COMPETENCY-BASED CURRICULUM

Sector:
INFORMATION AND COMMUNICATION TECHNOLOGY

Qualification:
COMPUTER HARDWARE SERVICING NC II

Technical Education and Skills Development Authority

Tesda Center: Concordia College 1739 Pedro Gil Street, Paco Metro Manila
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COURSE DESIGN

Course Title: COMPUTER HARDWARE SERVICING NCII

Nominal Duration: 392 hours

Course Description:

This course is designed to develop knowledge, skills, and attitudes of a Computer Service Technician in accordance with industry standards. It covers basic and common competencies such as installing, maintaining, configuring, and diagnosing computer systems and networks.

Entry Requirements:

Candidate/trainee must possess the following qualifications, must be:

- Able to communicate both oral and written
- Physically and mentally fit.
- With good moral character.
- Can perform basic mathematical and logical computations.
- Analytical and logical thinking
### COURSE STRUCTURE:

#### BASIC COMPETENCIES

(18 hours)

<table>
<thead>
<tr>
<th>Units of Competency</th>
<th>Module Title</th>
<th>Learning Outcomes</th>
<th>Nominal Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Participate in workplace communication</td>
<td>1.1 Participating in workplace communication</td>
<td>1.1.1 Obtain and convey workplace information&lt;br&gt;1.1.2 Complete relevant work-related document&lt;br&gt;1.1.3 Participate in workplace meeting and discussion</td>
<td>4 hours</td>
</tr>
<tr>
<td>2. Work in a team environment</td>
<td>2.1 Working in a team environment</td>
<td>2.1.1 Describe and identify team role and responsibility&lt;br&gt;2.1.2 Describe work as a team member</td>
<td>4 hours</td>
</tr>
<tr>
<td>3. Practice career professionalism</td>
<td>3.1 Practicing career professionalism</td>
<td>3.1.1 Integrate personal objectives with organizational goals.&lt;br&gt;3.1.2 Set and meet work priorities.&lt;br&gt;3.1.3 Maintain professional growth and development.</td>
<td>5 hours</td>
</tr>
<tr>
<td>4. Practice occupational health and safety procedures</td>
<td>4.1 Practicing occupational health and safety procedure</td>
<td>4.1.1 Identify hazards and risks.&lt;br&gt;4.1.2 Evaluate hazards and risks.&lt;br&gt;4.1.3 Control hazards and risks.&lt;br&gt;4.1.4 Maintain occupational health and safety awareness.</td>
<td>5 hours</td>
</tr>
</tbody>
</table>

#### COMMON COMPETENCIES

(54 hours)

<table>
<thead>
<tr>
<th>Units of Competency</th>
<th>Module Title</th>
<th>Learning Outcomes</th>
<th>Nominal Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Apply quality standards</td>
<td>1.1 Applying quality standards</td>
<td>1.1.1 Assess quality of received materials&lt;br&gt;1.1.2 Assess own work&lt;br&gt;1.1.3 Engage in quality improvement</td>
<td>9 hours</td>
</tr>
<tr>
<td>2. Perform computer operations</td>
<td>2.1 Performing computer operations</td>
<td>2.1.1 Plan and prepare for tasks to be undertaken&lt;br&gt;2.1.2 Input data into computer&lt;br&gt;2.1.3 Access information using computer&lt;br&gt;2.1.4 Produce output/datd using computer system&lt;br&gt;2.1.5 Use basic functions of a web browser to locate information&lt;br&gt;2.1.6 Maintain computer equipment and systems</td>
<td>9 hours</td>
</tr>
</tbody>
</table>
### Units of Competency

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Learning Outcomes</th>
</tr>
</thead>
</table>
| 3. Perform mensuration and calculation | 3.1.1 Select measuring instruments  
3.1.2 Carry out measurements and calculation  
3.1.3 Maintain measuring instruments |

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Learning Outcomes</th>
</tr>
</thead>
</table>
| 4. Prepare and interpret technical drawing | 4.1.1 Identify different kinds of technical drawings  
4.1.2 Interpret technical drawing  
4.1.3 Prepare/make changes on electrical/electronic schematics and drawings |

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Learning Outcomes</th>
</tr>
</thead>
</table>
| 5. Use hand tools | 5.1.1 Plan and prepare for tasks to be undertaken  
5.1.2 Prepare hand tools  
5.1.3 Use appropriate hand tools and test equipment  
5.1.4 Maintain hand tools |

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Learning Outcomes</th>
</tr>
</thead>
</table>
| 6. Terminate and connect electrical wiring and electronics circuit | 6.1.1 Plan and prepare for termination/connection of electrical wiring/electronics circuits  
6.1.2 Terminate/connect wiring/electronic circuits  
6.1.3 Test termination/connections of electrical wiring/electronics circuits |

### CORE COMPETENCIES (320 hours)

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Learning Outcomes</th>
</tr>
</thead>
</table>
| 1.1 Installing computer systems and networks | 1.1.1 Plan and prepare for installation  
1.1.2 Install equipment/device system  
1.1.3 Conduct test |

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Learning Outcomes</th>
</tr>
</thead>
</table>
| 2.1 Diagnosing and trouble shooting computer systems | 2.1.1 Plan and prepare for diagnosis of faults of computer systems  
2.1.2 Diagnose faults of computer systems  
2.1.3 Repair defects in computer systems and networks  
2.1.4 Test systems and networks |

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<table>
<thead>
<tr>
<th>Units of Competency</th>
<th>Module Title</th>
<th>Learning Outcomes</th>
<th>Nominal Duration</th>
</tr>
</thead>
</table>
| 3. Configure computer systems and networks | 3.1 Configuring computer systems and networks     | 3.1.1 Plan and prepare for configuration  
3.1.2 Configure computer systems and networks  
3.1.3 Inspect and test configured computer systems and networks | 100 hours        |
| 4. Maintain computer systems and networks | 4.1 Maintaining computer systems and networks     | 4.1.1 Plan and prepare for the maintenance of computer systems and networks  
4.1.2 Maintain computer systems  
4.1.3 Maintain network systems  
4.1.4 Inspect and test configured/repaired computer system and networks | 60 hours         |

**RESOURCES**

<table>
<thead>
<tr>
<th>Tools</th>
<th>Equipment</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Operating System</td>
<td>• Hubs/switches</td>
<td>• UTP Cat. 5 cables</td>
</tr>
<tr>
<td>• Application program</td>
<td>• CDROMs</td>
<td>• UTP Cat.3 cables</td>
</tr>
<tr>
<td>• Components / Dividers</td>
<td>• Modem/router</td>
<td>• RJ 45 modular plug</td>
</tr>
<tr>
<td>• Oscilloscope</td>
<td>• Printers</td>
<td>• Learning Manuals</td>
</tr>
<tr>
<td>• Rulers</td>
<td>• Hubs</td>
<td>• Work Instruction</td>
</tr>
<tr>
<td>• T-square</td>
<td>• Server</td>
<td>• Hand-outs</td>
</tr>
<tr>
<td>• Calculator</td>
<td>• Peripherals</td>
<td>• Board marker</td>
</tr>
<tr>
<td>• Multi-tester</td>
<td>• Desktop Computers</td>
<td>• White board</td>
</tr>
<tr>
<td>• Soldering gun</td>
<td>• LAN tester</td>
<td>• Schematic diagrams</td>
</tr>
<tr>
<td>• Pliers</td>
<td>• Utility softwares</td>
<td>• Charts</td>
</tr>
<tr>
<td>• Cutters</td>
<td>• Anti-static wrist wrap</td>
<td>• Block diagrams</td>
</tr>
<tr>
<td>• Screw drivers</td>
<td>• Masks</td>
<td>• Layout plans</td>
</tr>
<tr>
<td>• Goggles</td>
<td>• Crimping tools</td>
<td>• Location Plans</td>
</tr>
<tr>
<td>• Gloves</td>
<td>• Flashlights</td>
<td>• Instrumentation diagrams</td>
</tr>
<tr>
<td>• Protractor</td>
<td>• Sharp pointed tweezers</td>
<td>• Loop diagrams</td>
</tr>
<tr>
<td>• Steel rule</td>
<td>• Mirror (inspection)</td>
<td>• System Control diagrams</td>
</tr>
<tr>
<td>• LAN tester</td>
<td>• Soldering gun</td>
<td>• Drawing boards</td>
</tr>
<tr>
<td>• Utility softwares</td>
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<tr>
<td>• Anti-static wrist wrap</td>
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<td>• Sharp pointed tweezers</td>
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<td>• Mirror (inspection)</td>
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<tr>
<td>• Soldering gun</td>
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ASSESSMENT METHODS:

- Hands on
- Direct observation
- Practical demonstration
- Oral and written exam

COURSE DELIVERY:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

TRAINER’S QUALIFICATION (TQ II)

- Must be a holder of Computer Hardware Servicing NCIII or equivalent available qualification
- Must have completed Training METHODOLOGIES II (TM II)
- Must be physically and mentally fit
- *Must have at least 2 years relevant job/industry experience
MODULES OF INSTRUCTION

BASIC COMPETENCIES

COMPUTER HARDWARE SERVICING NC II
BASIC COMPETENCY : COMMUNICATIONS

UNIT OF COMPETENCY : PARTICIPATE IN WORKPLACE COMMUNICATION

MODULE TITLE : PARTICIPATING IN WORKPLACE COMMUNICATION

MODULE DESCRIPTOR : This module covers the knowledge, skills and attitudes required to obtain, interpret and convey information in response to workplace requirements.

SUGGESTED DURATION : 4 hours

QUALIFICATION LEVEL : NC II

PREREQUISITE : Receive and Respond to Workplace Communication (NC I)

SUMMARY OF LEARNING OUTCOMES:

Upon completion of this module the students/trainees must be able to:

LO1. Obtain and convey workplace information

LO2. Complete relevant work related documents.

LO3. Participate in workplace meeting and discussion.
LO1. OBTAIN AND CONVEY WORKPLACE INFORMATION

ASSESSMENT CRITERIA:

1. Specific relevant information is accessed from appropriate sources.
2. Effective questioning, active listening and speaking skills are used to gather and convey information.
3. Appropriate medium is used to transfer information and ideas.
4. Appropriate non-verbal communication is used.
5. Appropriate lines of communication with superiors and colleagues are identified and followed.
6. Defined workplace procedures for the location and storage of information are used.
7. Personal interaction is carried out clearly and concisely.

CONTENTS:

- Parts of speech
- Sentence construction
- Effective communication

CONDITIONS:

The students/trainees must be provided with the following:

- Writing materials (pen & paper)
- References (books)
- Manuals

METHODOLOGIES:

- Group discussion
- Interaction
- Lecture
- Reportorial

ASSESSMENT METHODS:

- Written test
- Practical/performance test
- Interview
L02. COMPLETE RELEVANT WORK RELATED DOCUMENTS

ASSESSMENT CRITERIA:

1. Ranges of forms relating to conditions of employment are completed accurately and legibly.
2. Workplace data is recorded on standard workplace forms and documents.
3. Basic mathematical processes are used for routine calculations.
4. Errors in recording information on forms/documents are identified and rectified.
5. Reporting requirements to superior are completed according to enterprise guidelines.

CONTENTS:

- Basic mathematics
- Technical writing
- Types of forms

CONDITIONS:

The students/trainees must be provided with the following:

- Paper
- Pencils/ball pen
- Reference books
- Manuals

METHODOLOGIES:

- Group discussion
- Interaction
- Lecture

ASSESSMENT METHODS:

- Written test
- Practical/performance test
- Interview
LO3. PARTICIPATE IN WORKPLACE MEETINGS AND DISCUSSIONS

ASSESSMENT CRITERIA:

1. Team meetings are attended on time.
2. Own opinions are clearly expressed and those of others are listened to without interruption.
3. Meeting inputs are consistent with the meeting purpose and established protocols.
4. Workplace interaction are conducted in a courteous manner appropriate to cultural background and authority in the enterprise procedures.
5. Questions about simple routine workplace procedures and matters concerning conditions of employment are asked and responded.
6. Meeting outcomes are interpreted and implemented.

CONTENTS:

- Sentence construction
- Technical writing
- Recording information

CONDITIONS:

The students/trainees must be provided with the following:

- Paper
- Pencils/ball pen
- References (books)
- Manuals

METHODOLOGIES:

- Group discussions
- Interaction
- Lecture

ASSESSMENT METHODS:

- Written test
- Practical/performance test
- Interview
UNIT OF COMPETENCY : WORK IN A TEAM ENVIRONMENT

MODULE TITLE : WORKING IN A TEAM ENVIRONMENT

MODULE DESCRIPTOR : This module covers the knowledge, skills, and attitudes required to relate in a work based environment.

SUGGESTED DURATION : 4 hours

QUALIFICATION LEVEL : NC II

SUMMARY OF LEARNING OUTCOMES:

Upon completion of this module the students/trainees must be able to:

LO1. Describe and identify team role and responsibility in a team.

LO2. Describe work as a team member.
LO1. DESCRIBE AND IDENTIFY TEAM ROLE AND RESPONSIBILITY IN A TEAM

ASSESSMENT CRITERIA:

1. Role and objective of the team is identified.
2. Team parameters, relationships and responsibilities are identified.
3. Individual role and responsibilities within team environment are identified.
4. Roles and responsibilities of other team members are identified and recognized.
5. Reporting relationships within team and external to team are identified.

CONTENTS:

- Team role.
- Relationship and responsibilities
- Role and responsibilities with team environment.
- Relationship within a team.

CONDITIONS:

The students/trainees must be provided with the following:

- Standard operating procedure (SOP) of workplace
- Job procedures
- Client/supplier instructions
- Quality standards
- Organizational or external personnel

METHODOLOGIES:

- Group discussion/interaction
- Case studies
- Simulation

ASSESSMENT METHODS:

- Written test
- Observation
- Simulation
- Role playing
LO2. DESCRIBE WORK AS A TEAM MEMBER

ASSESSMENT CRITERIA:

1. Appropriate forms of communication and interactions are undertaken.
2. Appropriate contributions to complement team activities and objectives were made.
3. Reporting using standard operating procedures followed.
4. Development of team work plans based from role team were contributed.

CONTENTS:

- Communication process
- Team structure/team roles
- Group planning and decision making

CONDITIONS:

The students/trainees must be provided with the following:

- SOP of workplace
- Job procedures
- Organization or external personnel

METHODOLOGIES:

- Group discussion/interaction
- Case studies
- Simulation

ASSESSMENT METHODS:

- Observation of work activities
- Observation through simulation or role play
- Case studies and scenarios.
UNIT OF COMPETENCY: PRACTICE CAREER PROFESSIONALISM

MODULE TITLE: PRACTICING CAREER PROFESSIONALISM

MODULE DESCRIPTOR: This module covers the knowledge, skills and attitudes in promoting career growth and advancement, specifically to integrate personal objectives with organizational goals set and meet work priorities and maintain professional growth and development.

NOMINAL DURATION: 5 hours

QUALIFICATION LEVEL: NC II

SUMMARY OF LEARNING OUTCOMES:

Upon completion of this module the students/trainees must be able to:

LO1. Integrate personal objectives with organizational goals

LO2. Set and meet work priorities

LO3. Maintain professional growth and development
LO1. INTEGRATE PERSONAL OBJECTIVES WITH ORGANIZATIONAL GOALS

ASSESSMENT CRITERIA:

1. Personal growth and work plans towards improving the qualifications set for professionalism are evident.
2. Intra and interpersonal relationship in the course of managing oneself based on performance evaluation is maintained.
3. Commitment to the organization and its goal is demonstrated in the performance of duties.
4. Practice of appropriate personal hygiene is observed.
5. Job targets within key result areas are attained.

CONTENTS:

- Personal development-social aspects: intra and interpersonal development
- Organizational goals
- Personal hygiene and practices
- Code of ethics

CONDITIONS:

The students/trainees must be provided with the following:

- Workplace
- Code of ethics
- Organizational goals
- Hand outs and Personal development-social aspects
- CD’s, VHS tapes, transparencies

METHODOLOGIES:

- Interactive -lecture
- Simulation
- Demonstration
- Self paced instruction

ASSESSMENT METHODS:

- Role play
- Interview
- Written examination
LO2. SET AND MEET WORK PRIORITIES

ASSESSMENT CRITERIA:

1. Competing demands to achieve personal, team and organizational goals and objectives are prioritized.
2. Resources are utilized efficiently and effectively to manage work priorities and commitments.
3. Practices and economic use and maintenance of equipment and facilities are followed as per established procedures.
4. Job targets within key result areas are attained.

CONTENTS:

- Organizational key result areas (KRA)
- Work values and ethical standards
- Company policies on the use and maintenance of equipment

CONDITIONS:

The students/trainees must be provided with the following

- Hand outs on
  - Organizational KRA
  - Work values and ethics
  - Company policies and standards
  - Sample job targets
- Learning guides
- CD’s, VHS tapes, transparencies

METHODOLOGIES:

- Interactive lecture
- Group discussion
- Structured activity
- Demonstration

ASSESSMENT METHODS:

- Role play
- Interview
- Written examination
LO3. MAINTAIN PROFESSIONAL GROWTH AND DEVELOPMENT

ASSESSMENT CRITERIA:

1. Training and career opportunities relevant to the job requirements are identified and availed.
2. Licenses and/or certifications according to the requirements of the qualifications are acquired and maintained.
3. Fundamental rights at work including gender sensitivity are manifested/observed.
4. Training and career opportunities based on the requirements of industry are completed and updated.

CONTENTS:

- Qualification standards
- Gender and development (GAD) sensitivity
- Professionalism in the workplace
- List of professional licenses

CONDITIONS:

The students/trainees must be provided with the following

- Quality standards
- GAD handouts
- CD’s, VHS tapes on professionalism in the workplace
- Professional licenses samples

METHODOLOGIES:

- Interactive lecture
- Film viewing
- Role play/simulation
- Group discussion

ASSESSMENT METHODS:

- Demonstration
- Interview
- Written examination
- Portfolio assessment
UNIT OF COMPETENCY : PRACTICE OCCUPATIONAL HEALTH AND SAFETY PROCEDURES

MODULE TITLE : PRACTICING OCCUPATIONAL HEALTH AND SAFETY PROCEDURES

MODULE DESCRIPTOR : This module covers the knowledge, skills and attitudes required to comply with the regulatory and organizational requirements for occupational health and safety such as identifying, evaluating and maintaining occupational health and safety (OHS) awareness.

NOMINAL DURATION : 5 hours

QUALIFICATION LEVEL : NC II

SUMMARY OF LEARNING OUTCOMES:

Upon completion of this module the students/trainees must be able to:

LO1. Identity hazards and risks

LO2. Evaluate hazards and risks

LO3. Control hazards and risks

LO4. Maintain occupational health and safety awareness
LO1. IDENTIFY HAZARDS AND RISKS

ASSESSMENT CRITERIA:

1. Workplace hazards and risks are identified and clearly explained.
2. Hazards/risks and its corresponding indicators are identified in with the company procedures.
3. Contingency measures are recognized and established in accordance with organizational procedures.

CONTENTS:

- Hazards and risks identification and control
- Organizational safety and health protocol
- Threshold limit value (TLV)
- OHS indicators

CONDITIONS:

The students/trainees must be provided with the following:

- Workplace
- Personal protective equipment (PPE)
- Learning guides
- Hand-outs
  - Organizational safety and health protocol
  - OHS indicators
  - Threshold limit value
  - Hazards/risk identification and control
- CD’s, VHS tapes, transparencies

METHODOLOGIES:

- Interactive -lecture
- Simulation
- Symposium
- Group dynamics

ASSESSMENT METHODS:

- Situation analysis
- Interview
- Practical examination
- Written examination
LO2. EVALUATE HAZARDS AND RISKS

ASSESSMENT CRITERIA:

1. Terms of maximum tolerable limits are identified based on threshold limit values (TLV)
2. Effects of hazards are determined.
3. OHS issues and concerns are identified in accordance with workplace requirements and relevant workplace OHS legislation.

CONTENTS:

- TLV table
- Philippine OHS standards
- Effects of hazards in the workplace
- Ergonomics
- ECC Regulations

CONDITIONS:

The students/trainees must be provided with the following

- Hand outs on
  - Philippine OHS standards
  - Effects of hazards in the workplace
  - Ergonomics
  - ECC regulations
- TLV table
- CD’s, VHS tapes, transparencies

METHODOLOGIES:

- Interactive lecture
- Situation analysis
- Symposium
- Film viewing
- Group dynamics

ASSESSMENT METHODS:

- Interview
- Written examination
- Simulation
LO3. CONTROL HAZARDS AND RISKS

ASSESSMENT CRITERIA:

1. OHS procedures for controlling hazards and risk are strictly followed.
2. Procedures in dealing with workplace accidents, fire and emergencies are followed in accordance with the organization’s OHS policies.
3. Personal protective equipment (PPE) is correctly used in accordance with organization’s OHS procedures and practices.
4. Procedures in providing appropriate assistance in the event of workplace emergencies are identified in line with the established organizational protocol.

CONTENTS:

- Safety regulations
  - Clean air act
  - Electrical and fire safety code
  - Waste management
  - Disaster preparedness and management
- Contingency measures and procedures

CONDITIONS:

The students/trainees must be provided with the following:

- Hand outs on
  - Safety Regulations
  - Clean air act
  - Electrical and fire safety code
  - Waste management
  - Disaster preparedness and management
  - Contingency measures and procedures
- OHS personal records
- PPE
- CD’s, VHS tapes, transparencies

METHODOLOGIES:

- Interactive lecture
- Symposium
- Film viewing
- Group dynamics
- Self-paced instruction

ASSESSMENT METHODS:

- Written examination
- Interview
- Case/situation analysis
- Simulation
LO4. MAINTAIN OCCUPATIONAL HEALTH AND SAFETY AWARENESS

ASSESSMENT CRITERIA:

1. Procedures in emergency related drill are strictly followed in line with the established organization guidelines and procedures.
2. OHS personal records are filled up in accordance with workplace requirements.
3. PPE are maintained in line with organization guidelines and procedures.

CONTENTS:

- Operational health and safety procedure, practices and regulations
- Emergency-related drills and training

CONDITIONS:

The students/trainees must be provided with the following

- Workplace
- PPE
- OHS personal records
- CD’s, VHS tapes, transparencies
- Health record

METHODOLOGIES:

- Interactive lecture
- Simulation
- Symposium
- Film viewing
- Group dynamics

ASSESSMENT METHODS:

- Demonstration
- Interview
- Written examination
- Portfolio assessment
MODULES OF INSTRUCTION

COMMON COMPETENCIES

COMPUTER HARDWARE SERVICING NC II
UNIT OF COMPETENCY : APPLY QUALITY STANDARDS

MODULE TITLE : APPLYING QUALITY STANDARDS

MODULE DESCRIPTION : This module covers the knowledge, skills, attitudes and values needed to apply quality standards in the workplace. The unit also includes the application of relevant safety procedures and regulations, organization procedures and customer requirements.

NOMINAL DURATION : 9 hours

QUALIFICATION LEVEL : NC II

SUMMARY OF LEARNING OUTCOMES:

Upon completion of this module the students/trainees must be able to:

LO1. Assess quality of received materials

LO2. Assess own work

LO3. Engage in quality improvement
LO1. ASSESS QUALITY OF RECEIVED MATERIALS

ASSESSMENT CRITERIA:

1. Work instruction obtained and work carried out in accordance with standard operating procedures.
2. Received materials checked against workplace standards and specifications.
3. Faulty materials related to work are identified and isolated
4. Faults and any identified causes recorded and or reported to the supervisor concerned in accordance with workplace procedures
5. Faulty materials are replaced in accordance with workplace procedures

CONTENTS:

- Reading skills required to interpret work instruction
- Workplace standards and specifications
- Procedures in obtaining and carrying out work instructions
- Quality checking procedures
- Fault identification and reporting
- Safety and environmental aspects of production process
- Carry out work in accordance with policies and procedures

CONDITIONS:

The students/trainees must be provided with the following:

- Work instructions
- Manuals (operation manual of the company/manufacturer’s instruction/service manual)
- Company/workplace standards and specifications

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO2. ASSESS OWN WORK

ASSESSMENT CRITERIA:

1. Documentation relative to quality within the company identified and used
2. Completed work checked against workplace standards and specifications
3. Errors are identified and isolated
4. Information on the quality and other indicators of production procedures recorded in accordance with workplace procedures
5. In cases of deviation from specific quality standards, causes documented and reported in accordance with the workplace’s standard operating procedures.

CONTENTS:

- Communication skills needed to interpret and apply defined work procedures
- Identifying errors (deviation from customer and or organization requirements)

CONDITIONS:

The students/trainees must be provided with the following:

- Organization work procedures
- Manufacturer’s Instruction Manual
- Customer requirements
- Other forms

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO3. ENGAGE IN QUALITY IMPROVEMENT

ASSESSMENT CRITERIA:

1. Process improvement procedures participated in relative to workplace assignment
2. Work carried out in accordance with process improvement procedures
3. Performance of operation or quality of product of service to ensure customer satisfaction monitored

CONTENTS:

- Relevant production processes, materials and products
- Safety and environmental aspects of production processes
- Critical thinking
- Quality improvement processes

CONDITIONS:

The students/trainees must be provided with the following:

- Organization work procedures
- Manufacturer’s Instruction Manual
- Customer requirements
- Other forms

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
UNIT OF COMPETENCY: PERFORM COMPUTER OPERATIONS

MODULE TITLE: PERFORMING COMPUTER OPERATIONS

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

NOMINAL DURATION: 9 hours

QUALIFICATION LEVEL: NC II

SUMMARY OF LEARNING OUTCOMES:

Upon completion of this module the students/trainees must be able to:

LO1. Plan and prepare for tasks to be taken/undertaken
LO2. Input data into computer
LO3. Access information using computer
LO4. Produce output/data using computer systems
LO5. Use basic functions of a Web browser to locate information
LO6. Maintain computer equipment and systems
LO1. PLAN AND PREPARE FOR TASKS TO BE UNDERTAKEN

ASSESSMENT CRITERIA:

1. Requirements of tasks determined in accordance with the required output
2. Appropriate hardware and software selected according to task assigned and required outcome
3. Task planned to ensure that OH and S guidelines and procedures followed
4. Client-specific guidelines and procedures followed
5. Required data security guidelines applied in accordance with existing procedures

CONTENTS:

- Reading and comprehension skills required to interpret work instructions and to interpret basic user manuals
- OH and S principles and responsibilities
- Main types of computers and basic features of different operating systems
- Main parts of a computer
- Storage devices and basic categories of memory
- Relevant types of software
- General security, privacy legislation and copyright

CONDITIONS:

The students/trainees must be provided with the following:

- Equipment:
  - 1 unit of computer
  - Voltage regulator/UPS
- Learning Materials:
  - Learning manuals
  - Work instruction
  - Hand-outs
- Supplies/materials:
  - Operating system
  - Application program

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO2. INPUT DATA INTO COMPUTER

ASSESSMENT CRITERIA:

1. Data entered into the computer using appropriate program/application in accordance with company procedure
2. Accuracy of information checked and information saved in accordance with standard operating procedures
3. Inputted data stored in storage media according to requirements
4. Work performed within ergonomic guidelines

CONTENTS:

- Relevant types of software
- Communication skills to identify lines of communication, request advice, follow instructions and receive feedback
- Storage devices and basic categories of memory
- Basic ergonomics of keyboard and computer user

CONDITIONS:

The students/trainees must be provided with the following:

- Equipment:
  - 1 unit of computer
  - voltage regulator/UPS
- Learning Materials:
  - Learning manuals
  - Work instruction
  - Hand-outs
- Supplies/Materials:
  - Operating system
  - Application program

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO3. ACCESS INFORMATION USING COMPUTER

ASSESSMENT CRITERIA:

1. Correct program/application selected based on job requirements
2. Program/application containing the information required accessed according to company procedures
3. Desktop icons correctly selected, opened and closed for navigation purposes
4. Keyboard techniques carried out in line with OHS requirements for safe use of keyboards

CONTENTS:

- Relevant types of software
- Business application
- System software
- Basic ergonomics of keyboard and computer user

CONDITIONS:

The students/trainees must be provided with the following:

- Equipment:
  - 1 unit of computer
  - Voltage regulator/UPS
- Learning Materials:
  - Learning manuals
  - Work instruction
  - Hand-outs
- Supplies/Materials:
  - Operating system
  - Application program
  - Disks

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO4. PRODUCE OUTPUT/DATA USING COMPUTER SYSTEM

ASSESSMENT CRITERIA:

1. Entered data processed using appropriate software commands
2. Data printed as required using computer hardware/peripheral devices in accordance with standard operating procedures
3. Files and data transferred between compatible systems using computer software, hardware/peripheral devices in accordance with standard operating procedures

CONTENTS:

- Relevant types of software
- Computer peripherals
- Storage devices and basic categories of memory

CONDITIONS:

The students/trainees must be provided with the following:

- Equipment:
  - 1 unit of computer
  - printer
  - voltage regulator/UPS
- Learning Materials:
  - Learning manuals
  - Work instruction
  - Hand-outs
- Supplies/Materials:
  - Operating system
  - Application program
  - Disks

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO5. USE BASIC FUNCTIONS OF A WEB BROWSER TO LOCATE INFORMATION

ASSESSMENT CRITERIA:

1. Information requirements for Internet search established
2. Browser launched
3. Search engine loaded
4. Appropriate search criteria and/or URL of site entered
5. Relevant links followed to locate required information
6. Useful pages bookmarked or printed as required

CONTENTS:

- Web surfing
- Web browsers
- Search engines
- URLs and keywords
- Links
- Bookmarking

CONDITIONS:

The students/trainees must be provided with the following:

- Equipment:
  - 1 unit of computer
  - voltage regulator/UPS
- Learning Materials:
  - Learning manuals
  - Work instruction
  - Hand-outs
- Supplies/Materials:
  - Operating system
  - Application program
  - Disks
  - Paper

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO6. MAINTAIN COMPUTER EQUIPMENT AND SYSTEMS

ASSESSMENT CRITERIA:

1. Procedures for ensuring security of data, including regular back-ups and virus checks implemented in accordance with standard operating procedures
2. Basic file maintenance procedures implemented in line with standard operating procedures

CONTENTS:

- Security measures
- Anti-virus software/programs
- File Management

CONDITIONS:

The students/trainees must be provided with the following:

- Equipment:
  - 1 unit of computer
  - voltage regulator/UPS
- Learning Materials:
  - Learning manuals
  - Work instruction
  - Hand-outs
- Supplies/Materials:
  - Operating system
  - Application program

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
UNIT OF COMPETENCY : PERFORM MENSURATION AND CALCULATION

MODULE TITLE : PERFORMING MENSURATION AND CALCULATION

MODULE DESCRIPTION : This unit covers the knowledge, skills and attitudes and values needed identify, care, and use measuring instruments.

NOMINAL DURATION : 9 hours

QUALIFICATION LEVEL : NC II

SUMMARY OF LEARNING OUTCOMES:

Upon completion of this module the students/trainees must be able to:

LO1. Select measuring instruments

LO2. Carry out measurements and calculation

LO3. Maintain measuring instruments
LO1. SELECT MEASURING INSTRUMENTS

ASSESSMENT CRITERIA:

1. Object or component to be measured identified
2. Correct specifications obtained from relevant source
3. Measuring tools selected in line with job requirements

CONTENTS:

- Types of components and object to be identified
- Knowing the correct specifications of the relevant sources
- Identify the necessary measuring tools in selecting the job requirements
- Reading skills required to interpret work instruction
- Communication skills

CONDITIONS:

The students/trainees must be provided with the following:

- Try square
- Protractor
- Steel rule
- Taper

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO2. CARRY OUT MEASUREMENTS AND CALCULATION

ASSESSMENT CRITERIA:

1. Appropriate measuring instrument selected to achieve required outcome.
2. Accurate measurements obtained for job.
3. Calculation needed to complete work tasks are performed using the four fundamentals operations (addition, subtraction, multiplication and division)
4. Calculation involving fractions, percentages, and mixed numbers used to complete workplace tasks.
5. Instruments read to the limit of accuracy of the tool.

CONTENTS:

- Identifying appropriate measuring instruments to be used.
- Use accurate measurements for the tasks given.
- Using the four fundamentals of mathematical operations
- Introducing proper procedure in calculating fractions, percentages, and mixed numbers to perform in the given tasks.
- Reading skills required to interpret work instruction
- Communication skills

CONDITIONS:

The students/trainees must be provided with the following:

- Torque gauge
- Combination gauge
- Volume
- Area
- Circumference
- Thickness

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO3. MAINTAIN MEASURING INSTRUMENTS

ASSESSMENT CRITERIA:

1. Measuring instruments not dropped to avoid damage.
2. Measuring instruments cleaned before and after using.
3. Proper storage of instruments undertaken according to the manufacturer’s specifications and standard operating procedures.

CONTENTS:

- Using appropriate instruments tools to avoid damage.
- Proper procedure in cleaning up the workplace before and after using
- Identifying the proper storage of the instruments to be kept that met the manufacturer’s specifications and standard to avoid damage in mismatching.
- Reading skills required to interpret work instruction
- Communication skills

CONDITIONS:

The students/trainees must be provided with the following:

- Straight edge
- Steel rule
- Displacement
- Inside diameter
- Outside diameter
- Thickness
- Taper
- Out of roundness

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
UNIT OF COMPETENCY: PREPARE AND INTERPRET TECHNICAL DRAWING

MODULE TITLE: PREPARING AND INTERPRETING TECHNICAL DRAWING

MODULE DESCRIPTION: This module covers the knowledge, skills and attitude and values needed to prepare/interpret diagrams, engineering abbreviation and drawings, symbols and dimensions

NOMINAL DURATION: 9 hours

QUALIFICATION LEVEL: NC II

SUMMARY OF LEARNING OUTCOMES:

Upon completion of this module the students/trainees must be able to:

LO1. Identify different kinds of technical drawings

LO2. Interpret technical drawing

LO3. Prepare/make changes on electrical/electronic schematics and drawings
LO1. IDENTIFY DIFFERENT KINDS OF TECHNICAL DRAWINGS

ASSESSMENT CRITERIA:

1. Correct technical drawing selected according to job requirements
2. Technical drawings segregated in accordance with the types and kinds of drawings.

CONTENTS:

- Drawing conventions
- Symbols
- Dimensioning conventions
- Markup/notation of drawings

CONDITIONS:

The students/trainees must be provided with the following:

- Schematic diagrams
- Charts
- Block diagrams
- Layout plans
- Location plans
- Process and Instrumentation diagrams
- Loop diagrams
- System control diagrams

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO2. INTERPRET TECHNICAL DRAWING

ASSESSMENT CRITERIA:

1. Components, assemblies or objects recognized as required
2. Dimensions of the key features of the objects depicted in the drawing correctly identified
3. Symbols used in the drawing identified and interpreted correctly
4. Drawing checked and validated against job requirements or equipment in accordance with standard operating procedures

CONTENTS:

- Reading skills required to interpret work instructions
- Skills in interpreting electrical / electronic signs and symbols

CONDITIONS:

The students/trainees must be provided with the following:

- Schematic diagrams
- Charts
- Block diagrams
- Layout plans
- Location Plans
- Process and Instrumentation diagrams
- Loop diagrams
- System Control diagrams

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO3. PREPARE/MAKE CHANGES ON ELECTRICAL/ELECTRONIC SCHEMATICS AND DRAWINGS

ASSESSMENT CRITERIA:

1. Electrical/ Electronic schematic drawn and correctly identified
2. Correct drawing identified, equipment selected and used in accordance with job requirements

CONTENTS:

- Mathematics
- Communication skills

CONDITIONS:

The students/trainees must be provided with the following:

- Components/dividers
- Drawing boards
- Rulers
- T-square
- Calculator

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
UNIT OF COMPETENCY : USE HAND TOOLS

MODULE TITLE : USING HAND TOOLS

MODULE DESCRIPTION : This unit covers the knowledge, skills and attitudes on the safe use, handling and maintenance of tools.

NOMINAL DURATION : 9 hours

QUALIFICATION LEVEL : NC II

SUMMARY OF LEARNING OUTCOMES:

Upon completion of this module the students/trainees must be able to:

LO1. Plan and prepare for tasks to be undertaken
LO2. Prepare hand tools
LO3. Use appropriate hand tools and test equipment
LO4. Maintain hand tools
LO1. PLAN AND PREPARE FOR TASKS TO BE UNDERTAKEN

ASSESSMENT CRITERIA:

1. Tasks to be undertaken properly identified.
2. Appropriate hand tools identify
3. Hand tools selected according to the task requirements

CONTENTS:

- Identifying appropriate hand tools
- Identifying tasks
- Selecting appropriate hand tools

CONDITIONS:

The students/trainees must be provided with the following:

- Hand tools for adjusting, dismantling, assembling, finishing, cutting, screwdrivers, pliers, punches
- Wrenches
- Files

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO2. PREPARE HAND TOOLS

ASSESSMENT CRITERIA:

1. Appropriate hand tools checked for proper operation and safety
2. Unsafe or faulty tools identified
3. Marked all tools for repair according to standard company procedures

CONTENTS:

- Operation of hand tools
- Function of hand tools
- Common faults of hand tools
- Safety requirements of hand tools
- Preparing tools

CONDITIONS:

The students/trainees must be provided with the following:

- Hand tools for adjusting, dismantling, assembling, finishing, cutting,
- Tool set (screwdrivers, pliers, punches, wrenches, files)

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO3. USE APPROPRIATE HAND TOOLS AND TEST EQUIPMENT

ASSESSMENT CRITERIA:

1. Tools used according to tasks undertaken
2. All safety procedures in using tools observed at all times
3. Malfunctions, unplanned or unusual events reported to the supervisor

CONTENTS:

- Function of tools
- Safety requirements of tools
- Proper used of tools
- Creating report for malfunctions, unplanned or unusual events

CONDITIONS:

The students/trainees must be provided with the following:

- Cleaning
- Lubricating
- Tightening
- Simple tool repairs
- Hand sharpening
- Adjustment using correct procedures

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO4. MAINTAIN HAND TOOLS

ASSESSMENT CRITERIA:

1. Tools used according to tasks undertaken
2. Routine maintenance of tools undertaken according to standard operational procedures, principles and techniques
3. Tools stored safely in appropriate locations in accordance with manufacturers specifications or standard operating procedures

CONTENTS:

- Maintenance of tools
- Storage of tools
- Standard operational procedures, principles and techniques in maintaining a tools

CONDITIONS:

The students/trainees must be provided with the following:

- Cleaning
- Lubricating
- Tightening

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
UNIT OF COMPETENCY : TERMINATE AND CONNECT ELECTRICAL WIRING AND ELECTRONICS CIRCUIT

MODULE TITLE : TERMINATING AND CONNECTING ELECTRICAL WIRING AND ELECTRONICS CIRCUIT COMPONENT

MODULE DESCRIPTION : This unit covers the knowledge, skills and attitudes and values needed to terminate and connect electrical wiring and electronic circuits.

NOMINAL DURATION : 9 hours

QUALIFICATION LEVEL : NC II

SUMMARY OF LEARNING OUTCOMES:

Upon completion of this module the students/trainees must be able to:

LO1. Plan and prepare for termination/connection of electrical wiring/electronics circuits

LO2. Terminate/connect wiring/electronic circuits

LO3. Test termination/connections of electrical wiring/electronics circuits
LO1. PLAN AND PREPARE FOR TERMINATION/CONNECTION OF ELECTRICAL WIRING/ELECTRONICS CIRCUITS

ASSESSMENT CRITERIA:

1. Materials checked according to specification and tasks
2. Appropriate tools and equipment selected according to tasks requirements
3. Task is planned to ensure OH & S guidelines and procedures followed.
4. Electrical wiring/electronic, circuits correctly prepared for connecting/termination in accordance with instructions and worksite procedures.

CONTENTS:

- Identified the materials needed to perform the given specification
- Used appropriate tools and equipment as required in the given tasks
- Prior planning to perform the specific guidelines and procedures
- Ensuring the accuracy and correctness of electrical/wiring and electronics connections to be used and placed in the worksite.
- Reading skills required to interpret work instruction
- Communication skills

CONDITIONS:

The students/trainees must be provided with the following:

- Materials
- Soldering lead
- Toots and equipment
- Pliers
- Personal Protective Equipment
- Goggles

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO2. TERMINATE/CONNECT WIRING/ELECTRONIC CIRCUITS

ASSESSMENT CRITERIA:

1. Safety procedures in using tools observed at all times and appropriate personal protective equipment used
2. All works undertaken safety in accordance with the workplace and standard procedures.
3. Appropriate ranges of methods in termination/connection used according to specifications, manufacturer’s requirements and safety.
4. Correct sequence of operation followed
5. Accessories used adjusted, if necessary
6. Confirm termination/connections undertaken successfully in accordance with job specification.

CONTENTS:

- Provide necessary safety procedures in using tools and appropriate protective equipment in the worksite.
- Tasks given are based to standards procedures in accordance with the safety requirements.
- Identifying appropriate methods in terminating connection are according to prescribed standards.
- Using proper sequence of operation
- Jobs performance must be in accordance with the standard procedures.
- Reading skills required to interpret work instruction
- Communication skills

CONDITIONS:

The students/trainees must be provided with the following:

- Materials
  - Cables
  - Soldering lead
  - Wires
- Tools and equipment
  - Pliers
  - Cutters
  - Screw drivers
  - Soldering gun
  - Multi-tester
- Personal protective equipment
  - Goggles
  - Gloves
METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO3. TEST TERMINATION/CONNECTIONS OF ELECTRICAL WIRING/ELECTRONICS CIRCUITS

ASSESSMENT CRITERIA:

1. Testing of all completed termination/connections of electric wiring/electronic circuits conducted for compliance with specification and regulations using appropriate procedures and equipment
2. Wiring and circuits checked using specified testing procedures
3. Unplanned events or conditions responded to in accordance with established procedures.

CONTENTS:

- Using of appropriate tools in testing of the different circuits connected to ensure the validity and conformity of the connection
- Identify the accurate tools to checked the specified wiring circuits
- Reading skills required to interpret work instruction
- Communication skills
- Responding as compliance with the standard established procedures

CONDITIONS:

The students/trainees must be provided with the following:

- Materials
  - Cables
  - Soldering lead
  - Wires
- Tools and equipment
  - Pliers
  - Cutters
  - Screw drivers
  - Soldering gun
  - Multi-tester
- Personal protective equipment
  - Goggles
  - Gloves

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHOD:

- Hands-on
- Direct observation
- Practical demonstration
MODULES OF INSTRUCTION

CORE COMPETENCIES

COMPUTER HARDWARE SERVICING NC II
UNIT OF COMPETENCY : INSTALL COMPUTER SYSTEMS AND NETWORKS

UNIT MODULE : INSTALLING COMPUTER SYSTEMS AND NETWORKS

MODULE DESCRIPTOR : This module covers the outcomes required in installing, assembling and testing computers and common peripherals

NOMINAL DURATION : 60 hours

QUALIFICATION LEVEL : NC II

PREREQUISITE : NC I

SUMMARY OF LEARNING OUTCOMES:

Upon completion of this module the students/trainees must be able to:

LO1. Plan and prepare for installation

LO2. Install equipment/device system

LO3. Conduct test
LO1. PLAN AND PREPARE FOR INSTALLATION

ASSESSMENT CRITERIA:

1. Installation planned and prepared to ensure that safety measures, policies and procedures followed, and that work is appropriately sequenced in accordance with the industry standards
2. Technical personnel consulted to ensure that the work coordinated effectively with others involved on the worksite
3. Computer systems and network devices obtained in accordance with the established procedures and to comply with requirements
4. Location where devices and systems to be installed is determined from job requirements
5. Materials necessary to complete the work obtained in accordance with established procedures and checked against job requirements
6. Tools, equipment and testing devices needed to carry out the installation work obtained in accordance with established procedures and checked for correct operation and safety
7. Preparatory work checked to ensure that no unnecessary damage has occurred and that work complies with requirements

CONTENTS:

- Safety procedures
- Basic terms, concepts, functions and characteristics of PC hardware components
- Structure of operating systems
- Familiarization with the various computer systems’ components and peripherals
- System configuration/ settings of computer systems and devices

CONDITIONS:

The students/trainees must be provided with the following:

- Personal Protective equipment (ex. protective eyewear, anti static wrist wrap)
- Electronic laboratory hand tools (assorted pliers, assorted screw drivers, soldering iron & desoldering tool)
- LAN tester
- Crimping tools
- RS 232 pin exertion/ extraction tool
- Flashlights
- Mirror (inspection)
- Hand-outs

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO2. INSTALL DEVICE/SYSTEM/EQUIPMENTS

ASSESSMENT CRITERIA:
1. Occupational health and safety policies and procedures followed in installing computer systems, network devices, and peripherals
2. Computer systems, network devices and peripherals installed obtained in accordance with the established procedures and to comply with requirements
3. Appropriate procedures in installing computer systems, network devices and peripherals achieve in accordance with requirements without damage or distortion to the surrounding environment and services
4. Variation to devices/systems installation carried out in accordance with the customer/client’s requirements
5. Unplanned events or conditions responded to in accordance to in accordance with established procedures
6. Approval is obtained in accordance with established procedures from appropriate personnel before any contingencies implemented
7. On going checks of the quality of the quality of the work undertaken in accordance with the established procedures

CONTENTS:
- Safety procedures
- Basic computer configuration set up
- System’s specifications
- Identifying common symptoms and problems associated with each devices
- Troubleshooting and isolating PC hardware problems
- Diagnosing and troubleshooting hardware conflicts
- Knowledge in installing peripherals, network devices and other I/O devices

CONDITIONS:
The students/trainees must be provided with the following:
- Personal Protective equipment (ex. protective eyewear, anti static wrist wrap)
- Electronic laboratory hand tools (assorted pliers, assorted screw drivers, soldering iron, desoldering tool)
- LAN tester
- Crimping tools
- RS 232 pin exertion/ extraction tool
- Flashlights
- Device drivers, operating system
- Appropriate software application programs
- Diagnostic software or utilities
- Hand-outs

METHODOLOGIES:
- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:
- Hands-on
- Direct observation
- Practical demonstration
LO3. CONDUCT TEST

ASSESSMENT CRITERIA:

1. Occupational health and safety policies and procedures for installing computer systems and network devices followed.
2. Circuits and systems checked as being isolated where necessary using specified testing procedures.
3. Parts or connections of the installation or service that removed in order to conduct the test stored to protect against loss or damage and in accordance with established procedures.
4. Unplanned events or conditions responded to in accordance with the industry requirements.
5. Approval obtained in accordance with established procedures from appropriate personnel before any contingencies are implemented.
6. Devices/systems and/or installation tested to terminated in accordance with the industry requirements.
7. Parts and/or connections removed for testing returned to pre-test conditions in accordance with established procedures.
8. Final inspections undertaken to ensure that the installed devices/systems conforms to requirements.
9. Documents in relation to the test forwarded to appropriate personnel and/or authority in accordance with requirements.

CONTENTS:

- Safety procedures
- Basic computer configuration set up
- Understanding and comparing various system’s specifications
- Identifying common symptoms and problems
- Troubleshooting and isolating problems
- Diagnosing and troubleshooting conflicts
- Installing peripherals, network devices and other I/O devices
- Knowledge in performing burn-in or testing repaired or replaced network system

CONDITIONS:

The students/trainees must be provided with the following:

- Personal Protective equipment (ex. protective eyewear, anti static wrist wrap)
- Electronic laboratory hand tools (assorted pliers, assorted screw drivers, soldering iron, desoldering tool)
- LAN tester
- Crimping tools
- RS 232 pin exertion/ extraction tool
- Flashlights
- Sharp pointed tweezers
- Mirror (inspection)
- Hand-outs
METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
UNIT OF COMPETENCY: DIAGNOSE AND TROUBLESHOOT COMPUTER SYSTEM

MODULE TITLE: DIAGNOSING AND TROUBLESHOOTING COMPUTER SYSTEM

MODULE DESCRIPTOR: This unit covers the knowledge, skills and attitudes needed to diagnose computer systems and networks

NOMINAL DURATION: 100 hours

QUALIFICATION LEVEL: NCII

SUMMARY OF LEARNING OUTCOMES:

Upon completion of this module the students/trainees must be able to:

LO1. Plan and prepare for diagnosis of faults of computer systems

LO2. Diagnose faults of computer systems

LO3. Repair defects in computer systems and networks

LO4. Test systems and networks
LO1. PLAN AND PREPARE FOR DIAGNOSIS OF FAULTS OF COMPUTER SYSTEMS

ASSESSMENT CRITERIA:

1. Faults and error of computer system properly determined.
2. Tools (hardware/software) identified in accordance with its uses and functions.
3. Safety precautions established in accordance with workplace procedures.

CONTENTS:

- Different types of computer systems error.
- Software as tools for diagnosing computer systems.
- Hand tools and its uses.
- Procedures in diagnosing computer systems
- Safety precautions

CONDITIONS:

The students/trainees must be provided with the following:

- Tools:
  - Screw drivers (assorted)
  - Pliers (assorted)
  - Soldering iron
  - Wrenches
  - Utility software
  - Computer system
- Policies and procedures:
  - Procedures and guidelines
  - Safety precautions

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO2. DIAGNOSE FAULTS OF COMPUTER SYSTEM

ASSESSMENT CRITERIA:

1. Components or parts of computer system clearly identified
2. Functions of the computer systems explained
3. Faults and failures of the computer systems diagnosed base on the job requirements

CONTENTS:

- Parts and functions of computer system
- Software (operating system, application software)
- Electrical theory
- Computer monitors
- Techniques for diagnosing computer system

CONDITIONS:

The students/trainees must be provided with the following:

- Tools:
  - Screw drivers (assorted)
  - Pliers (assorted)
  - Wrenches
  - Utility software
- Materials:
  - Connectors
  - Adaptors
  - Diskettes
  - CD ROM
- Computer system:
  - Complete set of working computer
  - Spare of all components
- Testing devices:
  - Multi-meter
  - Oscilloscope
  - Appropriate software

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO3. REPAIR DEFECTS IN COMPUTER SYSTEMS AND NETWORKS

ASSESSMENT CRITERIA:

1. Defective components properly replaced and corrected
2. Error in networks clearly identified and repaired in line with standard procedures
3. Defective components identified and separated to other components

CONTENTS:

- Proper repairing/replacing procedures of different components
- Wiring techniques
- Power supplies
- Determining defective components
- Basic networking

CONDITIONS:

The students/trainees must be provided with the following:

- Tools:
  - Screw drivers (assorted)
  - Pliers (assorted)
  - Soldering iron
  - Wrenches
  - Utility software
  - Crimping tools
- Computer system:
  - Servers
  - Workstations
  - Printers
- Policies and procedures:
  - Procedures and guidelines
- Testing devices:
  - Multi-tester
  - Oscilloscope

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO4. TEST SYSTEMS AND NETWORKS

ASSESSMENT CRITERIA:

1. Computer systems and networks are tested in accordance with the job requirements
2. Information are shared from one computer to another as primary requirement in computer networking
3. Reports are prepared and completed according to the company requirements

CONTENTS:

- Guidelines for testing computer system
- Advance networking
- Computer systems operation
- Digital electronics
- Communications

CONDITIONS:

The students/trainees must be provided with the following:

- Computer system:
  - Servers
  - Workstations
  - Printers
- Policies and procedures:
  - Procedures and guidelines for testing
- Testing devices:
  - Network cable tester
  - Hubs
- Others:
  - Papers (for report generation)
  - AC line (to supply power)

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
UNIT OF COMPETENCY: CONFIGURED COMPUTER SYSTEMS AND NETWORKS

MODULE TITLE: CONFIGURING COMPUTER SYSTEMS AND NETWORKS

MODULES DESCRIPTOR: This unit covers the knowledge, skills and attitudes needed to configure computer systems and networks

NOMINAL DURATION: 100 hours

CERTIFICATION LEVEL: NC II

SUMMARY OF LEARNING OUTCOMES:

Upon completion of this module the students/trainees must be able to:

LO1. Plan and prepare for configuration

LO2. Configure computer systems and networks

LO3. Inspect and test configured computer systems and networks
LO1. PLAN AND PREPARE FOR CONFIGURATION

ASSESSMENT CRITERIA:

1. Configured computer systems and networks identified from the Job/Service Order or instructions.
2. Planned and prepared job requirements.
3. Followed OHS policies and procedures of job requirements.
4. Checked computer systems and networks configuration with specified requirements.
5. Checked necessary tools, equipment materials

CONTENTS:

- Inspecting work instructions according to job requirements.
- Planning and preparing of standard operating procedures
- Occupational health and safety
- Configuring system and networks
- Procedures in using the tools and equipments

CONDITIONS:

The students/trainees must be provided with the following:

- OH & S policies and procedures
  - OH & S policies
  - manuals
- Computer systems and networks
  - 1 Server
  - Peripherals
  - 1 Desktop Computers
- Materials
  - Wires and Cables
  - Appropriate Software
  - Computer Storage Media
- Tools
  - Pliers
  - Philips screw driver
- Equipment/testing devices
  - Computer
- Personal protective equipment
  - Anti-static wrist wrap

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on application
- Direct observation
- Practical demonstration
LO2. CONFIGURE COMPUTER SYSTEMS AND NETWORKS

ASSESSMENT CRITERIA:
1. Appropriate Personal Protective Equipment are used and OHS policies and procedures followed
2. Normal function of systems and networks checked in accordance with manufacturer’s instructions
3. Fault or problem in the systems and networks diagnosed in line with the standard operating procedures.
4. Computer systems and networks configured in line with the standard operating procedures.

CONTENTS:
- Occupational health and safety
- Testing normal function of systems and networks
- Procedures in checking the faults or problems
- Procedures in configure systems and networks

CONDITIONS:
The students/trainees must be provided with the following:
- OH & S policies and procedures
  - OH & S policies
  - manuals
- Computer systems and networks
  - 1 Server
  - Peripherals
  - 1 Desktop Computers
- Materials
  - Wires and Cables
  - Appropriate Software
  - Computer Storage Media
- Tools
  - Pliers
  - Philips screw driver
- Equipment/testing devices
  - Computer
- Personal protective equipment
  - Anti-static wrist wrap

METHODOLOGIES:
- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:
- Hands-on application
- Direct observation
- Practical demonstration
LO3. INSPECT AND TEST CONFIGURED COMPUTER SYSTEMS AND NETWORKS

ASSESSMENT CRITERIA:

1. Final inspections are undertaken to ensure that the configuration done on the systems and networks conforms with the manufacture’s instruction/manual
2. Computer systems and networks are checked to ensure safe operation.
3. Report is prepared and completed according to company requirements.

CONTENTS:

- Occupational health and safety
- Inspection of systems and networks with manuals
- Making documents and reports

CONDITIONS:

The students/trainees must be provided with the following:

- OH & S policies and procedures
  - OH & S policies
  - Manuals
- Computer systems and networks
  - 1 Server
  - Peripherals
  - 1 Desktop Computers
- Materials
  - Wires and Cables
  - Appropriate Software
  - Computer Storage Media
- Tools
  - Pliers
  - Philips screw driver
- Equipment/testing devices
  - Computer
- Personal protective equipment
  - Anti-static wrist wrap

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group Discussion

ASSESSMENT METHODS:

- Hands-on application
- Direct observation
- Practical Demonstration
UNIT OF COMPETENCY : MAINTAIN COMPUTER SYSTEMS AND NETWORK

MODULE TITLE : MAINTAINING COMPUTER SYSTEMS AND NETWORKS

MODULE DESCRIPTOR : This module covers the knowledge, skills and attitude needed to maintain computer systems and networks

NOMINAL DURATION : 60 hours

QUALIFICATION LEVEL : NC II

SUMMARY OF LEARNING OUTCOMES:

Upon completion of this module the students/trainees must be able to:

LO1. Plan and prepare for the maintenance of computer systems and networks.
LO2. Maintain computer systems
LO3. Maintain network systems
LO4. Inspect and test configured/repaired computer system and networks
LO1. PLAN AND PREPARE FOR THE MAINTENANCE OF COMPUTER SYSTEMS AND NETWORKS.

ASSESSMENT CRITERIA:

1. Maintenance planned and prepared with OHS policies and procedures.
2. The materials, tools, equipments and testing devices obtained and checked.
3. Computer systems and networks checked, identified and maintained with specifications and requirements to conform with manufacturers.

CONTENTS:

- Plan/conduct maintenance procedures according to job requirements.
- Safety measures are observed at all times.
- Identify and diagnose faulty system.
- Prepare tools and test equipments.
- Identify or obtain PC specifications and schematic diagrams.
- Identify or obtain Network functions and specifications.

CONDITIONS:

The students/trainees must be provided with the following:

- OHS guidelines and policies.
- PC specifications
- Network designs
- Schematic Diagrams
- Books/magazines
- Manuals

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO2. MAINTAIN COMPUTER SYSTEMS

ASSESSMENT CRITERIA:

1. The normal functions of computer systems are checked and tested.
2. The scheduled/periodic maintenance and cleaning are performed.
3. The repairs/replacements and sudden breakdowns responded in accordance with established procedures.

CONTENTS:

- Procedures in maintaining computer systems are followed
- Safety measures are observed.
- Diagnose and identify faulty systems.
- Run diagnostics software.
- Repair or replace faulty system
- Burn-in or test repaired or replaced computer system

CONDITIONS: The students/trainees must be provided with the following:

- PC specification
- Schematic Diagrams
- Personal protective equipments
  - Gloves and goggles
  - Masks
  - Anti-static wrist wraps
- Materials
  - Contact cleaners/ soap or detergents
  - Dust brush
  - Chamois or rags
  - Basin/ water
- Diagnostics software and CD-ROMs
- Tools and test equipments
  - Slotted head screwdriver
  - Philips head screwdriver
  - Long nosed pliers
  - Allen bit wrench
  - Multi-tester
- Spare parts

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO3. MAINTAIN NETWORK SYSTEMS

ASSESSMENT CRITERIA:

1. The normal functions of network systems checked and tested.
2. The scheduled/periodic maintenance and cleaning performed.
3. The repairs/replacements and sudden breakdowns responded in accordance with established procedures.

CONTENTS:

- Procedures in maintaining network systems are followed
- Safety measures are observed.
- Diagnose and identify faulty systems and cables.
- Run diagnostics software.
- Repair or replace faulty systems and cables.
- Burn-in or test repaired or replaced network system.

CONDITIONS: The students/trainees must be provided with the following:

- PC and network specification
- Network Cables and peripherals
  - UTP Cat. 5 cables
  - UTP Cat.3 cables
  - RJ 45 modular plug
  - Hubs/switches
  - Modem/router
- Network layout and schematic diagrams
- Personal protective equipments
  - Gloves and goggles
  - Masks
  - Anti-static wrist wraps
- Materials
  - Contact cleaners/ soap or detergents
  - Dust brush
  - Chamois or rags
  - Basin/ water
- Diagnostics software and CDROMs
- Tools and test equipments
  - Slotted head screwdriver
  - Philips head screwdriver
  - Long nosed pliers
  - Allen bit wrench
  - Crimping tool
  - Cable tester
  - Multi-tester
  - Spare cables
METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands-on
- Direct observation
- Practical demonstration
LO4. INSPECT AND TEST CONFIGURED/REPAIRED COMPUTER SYSTEM AND NETWORKS

ASSESSMENT CRITERIA:

1. Computer system and network checked to ensure safe operation.
2. Final inspection and testing taken to conform with manufacturer specifications.
3. Reports prepared and completed to company regulations.

CONTENTS:

- Check the maintained/serviced computer systems to ensure safe operation.
- Run or conduct computer to computer communications.
- Connect to the internet if necessary.
- Burn-in serviced or replaced components.
- Return computer to networking area.
- Document the task undertaken.

CONDITIONS:

The students/trainees must be provided with the following:

- PC specification
- Schematic Diagrams
- Diagnostics software and CDROMs
- Books/manuals/magazines
- Tools and test equipments
  - Slotted head screwdriver
  - Philips head screwdriver
  - Long nosed pliers
  - Allen bit wrench

METHODOLOGIES:

- Lecture-demonstration
- Self-paced instruction
- Group discussion

ASSESSMENT METHODS:

- Hands on
- Direct observation
- Practical demonstration
- Oral and written exam
What is Competency-Based Curriculum (CBC)

- A competency-based curriculum is a framework or guide for the subsequent detailed development of competencies, associated methodologies, training and assessment resources.

- The CBC specifies the outcomes which are consistent with the requirements of the workplace as agreed through the industry or community consultations.

- CBC can be developed immediately when competency standards exist.

- When competency standards do not exist, curriculum developers need to clearly define the learning outcomes to be attained. The standard of performance required must be appropriate to industry and occupational needs through the industry/enterprise or specified client group consultations.

These materials are available in both printed and electronic copies.

For more information please contact:
Technical Education and Skills Development Authority (TESDA)
Telephone Nos.: 893-8281, 817-4076 to 82 loc. 611, 630, 631 and 635 or visit our website: www.tesda.gov.ph or the TESDA Regional or Provincial Office nearest you.