumes, meeting agendas and minutes.
- Using formatting suitable for intended audience
- Knowledge of organizational policies and procedures for document production

0610-I&CT-60. Maintain professionalism in workplace

Overview:

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

Unit of Competency	Performance Criteria
1. Respect work timeframes	<p>P1. Demonstrate punctuality in meeting, set working hours and times.</p> <p>P2. Utilize working hours only for working and follow company regulations.</p> <p>P3. Complete work tasks within deadlines according to order of priority</p> <p>P4. Supervisors are informed of any potential delays in work times or projects.</p>
2. Maintain personal appearance and hygiene	<p>P1. Clean hair, body and nails regularly.</p> <p>P2. Wear suitable cloths for the workplace, and respect local and cultural contexts</p> <p>P3. Meet specific company dress code requirements</p>
3. Maintain adequate distance with colleagues and clients	<p>P1. Respect personal space of colleagues and clients with reference to local customs and cultural contexts.</p> <p>P2. Keep sufficient distance from others</p> <p>P3. Avoid cross transmission of infections (especially through respiration).</p>
4. Work in an ethical manner	<p>P1. Follow company values/ethics codes of ethics and/or conduct, policies and guidelines.</p> <p>P2. Use company resources in accordance with company ethical standards.</p> <p>P3. Conduct personal behavior and relationships in accord with ethical standards and company policies.</p> <p>P4. Undertake work practices in compliance with company ethical standards, organizational policy and guidelines.</p> <p>P5. Instruct co-workers on ethical, lawful and reasonable directives.</p> <p>P6. Share company values/practices with co-workers using appropriate behavior and language.</p> <p>P7. Report work incidents/situations and/or resolved in accordance with company protocol/guidelines.</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:

- Explain application of good manners and right conduct
- Explain basic practices for oral and personal hygiene
- Describe common products used for oral and personal hygiene
- Outline the company code of conduct/values

- Outline the Company regulations, performance and ethical standards
- Explain work responsibilities/job functions
- Describe communication skills
- State workplace hygiene standards

Critical Evidence(s) Required

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

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

Evidence of the following is essential:

- clarify and affirm work values/ethics/concepts consistently in the workplace;
- comply with required working times;
- conduct work practices satisfactorily and consistently, in compliance with work ethical standards, organizational policy and guidelines;
- Develop suitable hygiene
- Keep adequate distance while interacting with colleagues and clients.

NOTIFICATION

No. F. 5(13)/2018-DD (TE): In pursuance of sub-section (d) of section-6" Functions of the Commission" National Vocational & Technical Training Commission (NAVTTTC) Act-2011, NAVTTTC is pleased to approve and notify following qualifications in twenty (20) trades for Level 1-5 under National Vocational Qualification Framework (NVQF), which have been developed in compatibility with latest global trends in the fields and fulfilling requirements of competency based training and assessment (CBT&A) system. The qualifications have been developed and validated in collaboration with TEVTAs, QABs, industry and other relevant stakeholders: -

S#	National Vocational Qualifications
1.	National Qualification Level-5 diploma in Automobile Technology
2.	National Qualification Level-5 diploma in Civil Technology
3.	National Qualification Level-5 diploma in Construction Technology
4.	National Qualification Level-5 diploma in Information & Commutation Technology (ICT)
5.	National Qualification Level-5 diploma in Garment Manufacturing Technology
6.	National Qualification Level-5 diploma in Electrical Technology
7.	National Qualification Level-5 diploma in Electronics Technology
8.	National Qualification Level-5 diploma in Instrumentation Technology
9.	National Qualification Level-5 diploma in Computer Aided Design & Manufacturing (CAD /CAM)
10.	National Qualification Level-5 diploma in Mechanical Technology
11.	National Qualification Level-5 diploma in Graphics Designing
12.	National Qualification Level-5 diploma in Heating, Ventilation, Air-conditioning & Refrigeration (HVACR) Technology
13.	National Qualification Level-5 diploma in Media Production
14.	National Qualification Level-5 diploma in Hotel Management
15.	National Qualification Level-5 diploma in Professional Chef

16.	National Qualification Level-5 diploma in Tourism Management
17.	National Qualification Level-5 diploma in Hair & Beauty Services
18.	National Qualification Level-5 diploma in Fashion Designing
19.	National Qualification Level-5 diploma in Ceramics Technology
20.	National Qualification Level-5 diploma in Telecom Technology

2. All the TVET related institutions / organizations are required to implement aforementioned qualifications so that a uniform and standardized TVET qualification system is established in Pakistan and efforts are made for international equivalence / recognition of these qualifications.

3. Competency Standards of the above enlisted qualifications can be accessed at NAVTTC's website (www.navttc.org).



(Muqem Islam)

Director General (Skill Standards & Curricula)

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Distribution:

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2. Federal Secretary, Ministry of Overseas Pakistanis and Human Resource Development, Govt of Pakistan, Islamabad
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6. Federal Secretary, Ministry of Railway, Govt of Pakistan, Islamabad
7. Federal Secretary, Ministry of Climate Change, Govt of Pakistan, Islamabad

8. Federal Secretary, Ministry of Religious Affairs, Govt of Pakistan, Islamabad
9. Federal Secretary, Ministry of Communication, Govt of Pakistan, Islamabad
10. Federal Secretary, Ministry of Aviation Division, Govt of Pakistan, Islamabad
11. Federal Secretary, Ministry of Science & Technology, Govt of Pakistan, Islamabad
12. Chairperson, Punjab Technical Education and Vocational Training Authority (P-TEVTA), Lahore
13. Managing Director, Khyber Pakhtunkhwa Technical Education and Vocational Training Authority (KP-TEVTA),
14. Managing Director, Sindh Technical Education and Vocational Training Authority (S-TEVTA), Karachi
15. Chairman, Azad Jammu & Kashmir, Technical Education and Vocational Training Authority (AJ&K TEVTA), Muzafarabad
16. Director TVET Cell, Gilgit Baltistan, Gilgit
17. Director General, Punjab Vocational Training Council (PVTTC), Punjab
18. Managing Director, Technology Upgradation and Skill Development Company (TUSDEC) Lahore
19. Project Director, Punjab Skill Development Program (PSDP) Lahore
20. CEO, Punjab Skill Development Fund, Lahore
21. Rector, UNTECH University Islamabad
22. National Deputy Leader, GIZ Islamabad
23. PS to Minister of Federal Education & Professional Training, Govt of Pakistan
24. PS to Special Adviser to the Prime Minister on Youth Affairs, Prime Minister's Office, Islamabad
25. Chairperson, Federal of Pakistan Chamber of Commerce and Industry (FPCCI), Karachi
26. Conveyor, Sector Skills Council (Textile/ Construction/ Renewable Energy/ Hospitality and Tourism)
27. Director Technical Education and Vocational Training Authorities (TEVTA), Balochistan
28. Chairman, Pakistan Tourism Development Corporation, Lahore

29. Chairman, PCSIR Headquarters, Islamabad
30. Director General, Pakistan Forest Institute, Peshawar
31. Chairman, Wafaq ul Madaris, Multan
32. Director General, Staff Welfare, Islamabad
33. Director General, NISTE Capital Administration and Development Division, Islamabad
34. Director General, National Training Bureau, Islamabad
35. Chairmen, Provincial Technical Education Boards
36. Chairmen, Provincial Trade Testing Boards
37. Secretary, IBCC, Islamabad: *with the request that National qualifications of Level 5 diploma in the aforementioned trades may be considered equivalent to Diploma of Associate Engineer/HSSC after inclusion of compulsory courses in the light of IBCC general requirement.*

Copy for information to: -

1. DG (P&D)/(A&F)/ (A&C) (S&C) NAVTTC
2. Director General(s), NAVTTC Regional Office(s).
3. Sr. Technical Advisor, TSSP-GIZ
4. Staff Officer to Chairman, NAVTTC
5. PS to Executive Director, NAVTTC Islamabad
6. Concerned File/ Office Copy

