

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 – PROGRAMMING (ORACLE DATABASE) NC III
(320 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) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	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) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	320 hours	
6.	Animal Production (Large Ruminants) (NC II) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	320 hours	
7.	Animal Production (Swine) (NC II) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	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	

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 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) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	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) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	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	

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

INDUSTRIAL ARTS

	Specialization	Number of Hours	Pre-requisite
1.	Automotive Servicing (NC I) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	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) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	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)

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

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) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	320 hours	
4.	Computer Programming (Java) (NC III) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	320 hours	
5.	Computer Programming (Oracle Database) (NC III) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	320 hours	
6.	Computer Systems Servicing (NC II) <i>updated based on TESDA Training Regulations published December 28, 2007</i>	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)

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 – PROGRAMMING (ORACLE DATABASE) NC III

(320 hours)

Course Description:

This is a specialization course that leads to a Programming (Oracle Database) National Certificate Level III (NCIII). It discusses three (3) core competencies that a SHS Technical-Vocational Education (TVE) student ought to possess, namely, for them to: 1) write SQL Queries to access stored data in an oracle database and customize output, set user-access level, and use scalar and correlated subqueries, 2) use and apply PL/SQL Programming Language, and 3) design and tune PL/SQL Language.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Relevance of the course 2. Concepts and core competencies in Computer Programming	The learners demonstrate an understanding of key concepts, underlying principles, and core competencies in Computer Programming	The learners shall be able to independently create/provide quality and marketable product and / or service in Computer Programming, as prescribed by TESDA Training Regulations	<i>The learners...</i> 1. Discuss the relevance of the course 2. Explain key concepts of common competencies 3. Explain core competencies of Computer Programming	
BASIC COMPETENCIES				
LESSON 1: LEADING WORKPLACE COMMUNICATION (LWC)				
<ul style="list-style-type: none"> Organization requirements for written and electronic communication methods Effective verbal communication methods Organize information Understand and convey intended meaning Participate in various workplace discussions Comply with organization requirements for the use of written and electronic communication methods 	The learners demonstrate an understanding of the principles and concepts in leading in the dissemination and discussion of ideas, information, and issues in the workplace	The learners independently lead in the dissemination and discussion of ideas, information, and issues in the workplace based on TESDA Training Regulations	LO 1. Communicate information about workplace processes 1.1 Select appropriate communication method 1.2 Communicate multiple operations involving several topics areas accordingly 1.3 Use questions to gain extra information 1.4 Identify correct sources of information 1.5 Select and organize information correctly 1.6 Undertake verbal and written reporting when required 1.7 Maintain communication skills in all situations	TVL_ICTORCL 11-12LWC-Ia-1
<ul style="list-style-type: none"> Effective verbal communication methods in the workplace Understanding and conveying intended meaning Participation in various workplace discussions Compliance with organization requirements for the use of written and electronic communication methods 			LO 2. Lead workplace discussions 2.1 Seek responses to workplace issues 2.2 Respond immediately to workplace issues 2.3 Make constructive contributions to workplace discussions on such issues as production, quality, and safety 2.4 Communicate goals/objectives and action plan undertaken in the workplace.	TVL_ICTORCL 11-12LWC-Ia-2

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Effective verbal communication methods • Organizing information • Understand and convey intended meaning • Participate in variety of workplace discussions • Comply with organization requirements for the use of written and electronic communication methods 			<p>LO 3. Identify and communicate workplace issues</p> <p>3.1 Identify issues and problems as they arise.</p> <p>3.2 Organize information regarding problems and issues coherently to ensure clear and effective communication</p> <p>3.3 Initiate dialogue with appropriate personnel</p> <p>3.4 Deal with communication problems and issues as they arise</p>	<p>TVL_ICTORCL 11-12LWC-Ia-3</p>
LESSON 2: LEADING SMALL TEAMS (LST)				
<ul style="list-style-type: none"> • Company policies and procedures • Relevant legal requirements • How performance expectations are set • Methods of monitoring performance • Client expectations • Team member's duties and responsibilities • Communication skills required for leading teams • Informal performance counseling skills • Team-building skills • Negotiating skills 	<p>The learners demonstrate an understanding of the principles and concepts in leading small teams, including setting and maintaining team and individual performance standards</p>	<p>The learners independently lead small teams, including setting and maintaining team and individual performance standards based on TESDA Training Regulations</p>	<p>LO 1. Provide team leadership</p> <p>1.1 Identify and present work requirements to team members</p> <p>1.2 Communicate reasons for instructions and requirements to team members</p> <p>1.3 Recognize, discuss, and deal with team members' queries and concerns</p>	<p>TVL_ICTORCL 11-12LST-Ia-4</p>
<ul style="list-style-type: none"> • How performance expectations are set • Methods of monitoring performance • Client expectations • Team member's duties and responsibilities • Communication skills required for leading teams • Informal performance counseling skills 			<p>LO 2. Assign responsibilities among members</p> <p>2.1 Allocate duties and responsibilities with regard to skills, knowledge, and aptitude required to properly undertake the assigned task and according to company policy</p> <p>2.2 Allocate duties with regard to individual preference, and domestic and personal considerations, whenever possible.</p>	<p>TVL_ICTORCL 11-12LST-Ib-5</p>

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 – PROGRAMMING (ORACLE DATABASE) NC III
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • How performance expectations are set • Methods of monitoring performance • Client expectations • Team member’s duties and responsibilities • Informal performance counseling skills 			<p>LO 3. Set performance expectation for team members</p> <p>3.1 Establish performance expectations based on client needs and according to assignment requirements</p> <p>3.2 Base performance expectations on individual team member’s duties and area of responsibility</p> <p>3.3 Discuss performance expectations and disseminate to individual team members</p>	<p>TVL_ICTORCL 11-12LST-Ib-6</p>
<ul style="list-style-type: none"> • How performance expectations are set • Methods of monitoring performance • Team member’s duties and responsibilities • Communication skills required for leading teams • Informal performance counseling skills • Team-building skills • Negotiating skills 			<p>LO 4. Supervise team performance.</p> <p>4.1 Monitor performance against defined performance criteria and/or assignment instructions and corrective action taken if required</p> <p>4.2 Provide team members with feedback, positive support, and advice on strategies to overcome any deficiencies</p> <p>4.3 Refer to appropriate personnel according to employer policy when performance issues cannot be rectified or addressed within the team</p> <p>4.4 Keep team members informed of any changes in the priority allocated to assignments or tasks, which might impact on client/customer needs and satisfaction</p> <p>4.5 Monitor operations to ensure that employer/client needs and requirements are met</p> <p>4.6 Provide follow-up communication on all issues affecting the team</p> <p>4.7 Complete all relevant documentation in accordance with company procedures</p>	<p>TVL_ICTORCL 11-12LST-Ib-7</p>

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
LESSON 3: DEVELOPING AND PRACTICING NEGOTIATION SKILLS (DPN)				
<ul style="list-style-type: none"> Codes of practice and guidelines for the organization Organizations policy and procedures for negotiations Decision making and conflict-resolution strategies/ procedures Problem-solving strategies to deal with unexpected questions and attitudes during negotiation Interpersonal skills to develop rapport with other parties Communication skills (verbal and listening) 	The learners demonstrate an understanding of the principles and concepts in planning and participating in negotiations	The learners independently plan and participate in negotiations based on TESDA Training Regulations	LO 1. Plan negotiations 1.1 Identify and include information on preparing for negotiation in the plan 1.2 Identify and include information on creating nonverbal environments for positive negotiating in the plan 1.3 Identify and include information on active listening in the plan 1.4 Identify and include information on different questioning techniques in the plan 1.5 Check information to ensure it is correct and up-to-date	TVL_ICTORCL 11-12DPN-Ib-c-8
<ul style="list-style-type: none"> Codes of practice and guidelines for the organization Organizations policy and procedures for negotiations Decision making and conflict-resolution strategies/procedures Problem-solving strategies to deal with unexpected questions and attitudes during negotiation Interpersonal skills to develop rapport with other parties 			LO 2. Participate in negotiations 2.1 Agree on criteria for successful outcome by all parties. 2.2 Consider desired outcome of all parties 2.3 Use appropriate language throughout the negotiation 2.4 Use a variety of questioning techniques 2.5 Document and agree on the issues and processes upon by all parties 2.6 Discuss possible solutions and their viability assessed 2.7 Confirm and record areas for agreement 2.8 Agree on follow-up action by all parties	TVL_ICTORCL 11-12DPN-Ic-9
LESSON 4: SOLVING PROBLEMS RELATED TO WORK ACTIVITIES (PRW)				
<ul style="list-style-type: none"> Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize nonstandard situations Competence to include the ability 	The learners demonstrate an understanding of the principles and concepts in solving problems in the workplace, including the application of problem-solving techniques, and in	The learners independently solve problems in the workplace by deploying problem-solving techniques and determining and resolving the root cause of problems based on TESDA	LO 1. Identify the problem 1.1 Identify variances from normal operating parameters and product quality 1.2 Define extent, cause, and nature are of the problem through observation, investigation, and analytical techniques 1.3 State and specify problems clearly	TVL_ICTORCL 11-12PRW-Ic-10

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations <ul style="list-style-type: none"> - Relevant equipment and operational processes - Enterprise goals, targets, and measures - Enterprise quality, OHS, and environmental requirement - Principles of decision- making strategies and techniques - Enterprise information systems and data collation - Industry codes and standards 	determining and resolving the root cause of problems	Training Regulations		
<ul style="list-style-type: none"> • Using a range of formal problem-solving techniques • Identifying and clarifying the nature of the problem • Devising the best solution • Evaluating the solution <ul style="list-style-type: none"> - Implementation of a developed plan to rectify the problem 			LO 2. Determine fundamental causes of the problem <ul style="list-style-type: none"> 2.1 Identify possible causes based on experience and the use of problem-solving tools/ analytical techniques 2.2 Develop possible cause statements based on findings 2.3 Identify fundamental causes per results of investigation conducted 	TVL_ICTORCL 11-12PRW-Ic-11
<ul style="list-style-type: none"> • Using range of formal problem solving techniques • Identifying and clarifying the nature of the problem • Devising the best solution • Evaluating the solution • Implementation of a developed plan to rectify the problem 			LO 3. Determine corrective action <ul style="list-style-type: none"> 3.1 Consider all possible options for resolution of the problem 3.2 Consider strengths and weaknesses of possible options 3.3 Determine corrective actions to resolve the problem and possible future causes 3.4 Develop action plans identifying measurable objectives, resource needs, and timelines in accordance with safety and operating procedures 	TVL_ICTORCL 11-12PRW-Id-12

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> Identifying and clarifying the nature of the problem Devising the best solution Evaluating the solution <ul style="list-style-type: none"> Implementation of a developed plan to rectify the problem 			LO 4. Provide recommendations to manager 4.1 Prepare reports on recommendations 4.2 Present recommendations to appropriate personnel 4.3 Follow up recommendations, if required	TVL_ICTORCL 11-12PRW-Id-13
LESSON 5: USING MATHEMATICAL CONCEPTS AND TECHNIQUES (MCT)				
<ul style="list-style-type: none"> Fundamental operation (addition, subtraction, division, multiplication) Measurement system Precision and accuracy Basic measuring tools/devices 	The learners demonstrate an understanding of the principles and concepts in selecting, sourcing, and applying appropriate and affordable technologies in the workplace	The learners independently select, source, and apply appropriate and affordable technologies in the workplace based on TESDA Training Regulations	LO 1. Identify mathematical tools and techniques to solve problems 1.1 Identify problem areas based on the given condition 1.2 Select mathematical techniques based on the given problem	TVL_ICTORCL 11-12MCT-Id-14
<ul style="list-style-type: none"> Measurement system Precision and accuracy Basic measuring tools/devices Applying mathematical computations Using calculator Using different measuring tools 			LO 2. Apply mathematical procedure/ solution 2.1 Apply mathematical techniques based on the problem identified 2.2 Perform mathematical computations to the level of accuracy required for the problem 2.3 Determine results of mathematical computation and verify based on job requirements	TVL_ICTORCL 11-12MCT-Id-15
<ul style="list-style-type: none"> Precision and accuracy Applying mathematical computations Using calculator Using different measuring tools 			LO 3. Analyze results 3.1 Identify problem areas based on given condition 3.2 Apply appropriate action in case of error	TVL_ICTORCL 11-12MCT-Ie-16
LESSON 6: USING RELEVANT TECHNOLOGIES (URT)				
<ul style="list-style-type: none"> Awareness of technology and its functions Repair and maintenance procedure 	The learners demonstrate an understanding of the principles and concepts in applying mathematical	The learners independently apply mathematical concepts and techniques based on TESDA Training Regulations	LO 1. Study/Select appropriate technologies 1.1 Determine usage of different technologies based on job requirements	TVL_ICTORCL 11-12URT-Ie-17

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 – PROGRAMMING (ORACLE DATABASE) NC III
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Operating instructions • Applicable software • Communication techniques • Health and safety procedure • Company policy in relation to relevant technology • Different management concepts • Technology adaptability 	<p>concepts and techniques</p>		<p>1.2 Select appropriate technology as per work specification</p>	
<ul style="list-style-type: none"> • Repair and maintenance procedure • Operating instructions • Applicable software • Communication techniques • Health and safety procedures • Company policy in relation to relevant technology • Different management concepts • Technology adaptability • Relevant technology application/ implementation • Basic communication skills • Software applications skills 			<p>LO 2. Apply relevant technologies</p> <p>2.1 Use relevant technology effectively in carrying out function</p> <p>2.2 Use applicable software and hardware as per task requirement</p> <p>2.3 Observe and practice management</p>	<p>TVL_ICTORCL 11-12URT-Ie-18</p>
<ul style="list-style-type: none"> • Relevant technology application/ implementation • Basic communication skills • Software applications skills • Basic troubleshooting skills 			<p>LO 3. Maintain/enhance relevant technology</p> <p>3.1 Perform maintenance of technology in accordance with the industry standard operating procedures, manufacturer’s operating guidelines, and occupational health and safety procedures to ensure its operative ability.</p> <p>3.2 Update technology through continuing education or training in accordance with job requirement</p> <p>3.3 Report immediately the technology failure/ defect reported to the concern/responsible person or section for appropriate action</p>	<p>TVL_ICTORCL 11-12URT-Ie-19</p>

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
COMMON COMPETENCIES				
LESSON 7: APPLYING QUALITY STANDARDS (AQS)				
<ul style="list-style-type: none"> • Relevant production processes, materials and products • Characteristics of materials, software, and hardware used in production processes • Quality-checking procedures • Workplace procedures • Safety and environmental aspects of production processes • Fault identification and reporting • Quality improvement processes • Reading skills required to interpret work instruction • Communication skills needed to interpret and apply defined work procedures • Carry out work in accordance with OHS policies and procedures • Critical thinking 	<p>The learners demonstrate an understanding of the principles and concepts in applying quality standards</p>	<p>The learners independently apply quality standards based on TESDA Training Regulations</p>	<p>LO 1. Assess quality of received materials</p> <p>1.1 Obtain work instruction and carry out work in accordance with standard operating procedures</p> <p>1.2 Check and receive materials against workplace standards and specifications</p> <p>1.3 Identify and isolate faulty materials related to work</p> <p>1.4 Record and/or report faults and any identified causes to the supervisor concerned in accordance with workplace procedures</p> <p>1.5 Replace faulty materials in accordance with workplace procedures</p>	<p>TVL_ICTORCL 11-12AQS-If-20</p>
<ul style="list-style-type: none"> • Relevant production processes, materials, and products • Characteristics of materials, software, and hardware used in production processes • Quality-checking procedures • Workplace procedures • Safety and environmental aspects of production processes • Fault identification and reporting • Quality improvement processes • Reading skills required to interpret work instruction • Communication skills needed to interpret and apply defined work 			<p>LO 2. Assess own work</p> <p>2.1 Identify and use documentation relative to quality within the company</p> <p>2.2 Check completed work against workplace standards relevant to the task undertaken</p> <p>2.3 Identify and isolate errors</p> <p>2.4 Record information on the quality and other indicators of production performance in accordance with workplace procedures</p> <p>2.5 Document and report causes in cases of deviations from specific quality standards in accordance with the workplace’s standard operating procedures</p>	<p>TVL_ICTORCL 11-12AQS-Ig-21</p>

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> procedures • Carry out work in accordance with OHS policies and procedures • Critical thinking • Solution providing and decision making 				
<ul style="list-style-type: none"> • Relevant production processes, materials, and products • Characteristics of materials, software, and hardware used in production processes • Quality-checking procedures • Workplace procedures • Safety and environmental aspects of production processes • Fault identification and reporting • Quality improvement processes • Reading skills required to interpret work instruction • Communication skills needed to interpret and apply defined work procedures • Carry out work in accordance with OHS policies and procedures • Critical thinking • Solution providing and decision making 			<p>LO 3. Engage in quality improvement.</p> <p>3.1 Participate in process improvement procedures relative to workplace assignment</p> <p>3.2 Carry out work in accordance with process improvement procedures</p> <p>3.3 Monitor performance of operation or quality of product or service to ensure customer satisfaction</p>	<p>TVL_ICTORCL 11-12AQS-Ih- 22</p>
LESSON 8: PERFORMING COMPUTER OPERATIONS (PCO)				
<ul style="list-style-type: none"> • 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 	<p>The learners demonstrate an understanding of the principles and concepts in performing computer operations</p>	<p>The learners independently perform computer operations based on TESDA Training Regulations</p>	<p>LO 1. Plan and prepare for tasks at hand</p> <p>1.1 Determine the requirements of tasks in accordance with the required output</p> <p>1.2 Select appropriate hardware and software according to task assigned and required outcome</p> <p>1.3 Plan task to ensure that OHS guidelines and procedures are followed</p> <p>1.4 Follow client-specific guidelines and</p>	<p>TVL_ICTORCL 11-12PCO-Ii- 23</p>

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 – PROGRAMMING (ORACLE DATABASE) NC III
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Main parts of a computer • Storage devices and basic categories of memory • Relevant types of software • General security, privacy legislation, and copyright 			procedures 1.5 Apply required data security guidelines in accordance with existing procedures	
<ul style="list-style-type: none"> • 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 			LO 2. Input data into computer 2.1 Enter data into the computer using appropriate program/application in accordance with company procedure 2.2 Check accuracy of information and information saved in accordance with standard operating procedures 2.3 Store inputted data in storage media according to requirements 2.4 Perform work within ergonomic guidelines	TVL_ICTORCL 11-12PCO-Ij- 24
<ul style="list-style-type: none"> • Relevant types of software • Business application • System software • Basic ergonomics of keyboard and computer user 			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 icons correctly for navigation purposes 3.4 Carry out keyboard techniques in line with OHS requirements for safe use of keyboards	TVL_ICTORCL 11-12PCO- IIa-25
<ul style="list-style-type: none"> • Relevant types of software • Computer peripherals • Storage devices and basic categories of memory 			LO 4. Produce output/data using computer system 4.1 Process entered data using appropriate software commands 4.2 Print 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	TVL_ICTORCL 11-12PCO- IIb-c-26

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Web surfing • Web browsers • Search engines • URLs and keywords • Links • Bookmarking 	The learners demonstrate an understanding of the principles and concepts in performing computer operations	The learners independently perform computer operations based on TESDA Training Regulations	LO 5. Use basic functions of a Web 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 and/or URL of site 5.5 Follow relevant links to locate required information 5.6 Bookmark and print useful pages as required.	TVL_ICTORCL 11-12PCO-IIId-27
<ul style="list-style-type: none"> • Security measures • Anti-virus software/programs • File management 			LO 6. Maintain computer equipment 6.1 Implement procedures for ensuring security of data, including regular back-ups and virus checks in accordance with standard operating procedures 6.2 Implement basic file maintenance procedures in line with standard operating procedures	TVL_ICTORCL 11-12PCO-IIe-28
CORE COMPETENCIES				
LESSON 9: WRITING SQL QUERIES TO ACCESS STORED DATA IN AN ORACLE DATABASE AND CUSTOMIZE OUTPUT, AND SETTING USER ACCESS LEVEL AND USING SCALAR AND CORRELATED SUBQUERIES (WSQL)				
<ul style="list-style-type: none"> • Familiarity with data processing concepts and techniques • SQL concepts, syntax, and flavors • Control database access to specific objects • Restrictions of sorted data • Capabilities of SQL SELECT statements • PL/SQL framework • Use and application of SELECT statement • Arithmetic expressions and NULL values 	The learners demonstrate an understanding of the principles and concepts in demonstrating knowledge of fundamentals of SQL using Oracle Database technology. Specifically, it teaches the concepts of relational databases and the SQL programming language. It teaches how to write queries against single and multiple tables,	The learners independently apply the fundamentals of SQL using Oracle Database technology. Specifically, it teaches the concepts of relational databases and the SQL programming language. It teaches how to write queries against single and multiple tables, manipulate data in tables, and create database objects. It also teaches how to use single	LO 1. Retrieve data using the SQL Select Statement 1.1 List capabilities of SQL SELECT statements in accordance with PL/SQL framework 1.2 Generate report of data from the output of a basic SELECT statement in accordance with PL/SQL framework 1.3 Use arithmetic expressions and NULL values in accordance with PL/SQL framework 1.4 Implement column aliases are in accordance with PL/SQL framework 1.5 Describe concatenation operator, literal	TVL_ICTORCL 11-12WSQL-IIIf-j-29

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Implementation of column aliases • Use and application of concatenation operator, literal character strings, alternative quote operator, and the DISTINCT keyword 	manipulate data in tables, and create database objects. It also teaches how to use single row functions to customize output, use conversion function, and conditional expressions.	row functions to customize output, use conversion functions and conditional expressions based on TESDA Training Regulations.	character strings, alternative quote operator, and the DISTINCT keyword in accordance with PL/SQL framework 1.6 Sort and restrict data in accordance with PL/SQL framework	
<ul style="list-style-type: none"> • Usage and application of single and multiple row • Use and application of strings • Use and application of Numbers with the ROUND, TRUNC, and MOD • Use and application of date • Use and application of Conditional Expressions • Use single row functions to customize output, use conversion functions and conditional expressions • RDBMS concepts • Control database access to specific objects 			LO 2. Use single-row functions to customize output 2.1 Differentiate single row and multiple row functions in accordance with PL/SQL framework 2.2 Manipulate strings using character functions in accordance with PL/SQL framework 2.3 Manipulate numbers with the ROUND, TRUNC, and MOD functions in accordance with PL/SQL framework 2.4 Perform arithmetic with date data in accordance with PL/SQL framework 2.5 Manipulate dates with the DATE functions in accordance with PL/SQL framework 2.6 Convert Functions and Conditional Expressions in accordance with PL/SQL framework	TVL_ICTORCL 11-12WSQL- IIIa-b-30
<ul style="list-style-type: none"> • Using SELECT statements to access data from more than one table • Using SQL:1999 Syntax • Using outer joins • Creating cross joins 			LO 3. Display data from multiple table using joins 3.1 Write SELECT statements to access data from more than one table in accordance with PL/SQL framework 3.2 Join tables Using SQL:1999 Syntax in accordance with PL/SQL framework 3.3 View data that does not meet a join condition by using outer joins in accordance with PL/SQL framework 3.4 Create Cross Joins in accordance with PL/SQL framework	TVL_ICTORCL 11-12WSQL- IIIc-d-31

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 – PROGRAMMING (ORACLE DATABASE) NC III
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Adding new rows to a table and changing data in a Table • Using DELETE and TRUNCATE Statements • Using and saving COMMIT and ROLLBACK statements • Implementation of Read Consistency • Describing and demonstrating the application of FOR UPDATE Clause • Using DDL Statements to Create and manage Tables • Manipulate large data sets in the Oracle database by using subqueries 			<p>LO 4. Manipulate Data</p> <p>4.1 Add new Rows to a Table in accordance with PL/SQL framework</p> <p>4.2 Change data in a Table in accordance with PL/SQL framework.</p> <p>4.3 Use DELETE and TRUNCATE Statements in accordance with PL/SQL framework</p> <p>4.4 Save COMMIT and ROLLBACK statements in accordance with PL/SQL framework</p> <p>4.5 Implement Read Consistency in accordance with PL/SQL framework</p> <p>4.6 Describe FOR UPDATE Clause in accordance with PL/SQL framework</p> <p>4.7 Use DDL Statements to Create and Manage Tables in accordance with PL/SQL framework</p>	<p>TVL_ICTORCL 11-12WSQL- IIIe-f-32</p>
<ul style="list-style-type: none"> • System and Object Privileges • Creating users • Creation and granting System Privileges and Privileges to a Role • Granting and passing of Object Privileges • Revoking Object Privileges • Managing Schema Objects • Managing Objects with Data Dictionary Views 			<p>LO 5. Control User Access</p> <p>5.1 Identify System and Object Privileges in accordance with PL/SQL framework</p> <p>5.2 Create Users in accordance with PL/SQL framework</p> <p>5.3 Grant System Privileges in accordance with PL/SQL framework</p> <p>5.4 Create and grant Privileges to a Role in accordance with PL/SQL framework.</p> <p>5.5 Grant Object Privileges in accordance with PL/SQL framework</p> <p>5.6 Pass Privileges in accordance with PL/SQL framework</p> <p>5.7 Revoke Object Privileges in accordance with PL/SQL framework</p> <p>5.8 Manage Schema Objects in accordance with PL/SQL framework</p> <p>5.9 Manage Objects with Data Dictionary in accordance with PL/SQL framework</p>	<p>TVL_ICTORCL 11-12WSQL- IIIg-h-33</p>

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Using subqueries to manipulate Data • Retrieving Data Using a subquery as Source • Inserting Data Using a subquery as a Target • Using the WITH CHECK OPTION Keyword on DML Statements • Types of Multi-table INSERT Statements • Using Multi-table INSERT Statements • Data processing 			<p>LO 6.Manipulate Large Data Sets.</p> <p>6.1 Use subqueries to Manipulate Data in accordance with PL/SQL framework</p> <p>6.2 Retrieve Data Using a subquery as Source in accordance with PL/SQL framework</p> <p>6.3 Insert Data Using a subquery as a Target in accordance with PL/SQL framework</p> <p>6.4 Use the WITH CHECK OPTION Keyword on DML Statements in accordance with PL/SQL framework</p> <p>6.5 List the types of Multi-table INSERT Statements in accordance with PL/SQL framework</p> <p>6.6 Identify Multi-table INSERT Statements in accordance with PL/SQL framework</p>	<p>TVL_ICTORCL 11-12WSQL- IIIi-j-IVa-34</p>
<ul style="list-style-type: none"> • Comparing and using Date and Time in a Session’s Time Zone • Describing and demonstrating the use of DBTIMEZONE and SESSIONTIMEZONE • Differences between DATE and TIMESTAMP • Identifying and using the INTERVAL Data Types • Using EXTRACT, TZ_OFFSET and FROM_TZ functions • Using TO_TIMESTAMP, TO_YMINTERVAL, and TO_DSINTERVAL • Manage data in different time zones 			<p>LO 7. Manage Data in Different Time Zones.</p> <p>7.1 Compare Date and Time in a Session’s Time Zone in accordance with PL/SQL framework</p> <p>7.2 Describe DBTIMEZONE and SESSIONTIMEZONE in accordance with PL/SQL framework</p> <p>7.3 List the differences between DATE and TIMESTAMP in accordance with PL/SQL framework</p> <p>7.4 Identify the INTERVAL Data Types in accordance with PL/SQL framework</p> <p>7.5 Use EXTRACT, TZ_OFFSET and FROM_TZ functions in accordance with PL/SQL framework</p> <p>7.6 Use TO_TIMESTAMP, TO_YMINTERVAL, and TO_DSINTERVAL in accordance with PL/SQL framework</p>	<p>TVL_ICTORCL 11-12WSQL- IVb-d-35</p>

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Comparing and using Pairwise and Non-pairwise • Using Scalar subquery Expressions • Solving problems on Correlated subqueries • Updating and deleting Correlated subqueries • Using EXISTS and NOT EXISTS operators • Using the WITH clause and the Recursive WITH clause • Retrieve data by using advanced subqueries • Use the regular expression support in SQL to search, match, and replace strings in terms of regular expressions 			<p>LO 8. Retrieve Data Using subqueries</p> <p>8.1 Compare Pairwise and Non-pairwise in accordance with PL/SQL framework</p> <p>8.2 Use Scalar subquery Expressions in accordance with PL/SQL framework</p> <p>8.3 Solve Problems with Correlated subqueries in accordance with PL/SQL framework</p> <p>8.4 Update and delete Correlated subqueries in accordance with PL/SQL framework</p> <p>8.5 Use The EXISTS and NOT EXISTS operators in accordance with PL/SQL framework</p> <p>8.6 Use the WITH clause in accordance with PL/SQL framework</p> <p>8.7 Use the Recursive WITH clause in accordance with PL/SQL framework</p>	<p>TVL_ICTORCL 11-12WSQL- IVe-g-36</p>
LESSON 10: USING AND APPLYING PL/SQL PROGRAMMING LANGUAGE (UASQL)				
<ul style="list-style-type: none"> • Introducing PL/SQL language • Different Types of Identifiers in a PL/SQL subprogram • Using Declarative Section to Define Identifiers • Using Variables to store data • Identifying and using Scalar Data Types • Using Sequences in PL/SQL Expressions • Writing Executable Statements • Logic analysis 	<p>The learners demonstrate an understanding of PL/SQL language and explain the benefits of this programming language. The learners will learn to develop stored procedures, functions, packages, and other basic functions.</p>	<p>The learners independently apply the concept of PL/SQL language and explain the benefits of this programming language. The learners will also learn to develop stored procedures, functions, packages and other basic functions based on TESDA Training Regulations</p>	<p>LO 1. Declare PL/SQL Identifiers</p> <p>1.1 Introduce PL/SQL language in accordance with PL/SQL framework</p> <p>1.2 List the different Types of Identifiers in a PL/SQL subprogram in accordance with PL/SQL framework</p> <p>1.3 Use Declarative Section to Define Identifiers in accordance with PL/SQL framework</p> <p>1.4 Use Variables to store data in accordance with PL/SQL framework</p> <p>1.5 Identify Scalar Data Types in accordance with PL/SQL framework</p> <p>1.6 Use Sequences in PL/SQL Expressions in accordance with PL/SQL framework</p> <p>1.7 Write Executable Statements in accordance with PL/SQL framework</p>	<p>TVL_ICTORCL 11-12UASQL- IVh-j-Ia-37</p>

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 – PROGRAMMING (ORACLE DATABASE) NC III
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Invoking SELECT Statements in PL/SQL • Retrieving Data in PL/SQL • Errors using Naming Conventions • Avoiding errors when using Retrieval and DML Statements • Manipulation of Data in the Server using PL/SQL • Using SQL Cursor Attributes to Obtain Feedback on DML 			<p>LO 2. Interaction with the Oracle Server</p> <p>2.1 Invoke SELECT Statements in PL/SQL in accordance with PL/SQL framework</p> <p>2.2 Retrieve Data in PL/SQL in accordance with PL/SQL framework</p> <p>2.3 Avoid Errors by using Naming Conventions when using Retrieval and DML Statements in accordance with PL/SQL framework</p> <p>2.4 Manipulate Data in the Server using PL/SQL in accordance with PL/SQL framework</p> <p>2.5 Use SQL Cursor Attributes to Obtain Feedback on DML in accordance with PL/SQL framework</p>	<p>TVL_ICTORCL 11-12UASQL-1b-e-38</p>
<ul style="list-style-type: none"> • Describing and demonstrating the application of Exception • Handling Exceptions with PL/SQL • Trapping Non-Predefined Oracle Server Errors • Trapping User-Defined Exceptions • Propagation of Exception • Conditionally control code flow (loops, control structures). • Use PL/SQL packages to group and contain related constructs. • Generate triggers to solve business challenges. • Create anonymous PL/SQL blocks, as well as stored procedures and functions • Use some of the Oracle supplied PL/SQL packages to generate screen output and file output • Code writing and debugging skills 			<p>LO 3. Handle Exception</p> <p>3.1 Understand Exceptions in accordance with PL/SQL framework</p> <p>3.2 Handle Exceptions with PL/SQL in accordance with PL/SQL framework</p> <p>3.3 Trap Predefined Oracle Server Errors in accordance with PL/SQL framework</p> <p>3.4 Trap Non-Predefined Oracle Server Errors in accordance with PL/SQL framework</p> <p>3.5 Trap User-Defined Exceptions in accordance with PL/SQL framework</p> <p>3.6 Propagate Exceptions in accordance with PL/SQL framework</p>	<p>TVL_ICTORCL 11-12UASQL-1f-i-39</p>

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Creating Modularized and Layered Subprogram Design • Modularizing the Development With PL/SQL Blocks • Describing and demonstrating the application of PL/SQL Execution Environment • Enumeration of the Benefits of using PL/SQL Subprograms • Differences between Anonymous Blocks and Subprograms • Implementation of Procedures Parameters and Parameters Modes • Create anonymous PL/SQL blocks, functions, and procedures 			<p>LO 4. Stored Procedures</p> <p>4.1 Create Modularized and Layered Subprogram Design in accordance with PL/SQL framework</p> <p>4.2 Modularized Development With PL/SQL Blocks in accordance with PL/SQL framework</p> <p>4.3 Understand PL/SQL Execution Environment in accordance with PL/SQL framework</p> <p>4.4 List benefits of using PL/SQL Subprograms in accordance with PL/SQL framework</p> <p>4.5 List Differences between Anonymous Blocks and Subprograms in accordance with PL/SQL framework</p> <p>4.6 Implement Procedures Parameters and Parameters Modes in accordance with PL/SQL framework</p> <p>4.7 View Procedure Information in accordance with PL/SQL framework</p>	<p>TVL_ICTORCL 11-12UASQL- Ij-IIa-c-40</p>
LESSON 11: DESIGNING AND TUNING PL/SQL LANGUAGE (DTSQL)				
<ul style="list-style-type: none"> • Describing and demonstrating the use of Predefined data types • Creating Subtypes based on existing types for an application • Guidelines for cursor design • Using Collections • Manipulation of Large Objects • PL/SQL designing best practices 	<p>The learners demonstrate an understanding of advanced features of PL/SQL to design and tune PL/SQL. It also covers how to manage PL/SQL to interface with the database and other applications in the most efficient manner.</p>	<p>The learners independently apply the concept of advanced features of PL/SQL to design and tune PL/SQL. It also covers how to manage PL/SQL to interface with the database and other applications in the most efficient manner based on TESDA Training Regulations.</p>	<p>LO 1.Designing PL/SQL Code</p> <p>1.1 Describe Predefined data types in accordance with PL/SQL framework.</p> <p>1.2 Create Subtypes based on existing types for an application in accordance with PL/SQL framework</p> <p>1.3 List different guidelines for cursor design in accordance with PL/SQL framework</p> <p>1.4 Use collections in accordance with PL/SQL framework</p> <p>1.5 Manipulate Manipulating Large Objects in accordance with PL/SQL framework</p>	<p>TVL_ICTORCL 11-12DTSQL- IIId-i-41</p>
<ul style="list-style-type: none"> • Calling External Procedures from PL/SQL • Enumerating the benefits of External Procedures 			<p>LO2. Using Advanced Interface Methods</p> <p>2.1 Call External Procedures from PL/SQL in accordance with PL/SQL framework</p> <p>2.2 List benefits of External Procedures in</p>	<p>TVL_ICTORCL 11-12DTSQL- IIj-IIIa-d-42</p>

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 – PROGRAMMING (ORACLE DATABASE) NC III
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Demonstrating the use of C advanced interface methods • Demonstrating the use of Java advanced interface methods • Create PL/SQL applications that use collections • Implement a virtual private database with fine-grained access control • Write code to interface with external C and Java applications • Write code to interface with large objects and use SecureFile LOBs 			<p>accordance with PL/SQL framework</p> <p>2.3 Show C advanced interface methods in accordance with PL/SQL framework</p> <p>2.4 Show Java advanced interface methods in accordance with PL/SQL framework</p>	
<ul style="list-style-type: none"> • Describing and demonstrating the application of Compiler • Tuning the PL/SQL code • Enabling the Intra unit in-lining • Identifying and tuning in the memory problems • Improving Performance with Caching • Write code to interface with external C and Java applications. • Write code to interface with large objects and use SecureFile LOBs • Write and tune PL/SQL code effectively to maximize performance 			<p>LO 3. Apply Tuning and Improve Performance with Caching</p> <p>3.1 Understand and influence the compiler in accordance with PL/SQL framework</p> <p>3.2 Tune PL/SQL code in accordance with PL/SQL framework</p> <p>3.3 Enable Intra unit in-lining in accordance with PL/SQL framework</p> <p>3.4 Identify and tune Memory issues in accordance with PL/SQL framework</p> <p>3.5 Recognize Network issues in accordance with PL/SQL framework</p> <p>3.6 Improve Performance with Caching in accordance with PL/SQL framework</p>	<p>TVL_ICTORCL 11-12DTSQ- IIIe-i-43</p>
<ul style="list-style-type: none"> • Features of fine-grained access control • How fine-grained access control works • Describing and creating an application context • Setting the application context • The DBMS_RLS procedures • Implementation of the DBMS_RLS 			<p>LO 4. Implementing VPD with Fine-grained Access Control</p> <p>4.1 Understand how fine-grained access control works overall in accordance with PL/SQL framework</p> <p>4.2 Describe features of fine-grained access control in accordance with PL/SQL framework</p> <p>4.3 Describe an application context in</p>	<p>TVL_ICTORCL 11-12DTSQ- IIIj-IVa-d-44</p>

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
policies • Creating queries on fine-grained access • Implement a virtual private database with fine-grained access control			accordance with PL/SQL framework 4.4 Create an application context in accordance with PL/SQL framework 4.5 Set an application context in accordance with PL/SQL framework 4.6 List the DBMS_RLS procedures in accordance with PL/SQL framework 4.7 Implement a policy in accordance with PL/SQL framework 4.8 Query dictionary views holding information on fine-grained access in accordance with PL/SQL framework	

**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 – PROGRAMMING (ORACLE DATABASE) NC III**

(320 hours)

RESOURCES			METHODOLOGY	ASSESSMENT METHOD
TOOLS	EQUIPMENT	MATERIALS		
<ul style="list-style-type: none"> • Computer hardware with peripherals • Appropriate software • Access to internet • Conducive testing environment 	<ul style="list-style-type: none"> • Network computer with peripherals • Server • Printer whiteboard • LCD projector and screen • Ergonomic computer tables and chairs 	<ul style="list-style-type: none"> • Learning materials/ guide • Practice materials • Handouts • Reference books 	<ul style="list-style-type: none"> • School-based • Online • Dual Training System • Apprenticeship • Industry Immersion 	<ul style="list-style-type: none"> • Observation in workplace • Demonstration • Oral questioning

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 – PROGRAMMING (ORACLE DATABASE) NC III
(320 hours)

GLOSSARY

GENERAL

1. Certification - the process of verifying and validating the competencies of a person through assessment.
2. Certificate of Competency (COC) - a certification issued to individuals who pass the assessment for a single unit or cluster of units of competency.
3. Common Competencies - the skills and knowledge needed by all people working in a particular industry.
4. Competency - the possession and application of knowledge, skills, and attitudes to perform work activities to the standard expected in the workplace.
5. Competency Assessment - the process of collecting evidence and making judgments on whether competency has been achieved Competency Standard (CS)—the industry-determined specification of competencies required for effective work performance.
6. Competency Standard (CS) - the industry-determined specification of competencies required for effective work performance.
7. Context of Assessment - refers to the place where assessment is to be conducted or carried out.
8. Core Competencies - the specific skills and knowledge needed in a particular area of work, i.e., industry sector/occupation/job role.
9. Critical aspects of competency - refers to the evidence that is essential for successful performance of the unit of competency.
10. Elective Competencies - the additional skills and knowledge required by the individual or enterprise for work level; refers to the category of skills and knowledge required to do a job.
11. Elements - the building blocks of a unit of competency; they describe in outcome terms the functions that a person must perform in the workplace.
12. Evidence Guide - a component of the unit of competency that defines or identifies the evidences required to determine the competence of the individual. It provides information on critical aspects of competency, underpinning knowledge, underpinning skills, resource implications, assessment method, and context of assessment.
13. Level - refers to the category of skills and knowledge required to do a job.
14. Method of Assessment - refers to the ways of collecting evidence and when evidence should be collected.
15. National Certificate (NC) - a certification issued to individuals who achieve all the required units of competency for a national qualification defined under the Training Regulations. NCs are aligned to specific levels within the PTQF.
16. Performance Criteria - evaluative statements that specify what is to be assessed and the required level of performance.
17. Qualification - a cluster of units of competencies that meets job roles and is significant in the workplace. It is also a certification awarded to a person on successful completion of a course in recognition of having demonstrated competencies in an industry sector.
18. Basic Competencies - the skills and knowledge that everyone needs for work.
19. Range of Variables - describes the circumstances or context in which the work is to be performed.
20. Underpinning Knowledge - refers to the competency that involves in applying knowledge to perform work activities. It includes specific knowledge that is essential to the performance of the competency.
21. Recognition of Prior Learning (RPL) - the acknowledgment of an individual's skills, knowledge, and attitudes gained from life and work experiences outside registered training programs.
22. Resource Implications - refers to the resources needed for the successful performance of the work activity described in the unit of competency. It includes work environment and conditions, materials, tools, and equipment.
23. Basic Competencies - the skills and knowledge that everyone needs for work.

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 – PROGRAMMING (ORACLE DATABASE) NC III

(320 hours)

- 24. Training Regulations (TR) - refers to the document promulgated and issued by TESDA consisting of competency standards, national qualifications and training guidelines for specific sectors/occupations. The TR serves as basis for establishment of qualification and certification under the PTQF. It also serves as guide for development of competency-based curricula and instructional materials including registration of TVET programs offered by TVET providers
- 25. Underpinning Knowledge - refers to the competency involved in applying knowledge to perform work activities. It includes specific knowledge that is essential to the performance of the competency.
- 26. Underpinning Skills - refers to the list of the skills needed to achieve the elements and performance criteria in the unit of competency. It includes generic and industry-specific skills.
- 27. Unit of Competency - a component of the competency standards stating a specific key function or role in a particular job or occupation; it is the smallest component of achievement that can be assessed and certified under the PTQF.

SECTOR SPECIFIC

- 28. ADO.NET - a set of computer software components that programmers can use to access data and data services. It is a part of the [base class library](#) that is included with the [Microsoft .NET Framework](#). It is commonly used by programmers to access and modify data stored in [relational database systems](#), though it can also access data in non-relational sources. ADO.NET is sometimes considered an evolution of [ActiveX Data Objects](#) (ADO) technology, but was changed so extensively that it can be considered an entirely new product.
- 29. ASP.NET - a [Web application framework](#) developed and marketed by [Microsoft](#) to allow [programmers](#) to build dynamic [websites](#), [Web applications](#), and [Web services](#). ASP.NET is built on the [Common Language Runtime](#) (CLR), allowing programmers to write ASP.NET code using any supported [.NET language](#).
- 30. Algorithm - a type of [effective method](#) in which a list of well-defined instructions for completing a task will, when given an initial state, proceed through a well-defined series of successive states, eventually terminating in an end-state. The transition from one state to the next is not necessarily [deterministic](#); some algorithms, known as [probabilistic algorithms](#), incorporate randomness.
- 31. Artificial intelligence programmer - develops the logic the game uses to carry out a large number of actions. An AI programmer may program [pathfinding](#), strategy, and enemy tactic systems. This is one of the most challenging aspects of game programming and its sophistication is developing rapidly.
- 32. Browser - a software package that provides the user interface for accessing Internet, intranet, and extranet websites.
- 33. COBOL - one of the oldest programming languages. Its name is an [acronym](#) for COmmon Business-Oriented Language, defining its primary domain in [business](#), finance, and administrative systems for companies and governments.
- 34. Compiler - a [computer program](#) (or set of programs) that transforms [source code](#) written in a [programming language](#) (the source language) into another computer language (the target language, often having a binary form known as [object code](#)). The most common reason for wanting to transform source code is to create an [executable](#) program.
- 35. Computer - a device that has the ability to accept data, internally store and execute a program of instructions, perform mathematical, logical, and manipulative operations on data, and report the results.
- 36. Computer program - also a [software](#) program, or just a program, is a sequence of [instructions](#) written to perform a specified task for a [computer](#). A computer requires programs to function, typically [executing](#) the program's instructions in a [central processor](#). The program has an [executable](#) form that the computer can use directly to execute the instructions. The same program in its human-readable [source code](#) form, from which [executable](#) programs are derived (e.g., [compiled](#)), enables a [programmer](#) to study and develop its [algorithms](#).
- 37. [Computer programming](#) - the iterative process of writing or editing [source code](#). Editing source code involves testing, analyzing, and refining, and sometimes coordinating with other programmers on a jointly developed program. A person who practices this skill is referred to as a computer [programmer](#), software developer, or coder. The sometimes lengthy process of computer programming is usually referred to as [software development](#).

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 – PROGRAMMING (ORACLE DATABASE) NC III
(320 hours)

- 38. Computer Terminal - any input/output device connected by telecommunications links to a computer.
- 39. C language - an [imperative \(procedural\) systems implementation language](#). It was designed to be compiled using a relatively straightforward [compiler](#), to provide low-level access to memory, to provide language constructs that map efficiently to machine instructions, and to require minimal [run-time support](#). C was therefore useful for many applications that had formerly been coded in [assembly language](#).
- 40. C++ language - a [statically typed, free-form, multi-paradigm, compiled](#), general-purpose [programming language](#). It comprises a combination of both [high-level](#) and [low-level](#) language features. Some of its application domains include systems software, application software, device drivers, embedded software, high-performance server and client applications, and entertainment software such as [video games](#).
- 41. Data - objective measurements of the attributes (characteristics) of entities such as people, places, things, and events.
- 42. Data access - typically refers to software and activities related to storing, retrieving, or acting on [data](#) housed in a [database](#) or other repository. Historically, different [methods](#) and [languages](#) were required for every repository, including each different database, [file system](#), etc., and many of these repositories stored their content in different and incompatible formats.
- 43. Decompiler - the name given to a [computer program](#) that performs the reverse operation to that of a [compiler](#). That is, it translates a file containing information at a relatively low level of abstraction (usually designed to be computer readable rather than human readable) into a form having a higher level of abstraction (usually designed to be human readable).
- 44. Documentation - a collection of documents or information.
- 45. Edit - to modify the form or format of data.
- 46. End-user - anyone who uses an information system or the information it produces.
- 47. Ergonomics - the science and technology emphasizing the safety, comfort, and ease of use of human-operated machines. The goal of ergonomics is to produce systems that are user-friendly, safe, comfortable, and easy to use.
- 48. HTML, which stands for [HyperText Markup Language](#) - the predominant [markup language](#) for [web pages](#). It is written in the form of [HTML elements](#) consisting of "tags" surrounded by [angle brackets](#) within the Web page content. It is the building blocks of all basic websites.
- 49. Information - data placed in a meaningful and useful context for an end-user.
- 50. Information and Communication Technology (ICT) - refers to technologies associated with the transmission and exchange of data in the form of sound, text, visual images, signals, or any combination thereof through the use of digital technology. It encompasses such services as telecommunications, posts, multimedia, electronic commerce, broadcasting, and information technology.
- 51. Integrated development environment (IDE) - a [software application](#) that provides comprehensive facilities to [computer programmers](#) for [software development](#). An IDE normally consists of a [source code editor](#), a [compiler](#) and/or [interpreter](#), [build automation](#) tools, and (usually) a [debugger](#). Typically, an IDE is dedicated to a specific [programming language](#), so as to provide a feature set which most closely matches the [programming paradigms](#) of the language. However, some multiple-language IDEs are in use, such as [Eclipse](#), [ActiveState Komodo](#), recent versions of [NetBeans](#), and [Microsoft Visual Studio](#).
- 52. Java - a general-purpose, concurrent, class-based, object-oriented language that is specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere". Java is currently one of the most popular programming languages in use, and is widely used from application software to Web applications
- 53. Java applications - These are typically [compiled](#) to [bytecode \(class file\)](#) that can run on any [Java Virtual Machine](#) (JVM) regardless of [computer architecture](#).
- 54. Local Area Network (LAN) - a communications network that typically connects computers, terminals, and other computerized devices within a limited physical area such as an office, building, manufacturing plant and other worksites.

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 – PROGRAMMING (ORACLE DATABASE) NC III
(320 hours)

- 55. Microsoft .NET Framework - a [software framework](#) that can be installed on computers running [Microsoft Windowsoperating systems](#). It includes a large [library](#) of coded solutions to common programming problems and a common language infrastructure that manages the execution of programs written specifically for the framework. The .NET Framework supports multiple [programming languages](#) in a manner that allows language interoperability, whereby each language can utilize code written in other languages; in particular, the .NET library is available to all the programming languages that .NET encompasses.
- 56. Microsoft SQL Server - a [relational model database server](#) produced by [Microsoft](#). Its primary [query languages](#) are [T-SQL](#) and [ANSI SQL](#).
- 57. Object code - or an object file; it is the representation of code that a [compiler](#) or [assembler](#) generates by processing a [source code](#) file. Object files contain compact code, often called "binaries". A [linker](#) is typically used to generate an [executable](#) or [library](#) by linking object files together. The only essential element in an object file is [machine code](#) (code directly executed by a computer's [CPU](#)). Object files for [embedded systems](#) might contain nothing but machine code. However, object files often also contain data for use by the code at runtime, [relocation](#) information, program [symbols](#) (names of variables and functions) for linking and/or debugging purposes, and other [debugging](#) information.
- 58. Oracle - the Oracle Database (commonly referred to as Oracle RDBMS or simply as Oracle) is an [object-relational database management system \[2\]](#) produced and marketed by [Oracle Corporation](#).
- 59. Oracle Forms - a software product for creating screens that interact with an [Oracle database](#). It has a typical IDE including an object navigator, property sheet and code editor that uses [PL/SQL](#). It was originally developed to run [server-side](#) in character mode terminal sessions. It was ported to other platforms, including Windows, to function in a [client-server](#) environment. Later versions were ported to [Java](#) where it runs in a [Java EE](#) container and can integrate with Java and [web services](#). The primary focus of Forms is to create data entry systems that access an [Oracle database](#).
- 60. Oracle Reports - a tool for developing reports against data stored in an [Oracle database](#). Oracle Reports consists of Oracle Reports Developer (a component of the [Oracle Developer Suite](#)) and Oracle Application Server Reports Services (a component of the [Oracle Application Server](#)).
- 61. Outsourcing - turning over all or part of an organization’s information systems operation to outside contractors, known as systems integrators or facilities management companies.
- 62. Programming language - an artificial [language](#) designed to express [computations](#) that can be performed by a [machine](#), particularly a [computer](#). Programming languages can be used to create [programs](#) that control the behavior of a machine, to express [algorithms](#) precisely, or as a mode of human communication.
- 63. Quality Assurance - methods for ensuring that information systems are free from errors and fraud, and provide information products of high quality.
- 64. Relational database management system (RDBMS) - a [database management system](#) (DBMS) that is based on the [relational model](#) as introduced by [E. F. Codd](#). Most popular commercial and open source databases currently in use are based on the relational database model. A short definition of an RDBMS may be a DBMS in which data is stored in the form of tables and the relationship among the data is also stored in the form of tables.
- 65. Service - oriented programming (SOP); a [programming paradigm](#) that uses "services" as the unit of computer work, to design and implement integrated business applications and [mission-critical](#) software programs. Services can represent steps of [business processes](#) and thus one of the main applications of this paradigm is the cost-effective delivery of standalone or composite business applications that can "integrate from the inside-out."
- 66. Software - computer programs and procedures concerned with the operation of an information system.
- 67. Source code - any collection of statements or declarations written in some [human-readable](#) computer [programming language](#). Source code is the means most often used by [programmers](#) to specify the actions to be performed by a computer.

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 – PROGRAMMING (ORACLE DATABASE) NC III
(320 hours)

- 68. SQL, often referred to as Structured Query Language - a [database](#) computer language designed for managing [data](#) in [relational database management systems](#) (RDBMS), and originally based upon [relational algebra](#). Its scope includes data insert, query, update and delete, [schema](#) creation and modification, and data access control.
- 69. Standards - measures of performance developed to evaluate the progress of a system toward its objectives.
- 70. System - an assembly of methods, procedures, or techniques unified by regulated interaction to form an organized whole.
- 71. User- friendly - a characteristic of human-operated equipment and systems that makes them safe, comfortable, and easy to use.
- 72. User interface - the system by which people ([users](#)) [interact](#) with a [machine](#). The user interface includes hardware (physical) and software (logical) components. User interfaces exist for various [systems](#), and provide a means of: 1) input, allowing the users to manipulate a system, and/or 2) output, allowing the system to indicate the effects of the users' manipulation.
- 73. [VB.NET](#) - a redesigned, object-oriented dialect of [Visual Basic](#).
- 74. Web application - an [application](#) that is accessed over a network such as the [Internet](#) or an [intranet](#). The term may also mean a computer software application that is hosted in a browser-controlled environment (e.g. a [Java applet](#)) or coded in a browser-supported language (such as [JavaScript](#), combined with a browser-rendered [markup language](#) like [HTML](#)) and reliant on a common web browser to render the application [executable](#).
- 75. Windows Forms - the name given to the [graphical application programming interface \(API\)](#) included as a part of [Microsoft's .NET Framework](#), providing access to the native [Microsoft Windows](#) interface elements by wrapping the existing [Windows API](#) in [managed code](#). While it is seen as a replacement for the earlier and more complex [C++](#) based [Microsoft Foundation Class Library](#), it does not offer a paradigm comparable to [model–view–controller](#).
- 76. Windows Forms application - an [event-driven application](#) supported by Microsoft's [.NET Framework](#). Unlike a [batch program](#), it spends most of its time simply waiting for the user to do something, such as fill in a [text box](#) or click a [button](#).

**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 – PROGRAMMING (ORACLE DATABASE) NC III
 (320 hours)**

CODE BOOK LEGEND

Sample: **TVL_ICTORCL11-12AQS-If-20**

LEGEND		SAMPLE		DOMAIN / COMPONENT	CODE
First Entry	Learning Area and Strand/ Subject or Specialization	Technical-Vocational-Livelihood Education	TVL_ICT	Basic Competencies	
		Information and Communications Technology		Leading Workplace Communication	LWC
		Programming (Oracle) NC III		Leading Small Teams	LST
	Grade Level	11 to 12	ORCL	Developing and Practicing Negotiation Skills	DPN
			11-12	Solving Problems Related to Work Activities	PRW
Uppercase Letter/s	Domain/Content/Component/Topic	Applying Quality Standards	AQS	Using Mathematical Concepts and Techniques	MCT
			-	Using Relevant Technologies	URT
Roman Numeral *Zero if no specific Quarter	Quarter	First Quarter	I	Common Competencies	
Lower case letter/s *put a hyphen (-) in between letters to indicate more than a specific week	Week	Week six	f	Applying Quality Standards	AQS
			-	Performing Computer Operations	PCO
			-	Core Competencies	
Arabic Number	Competency	Assess quality of received materials	20	Writing SQL Queries to Access Stored Data in an Oracle Database and Customize Output; and Setting User Access Level and Using Scalar and Correlated Subqueries	WSQL
			-	Using and Applying PL/SQL Programming Language	UASQL
			-	Designing and Tuning PL/SQL Language	DTSQL

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 – PROGRAMMING (ORACLE DATABASE) NC III
 (320 hours)**

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

Grade 7/8 (EXPLORATORY)	GRADES 9-12				
EXPLORATORY	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)	*Broadband Installation (Fixed Wireless Systems) (NC II)	
	Illustration (NC II)	Technical Drafting (NC II)	4 sems	4 sems	
	Computer Programming (.Net Technology) (NC III)⁺ updated based on TESDA Training Regulations released December 28, 2013	Contact Center Services (NC II)		4 sems	4 sems
	Computer Programming (Java) (NC III)⁺ updated based on TESDA Training Regulations released December 28, 2013	Animation (NC II)		4 sems	4 sems
	Computer Programming (Oracle Database) (NC III)⁺ updated based on TESDA Training Regulations released December 28, 2013	Medical Transcription (NC II)		4 sems	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.**

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 – PROGRAMMING (ORACLE DATABASE) NC III
(320 hours)

Reference:

Technical Education and Skills Development Authority-Qualification Standards Office. *Training Regulations for Programming (Oracle Database) NC III*. Taguig City, Philippines: TESDA, 2013.