K TO 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD TRACK AND SENIOR HIGH SCHOOL – TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
INFORMATION AND COMMUNICATIONS TECHNOLOGY – COMPUTER SYSTEMS SERVICING (NC II)
(640 hours)

These are the specializations and their pre-requisites. These lists should be used as reference for curriculum maps.

AGRI-FISHERY ARTS

	Specialization	Number of Hours	Pre-requisite
1.	Agricultural Crops Production (NC I)	320 hours	
2.	Agricultural Crops Production (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	640 hours	
3.	Agricultural Crops Production (NC III)	640 hours	Agricultural Crops Production (NC II)
4.	Animal Health Care Management (NC III)	320 hours	Animal Production (Poultry-Chicken) (NC II) or Animal Production (Ruminants) (NC II) or Animal Production (Swine) (NC II)
5.	Animal Production (Poultry-Chicken) (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
6.	Animal Production (Large Ruminants) (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
7.	Animal Production (Swine) (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
8.	Aquaculture (NC II)	640 hours	
9.	Artificial Insemination (Large Ruminants) (NC II)	160 hours	Animal Production (Large Ruminants) (NC II)
10.	Artificial Insemination (Swine) (NC II)	160 hours	Animal Production (Swine) (NC II)
11.	Fish Capture (NC II)	640 hours	
12.	Fishing Gear Repair and Maintenance (NC III)	320 hours	
13.	Fish-Products Packaging (NC II)	320 hours	
14.	Fish Wharf Operation (NC I)	160 hours	
15.	Food Processing (NC II)	640 hours	
16.	Horticulture (NC III)	640 hours	Agricultural Crops Production (NC II)
17.	Landscape Installation and Maintenance (NC II)	320 hours	
18.	Organic Agriculture (NC II)	320 hours	
19.	Pest Management (NC II)	320 hours	
20.	Rice Machinery Operations (NC II)	320 hours	
21.	Rubber Processing (NC II)	320 hours	
22.	Rubber Production (NC II)	320 hours	
23.	Slaughtering Operations (Hog/Swine/Pig) (NC II)	160 hours	

HOME ECONOMICS

	Specialization	Number of Hours	Pre-requisite
1.	Attractions and Theme Parks Operations with Ecotourism (NC II)	160 hours	
2.	Barbering (NC II)	320 hours	
3.	Bartending (NC II)	320 hours	
4.	Beauty/Nail Care (NC II)	160 hours	
5.	Bread and Pastry Production (NC II)	160 hours	
6.	Caregiving (NC II)	640 hours	
7.	Commercial Cooking (NC III)	320 hours	Cookery (NC II)
8.	Cookery (NC II)	320 hours	
9.	Dressmaking (NC II)	320 hours	
10.	Events Management Services (NC III)	320 hours	
11.	Fashion Design (Apparel) (NC III)	640 hours	Dressmaking (NC II) or Tailoring (NC II)
12.	Food and Beverage Services (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	160 hours	
13.	Front Office Services (NC II)	160 hours	
14.	Hairdressing (NC II)	320 hours	
15.	Hairdressing (NC III)	640 hours	Hairdressing (NC II)
16.	Handicraft (Basketry, Macrame) (Non-NC)	160 hours	
17.	Handicraft (Fashion Accessories, Paper Craft) (Non-NC)	160 hours	
18.	Handicraft (Needlecraft) (Non-NC)	160 hours	
19.	Handicraft (Woodcraft, Leathercraft) (Non-NC)	160 hours	
20.	Housekeeping (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	160 hours	
21.	Local Guiding Services (NC II)	160 hours	
22.	Tailoring (NC II)	320 hours	
23.	Tourism Promotion Services (NC II)	160 hours	
24.	Travel Services (NC II)	160 hours	
25.	Wellness Massage (NC II)	160 hours	

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(640 hours)

INDUSTRIAL ARTS

	Specialization	Number of Hours	Pre-requisite
1.	Automotive Servicing (NC I) *updated based on TESDA Training Regulations published December 28, 2013*	640 hours	
2.	Automotive Servicing (NC II)	640 hours	Automotive Servicing (NC I)
3.	Carpentry (NC II)	640 hours	
4.	Carpentry (NC III)	320 hours	Carpentry (NC II)
5.	Construction Painting (NC II)	160 hours	
6.	Domestic Refrigeration and Air-conditioning (DOMRAC) Servicing (NC II)	640 hours	
7.	Driving (NC II)	160 hours	
8.	Electrical Installation and Maintenance (NC II)	640 hours	
9.	Electric Power Distribution Line Construction (NC II)	320 hours	Electrical Installation and Maintenance (NC II)
10.	Electronic Products Assembly and Servicing (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	640 hours	
11.	Furniture Making (Finishing) (NC II)	640 hours	
12.	Instrumentation and Control Servicing (NC II)	320 hours	Electronic Products Assembly and Servicing (EPAS) (NC II)
13.	Gas Metal Arc Welding (GMAW) (NC II)	320 hours	Shielded Metal Arc Welding (SMAW) (NC II)
14.	Gas Tungsten Arc Welding (GTAW) (NC II)	320 hours	Shielded Metal Arc Welding (GMAW) (NC II)
15.	Machining (NC I)	640 hours	
16.	Machining (NC II)	640 hours	Machining (NC I)
17.	Masonry (NC II)	320 hours	
18.	Mechatronics Servicing (NC II)	320 hours	Electronic Products Assembly and Servicing (EPAS) (NC II)
19.	Motorcycle/Small Engine Servicing (NC II)	320 hours	
20.	Plumbing (NC I)	320 hours	
21.	Plumbing (NC II)	320 hours	Plumbing (NC I)
22.	Refrigeration and Air-Conditioning (Packaged Air-Conditioning Unit [PACU]/Commercial Refrigeration Equipment [CRE]) Servicing (NC III)	640 hours	Domestic Refrigeration and Air-conditioning (DOMRAC) Servicing (NC II)
23.	Shielded Metal Arc Welding (NC I)	320 hours	
24.	Shielded Metal Arc Welding (NC II)	320 hours	Shielded Metal Arc Welding (NC I)
25.	Tile Setting (NC II)	320 hours	
26.	Transmission Line Installation and Maintenance (NC II)	640 hours	Electrical Installation and Maintenance (NC II)

INFORMATION, COMMUNICATIONS AND TECHNOLOGY (ICT)

	Specialization	Number of Hours	Pre-requisite
1.	Animation (NC II)	320 hours	
2.	Broadband Installation (Fixed Wireless Systems) (NC II)	160 hours	Computer Systems Servicing (NC II)
3.	Computer Programming (.Net Technology) (NC III) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
4.	Computer Programming (Java) (NC III) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
5.	Computer Programming (Oracle Database) (NC III) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
6.	Computer Systems Servicing (NC II) *updated based on TESDA Training Regulations published December 28, 2007*	640 hours	
7.	Contact Center Services (NC II)	320 hours	
8.	Illustration (NC II)	320 hours	
9.	Medical Transcription (NC II)	320 hours	
10.	Technical Drafting (NC II)	320 hours	
11.	Telecom OSP and Subscriber Line Installation (Copper Cable/POTS and DSL) (NC II)	320 hours	Computer Systems Servicing (NC II)
12.	Telecom OSP Installation (Fiber Optic Cable) (NC II)	160 hours	Computer Systems Servicing (NC II)

Course Description

This is an introductory course that leads to a **Computer Systems Servicing** National Certificate Level II (NC II). It covers seven (7) common competencies that a student ought to possess: 1) application of quality standards, 2) computer operations; 3) performing mensuration and calculation; 4) preparation and interpretation of technical drawing; 5) the use of hand tools; 6) terminating and connecting electrical wiring and electronics circuits; and 7) testing electronics components; and four (4) core competencies, namely, 1) installing and configuring computer systems, 2.) setting up computer networks, 3) setting up computer servers, and 4) maintaining and repairing computer systems and networks.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
Introduction 1. Basic concepts in computer systems servicing 2. Relevance of the course 3. Career opportunities	The learners demonstrate an understanding of the basic concepts and underlying theories in computer systems servicing	The learners shall be able to demonstrate common competencies in computer systems servicing as prescribed by TESDA Training Regulations	The learners… 1. Explain basic concepts in computer systems servicing 2. Discuss the relevance of the course 3. Explore career opportunities in computer systems servicing	
PERSONAL ENTREPRENEURIAL COMPETENCIES (PECs)				
1. Assessment of Personal Competencies and Skills (PECs) vis-à-vis PECs of a practicing entrepreneur/ employee 1.1 Characteristics 1.2 Attributes 1.3 Lifestyle 1.4 Skills 1.5 Traits 2. Analysis of PECs compared to those of a practitioner 3. Align one's PECs based on the results of the assessment	The learners demonstrate an understanding of one's PECs in computer systems servicing	The learners shall be able to prepare an activity plan that aligns with the PECS of a practitioner/entrepreneur in computer systems servicing	**LO 1. Recognize Personal Entrepreneurial Competencies and Skills (PECs) needed in computer systems servicing** 1.1 Compare one's PECs with those of a practitioner/ entrepreneur 1.2 Align one's PECs with those of a practitioner/ entrepreneur 1.3 Assess one's PECs 1.4 Assess practitioner's PECs	**TLE_PECS7-12-00-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
1. Strengthening and developing further one's PECs	The learners demonstrate an understanding of one's PECs in computer systems servicing	The learners shall be able to create a plan of action that strengthens/develops one's PECs in computer systems servicing	**LO 2. Develop and strengthen personal competencies and skills (PECs) needed in computer systems servicing** 2.1 Identify areas for improvement, development and growth 2.2 Align one's PECs according to his/her business/career choice 2.3 Create a plan of action that ensures success of his/her business/career choice	**TLE_PECS7-12-00-2**
ENVIRONMENT AND MARKET (EM)				
Market (Town) 1. Key concepts of market 2. Players in the market (competitors) 1. Products & services available in the market	The learners demonstrate an understanding of the concepts of environment and market and how they relate to the field of computer systems servicing, particularly in one's town/ municipality	The learners shall be able to create a business vicinity map reflective of the potential computer systems servicing market in the locality/town	**LO 1. Recognize and understand the market in computer systems servicing** 1.1 Identify the players/ competitors within the town 1.2 Identify the different products/services available in the market	**TLE_EM7-12-00-1**
Market (customer) 1. Key concepts in identifying and understanding the consumer 2. Consumer analysis through: 2.1 Observation 2.2 Interviews 2.3 Focus group discussion (FGD) 2.4 Survey			**LO 2. Recognize the potential customer/ market in computer systems servicing** 2.1 Profile potential customers 2.2 Identify the customer's needs and wants through consumer analysis 2.1 Conduct consumer/market analysis	**TLE_EM7-12-00-2**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
1. Generating business ideas 1.1 Key concepts in generating business ideas 1.2 Knowledge, skills, passions, and interests 1.3 New applications 1.4 Irritants 1.5 Striking ideas (new concepts) 1.6 Serendipity Walk			**LO 3. Create new business ideas in computer systems servicing by using various techniques** 3.1 Explore ways of generating business ideas from ones' own characteristics/attributes 3.2 Generate business ideas using product innovation from irritants, trends, and emerging needs 3.3 Generate business ideas using Serendipity Walk	**TLE_EM7-12-00-3**
1. Product development 2. Key concepts in developing a product 3. Finding Value 4. Innovation 4.1 Unique Selling Proposition (USP)	The learners demonstrate an understanding of concepts of environment and market and how they relate to computer systems servicing, particularly in one's town/municipality	The learners shall be able to create a business vicinity map reflective of the potential computer systems servicing market within the locality/town	**LO 4. Develop a product/service in computer systems servicing** 4.1 Identify what is of "value" to the customer 4.2 Identify the customer 4.3 Explain what makes a product unique and competitive 4.4 Apply creativity and innovative techniques to develop marketable product 4.5 Employ a USP to the product/service	**TLE_EM7-12-00-4**
1. Selecting business idea 2. Key concepts in selecting a business idea 2.1 Criteria Techniques			**LO 5. Select a business idea based on the criteria and techniques set** 5.1 Enumerate various criteria and steps in selecting a business idea 5.2 Apply the criteria/steps in selecting a viable business idea 5.3 Determine a business idea based on the criteria/techniques set	**TLE_EM7-12-00-5**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
1. Branding			**LO 6. Develop a brand for the product** 6.1 Identify the benefits of having a good brand 6.2 Enumerate recognizable brands in the town/province 6.3 Enumerate criteria for developing a brand 6.4 Generate a clear appeal	**TLE_EM7-12-00-6**
COMMON COMPETENCIES				
LESSON 1: APPLYING QUALITY STANDARDS (AQS)				
• Work order and standard operating procedures • Specification of materials and components - Wires - Cables - Electrical tape Components - Resistors - Capacitors - Integrated circuits - Diodes - Transistor • Faults - Factory defects - Nonconformity to specifications - Nonconformity to government standards and PECs, environmental code - Safety defects • Recording and reporting procedures - Parts identification - Component identification	The learners demonstrate an understanding of concepts and underlying principles in applying quality standard in computer systems servicing	The learners shall be able to apply quality standards in computer systems servicing	**LO 1. Assess quality of received materials** 1.1 Obtain work instruction in accordance with standard operating procedures 1.2 Check the received materials against workplace standards and specifications 1.3 Identify and isolate faulty materials related to work 1.4 Record and/ or report defects and any identified causes to the supervisor concerned in accordance with workplace procedures 1.5 Replace faulty materials in accordance with workplace procedures	**TLE_IACSS9-12AQS-Ia-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
• Related documents - Service manuals - Operations manual - Certifications - Type approval certificates • Quality standards on - Materials - Component parts - Final product - Product production • Checking process - Quality controlling - Quality assurance • Records and documents - Organization work procedures - Manufacturers instruction manual - Forms			**LO 2. Assess own work** 2.1 Identify and use documentation relative to quality within the prescribe standard 2.2 Check completed work against workplace standards relevant to the task undertaken 2.3 Identify and isolate errors 2.4 Record information on the quality and other indicators of production performance in accordance with workplace procedures 2.5 Document and report cases of deviations from specific quality standards in accordance with the workplace's procedures	**TLE_IACSS9-12AQS-Ib-2**
• Process improvement procedure • Monitoring performance operation - Customer satisfaction - Customer feedback form - Co-workers feedback - Supervisors rating sheet - Suppliers feedback • Checking quality output procedures			**LO 3. Engage in quality improvement** 3.1 Participate process improvement procedures in relative to workplace assignment 3.2 Carry out work in accordance with process improvement procedures 3.3 Monitor performance of operation or quality of product of service to ensure customer satisfaction	**TLE_IACSS9-12 AQS-Ic-3**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
LESSON 2: PERFORMING COMPUTER OPERATIONS (PCO)				
• Task identification - Planning - Preparing • Operational health and safety (OHS) guidelines and procedures • Computer hardware - Keyboard - Mouse - Hard drives - Monitor - System Unit • Computer application software	The learners demonstrate and understanding of concepts and underlying principles in performing computer operations	The learners shall be able to perform computer operations based on a given tasks	**LO 1. Plan and prepare for task to be undertaken** 1.1 Determine requirements of task in accordance with the required output 1.2 Select appropriate hardware and software according to task assigned and required outcome 1.3 Plan a task to ensure that OHS guidelines and procedures are followed 1.4 Follow client-specific guidelines and procedures 1.5 Apply required data security guidelines in accordance with existing procedures	**TLE_IACSS9-12PCO-Ic-d-4**
• Types of program/ application software - word processing - web browsers - internet • Data processing • Checking and saving information • Storage devices - primary - secondary • Work Ergonomic			**LO 2. Input data into computer** 2.1 Enter the data into the computer using appropriate program/application in accordance with company procedures 2.2 Check the accuracy of information and save the information in accordance with standard operating procedures 2.3 Store inputted data is in storage media according to requirements 2.4 Perform work within ergonomic guidelines	**TLE_IACSS9-12PCO–Id-e-5**
• Desktop icons - Directories - Files and folders - Recycle bin • Keyboard techniques - Proper handling - Shortcut keys • Keyboard care and maintenance			**LO 3. Access information using computer** 3.1 Select correct program/application based on job requirements 3.2 Access program/application containing the information required according to company procedures 3.3 Select, open, and close desktop for navigation purposes 3.4 Carry out keyboard techniques in line with OHS requirements	**TLE_IACSS9-12PCO-Ie-f-6**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
• Computer application software • Computer peripherals - Printer • Storage devices			**LO 4. Produce output/ data using computer system** 4.1 Process entered data using appropriate software commands 4.2 Print out data as required using computer hardware /peripheral devices in accordance with standard operating procedures 4.3 Transfer files and data between compatible systems using computer software, hardware/peripheral devices in accordance with standard operating procedures	**TLE_IACSS9-12PCO-If-7**
• Requirements for Internet search - browsers - URL - search engine - bookmark - link			**LO 5. Use basic functions of a www- browser to locate information** 5.1 Establish information requirements for internet search 5.2 Launch browser 5.3 Load search engine 5.4 Enter appropriate search criteria/or URL of site 5.5 Follow relevant links to locate required information 5.6 Bookmark useful pages and print as required	**TLE_IACSS9-12PCO-Ig-h-8**
• Computer maintenance - Disk cleanup - Checking disk errors - Replacement of consumables - Dusting the external and internal part of the computer • File maintenance - Backing up files - Deleting unwanted files - Updating antivirus database/using more appropriate anti virus program			**LO 6. Maintain computer equipment and systems** 6.1 Implement procedures for ensuring security of data, including regular backups and virus checks in accordance with standard operating procedures 6.2 Implement basic file maintenance procedures in line with the standards operating procedures	**TLE_IACSS9-12PCO-Ii-j-9**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
LESSON 3: PERFORMING MENSURATION AND CALCULATION (PMC)				
• Types of components and objects to be measured: - Memory - Data storage capacity - Processor - Video card • Correct specifications from relevant sources • Measuring tools	The learners demonstrate an understanding of concepts and underlying principles in performing measurements and calculations	The learners shall be able to accurately measure and calculate based on a given tasks	**LO 1. Select measuring instruments** 1.1 Identify object/s or component to be measured 1.2 Obtain correct specifications from relevant source 1.3 Select measuring tools in line with job requirements	**TLE_IACSS9-12PMC-IIa-b-10**
• Types of measuring instruments and their uses • Safe handling procedures in using measuring instruments • Four fundamental operation of mathematics • Formula for volume, area, perimeter, and other geometric figures • Conversion and calculation - Capacity and speed - Memory - Data storage - Processor - Video card • bit/byte/MB/GB/TB			**LO 2. Carry out measurements and calculation** 2.1 Select appropriate measuring instrument to achieve required outcome 2.2 Obtain accurate measurements for job 2.3 Perform calculation needed to complete task using the four mathematical fundamental operations addition (+), subtraction (-), multiplication (x), and division (÷) 2.4 Use calculation involving fractions, percentages and mixed numbers to complete workplace tasks 2.5 Self-check and correct numerical computation for accuracy 2.6 Read instruments to the limit of accuracy of the tool	**TLE_IACSS9-12PMC-IIb-d-11**
• Maintenance of measuring instruments - 5S - Lubrication - Cleaning - Storage • Proper storage of instruments			**LO 3. Maintain measuring instruments** 3.1 Ensure proper handling of measuring instruments to avoid damage and clean it before and after using 3.2 Identify tasks to be undertaken for proper storage of instruments according to manufacturer's specifications and standard operating procedures	**TLE_IACSS9-12PMC-IIe-f-12**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
LESSON 4: PREPARING AND INTERPRETING TECHNICAL DRAWING (PITD)				
• Basic symbols • Basic elements - Schematic diagram - Charts - Block diagrams - Layout plans - Loop diagram	The learners demonstrate and understanding of concepts and underlying principles in preparing and interpreting technical drawings and work plans for computer systems servicing	The learners shall be able to prepare and interpret technical drawings and work plans accurately	**LO 1. Identify different kinds of technical drawings** 1.1 Select correct technical drawing in accordance with the job requirement 1.2 Segregate technical drawings in accordance with the types and kinds of drawings	**TLE_IACSS9-12PITD-IIf-g-13**
• Technical drawing - Components, assemblies, or objects - Dimensions - Symbols • Job requirements or equipment for drawing in accordance with standard operating procedures			**LO 2. Interpret technical drawing** 2.1 Recognize components, assemblies, or objects as required 2.2 Identify dimensions of the key features of the objects depicted in the drawing 2.3 Identify and interpret symbols used in the drawing 2.4 Check and validate drawing against job requirements or equipment in accordance with standard operating procedures	**TLE_IACSS9-12PITD-IIg-h-14**
• Electrical/ Electronic Schematic • Schematic drawings			**LO 3. Prepare/ make changes to electrical/ electronic schematics and drawings** 3.1 Draw and identify correctly electrical/ electronic schematic 3.2 Identify correct drawing; select and use equipment in accordance with job requirements	**TLE_IACSS9-12PITD-IIh-i-15**
• Care and maintenance of technical drawing equipment/ instruments • Inventory of technical drawings • Proper storage of instruments			**LO 4. Store technical drawings and equipment/ instruments** 4.1 Identify tasks to be undertaken for care and maintenance of drawings according to company procedures	**TLE_IACSS9-12PITD-IIj-16**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
			4.2 Record technical drawings and prepare an inventory in accordance with company procedures 4.3 4.3 identify tasks to be undertaken for proper storage of instruments according to company procedures	
LESSON 5: USING HAND TOOLS (UHT)				
• Identifying and selecting different types and uses of hand tools • Uses of different hand tools.	The learners demonstrate an understanding of the use of hand tools and equipment for computer systems servicing	The learners shall be able to use hand tools and equipment for computer systems servicing	**LO 1. Plan and prepare for tasks to be undertaken** 1.1 Identify tasks to be undertaken properly 1.2 Identify and select appropriate hand tools according to the task requirements	**TLE_IACSS9-12UHT-IIIa-17**
• Checking of hand tools • Identifying unsafe or faulty tools			**LO 2. Prepare hand tools** 2.1 Check appropriate hand tools for proper operation and safety 2.2 Identify and mark unsafe or faulty tools for repair according to standard company procedure	**TLE_IACSS9-12UHT-IIIb-18**
• Operating hand tools • Safety procedures using handling tools • Personal Protective Equipment (PPE) • Documentation process			**LO 3. Use appropriate hand tools and test equipment** 3.1 Use tools according to tasks undertaken. 3.2 Observe all safety procedures in using tools at all times and use appropriate PPE 3.3 Report malfunctions, unplanned or unusual events to the supervisor	**TLE_IACSS9-12UHT-IIIc-19**
• Maintenance of hand tools - Cleaning - Lubricating - Tightening - Tools repairs - Adjusting using correct procedures - Sharpening • Storing of hand tools			**LO 4. Maintain hand tools** 4.1 Do not drop tools to avoid damage; carry out routine maintenance of tools according to standard operational procedures, principles, and techniques 4.2 Store tools safely in appropriate locations in accordance with manufacturer's specifications or standard operating procedures	**TLE_IACSS9-12UHT-IIId-20**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
LESSON 6: TERMINATING AND CONNECTING ELECTRICAL WIRING AND ELECTRONICS CIRCUIT (TCEW)				

• Material specification
  - Assorted wires and cables
• Task requirements
  - Splicing
  - Jointing
  - Soldering
• Tools and equipment
  - Pliers
  - Cutters
  - Screw driver
  - Soldering gun
  - Multitester
• OH&S guidelines and procedures
• Electrical wiring diagram
• Electronics kit
	The learners demonstrate an understanding of concepts and underlying principles in terminating and connecting electrical wiring and electronics circuits	The learner shall be able to demonstrate proper termination and connection of electrical wiring and electronics circuits	**LO 1. Plan and prepare for termination/ connection of electrical wiring/ electronics circuits**
			1.1 Check materials according to specifications and tasks
			1.2 Select appropriate tools and equipment according to task requirements
			1.3 Follow planned task to ensure OHS guidelines and procedure
			1.4 Prepare electrical wiring/electronics circuits correctly for connecting/terminating in accordance with instruction and work site procedures
				TLE_IACSS9-12TCEW-IIIe-f-21

• OHS procedures
  - Safety procedure in using tools
  - Appropriate PPE
• Methods in termination and connections according to job specification
  - Clamping
  - Pin connection
  - Soldered joints
  - Plugs
• Proper procedures in adjusting accessories
  - Brackets
  - Clamps
• Confirmation of termination/ connection in accordance with the job specification
			LO 2: Terminate/connect electrical wiring/ electronic circuits
			2.1 Observe safety procedures in using tools and use appropriate personal protective equipment at all times
			2.2 Identify the tasks to be undertaken to work safely in accordance with the workplace and standard procedures
			2.3 Use appropriate range of methods in termination/connection in accordance to specifications, manufacturer's requirements, and safety
			2.4 Follow correct sequence of operation
			2.5 Adjust used accessories
			2.6 Confirm termination/connection in accordance with job specification
				TLE_IACSS9-12TCEW-IIIg-i-22

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
• Proper procedure in conducting testing of termination/connection of electrical wiring/electronics circuits • Proper procedure in checking wirings and circuits using specified testing procedures • Protocol in responding to unplanned conditions			**LO 3: Test termination/connections of electrical wiring/electronics circuits** 3.1 Conduct complete testing of termination/connection of electrical wiring/electronics circuits in compliance with specifications and regulations using appropriate procedures and equipment 3.2 Check wirings and circuits using specified testing procedures 3.3 Respond to unplanned events or conditions in accordance with established procedures	**TLE_IACSS9-12TCEW-IIIi-j-23**
LESSON 7: TESTING ELECTRONIC COMPONENTS (TEC)				
• Work instructions • Job order • Work coordination process • Documentations and interpretations of data/testing criteria • Testing criteria - Controls - Effectiveness - Efficiency - Bug detection - Functionality, including flow - Interoperability - Performance - Reliability - Operating parameters	The learners demonstrate an understanding of concepts and underlying principles in testing electronic components	The learners shall be able to test electronic components	**LO 1: Determine criteria for testing electronics components** 1.1 Obtain and clarify work instructions based on job order or client requirements 1.2 Consult responsible person for effective and proper work coordination 1.3 Obtain and interpret data sheets/application notes based on manufacturer's specifications 1.4 Define testing criteria to ensure that components meet technical and quality requirements 1.5 Document and communicate testing criteria to relevant personnel	**TLE_IACSS9-12TEC-IVa-c-24**
• Testing methods for electronic components - Automated - Debugging - Inspection - Platform testing - Prototyping • Testing strategies for electronic components			**LO 2: Plan an approach for components testing** 2.1 Identify various testing methods based on types of electronic components 2.2 Determine characteristics and appropriateness of testing methods to be used during development and on completion 2.3 Consider/select testing methods in relation to appropriate testing strategy	**TLE_IACSS9-12TEC-IVc-e-25**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
- Passive testing - Dynamic testing - In-circuit testing • Procedure in checking and testing operation in accordance with established procedures • Records systems - metadata that includes: o description of fault o identification of code o user responses o written or verbal comments o quantitative data o remedial action taken o retest result o date o tester's details - questionnaire - survey -			2.4 Develop plan for testing components at specified points during development and on completion 2.5 Prepare and check required test and measuring instruments and tools in accordance with established procedures 2.6 Establish records system to document testing results, including problems and faults	
• Component testing process evaluation • Component problems and faults • Documentation procedures • Procedures in resolving detected problems faults			**LO 3: Test components** 3.1 Apply appropriate testing methods to electronic components in accordance to technical specifications 3.2 Detect and record problems and faults by testing 3.3 Document remedial steps 3.4 Resolve detected problems and faults during testing in accordance with agreed project or industry practice 3.5 Evaluate final products against the determined criteria 3.6 Submit to relevant personnel the documented and summarized evaluation report of the testing process	**TLE_IACSS9-12TECO-IVf-h-26**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
• Components of testing methods • Testing process and records • Documentation procedures			**LO 4: Evaluate the testing process** 4.1 Identify testing methods that were successful based on industry standards 4.2 Evaluate testing process and records system based on standard procedures 4.3 Document test results/findings for subsequent testing	**TLE_IACSS9-12TECO-IVh-j-27**
CORE COMPETENCIES				
LESSON 8: INSTALLING AND CONFIGURING COMPUTER SYSTEMS (ICCS)				
• Types and parts of computers • Computer operating systems • Windows / MAC OS X /Linux • Peripheral devices • Computer systems design • Computer assembly procedures • Power ON self-test and basic-input-output-system (BIOS) configuration procedures • CMOS • Motherboards • Multimedia storage devices: - Video cards - Sound cards - Graphical user interface	The learners demonstrate an understanding of concepts and principles in installing configuring computer systems	The learners shall be able to install and configure computer systems based on established procedures and system requirements	**LO 1. Assemble computer hardware** 1.1 Plan unit assembly to ensure OHS policies and procedures are followed in accordance with systems requirements 1.2 Prepare unit assembly to ensure OHS policies and procedures are followed in accordance with systems requirements 1.3 Identify materials necessary to complete the work in accordance with established procedures and check against system requirements 1.4 Obtain materials necessary to complete the work in accordance with established procedures and check against system requirements 1.5 Obtain tools, equipment and testing devices needed to carry out installation work in accordance with established procedures and check for correct operation and safety 1.6 Assemble computer hardware in accordance with established procedures and system requirements 1.7 Perform BIOS configuration in accordance with hardware requirements	**TLE_IACSS9-12ICCS-Ia-e-28**
• Installers preparation and OS installation procedures • Application and devices/drivers installation procedures			**LO 2. Prepare installer** 2.1 Create portable bootable devices in accordance with software manufacturer instruction	**TLE_IACSS9-12ICCS-If-j-29**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
• Desktop PC interface/ hook up procedures • Application packages and use of application programs • Bootable devices - -CD/DVD bootable - -USB bootable using Rufus software - -USB bootable using diskpart/CMD • Software installers			2.2 Prepare customized installers in accordance with software utilization guide and end user agreement 2.3 Carry out installation of portable applications in accordance with software user guide and software license	
• Installation of Operating System - Windows Server 2008/higher version - Windows XP/7/8/10 • Install and configure of peripherals devices • Install /Update Operating system • Checking of work			**LO 3. Install operating system and drivers for peripherals/ devices** 3.1 Install Operating System (OS) in accordance with established installation procedures and to comply with end-user requirements 3.2 Install peripherals/ devices in accordance with manufacturer's instructions and/ or OS installation procedures 3.3 Configure peripherals/ devices in accordance with manufacturer's instructions and/ or OS installation procedures 3.4 Access OS and drivers updates/ patches in accordance with manufacturer's recommendations and requirements 3.5 Install OS and drivers updates/ patches in accordance with manufacturer's recommendations and requirements 3.6 Check the quality of the work undertaken in accordance with established procedures	**TLE_IACSS9-12ICCS-IIa-j-30**
• Installation of applications software with different variations • Software updates • Virtualization software			**LO 4. Install application software** 4.1 Install Application Software based on software installation guides, end-user requirements and software license agreement	**TLE_IACSS9-12ICCS-IIIa-e-31**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
• Disk management software • Antivirus / diagnostic software • Device drivers • Drivers/Software update procedures - Application software license agreements - Stress-testing procedures - 5S and 3Rs environmental policies			4.2 Carry out variation to application software in accordance to customer/ client requirements 4.3 Access software updates in accordance with manufacturer's recommendations and requirements 4.4 Install software updates in accordance with manufacturer's recommendations and requirements	
• Burning or testing installed equipment/devices • Stress test - Processor - Memory - Hard Disk - Video Card • 5S and 3Rs environmental policies • Reporting and documentation procedures			**LO 5. Conduct testing and documentation** 5.1 Test devices/ systems and/or installation to determine whether it conforms to requirements 5.2 Conduct stress test to ensure reliability of equipment in accordance with manufacturer's instructions and system requirements 5.3 Follow 5S and 3Rs according to environmental policies 5.4 Follow procedures in forwarding documentation to appropriate personnel and/or authority on the test conducted.	**TLE_IACSS9-12ICCS-IIIf-j-32**
LESSON 9. SETTING-UP COMPUTER NETWORKS (SUCN)				
• Computer network concepts • Network cable installation • Copper cable splicing and cable testing • Fiber optic cables splicing and installation requirements • Philippine Electrical Code relevant to data connection • OHS standards and 5S principles	The learners demonstrate an understanding of concepts and principles in setting up computer networks	The learners shall be able to set up computer networks based established procedures and system requirements for hardware	**LO 1 Install network cables** 1.1 Plan cable routes in accordance with network design and actual installation site 1.2 Determine cable routes in accordance with network design and actual installation site 1.3 Identify necessary network materials in accordance with established procedures and check against system requirements 1.4 Obtain necessary network materials in accordance with established procedures and check against system requirements	**TLE_IACSS9-12SUCN-IVa-j-33**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
• Practicing 3Rs (reduce, reuse, recycle/recover) • 3Rs environmental policies • Managing waste from electrical and electronic equipment (WEEE)			1.5 Obtain tools, equipment, and testing devices in accordance with established procedures 1.6 Check tools, equipment and testing devices in accordance with established procedures 1.7 Follow OHS policies 1.8 Use appropriate PPE 1.9 Perform copper cable splicing based on Electronic Industries Alliance / Telecommunications Industry Association (EIA/TIA) standards 1.10 Install network cables and cable raceways in accordance with established procedures and installation requirements 1.11 Perform installation work and check for unnecessary damage that has occurred and complies with requirements 1.12 Follow OHS standards and 5S principles according to enterprise requirements 1.13 Dispose excess components and materials based on WEEE directives and 3Rs waste management program	
• network design • addressing • subnetting • topology • router/Wi-fi/ wireless access point/repeater configuration • Network Interface Card (NIC) settings • network cables • cable raceways/ducts • Network connectivity checking procedures and techniques - Ping - Netstat - IP config			**LO 2: Set network configuration** 2.1 Check network connectivity of each terminal in accordance with network design 2.2 Diagnose and repair any problem or fault in the network system in line with standard operating procedures 2.3 Configure Network Interface Card (NIC) in accordance with the network design 2.4 Carry out communication check between terminals in accordance with operating systems network configuration guides 2.5 Respond to unplanned events or conditions in accordance with established procedures	**TLE_IACSS9-12SUCN-Ia-e-34**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
• IPV4 and IPV6 • IP addressing - Class A - Class B - Class C - Class D - Class E • Subnetting/Subnet Mask • Contingency procedures in response to unplanned events and conditions • Remote desktop				
• Wireless settings configuration • Gateways • Security/firewall/advanced settings configuration • Cloud computing • Network connectivity testing • Device systems settings configuration • Local area network (LAN) port configuration • Wide area network (WAN) port configuration • Configuration procedure for • Routers – managed and unmanaged • Access points • Switch – managed and unmanaged • Repeaters • Network Interface Cards types and configuration settings			**LO 3: Set router/Wi-fi/wireless access point/repeater configuration** 3.1 Configure client device systems settings in accordance with manufacturer's instructions and end user preference 3.2 Configure LAN in accordance with manufacturer's instructions and network design 3.3 Configure WAN in accordance with manufacturer's instructions and network design 3.4 Configure wireless settings in accordance with manufacturer's instructions, network design, and end-user preferences 3.5 Configure security/firewall/advanced settings in accordance with manufacturers instruction and end-user preferences	**TLE_IACSS9-12SUCN-If-j-IIa-e-35**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
• Wireless network Interface card • Wired Network Interface Card • Firewall configuration				
• Network inspection procedures • Safe computer network operation • Documentation procedures			**LO 4: Inspect and test the configured computer networks** 4.1 Undertake final inspection of the configuration to conform to the manufacturer's instructions/manual 4.2 Ensure the configuration conforms to the manufacturer's instructions/manual 4.3 Check computer networks to ensure safe operation 4.4 Prepare reports according to company requirements 4.5 Complete reports according to company requirements	**TLE_IACSS9-12SUCN-IIf-j-36**
LESSON 10: SETTING UP COMPUTER SERVERS (SUCS)				
• Network operating systems (NOS) features • User access level configurations • Network policies and services • Set up peer-to-peer (P2P) network access	The learners demonstrate an understanding of concepts and principles in setting up computer servers	The learners shall be able to set up computer servers based on acceptable standards and hardware	**LO 1: Set up user access** 1.1 Create user folder in accordance with Network operating system features 1.2 Configure user access level based on NOS features 1.3 Establish network access policies/end user requirements 1.4 Perform security check in accordance with established network access policies/end user requirements	**TLE_IACSS9-12SUCS-IIIa-e-37**
• Configure server function • Server modules and add-ons • Network services and its operation			**LO 2: Configure network services** 2.1 Check normal server function in accordance with manufacturer's instructions 2.2 Install and update required modules/add-ons on NOS installation procedures	**TLE_IACSS9-12SUCS-IIIf-j-IVa-j-38**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
• Procedures in respond to unplanned events and condition • Domain Name Server (DNS) • Domain controller (active directory) • File server • Dynamic Host Configuration Protocol (DHCP) server • Printer server • Web applications/technologies • Setting up client/user access and security • Setting up and configuring servers • Installing and configuring modules/add-ons • Configuration of network services •			2.3 Confirm network services based on user/system requirements 2.4 Check operation of network services based on user/system requirements 2.5 Respond to unplanned events or conditions in accordance with established procedures	
• Testing procedures • Predeployment procedures and practices • Enterprise policies and procedures • End-user requirements • Enterprise policies and procedures • Documentation and making reports			**LO 3: Perform testing, documentation, and predeployment procedures** 3.1 Undertake predeployment procedures based on enterprise policies and procedures 3.2 Undertake operation and security check based on end-user requirements 3.3 Prepare reports according to enterprise policies and procedures 3.4 Complete reports according to enterprise policies and procedures	**TLE_IACSS9-12SUCS-Ia-j-39**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
LESSON 11: MAINTAINING AND REPAIRING COMPUTER SYSTEMS AND NETWORKS (MRCN)				
• Procedures in planning and preparing maintenance and diagnoses of faulty computer and networks systems • Tools and tests equipment • PC specifications • OHS policies and procedures • Maintenance of computer systems and networks • Planning and preparing for maintenance • Computer systems maintenance procedures • PC systems • Computer operations • Electronic fault findings	The learners demonstrate an understanding of concepts and principles in maintaining and repairing computer systems and networks	The learners shall be able to maintain and repair computer systems and networks based on acceptable standards in computer's software and hardware	**LO 1. Plan and prepare for maintenance and repair** 1.1 Plan maintenance and/ or diagnosis of faults in line with job requirements 1.2 Prepare maintenance and/ or diagnosis of faults in line with job requirements 1.3 Obtain tools, equipment, and testing devices needed for correct operation and safety 1.4 Check tools, equipment, and testing devices needed for correct operation and safety 1.5 Obtain materials necessary to complete the work in accordance with established procedures and check against job requirements 1.6 Follow OHS policies and procedures in line with job requirements 1.7 Check computer systems and networks for maintenance against job/ service order or instructions and specifications	**TLE_IACSS9-12MRCN-IIa-e-40**
• PPE • Diagnosis of computer systems and networks function • Maintenance of computer systems and networks • Repair or replace faulty system • Contingency procedures in response to unplanned events and conditions • Use and operation of tools, instruments, and testing devices • Occupational health and safety policies and procedures			**LO 2. Maintain computer systems and networks** 2.1 Use appropriate PPE in line with standard procedures 2.2 Check normal function of computer systems and networks in accordance with manufacturer's instructions 2.3 Perform scheduled/ periodic maintenance in accordance with manufacturer's requirements 2.4 Repair materials when needed in accordance with established procedures 2.5 Replace materials when needed in accordance with establish procedures 2.6 Respond to unplanned events or conditions in accordance with established procedures	**TLE_IACSS9-12MRCN-IIf-j-41**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
• Job service order forms or checklist • Problem solving in emergency situation • Procedures in maintenance scheduling • Preventive maintenance of computer system and network - Operating system update - Backup scheduling - Creating restore point - Guarding against virus • Cleaning computer systems and networks				
• Diagnostic procedures • Identifying and isolating faults/problems - Diagnostic software utilities - Gathering of information • Accomplished forms - Diagnostic reports - Proposal reports			**LO 3. Diagnose faults of computer systems and networks** 3.1 Use appropriate personal protective equipment in line with standard procedures 3.2 Diagnose faults or problems in the computer systems and networks according to requirements and in line with the standard procedures 3.3 Manage contingency measures in accordance with established procedures 3.4 Implement contingency measures in accordance with established procedures 3.5 Respond to unplanned events or conditions in accordance with established procedures	**TLE_IACSS9-12MRCN-IIIa-h-42**
• Defects in computer systems and networks • Troubleshooting and repair techniques • Problem solving in emergency situation			**LO 4. Rectify/ correct defects in computer systems and networks** 4.1 Use appropriate PPE in line with standard procedures	**TLE_IACSS9-12MRCN-IIIh-j-IVa-e-43**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODES
• Corrective action - Hardware configuration - Software configuration			4.2 Replace defective components or parts without damage to the surrounding environment or services 4.3 Install correct components or parts without damage to the surrounding environment or services 4.4 Make the necessary adjustments in accordance with established procedures 4.5 Respond to unplanned events or conditions in accordance with established procedures	
• Testing methods and procedures • Documentation and making reports • Waste management • OHS standards and 5S principles • Practicing 3Rs • 3Rs environmental policies • Managing waste from electrical and electronic equipment (WEEE)			**LO 5. Inspect and test the computer systems and networks** 5.1 Undertake final inspection so that the configuration conforms to the manufacturer's instructions/manual 5.2 Ensure that the configuration conforms to the manufacturer's instructions/manual 5.3 Check/ test computer systems and networks to ensure safe operation 5.4 Follow OHS standards and 5S principles according to enterprise policies 5.5 Clean worksite and make sure it is clear from all debris and left in safe condition in accordance with company procedures 5.6 Dispose of excess components and materials based on WEEE directives and 3Rs waste management program 5.7 Prepare report according to company requirements 5.8 Complete report according to company requirements	**TLE_IACSS9-12MRCN-IVf-j-44**

GLOSSARY

Computer system	-	The complete computer comprises the central processing unit **(**CPU), memory and related electronics (main cabinet), all the peripheral devices connected to it, and its operating system. Computer systems fall into two broad divisions: clients and servers. Client machines fall into three categories from low to high end: laptop, desktop, and workstation. Servers range from small to large: low-end, midrange, and mainframes.
Computer network (or **network)**	-	A collection of computers and other hardware interconnected by communication channels that allow sharing of resources and information. Where at least one process in one device is able to send/receive data to/from at least one process residing in a remote device, then the two devices are said to be in a network. It is a group of devices connected to each other. Networks may be classified into a wide variety of characteristics, such as the medium used to transport the data, communications protocol used, scale, topology, benefit, and organizational scope.
Configuration	-	The makeup of a system; to "configure" is to choose options in order to create a custom system. "Configurability" is a system's ability to be changed or customized.
Connector	-	Any plug and socket that links two devices together. Although taken for granted and rarely in the limelight, connectors are a huge industry, and the quality of these components is more critical than most people would imagine. When not designed or constructed properly, they often become the weakest element in an electronic system.
Display adapter	-	A plug-in card in a desktop computer that converts the images created in the computer to the electronic signals required by the monitor. It determines the maximum resolution, refresh rate, and number of colors that can be displayed, which the monitor must also be able to support. On many PC motherboards, the display adapter circuits are built into the chipset, and an accelerated graphics port (AGP) card or peripheral component interconnect (PCI) card is not required.
Expansion board	-	A printed circuit board that plugs into an expansion slot and extends the computer's capability to control a peripheral device. All the boards (cards) that plug into a computer's bus are expansion boards, such as display adapters, disk controllers, network adapters, and sound cards.
Expansion bus	-	An input/output bus typically comprises a series of slots on the motherboard. Expansion boards (cards) are plugged into the bus. Inudstry standard architecture (ISA) and PCI are the common expansion buses in a personal computer (PC).
Graphical User Interface	-	A graphics-based user interface that incorporates movable windows, icons, and a mouse. The ability to resize application windows and change style and size of fonts are the significant advantages of a GUI vs. a character-based interface. GUIs have become the standard way users interact with a computer, and the major GUIs are the Windows and Mac interfaces along with Motif for Unix and the GNOME and KDE interfaces for Linux.
LAN local area network)	-	A computer network that interconnects computers in a limited area such as a home, school, computer laboratory, or office building using network media. The defining characteristics of LANs, in contrast to wide area networks (WANs), include their usually higher data-transfer rates, smaller geographic area, and lack of a need for leased telecommunication lines.
Motherboard	-	Also called the "system board," it is the main printed circuit board in an electronic device, which contains sockets that accept additional boards. In a desktop computer, the motherboard contains the CPU, chipset, PCI bus slots, AGP slot, memory sockets, and controller circuits for the keyboard, mouse, disks, and printer. It may also have built-in controllers for modem, sound, display and network, obviating the need to plug in a card.
Networks	-	see computer network

Operating system	-	The master control program that runs the computer; the first program loaded when the computer is turned on, its main part, the "kernel," resides in memory at all times. The operating system sets the standards for all application programs that run in the computer. The applications "talk to" the operating system for all user interfaces and file management operations.
Peripheral	-	Any hardware device connected to a computer, such as a monitor, keyboard, printer, disk, tape, graphics tablet, scanner, joy stick, paddle, or mouse
Server	-	A computer system in a network that is shared by multiple users. Servers come in all sizes from x86-based PCs to IBM mainframes. A server may have a keyboard, monitor and mouse directly attached, or one keyboard, monitor and mouse may connect to any number of servers via a KVM switch. Servers may be also be accessed only through a network connection as well.
Sound card	-	Also called a "sound board" or "audio adapter," it is a computer expansion board that records and plays back sound, providing inputs from a microphone or other sound source and outputs to speakers or an external amplifier. The de facto standard for sound card compatibility in PCs is Creative Labs' Sound Blaster.
User Interface	-	All graphics based today, the user interface includes the windows, menus and method of interaction between you and the computer. Prior to the Mac, Windows, and Motif (UNIX) interfaces, all interaction was based on commands entered by the user. Operating systems may support optional interfaces and allow a new shell, or skin, to be used instead.
Virus	-	Software used to infect a computer; after the virus code is written, it is buried within an existing program. Once that program is executed, the virus code is activated and attaches copies of itself to other programs in the system. Infected programs copy the virus to other programs.
WAN (wide area network)	-	A network that covers a broad area (i.e., any telecommunications network that links across metropolitan, regional, or national boundaries) using private or public network transports. Business and government entities utilize WANs to relay data among employees, clients, buyers, and suppliers from various geographical locations. In essence, this mode of telecommunication allows a business to effectively carry out its daily function regardless of location.
WEEE Directive	-	A European Union (EU) directive on the prevention of waste electrical and electronic equipment (WEEE) and, in addition, the reuse, recycling and other forms of recovery of such wastes so as to reduce the disposal of waste. The directive, which became European Law in 2003, also seeks to improve the environmental performance of all operators involved in the life cycle of electrical and electronic equipment, e.g., producers, distributors, and consumers and, in particular, those operators directly involved in the treatment of waste electrical and electronic equipment.

K TO 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD TRACK AND SENIOR HIGH SCHOOL – TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
INFORMATION AND COMMUNICATIONS TECHNOLOGY – COMPUTER SYSTEMS SERVICING (NC II)
(640 hours)

Code Book Legend
Sample: TLE_IACSS9-12AQS-Ia-1

LEGEND		SAMPLE			DOMAIN / COMPONENT	CODE
First Entry	Learning Area and Strand	Technology and Livelihood Education	**TLE**		**Common Competencies**	
	Subject or Specialization	Industrial Arts	**IA**		Applying Quality Standards	AQS
		Computer Systems Servicing NC II	**CSS**		Performing Computer Operations	PCO
	Grade Level	9 to 12	**9-12**		Performing Mensuration and Calculation	PEMC
Uppercase Letter/s	Domain/Content/ Component/ Topic	Applying Quality Standards	**AQS**		Preparing and Interpreting Technical Drawing	PITD
					Using Hand Tools	UHT
					Terminating and Connecting Electrical Wiring and Electronics Circuit	TCEW
			-		Testing Electronic Components	TEC
Roman Numeral *Zero if no specific Quarter	Quarter	First Quarter	**I**		**Core Competencies**	
					Installing and Configuring Computer Systems	ICCS
					Setting-Up Computer Networks	SUCN
Lower case letter/s *put a an en dash (-) between letters to indicate more than a specific week	Week	Week one	**a**		Setting-Up Computer Services	SUCS
					Maintaining and Repairing Computer Systems and Networks	MRCN
			-			
Arabic Number	Learning Competency	Assess quality of received materials	**1**			

Technology-Livelihood Education and Technical-Vocational Track specializations may be taken between Grades 9 to 12.

Schools may offer specializations from the four strands as long as the minimum number of hours for each specialization is met.

Please refer to the sample Curriculum Map on the next page for the number of semesters per ICT specialization and those that have pre-requisites. Curriculum Maps may be modified according to specializations offered by a school.

K TO 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD TRACK AND SENIOR HIGH SCHOOL – TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
INFORMATION AND COMMUNICATIONS TECHNOLOGY – COMPUTER SYSTEMS SERVICING (NC II)
(640 hours)

SAMPLE ICT CURRICULUM MAP** (as of May 2016)

Grade 7/8 (EXPLORATORY)	GRADES 9-12	
EXPLORATORY 4 sems	**Computer Systems Servicing (NC II)+** updated based on TESDA Training Regulations released December 28, 2007 — 8 sems	
		***Telecom OSP and Subscriber Line Installation (Copper Cable/POTS and DSL) (NC II)** — 4 sems
		***Telecom OSP Installation (Fiber Optic Cable) (NC II)** — 2 sems; ***Broadband Installation (Fixed Wireless Systems) (NC II)** — 2 sems
	Illustration (NC II) — 4 sems	**Technical Drafting (NC II)** — 4 sems
	Computer Programming (.Net Technology) (NC III)+ updated based on TESDA Training Regulations released December 28, 2013 — 4 sems	**Contact Center Services (NC II)** — 4 sems
	Computer Programming (Java) (NC III)+ updated based on TESDA Training Regulations released December 28, 2013 — 4 sems	**Animation (NC II)** — 4 sems
	Computer Programming (Oracle Database) (NC III)+ updated based on TESDA Training Regulations released December 28, 2013 — 4 sems	**Medical Transcription (NC II)** — 4 sems

* Please note that these subjects have pre-requisites mentioned in the CG.
\+ CG updated based on new Training Regulations of TESDA.
■ Pre-requisites of the subjects to the right should be taken up during these semesters.

****This is just a sample. Schools make their own curriculum maps considering the specializations to be offered. Subjects may be taken up at any point during Grades 9-12.**

Reference:

Technical Education and Skills Development Authority-Qualification Standards Office. *Training Regulations for Computer Systems Servicing NC II.* Taguig City, Philippines: TESDA, 2013.