

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) 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**

	<b>Specialization</b>	<b>Number of Hours</b>	<b>Pre-requisite</b>
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 TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

**HOME ECONOMICS**

	<b>Specialization</b>	<b>Number of Hours</b>	<b>Pre-requisite</b>
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 TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

**INDUSTRIAL ARTS**

	<b>Specialization</b>	<b>Number of Hours</b>	<b>Pre-requisite</b>
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 TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

**INFORMATION, COMMUNICATIONS AND TECHNOLOGY (ICT)**

	<b>Specialization</b>	<b>Number of Hours</b>	<b>Pre-requisite</b>
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 TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

**Course Description:**

This curriculum guide provides an introduction to HTML5, CSS3, and JavaScript. The course helps students gain basic HTML5/CSS3/JavaScript programming skills, and is an entry point into both the Web application and Windows Store apps training paths. The course focuses on using HTML5/CSS3/JavaScript to implement programming logic, define and use variables, perform looping and branching, develop user interfaces, capture and validate user input, store data, and create well-structured application. Further, this unit covers the skills, knowledge, and attitude required in developing HTML5 Websites. Students will also learn to develop advanced ASP.NET MVC applications using .NET Framework 4.5 tools and technologies. The focus will be on coding activities that enhance the performance and scalability of the Web site application. ASP.NET MVC will be introduced and compared with Web Forms so that students know when each should/could be used.

It covers the basic, common, and core competencies such as perform programming in HTML5 with JavaScript and CSS3, and develop ASP.NET MVC 5 Web applications. This also includes an introduction to the Windows 8 platform and the Windows Store applications.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<b>Introduction</b> 1. Relevance of the course 2. Core competency in Programming (.Net Technology) NC III	The learners demonstrate an understanding of underlying principles and core competencies in Programming (.Net Technology) NC III.	The learners shall be able to independently create/ provide quality and marketable products and/ or services in Computer Programming as prescribed in the TESDA Training Regulations.	<b>The learners...</b> 1. Discuss the relevance of the course 2. Explain the core competencies in Programming (.Net Technology) NC III	
<b>BASIC COMPETENCIES</b>				
<b>LESSON 1: LEAD WORKPLACE COMMUNICATION (LWC)</b>				
<ul style="list-style-type: none"> <li>• Organization requirements for written and electronic communication methods</li> <li>• Effective verbal communication methods</li> <li>• Organizing information</li> <li>• Understanding and conveying intended meaning</li> <li>• Participation in various workplace discussions</li> <li>• Complying with organization requirements for the use of written and electronic communication methods</li> </ul>	The learners demonstrate an understanding of the principles and concepts in leading in the dissemination and discussion of workplace ideas, information, and issues.	The learners independently lead in the dissemination and discussion of workplace ideas, information, and issues based on TESDA Training Regulations.	<b>LO1. Communicate information about workplace processes</b> 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	<b>TLE ICTP.NET 11-12LWC-Ia-1</b>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• Effective verbal communication methods in the workplace</li> <li>• Understanding and conveying intended meaning</li> <li>• Participation in various workplace discussions</li> <li>• Complying with organization requirements for the use of written and electronic communication methods</li> </ul>			<b>LO 2. Lead workplace discussions</b> 2.1 Seek responses to workplace issues 2.2 Provide response to workplace issues immediately 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	<b>TLE ICTP.NET  11-12LWC-Ia-2</b>
<ul style="list-style-type: none"> <li>• Effective verbal communication methods</li> <li>• Organizing information</li> <li>• Understand and convey intended meaning</li> <li>• Participate in various workplace discussions</li> <li>• Comply with organization requirements for the use of written and electronic communication methods</li> </ul>			<b>LO 3. Identify and communicate issues arising in the workplace</b> 3.1 Identify issues and problems as they arise 3.2 Organize information regarding problems and issues coherently to ensure clear and effective communication 3.3 Initiate dialogue with appropriate personnel 3.4 Raise communication problems and issues as they arise	<b>TLE ICTP.NET  11-12LWC-Ia-3</b>
<b>LESSON 2: LEAD SMALL TEAMS (LST)</b>				
<ul style="list-style-type: none"> <li>• Company policies and procedures</li> <li>• Relevant legal requirements</li> <li>• How performance expectations are set</li> <li>• Methods of monitoring performance</li> <li>• Client expectations</li> <li>• Team member’s duties and responsibilities</li> <li>• Communication skills required for leading teams</li> <li>• Informal performance counseling skills</li> <li>• Team-building skills</li> <li>• Negotiating skills</li> </ul>	The learners demonstrate an understanding of the principles and concepts in leading small teams, including setting and maintaining team and individual performance standards.	The learners independently lead small teams, including setting and maintaining team and individual performance standards based on TESDA Training Regulations.	<b>LO 1. Provide team leadership</b> 1.1 Identify and present work requirements to team members 1.2 Communicate reasons for instructions and requirements to team members 1.3 Recognize, discuss, and deal with team members’ queries and concerns	<b>TLE ICTP.NET  11-12LST-Ia-4</b>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• How performance expectations are set</li> <li>• Methods of monitoring performance</li> <li>• Client expectations</li> <li>• Team member’s duties and responsibilities</li> <li>• Communication skills required for leading teams</li> <li>• Informal performance counseling skills</li> </ul>			<p><b>LO 2. Assign responsibilities among members</b></p> <p>2.1 Allocate duties and responsibilities with regard to the 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><b>TLE_ICTP.NET</b>  <b>11-12LST-Ib-5</b></p>
<ul style="list-style-type: none"> <li>• How performance expectations are set</li> <li>• Methods of Monitoring Performance</li> <li>• Client expectations</li> <li>• Team member’s duties and responsibilities</li> <li>• Informal performance counseling skills</li> </ul>			<p><b>LO 3. Set performance expectation for team members</b></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 team members</p>	<p><b>TLE_ICTPNET</b>  <b>11-12LST-Ib-6</b></p>
<ul style="list-style-type: none"> <li>• How performance expectations are set</li> <li>• Methods of Monitoring Performance</li> <li>• Team member’s duties and responsibilities</li> <li>• Communication skills required for leading teams</li> <li>• Informal performance counseling skills</li> <li>• Team-building skills</li> <li>• Negotiating skills</li> </ul>			<p><b>LO 4. Supervise team performance</b></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><b>TLE_ICTP.NET</b>  <b>11-12LST-Ib-7</b></p>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			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 4.5 Monitor operations to ensure that employer/client needs and requirements are met 4.6 Provide follow-up communication on all issues affecting the team 4.7 Complete all relevant documentation in accordance with company procedures	
<b>LESSON 3: DEVELOP AND PRACTICE NEGOTIATION SKILLS (DPN)</b>				
<ul style="list-style-type: none"> <li>• Codes of practice and guidelines for the organization</li> <li>• Organization’s policies and procedures for negotiations</li> <li>• Decision making and conflict-resolution strategies and procedures</li> <li>• Problem-solving strategies to deal with unexpected questions and attitudes during negotiation</li> <li>• Interpersonal skills to develop rapport with other parties</li> <li>• Communication skills (verbal and listening)</li> </ul>	<p>The learners demonstrate an understanding of the principles and concepts in planning and participating in negotiations</p>	<p>The learners independently plan and participate in negotiations based on TESDA Training Regulations</p>	<b>LO 1. Plan negotiations</b> 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	<b>TLE_ICTP.NET 11-12DPN-Ib-c-8</b>
<ul style="list-style-type: none"> <li>• Codes of practice and guidelines for the organization</li> <li>• Organization’s policies and procedures for negotiations</li> <li>• Decision making and conflict resolution strategies procedures</li> </ul>			<b>LO 2. Participate in negotiations</b> 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 Documentation and agreement on the	<b>TLE_ICTP.NET 11-12DPN-Ic-9</b>



**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• Problem-solving strategies to deal with unexpected questions and attitudes during negotiation</li> <li>• Interpersonal skills to develop rapport with other parties</li> </ul>			<p>issues and processes by all parties</p> <p>2.6 Discuss possible solutions and assess their viability</p> <p>2.7 Confirm and record areas for agreement</p> <p>2.8 Agree on follow-up action by all parties</p>	
<b>LESSON 4: SOLVE PROBLEM RELATED TO WORK ACTIVITIES (PRW)</b>				
<ul style="list-style-type: none"> <li>• Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize nonstandard situations</li> <li>• Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining corrective action and provision of recommendations <ul style="list-style-type: none"> <li>- Relevant equipment and operational processes</li> <li>- Enterprise goals, targets, and measures</li> <li>- Enterprise quality, OHS, and environmental requirement</li> <li>- Principles of decision-making strategies and techniques</li> <li>- Enterprise information systems and data collation</li> <li>- Industry codes and standards</li> </ul> </li> <li>• Using a range of formal problem-solving techniques</li> <li>• Identifying and clarifying the nature of the problem</li> <li>• Devising the best solution</li> <li>• Evaluating the solution</li> <li>• Implementation of a developed plan to rectify the problem</li> </ul>	<p>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 resolving the root cause of problems</p>	<p>The learners independently solve problems in the workplace, including the application of problem-solving techniques based on TESDA Training Regulations</p>	<p><b>LO 1. Identify the problem</b></p> <p>1.1 Identify variances from normal operating parameters and product quality</p> <p>1.2 Define extent, cause, and nature are of the problem through observation, investigation, and analytical techniques</p> <p>1.3 State and specify problems clearly</p>	<p><b>TLE ICTP.NET</b>  <b>11-12PRW-Ic-</b>  <b>10</b></p>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>Using a range of formal problem-solving techniques</li> <li>Identifying and clarifying the nature of the problem</li> <li>Devising the best solution</li> <li>Evaluating the solution</li> <li>Implementation of a developed plan to rectify the problem</li> </ul>			<b>LO 2. Determine fundamental causes of the problem</b> 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	<b>TLE ICTP.NET 11-12PRW-Ic-11</b>
<ul style="list-style-type: none"> <li>Using a range of formal problem-solving techniques</li> <li>Identifying and clarifying the nature of the problem</li> <li>Devising the best solution</li> <li>Evaluating the solution</li> <li>Implementation of a developed plan to rectify the problem</li> </ul>			<b>LO 3. Determine corrective action</b> 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	<b>TLE ICTP.NET 11-12PRW-Id-12</b>
<ul style="list-style-type: none"> <li>Identifying and clarifying the nature of the problem</li> <li>Devising the best solution</li> <li>Evaluating the solution</li> <li>Implementation of a developed plan to rectify the problem</li> </ul>			<b>LO 4. Provide recommendations to manager.</b> 4.1 Prepare reports on recommendations 4.2 Present recommendations to appropriate personnel 4.3 Follow up recommendations, if required	<b>TLE ICTP.NET 11-12PRW-Id-13</b>
<b>LESSON 5: USE MATHEMATICAL CONCEPTS AND TECHNIQUES (MCT)</b>				
<ul style="list-style-type: none"> <li>Fundamental operation (addition, subtraction, division, multiplication)</li> <li>Measurement system</li> <li>Precision and accuracy</li> <li>Basic measuring tools/devices</li> </ul>	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	<b>LO 1. Identify mathematical tools and techniques to solve problems</b> 1.1 Identify problem areas based on the given condition 1.2 Select mathematical techniques based on the given problem	<b>TLE ICTP.NET 11-12MCT-Id-14</b>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• Measurement system</li> <li>• Precision and accuracy</li> <li>• Basic measuring tools/devices</li> <li>• Applying mathematical computations</li> <li>• Using calculator</li> <li>• Using different measuring tools</li> </ul>			<b>LO 2. Apply mathematical procedure/ solution.</b> 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	<b>TLE ICTP.NET 11-12MCT-Id-15</b>
<ul style="list-style-type: none"> <li>• Precision and accuracy</li> <li>• Applying mathematical computations</li> <li>• Using calculator</li> <li>• Using different measuring tools</li> </ul>			<b>LO 3. Analyze results.</b> 1.1 Identify problem areas based on given condition. 1.2 Apply appropriate action in case of error.	<b>TLE ICTP.NET 11-12MCT-Ie-16</b>
<b>LESSON 6: USE RELEVANT TECHNOLOGIES (URT)</b>				
<ul style="list-style-type: none"> <li>• Awareness of technology and its functions</li> <li>• Repair and maintenance procedure</li> <li>• Operating instructions</li> <li>• Applicable software</li> <li>• Communication techniques</li> <li>• Health and safety procedures</li> <li>• Company policy in relation to relevant technology</li> <li>• Different management concepts</li> <li>• Technology adaptability</li> </ul>	The learners demonstrate an understanding of the principles and concepts in applying mathematical concepts and techniques	The learners independently apply mathematical concepts and techniques based on TESDA Training Regulations	<b>LO 1. Study/Select appropriate technologies</b> 1.1 Determine usage of different technologies based on job requirements 1.2 Select appropriate technology as per work specification	<b>TLE ICTP.NET 11-12URT-Ie-17</b>
<ul style="list-style-type: none"> <li>• Repair and maintenance procedure</li> <li>• Operating instructions</li> <li>• Applicable software</li> <li>• Communication techniques</li> <li>• Health and safety procedures</li> <li>• Company policy in relation to relevant technology</li> </ul>			<b>LO 2. Apply relevant technologies.</b> 2.1 Use relevant technology effectively in carrying out functions 2.2 Use applicable software and hardware as per task requirement 2.3 Observe and practice management concepts as per established industry practices	<b>TLE ICTP.NET 11-12URT-Ie-18</b>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• Different management concepts</li> <li>• Technology adaptability</li> <li>• Relevant technology application/implementation</li> <li>• Basic communication skills</li> <li>• Software applications skills</li> </ul>				
<ul style="list-style-type: none"> <li>• Relevant technology application/implementation</li> <li>• Basic communication skills</li> <li>• Software applications skills</li> <li>• Basic troubleshooting skills</li> </ul>			<p><b>LO 3. Maintain/Enhance relevant technology</b></p> <p>3.1 Apply maintenance of technology in accordance with industry-standard operating procedure, manufacturer’s operating guidelines, and occupational health and safety procedure to ensure its operative ability</p> <p>3.2 Maintain technology update through continuing education or training in accordance with job requirement</p> <p>3.3 Report immediately technology failure/ defect to responsible person or section for appropriate action</p>	<p><b>TLE ICTP.NET 11-12URT-Ie-19</b></p>
<b>COMMON COMPETENCIES</b>				
<b>LESSON 7: APPLY QUALITY STANDARDS (AQS)</b>				
<ul style="list-style-type: none"> <li>• Relevant production processes, materials, and products</li> <li>• Characteristics of materials, software, and hardware used in production processes</li> <li>• Quality checking procedures</li> <li>• Workplace procedures</li> <li>• Safety and environmental aspects of production processes</li> <li>• Fault identification and reporting</li> <li>• Quality improvement processes</li> <li>• Reading skills required to interpret work instructions</li> </ul>	<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><b>LO 1. Assess quality of received materials</b></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><b>TLE ICTP.NET 11-12-AQS-If-20</b></p>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• Communication skills needed to interpret and apply defined work procedures</li> <li>• Carry out work in accordance with OHS policies and procedures</li> <li>• Critical thinking</li> </ul>				
<ul style="list-style-type: none"> <li>• Relevant production processes, materials, and products</li> <li>• Characteristics of materials, software, and hardware used in production processes</li> <li>• Quality checking procedures</li> <li>• Workplace procedures</li> <li>• Safety and environmental aspects of production processes</li> <li>• Fault identification and reporting</li> <li>• Quality improvement processes</li> <li>• Reading skills required to interpret work instructions</li> <li>• Communication skills needed to interpret and apply defined work procedures</li> <li>• Carry out work in accordance with OHS policies and procedures</li> <li>• Critical thinking</li> <li>• Solution providing and decision making</li> </ul>			<p><b>LO 2. Assess own work.</b></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 standards operating procedures</p>	<p><b>TLE ICTP.NET</b>  <b>11-12AQS-Ig-21</b></p>
<ul style="list-style-type: none"> <li>• Relevant production processes, materials, and products</li> <li>• Characteristics of materials, software, and hardware used in production processes</li> <li>• Quality checking procedures</li> <li>• Workplace procedures</li> <li>• Safety and environmental aspects of production processes</li> </ul>			<p><b>LO 3. Engage in quality improvement</b></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 of service to ensure customer satisfaction</p>	<p><b>TLE ICTP.NET</b>  <b>11-12AQS-Ih-22</b></p>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• Fault identification and reporting</li> <li>• Quality improvement processes</li> <li>• Reading skills required to interpret work instructions</li> <li>• Communication skills needed to interpret and apply defined work procedures</li> <li>• Carry out work in accordance with OHS policies and procedures</li> <li>• Critical thinking</li> <li>• Solution providing and decision making</li> </ul>				
<b>LESSON 8: PERFORM COMPUTER OPERATIONS (PCO)</b>				
<ul style="list-style-type: none"> <li>• Reading and comprehension skills required to interpret work instructions and to interpret basic user manuals</li> <li>• OH and S principles and responsibilities</li> <li>• Main types of computers and basic features of different operating systems</li> <li>• Main parts of a computer</li> <li>• Storage devices and basic categories of memory</li> <li>• Relevant types of software</li> <li>• General security, privacy legislation, and copyright</li> </ul>	The learner demonstrates an understanding of the principles and concepts in performing computer operations	The learners independently perform computer operations based on TESDA Training Regulations	<b>LO 1. Plan and prepare for the task at hand</b> 1.1 Determine task requirements in accordance with the required output 1.2 Select appropriate hardware and software according to task assigned and required outcome 1.3 Plan task to ensure that OH and S 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	<b>TLE ICTP.NET 11-12-PCO-Ii-23</b>
<ul style="list-style-type: none"> <li>• Relevant types of software</li> <li>• Communication skills to identify lines of communication, request advice, follow instructions, and receive feedback</li> <li>• Storage devices and basic categories of memory</li> <li>• Basic ergonomics of keyboard and computer user</li> </ul>			<b>LO 2. Input data into computer</b> 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	<b>TLE ICTP.NET 11-12-PCO-Ij-24</b>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• Relevant types of software</li> <li>• Business application</li> <li>• System software</li> <li>• Basic ergonomics of keyboard and computer user</li> </ul>			<p><b>LO 3. Access information using computer.</b></p> <p>3.1 Select correct program/application-based on job requirements</p> <p>3.2 Access program/application containing the information required according to company procedures</p> <p>3.3 Select, open, and close desktop icons correctly for navigation purposes</p> <p>3.4 Carry out keyboard techniques in line with OHS requirements for safe use of keyboards</p>	<p><b>TLE ICTP.NET</b>  <b>11-12-PCO-</b>  <b>IIa-25</b></p>
<ul style="list-style-type: none"> <li>• Relevant types of software</li> <li>• Computer peripherals</li> <li>• Storage devices and basic categories of memory</li> </ul>			<p><b>LO 4. Produce output/data using computer system</b></p> <p>4.1 Process entered data using appropriate software commands</p> <p>4.2 Print data as required using computer hardware/peripheral devices in accordance with standard operating procedures</p> <p>4.3 Transfer files and data between compatible systems using computer software and hardware/peripheral devices in accordance with standard operating procedures</p>	<p><b>TLE ICTP.NET</b>  <b>11-12-PCO-</b>  <b>IIb-c-26</b></p>
<ul style="list-style-type: none"> <li>• Web surfing</li> <li>• Web browsers</li> <li>• Search engines</li> <li>• URLs and keywords</li> <li>• Links</li> <li>• Bookmarking</li> </ul>			<p><b>LO 5. Use basic functions of a Web browser to locate information</b></p> <p>5.1 Establish information requirements for Internet search</p> <p>5.2 Launch browser</p> <p>5.3 Load search engine</p> <p>5.4 Enter appropriate search criteria and/or URL of site</p> <p>5.5 Follow relevant links to locate required information</p> <p>5.6 Bookmark and print useful pages as required</p>	<p><b>TLE ICTP.NET</b>  <b>11-12-PCO-</b>  <b>IIId-27</b></p>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• Security measures</li> <li>• Anti-virus software/programs</li> <li>• File management</li> </ul>			<p><b>LO 6. Maintain computer equipment</b></p> <p>6.1 Implement procedures for ensuring security of data, including regular back-ups and virus checks in accordance with standard operating procedures</p> <p>6.2 Implement basic file maintenance procedures in line with standard operating procedures</p>	<b>TLE ICTP.NET 11-12-PCO-IIe-28</b>
<b>CORE COMPETENCIES</b>				
<b>LESSON 9: PERFORM PROGRAMMING IN HTML5 WITH JAVASCRIPT AND CSS3 (PPHJC)</b>				
<ul style="list-style-type: none"> <li>• HTML, Java, and CSS3</li> <li>• Different business domain features</li> <li>• Functions and documentation of business processes</li> <li>• Production and documentation of interaction diagrams</li> <li>• Creation and configuration of HTML5 document</li> <li>• Cascading Style Sheet 3 (CSS3)</li> <li>• Designing HTML5 document using CSS3</li> </ul>	The learners demonstrate an understanding of the principles and concepts in performing programming in HTML5 with JavaScript and CSS3	The learners independently demonstrate the programming in HTML5 with JavaScript and CSS3	<p><b>LO 1. Develop basic HTML document using HTML5 and CSS 3 syntax</b></p> <p>1.1 Illustrate different business domain features</p> <p>1.2 Document business processes using agreed-on representation format</p> <p>1.3 Describe the interaction of the objects with the business logic in details</p> <p>1.4 Document interaction diagrams using agreed representation format</p> <p>1.5 Create and configure an HTML document according to user’s specification</p> <p>1.6 Design HTML5 document using Cascading Style Sheet 3 (CSS3)</p>	<b>TLE ICTP.NET 11-12PPHJC-IIIf-i-29</b>
<ul style="list-style-type: none"> <li>• Using jQuery to simplify code of common JavaScript APIs</li> <li>• Creating forms that use the new HTML5 input types</li> <li>• Validation of user input using the new HTML5 attributes</li> <li>• Writing JavaScript code for non-HTML5 attributes</li> <li>• Provision of feedback for HTML5 and non-HTML5 attributes</li> <li>• Styles of text elements</li> </ul>			<p><b>LO 2. Create HTML5 document using advanced techniques with JavaScript and CSS3</b></p> <p>2.1 Create static pages using new features available in HTML5</p> <p>2.2 Use CSS3 applying basic styling to the elements in an HTML5 page</p> <p>2.3 Explain the syntax and use of JavaScript with HTML5</p> <p>2.4 Write JavaScript code that manipulates the HTMLDOM and handle events</p>	<b>TLE ICTP.NET 11-12PPHJC-IIj-IIIa-d-30</b>



**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• Using CSS3 selectors</li> <li>• Implementation of CSS3 Graphical effects and transformations</li> <li>• Knowledge of UML or other model and function</li> <li>• Creating document structure</li> <li>• Writing code that interacts with UI controls</li> <li>• Applying style to HTML elements programmatically</li> </ul>			2.5 Describe the use of jQuery to simplify code that uses many common JavaScript APIs 2.6 Create forms that use the new HTML5 input types 2.7 Validate user input and provide feedback by using the new HTML5 attributes 2.8 Write JavaScript code to validate user input and provide cases where it is not suitable to use HTML5 attributes 2.9 Implement graphical effects and transformations by using the CSS3 properties 2.10 Apply style to block elements by using CSS3 2.11 Use CSS3 selectors to specify the elements to be styled in a Web application 2.12 Style text elements on an HTML5 page by using CSS3	
<ul style="list-style-type: none"> <li>• Using XML HTTP Request object</li> <li>• Simplifying codes using jQuery Ajax method</li> <li>• Benefits of structuring JavaScript code</li> <li>• Creating custom objects in JavaScript</li> <li>• Extending custom and native objects</li> <li>• Implementing HTML5 APIs</li> <li>• Establishing the scope of objects and variables</li> <li>• Creating and implementing objects and methods</li> <li>• Implementing program flow</li> <li>• Raising and handling an event</li> <li>• Implementing exception handling</li> <li>• Implementing callback</li> <li>• Serializing, deserializing, and transmitting data</li> </ul>			<b>LO 3. Communicate with Remote Data Source and create objects and methods using JavaScript</b> 3.1 Serialize, deserialize, send, and receive data by using XMLHttpRequest object 3.2 Simplify code that serializes, deserializes, sends, and receives data by using the jQuery Ajax method 3.3 Describe the benefits of structuring JavaScript code carefully to aid maintainability and extensibility 3.4 Explain best practices for creating custom objects in JavaScript 3.5 Describe how to extend custom and native objects to add functionality	<b>TLE ICTP.NET            11-12PPHJC-            IIIId-h-31</b>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• Using Drag-and-Drop-and-File APIs</li> <li>• Incorporating audio and video into a Web application</li> <li>• Using the Geolocation API</li> <li>• Debugging and profiling a Web application</li> <li>• Detecting device capabilities</li> <li>• Creating a Web page that can dynamically adapt its layout</li> <li>• Saving and retrieving data using the Local Storage API</li> <li>• Using the Application Cache API</li> <li>• Providing offline support for a Web application</li> <li>• Different form factors in a Web application</li> <li>• Detecting device capabilities</li> <li>• Creating a Web page that can dynamically adapt its layout</li> </ul>			<p><b>LO 4. Create interactive user interface and add offline support for Web applications</b></p> <p>4.1 Use Drag-and-Drop-and-File APIs to interact with files in a Web application.</p> <p>4.2 Incorporate audio and video into a Web application.</p> <p>4.3 Detect location of the user running a Web application by using the Geolocation API.</p> <p>4.4 Explain how to debug and profile a Web application by using the Web Timing API.</p> <p>4.5 Describe the need to detect device capabilities and react to different form factors in a Web application.</p> <p>4.6 Create a Web page that can dynamically adapt its layout to match different form factors</p> <p>4.7 Save data and retrieve locally on the user's computer by using the Local Storage API</p> <p>4.8 Provide offline support for a Web application by using the Application Cache API</p>	<p><b>TLE ICTP.NET 11-12PPHJC-IIIh-j-IVa-d-32</b></p>
<ul style="list-style-type: none"> <li>• Scalable Vector Graphics and its uses</li> <li>• Drawing Complex graphics on HTML5 Canvas element</li> <li>• Writing and Using JavaScript code.</li> <li>• Application of CSS transitions</li> <li>• Different types of 2D and 3D transitions</li> <li>• Using CSS key-frames</li> <li>• Implementation of Complex animations</li> <li>• Styling HTML text properties</li> <li>• Styling HTML box properties</li> <li>• Creating a flexible content layout</li> </ul>			<p><b>LO 5. Use CSS3 to create scalable graphics and animated user interface</b></p> <p>5.1 Use Scalable Vector Graphics to add interactive graphics to an application.</p> <p>5.2 Draw complex graphics on an HTML5 Canvas element by using JavaScript code.</p> <p>5.3 Apply CSS transitions to elements on an HTML5 page, and write JavaScript code to detect when a transition has occurred</p> <p>5.4 Describe different types of 2D and 3D transitions available with CSS3</p> <p>5.5 Implement complex animations by using CSS key-frames and JavaScript code</p>	<p><b>TLE ICTP.NET 11-12PPHJC-IVd-h-33</b></p>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• Creating an animated and adaptive UI</li> <li>• Finding elements by using CSS selectors and jQuery</li> <li>• Structuring CSS file by using CSS selectors</li> <li>• Domain modeling / Object-Oriented breakdown and encapsulation</li> <li>• Function breakdown and encapsulation</li> <li>• Interaction diagram modeling.</li> <li>• Detailed / step-by-step process modeling</li> <li>• Writing Website with HTML5, CSS3, and JavaScript</li> </ul>				
<ul style="list-style-type: none"> <li>• How Web Sockets Work</li> <li>• How to send and receive data through a Web socket</li> <li>• Connecting Web Socket API to a Web Socket server</li> <li>• The purpose of a Web Worker process and its uses</li> <li>• Asynchronous processing</li> <li>• Using Web Worker APIs to create, run, and monitor the process</li> <li>• Usage of IDE</li> <li>• Debugging, Testing, Tracing and SQL</li> <li>• Manipulating XML and JSON</li> <li>• Creating an installation package</li> <li>• Deploying and configuring installation package</li> </ul>			<p><b>LO 6. Implement real-time communications by using Web Sockets and Web Worker process</b></p> <p>6.1 Explain how Web Sockets work and describe how to send and receive data through a Web Socket</p> <p>6.2 Use Web Socket API with JavaScript to connect to a Web Socket server, send and receive data, and handle the different events that can occur when a message is sent or received</p> <p>6.3 Describe the purpose of a Web Worker process and how it can be used to perform asynchronous processing as well as provide isolation for sensitive operations</p> <p>6.4 Use Web Worker APIs from JavaScript code to create, run, and monitor a Web Worker process</p> <p>6.5 Follow Occupational health and safety standards in the workplace and 5S disciplines strictly as per enterprise policies and procedures</p>	<p><b>TLE ICTP.NET</b>  <b>11-12PPHJC-</b>  <b>IVi-j-Ia-c-34</b></p>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<b>LESSON 10: DEVELOP ASP.NET MVC 5 WEB APPLICATIONS (DAMWA)</b>				
<ul style="list-style-type: none"> <li>• Preparing the feature list in line with client requirements</li> <li>• Gathering client information and requirements</li> <li>• Using Effective Excel Survey form</li> <li>• Release plan on dependencies and business values</li> <li>• Visual presentation and supporting documents</li> <li>• Completion of the feature list and establishing design approach</li> <li>• Estimation of time per task based on degree of complexity and size</li> <li>• Using OneNote and Team Sites</li> <li>• Using Lync Online</li> <li>• Analysis of development resources</li> <li>• Formulation and documentation of the Used test-case scenarios</li> <li>• Plotting the test case using Excel Worksheets</li> <li>• Documentation of business process</li> <li>• Understand the value of an end-to-end view of Application Lifecycle Management (ALM) tools and practices</li> </ul>	<p>The learners demonstrate an understanding of principles and concepts in developing ASP.NET MVC 5 Web applications</p>	<p>The learners independently develop ASP.NET MVC 5 Web applications</p>	<p><b>LO 1. Employ basic project management tasks</b></p> <ol style="list-style-type: none"> <li>1.1 Prepare feature list in line with client requirements</li> <li>1.2 Use effective Excel Survey form to gather client information and requirements</li> <li>1.3 Prepare release plan and agree with clients based on dependencies and business values</li> <li>1.4 Present visual presentation and supporting documents during the client meeting</li> <li>1.5 Identify required tasks to complete the feature based on feature list and established design approach</li> <li>1.6 Assign time estimates per task based on degree of complexity and size</li> <li>1.7 Perform analysis of development resources.</li> <li>1.8 Itemize Tasks and To-do list using OneNote and Team Sites</li> <li>1.9 Use Lync Online effectively for online internal meetings throughout the project development</li> <li>1.10 Formulate used test-case scenarios and document using specified format and in line with client requirements</li> <li>1.11 Plot test cases in Excel Worksheets</li> <li>1.12 Document business process using agreed-on representation format</li> </ol>	<p><b>TLE_ICTP.NET 11-12DAMWA-Ic-h-35</b></p>
<ul style="list-style-type: none"> <li>• The architecture of .NET Framework applications</li> <li>• Introduction to Web Forms Architecture</li> <li>• Using Visual Studio 2013 version or higher</li> </ul>			<p><b>LO 2. Perform Object-Oriented Programming with C#</b></p> <ol style="list-style-type: none"> <li>2.1 Describe the architecture of .NET Framework applications and use the features that Visual Studio 2013 or higher and programming language provided to</li> </ol>	<p><b>TLE_ICTP.NET 11-12DAMWA-Ih-j-IIa-c-36</b></p>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• Using the basic data types, operators, and expressions</li> <li>• Construction of standard programming language</li> <li>• Using Create and invoke methods, pass parameters to methods, and return values from method</li> <li>• Creating Overloaded methods and using optional &amp; output parameters</li> <li>• Handling Exceptions and writing information to the event log</li> <li>• Building large-scale applications</li> <li>• Requirements for implementing logging, tracing, and profiling</li> <li>• Principles of object-oriented programming</li> <li>• Defining, creating Custom classes and implementing Custom interfaces</li> <li>• Using generics to implement type-safe collections</li> <li>• Creating a class hierarchy</li> <li>• Defining and using Abstract classes and inherit</li> <li>• Using inherit from .NET Framework classes and extension methods</li> <li>• Adding custom functionality to the inherited class</li> </ul>			<p>support .NET Framework development</p> <p>2.2 Use the basic data types, operators, and expressions</p> <p>2.3 Use the constructed standard programming language</p> <p>2.4 Use the created and invoked methods, passed parameters to methods, and returned values from methods</p> <p>2.5 Create overloaded methods and use optional &amp; output parameters</p> <p>2.6 Catch and handle exceptions and write information to the event log</p> <p>2.7 Explain the requirement for implementing logging, tracing, and profiling when building large-scale applications</p> <p>2.8 Describe principles of object-oriented programming</p> <p>2.9 Create and use custom classes</p> <p>2.10 Define and implement custom interfaces</p> <p>2.11 Use generics to implement type-safe collections</p> <p>2.12 Define and inherit abstract classes from base classes to create a class hierarchy.</p> <p>2.13 Use inherit from .NET Framework classes and extension methods to add custom functionality to the inherited class</p> <p>2.14 Create generic classes and methods</p>	
<ul style="list-style-type: none"> <li>• Introduction to ASP.NET</li> <li>• Knowing the difference between ASP and ASP.NET</li> <li>• Web Forms</li> <li>• Web Services</li> <li>• Enumerating ASP.NET features</li> </ul>			<p><b>LO 3. Develop ASP.NET Web Applications using Model View Controller architectural pattern.</b></p> <p>3.1 Learning basics of building an ASP.NET MVC 5 Web app using Visual Studio 2013 or higher</p> <p>3.2 Describe the Microsoft Web Technologies</p>	<p><b>TLE ICTP.NET 11-12DAMWA-IIc-g-37</b></p>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• The Microsoft Web Technologies stack</li> <li>• Selection of appropriate technology to develop any given application</li> <li>• The architecture of a Web application</li> <li>• Page Class</li> <li>• Web Forms Life Cycle</li> <li>• Web Forms Event Model</li> <li>• Designing address business models</li> <li>• User interface requirements and functional requirements</li> <li>• Creating the MVC Models</li> <li>• Razor</li> <li>• Writing Code that implements business logic within Model method</li> <li>• Managing user interaction</li> <li>• Adding controllers to an MVC Application</li> <li>• Editing data and updating models</li> <li>• Create interaction with Models and Controllers</li> <li>• Design and implement MVC controllers and actions</li> <li>• Design and implement routes</li> <li>• Control application behavior by using MVC controllers and actions</li> <li>• Design and implement routes</li> <li>• Control application behavior by using MVC extensibility points</li> </ul>			<p>stack</p> <p>3.3 Select and use appropriate technology to develop any given application</p> <p>3.4 Design architecture of Web application to meet a set of functional requirements, user interface requirements, and address business models</p> <p>3.5 Design the implementation of a Web application that will meet a set of functional requirements, user interface requirements, and address business models</p> <p>3.6 Create MVC Models</p> <p>3.7 Write code that implements business logic within Model methods, properties, and events.</p> <p>3.8 Add controllers to an MVC Application to manage user interaction</p> <p>3.9 Update models</p> <p>3.10 Select and return Views</p> <p>3.11 Use Razor syntax to create Views in an MVC application that display</p> <p>3.12 Edit data</p> <p>3.13 Interact with Models and Controllers</p>	
<ul style="list-style-type: none"> <li>• Using Visual Studio</li> <li>• Testing and debugging</li> <li>• Run tools on testing and debugging</li> </ul>			<p><b>LO 4. Test and debug ASP.NET MVC Web Applications.</b></p> <p>4.1 Run unit tests and debugging tools against a Web application in Visual Studio</p>	<p><b>TLE ICTP.NET 11-12DAMWA-IIh-j-IIIa-38</b></p>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• Application Tracing</li> <li>• Page Tracing</li> <li>• Configuring the application for troubleshooting</li> </ul>			4.2 Configure an application for troubleshooting	
<ul style="list-style-type: none"> <li>• Using the ASP.NET routing engine</li> <li>• Developing the friendly URLs</li> <li>• Using Template Views</li> <li>• Application of a consistent look and feel</li> <li>• Adapting Web pages for different browsers</li> </ul>			<b>LO 5. Create custom URLs and apply style to ASP.NET MVC Web applications.</b> 5.1 Develop a Web application that uses the ASP.NET routing engine to present friendly URLs 5.2 Develop a Web application that uses the ASP.NET routing engine to a logical navigation hierarchy to users 5.3 Use Template Views 5.4 Apply a consistent look and feel to an MVC Application 5.5 Adapt Web pages for different browsers	<b>TLE ICTP.NET 11-12DAMWA-IIIb-f-39</b>
<ul style="list-style-type: none"> <li>• Using partial page updates and caching to reduce the network bandwidth</li> <li>• Perform acceleration responses to user requests</li> <li>• Writing JavaScript code that runs on the client side</li> <li>• Utilizes the jQuery script library</li> <li>• Optimizing the responsiveness of an MVC Web application</li> <li>• Implementing authentication in an MVC Web application</li> <li>• Implementing authorization in an MVC Web application</li> <li>• Using Role Provider</li> <li>• Building a secure MVC application that resists malicious attacks</li> <li>• Building an MVC application that persist information about users and preferences</li> </ul>			<b>LO 6. Create responsive Web pages and implementing security</b> 6.1 Use partial page updates and caching to reduce the network bandwidth used by an application. 6.2 Perform accelerate responses to user requests 6.3 Write JavaScript code that runs on the client side 6.4 Utilize jQuery script library to optimize the responsiveness of an MVC Web application 6.5 Implement authentication in an MVC Web application using Membership Provider. 6.6 Implement authorization in an MVC Web application using Role Provider 6.7 Build a secure MVC application that resists malicious attacks 6.8 Build an MVC application that persist information about users and preferences	<b>TLE ICTP.NET 11-12DAMWA-III f-j-40</b>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> <li>• The Web API and its advantage</li> <li>• Building a RESTful Web API</li> <li>• Modifying the Web browser</li> <li>• Using HTTP modules and HTTP handlers</li> <li>• How MVC application modifies and handles browser requests</li> <li>• Intercepting the browser request using Web socket</li> <li>• Writing codes for Windows Azure Web service</li> <li>• Writing codes to call the Web service</li> <li>• Packaging an ASP.NET MVC 4 Web application to a Web server for staging or production</li> <li>• Deploying an ASP.NET MVC 4 Web application to a Web server for staging or production</li> </ul>			<p><b>LO 7. Create RESTful API, modify URLs, and deploy ASP.NET MVC applications</b></p> <p>7.1 Describe a Web API</p> <p>7.2 Identify and explain why developers might add a Web API to an application</p> <p>7.3 Build RESTful Web API and consume from other applications</p> <p>7.4 Modify the way browser requests by an MVC application using HTTP modules and HTTP handlers</p> <p>7.5 Intercept request from browser using Web sockets</p> <p>7.6 Write Windows Azure Web service</p> <p>7.7 Write code to call the Web service from and MVC application</p> <p>7.8 Pack an ASP.NET MVC 5 Web application from a development computer to a Web server for staging or production</p> <p>7.9 Deploy an ASP.NET MVC 5 Web application from a development computer to a Web server for staging or production</p>	<p><b>TLE_ICTP.NET</b>  <b>11-12DAMWA-</b>  <b>IVa-e-41</b></p>



**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

RESOURCES			Methodologies	Assessment Method
TOOLS	EQUIPMENT	MATERIALS		
<p><b>Computer Software:</b></p> <ul style="list-style-type: none"> <li>• e.g., Visual Studio Express 2012 or higher</li> <li>• Internet access</li> <li>• MVC5 or higher</li> <li>• Application servers</li> <li>• Postman</li> </ul> <p>e.g.</p> <ul style="list-style-type: none"> <li>- SQL Server Express 2012 or higher</li> <li>- IIS Express</li> </ul>	<ul style="list-style-type: none"> <li>• Network Computer (on Windows 8 or higher) with peripherals</li> <li>• Network printer</li> <li>• White board</li> <li>• LCD projector and screen</li> <li>• Ergonomic chairs and tables</li> </ul>	<ul style="list-style-type: none"> <li>• 1 free account <a href="http://www.microsoftvirtualacademy.com">www.microsoftvirtualacademy.com</a></li> <li>• Practical Materials</li> <li>• Handouts</li> <li>• Reference Books</li> <li>• Learning Materials/Guide</li> </ul> <p><b>Learning Materials:</b></p> <ul style="list-style-type: none"> <li>• Occupational Health and Safety Handbook</li> <li>• Books</li> <li>• Multimedia Devices</li> <li>• Pictures</li> <li>• Magazines</li> <li>• Manuals</li> <li>• Handouts</li> <li>• Brochures</li> <li>• <a href="http://www.asp.net/mvc/overview/getting-started">http://www.asp.net/mvc/overview/getting-started</a>)</li> <li>• <a href="http://objectdiscovery.com/training/course/programming/microsoft/csharp/asp/outline.html">http://objectdiscovery.com/training/course/programming/microsoft/csharp/asp/outline.html</a></li> </ul>	<ul style="list-style-type: none"> <li>• Lecture/ discussion</li> <li>• Hands-on</li> <li>• Exercises</li> <li>• Demonstration</li> <li>• Multimedia Presentation</li> <li>• Online</li> </ul>	<ul style="list-style-type: none"> <li>• Written exam</li> <li>• Practical exam</li> <li>• Observation in workplace</li> <li>• Interviews/ questioning</li> </ul>

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

**GLOSSARY**

1. ADO.NET - a set of computer software components that programmers can use to access data and data services. It is part of the base class library that is included with the Microsoft .NET Framework. Commonly used by programmers to access and modify data stored in relational database systems, it can also access data in nonrelational 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.
2. ASP.NET - a Web application framework developed and marketed by Microsoft to allow programmers to build dynamic Web sites, 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.
3. 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.
4. 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.
5. Browser - a software package that provides the user interface for accessing Internet, intranet, and extranet Web sites.
6. 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.
7. 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.
8. 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.
9. Computer program - also a software program, or just a program; 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 (i.e., compiled), enables a programmer to study and develop its algorithms.
10. 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.
11. Computer Terminal - any input/output device connected by telecommunications links to a computer.
12. 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 and 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.
13. 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.
14. Data - objective measurements of the attributes (characteristics) of entities such as people, places, things, and events.

## K to 12 BASIC EDUCATION CURRICULUM

### JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK INFORMATION AND COMMUNICATIONS TECHNOLOGY—PROGRAMMING (.NET TECHNOLOGY) NC III

(320 hours)

15. 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.
16. 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)
17. Documentation
  - a collection of documents or information.
18. Edit
  - to modify the form or format of data
19. End-user
  - anyone who uses an information system or the information it produces.
20. 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.
21. HTML
  - stands for HyperText Markup Language; it is 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.
22. Information
  - data placed in a meaningful and useful context for an end user.
23. 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 of those forms through the use of digital technology. It encompasses such services as telecommunications, posts, multimedia, electronic commerce, broadcasting, and information technology.
24. 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.
25. 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
26. Java applications
  - are typically compiled to bytecode (class file) that can run on any Java Virtual Machine (JVM) regardless of computer architecture.
27. 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 work sites.
28. Microsoft .NET Framework
  - a software framework that can be installed on computers running Microsoft Windows operating 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.
29. Microsoft SQL Server
  - a relational model database server produced by Microsoft. Its primary query languages are T-SQL and ANSI SQL.
30. Object code
  - or an object file—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.

## K to 12 BASIC EDUCATION CURRICULUM

### JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III

(320 hours)

31. 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.
32. Oracle Reports - is 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).
33. Outsourcing - turning over all or part of an organization’s information systems operation to outside contractors, known as systems integrators or facilities management companies.
34. 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.
35. Program Evaluation and Review Technique (PERT) - a statistical tool used in project management that is designed to analyze and represent the tasks involved in completing a given project.
36. Quality Assurance - methods for ensuring that information systems are free from errors and fraud and provide information products of high quality.
37. 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.
38. 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.”
39. Software - computer programs and procedures concerned with the operation of an information system.
40. 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.
41. 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.
42. Standards - measures of performance developed to evaluate the progress of a system toward its objectives.
43. System - an assembly of methods, procedures, or techniques unified by regulated interaction to form an organized whole.
44. User- friendly - a characteristic of human-operated equipment and systems that makes them safe, comfortable, and easy to use.
45. 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.
46. VB.NET - a redesigned, object-oriented dialect of Visual Basic.
47. 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.

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

- 48. 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.
- 49. 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.
- 50. Work Breakdown Structure (WBS)
  - a deliverable oriented decomposition of a project into smaller components.

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

**CODE BOOK LEGEND**

Sample: **TLE ICTP.NET11-12LWC-Ia-1**

LEGEND		SAMPLE		DOMAIN / COMPONENT	CODE
First Entry	Learning Area and Strand/ Subject or Specialization	Technology and Livelihood Education	<b>TLE_</b>	<b>Basic Competencies</b>	
		Information and Communications Technology	<b>ICT</b>	Lead Workplace Communication	LWC
		Programming (.NET Technology) NC III	<b>P.NET</b>	Lead Small Teams	LST
		Grade Level	<b>11-12</b>	Develop and Practice Negotiation Skills	DPN
Uppercase Letter/s	Domain/ Content/ Component/ Topic	Lead Workplace Communication	<b>LWC</b>	Solve Problem Related to Work Activities	PRW
				Use Mathematical Concepts and Techniques	MCT
				Use Relevant Technologies	URT
				<b>Common Competencies</b>	
				Apply Quality Standards	AQS
				Perform Computer Operations (PCO)	PCO
				<b>Core Competencies</b>	
Roman Numeral *Zero if no specific Quarter	Quarter	First Quarter	<b>I</b>	Perform Programming in HTML with Javascript and CSS3	PPHJC
Lower case letter/s *put a hyphen (-) in between letters to indicate more than a specific week	Week	Week one	<b>a</b>	Develop ASP.Net MVC 5 Web Applications	DAMWA
Arabic Number	Competency	Communicate information about workplace processes	<b>1</b>		

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 TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

**Notes:**

1. What is it that we would like the students to learn—the technical aspect of (Programming) .Net or how to integrate it with business? It is good that we are integrating both ends (technology and business), but wouldn't it be better if we were to focus on one? (the course itself is programming).
2. The scope of .Net technology itself is big; specifically, ASP.Net comprises different technologies (useful guide: <http://www.asp.net/mvc/overview/getting-started>)
  - a. HTML5, CSS3, and JavaScript
  - b. Object Oriented Programming Language – C#
  - c. MVC Framework
    - i. Razor
    - ii. Webforms
  - d. Entity Framework
    - i. Code First
    - ii. Database First
  - e. RDBMS – MSSQL Server
    - i. Stored Procedures
  - f. Web Developer Tools
    - i. Visual Studio
    - ii. Postman
    - iii. SQL Server Management Studio
  - g. Deployment
    - i. IIS
    - ii. Azure
  - h. Design Patterns
  - i. Security
    - i. Simple Membership
    - ii. OAuth
  - j. Testing and Debugging
  - k. Creating Web APIs
  - l. Routing
3. We can still teach the students the knowledge on how to integrate technology with business while focusing on the programming.

**K to 12 BASIC EDUCATION CURRICULUM**  
**JUNIOR HIGH SCHOOL TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
 (320 hours)

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

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

\* 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 TECHNICAL LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK**  
**INFORMATION AND COMMUNICATIONS TECHNOLOGY–PROGRAMMING (.NET TECHNOLOGY) NC III**  
(320 hours)

**Reference:**

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