TRAINING REGULATIONS

2D ANIMATION NC III

INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) SECTOR

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Superhighway, Taguig City, Metro Manila

**Technical Education and Skills Development Act of 1994
(Republic Act No. 7796**)

Section 22, "Establishment and Administration of the National Trade Skills Standards" of the RA 7796 known as the TESDA Act mandates TESDA to establish national occupational skills standards. The Authority shall develop and implement a certification and accreditation program in which private industry group and trade associations are accredited to conduct approved trade tests, and the local government units to promote such trade testing activities in their respective areas in accordance with the guidelines to be set by the Authority.

The Training Regulations (TR) serve as basis for the:

1   Competency assessment and certification;
2   Registration and delivery of training programs; and
3   Development of curriculum and assessment instruments.

Each TR has four sections:

Section 1   **Definition of Qualification** – describes the qualification and defines the competencies that comprise the qualification.

Section 2   The **Competency Standards** format was revised to include the Required Knowledge and Required Skills per element. These fields explicitly state the required knowledge and skills for competent performance of a unit of competency in an informed and effective manner. These also emphasize the application of knowledge and skills to situations where understanding is converted into a workplace outcome.

Section 3   **Training Arrangements** - contain information and requirements which serve as bases for training providers in designing and delivering competency-based curriculum for the qualification. The revisions to section 3 entail identifying the Learning Activities leading to achievement of the identified Learning Outcome per unit of competency.

Section 4   **Assessment and Certification Arrangements** - describe the policies governing assessment and certification procedures for the qualification.

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TRAINING REGULATIONS FOR 2D ANIMATION NC III

Section 1.   2D ANIMATION NC III QUALIFICATIONS

The **2D ANIMATION NC III** Qualification consists of competencies that a person must achieve to produce key poses/drawings for animation both in the traditional & digital output that can be used for TV series or film, commercials, audiovisual presentations, motion graphics & animated e-learning materials.

This Qualification is packaged from the competency map of the Information and Communication Technology (ICT) Industry as shown in Annex A.

The units of competency comprising this qualification include the following:

UNIT CODE	BASIC COMPETENCIES
500311109	Lead workplace communication
500311110	Lead small teams
500311111	Develop and practice negotiation skills
500311112	Solve problems related to work activities
500311113	Use mathematical concepts and techniques
500311114	Use relevant technologies
500311142	Apply critical thinking and problem solving techniques in the workplace
500311144	Use information creatively and critically
500311145	Work in a diverse environment

Code	COMMON COMPETENCIES
ICT315202	Apply quality standards
ICT311203	Perform Computer Operations

Code	CORE COMPETENCIES
ICT216305	Produce Traditional key poses/drawings for animation
ICT216319	Create tradigital animation
ICT216306	Create 2D digital cut-out animation
ICT216307	Export animation to video file format

A person who has achieved this Qualification is competent to be:

- Traditional animator
- Clean-Up checker
- In-between checker
- Animation checker
- Digital library builder
- 2D digital animator

- Motion graphics animator
- Web animator
- Commercial animator
- AVP animator
- Animated e-learning animator

SECTION 2. COMPETENCY STANDARDS

This section gives the details of the contents of the basic, common and core units of competency required in **2D ANIMATION NC III.**

BASIC COMPETENCIES

UNIT OF COMPETENCY : LEAD WORKPLACE COMMUNICATION

UNIT CODE   : 500311109

UNIT DESCRIPTOR   : This unit covers the knowledge, skills and attitudes required to lead in the dissemination and discussion of ideas, information and issues in the workplace.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Communicate information about workplace processes	1.1 Appropriate *communication method* is selected 1.2 Multiple operations involving several topics areas are communicated accordingly 1.3 Questions are used to gain extra information 1.4 Correct sources of information are identified 1.5 Information is selected and organized correctly 1.6 Verbal and written reporting is undertaken when required 1.7 Communication skills are maintained in all situations	1.1. Organization requirements for written and electronic communication methods 1.2. Effective verbal communication methods 1.3. Methods of Communication 1.4. Types of Question 1.5. Communication Tools 1.6. Questioning Techniques	1.1. Organizing information 1.2. Understanding and conveying intended meaning 1.3. Participating in variety of workplace discussions 1.4. Complying with organization requirements for the use of written and electronic communication methods 1.5. Reporting occupational hazards during safety meeting
2. Lead workplace discussions	2.1 Response to workplace issues are sought 2.2 Response to workplace issues are provided immediately 2.3 Constructive contributions are made to workplace discussions on such issues as production, quality and safety 2.4 Goals/objectives and Action plan undertaken in the workplace are communicated	2.1. Leading as a management function 2.2. Barriers of communication 2.3. Effective verbal communication methods 2.4. Method/techniques of discussion 2.5. How to lead discussion 2.6. How to solicit response 2.7. Goal setting and action planning	2.1. Communicating effectively 2.2. Consulting the crew on the prepared menu for the month

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Identify and communicate issues arising in the workplace	3.1 Issues and problems are identified as they arise 3.2 Information regarding problems and issues are organized coherently to ensure clear and effective communication 3.3 Dialogue is initiated with appropriate personnel 3.4 Communication problems and issues are raised as they arise	3.1. Types of issues and problems in the workplace 3.2. Written and electronic communication methods 3.3. Communication barriers affecting workplace discussions	3.1. Identifying cause of problems 3.2. Identifying problems and issues 3.3. Organizing information on problems and issues 3.4. Relating problems and issues in the workplace

RANGE OF VARIABLES

VARIABLE	RANGE
1. Methods of communication	1.1. Non-verbal gestures 1.2. Verbal 1.3. Face to face 1.4. Two-way radio 1.5. Speaking to groups 1.6. Using telephone 1.7. Written 1.8. Internet

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1. Dealt with a range of communication/information at one time 1.2. Made constructive contributions in workplace issues 1.3. Sought workplace issues effectively 1.4. Responded to workplace issues promptly 1.5. Presented information clearly and effectively written form 1.6. Used appropriate sources of information 1.7. Asked appropriate questions 1.8. Provided accurate information
2. Resource Implications	The following resources **MUST** be provided: 2.1. Variety of Information 2.2. Communication tools 2.3. Simulated workplace
3. Methods of Assessment	Competency in this unit must be assessed through 3.1. Written Examination 3.2. Oral Questioning 3.3. Portfolio
4. Context for Assessment	4.1. Competency may be assessed in the workplace or in simulated workplace environment

UNIT OF COMPETENCY : **LEAD SMALL TEAMS (Guide and Lead Others/Be Responsible to Others)**

UNIT CODE : **500311110**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes to lead small teams including setting and maintaining team and individual performance standards.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Provide team leadership	1.1. **Work requirements** are identified and presented to team members 1.2. Reasons for instructions and requirements are communicated to team members 1.3. **Team members' queries and concerns** are recognized, discussed and dealt with	1.1. Company policies and procedures 1.2. How performance expectations are set 1.3. Methods of Monitoring Performance 1.4. Client expectations 1.5. Team member's duties and responsibilities 1.6. Definition of Team 1.7. Skills and techniques in promoting team building 1.8. Up-to-date dissemination of instructions and requirements to members 1.9. Art of listening and treating individual team members concern	1.1. Communication skills required for leading teams 1.2. Team building skills 1.3. Negotiating skills 1.4. Evaluation skills
2. Assign responsibilities	2.1 Duties and responsibilities are allocated having regard to the skills, knowledge and aptitude required to properly undertake the assigned task and according to company policy 2.2 Duties are allocated having regard to individual preference, domestic and personal considerations, whenever possible	2.1. Concept of delegation 2.2. How to delegate 2.3. Understanding individual differences 2.4. Methods of monitoring performance 2.5. Duties and responsibilities of each team member 2.6. Knowledge in identifying each team member duties and responsibilities	2.1. Delegating skills 2.2. Identifying individual skills, knowledge and attitude as basis for allocating responsibilities 2.3. Identifying each team member duties and responsibilities
3. Set performance expectations for team members	3.1 Performance expectations are established based on client needs and	3.1 Definition of performance indicators/ criteria	3.1 Identifying performance indicators 3.2 Evaluating performance

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	according to assignment requirements 3.2 Performance expectations are based on individual team member's duties and area of responsibility 3.3 Performance expectations are discussed and disseminated to individual team members	3.2 Definition of team goals and expectations 3.3 Methods of monitoring performance 3.4 Client expectations 3.5 Team member's duties and responsibilities 3.6 Defining performance expectations criteria	3.3 Setting individual performance target/ expectation indicators
4. Supervised team performance	4.1 ***Monitoring of performance*** takes place against defined performance criteria and/or assignment instructions and corrective action taken if required 4.2 Team members are provided with ***feedback***, positive support and advice on strategies to overcome any deficiencies 4.3 ***Performance issues*** which cannot be rectified or addressed within the team are referenced to appropriate personnel according to employer policy 4.4 Team members are kept informed of any changes in the priority allocated to assignments or tasks which might impact on client/customer needs and satisfaction 4.5 Team operations are monitored to ensure that employer/client needs and requirements are met 4.6 Follow-up communication is provided on all issues affecting the team 4.7 All relevant documentation is completed in accordance with company procedures	4.1 Understanding monitoring of work 4.2 How to undertake corrective action 4.3 Understanding feedback and procedure 4.4 Feedback reporting procedure 4.5 Methods of monitoring performance 4.6 Team member's duties and responsibilities 4.7 Monitoring team operation to ensure client needs and satisfaction	4.1 Monitoring skills 4.2 Setting priorities 4.3 Evaluating performance 4.4 Informal/ formal counseling skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Work requirements	1.1. Client Profile 1.2. Assignment instructions
2. Team member's concerns	2.1. Roster/shift details
3. Monitor performance	3.1. Formal process 3.2. Informal process
4. Feedback	4.1. Formal process 4.2. Informal process
5. Performance issues	5.1. Work output 5.2. Work quality 5.3. Team participation 5.4. Compliance with workplace protocols 5.5. Safety 5.6. Customer service

EVIDENCE GUIDE

1.	Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1. Maintained or improved individuals and/or team performance given a variety of possible scenario 1.2. Assessed and monitored team and individual performance against set criteria 1.3. Represented concerns of a team and individual to next level of management or appropriate specialist and to negotiate on their behalf 1.4. Allocated duties and responsibilities, having regard to individual's knowledge, skills and aptitude and the needs of the tasks to be performed 1.5. Set and communicated performance expectations for a range of tasks and duties within the team and provided feedback to team members
2.	Resource Implications	The following resources **MUST** be provided: 2.1. Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2. Materials relevant to the proposed activity or task
3.	Methods of Assessment	Competency in this unit may be assessed through: 3.1. Written Examination 3.2. Oral Questioning 3.3. Portfolio
4.	Context for Assessment	4.1. Competency assessment may occur in workplace or any appropriately simulated environment 4.2. Assessment shall be observed while task are being undertaken whether individually or in-group

UNIT OF COMPETENCY : DEVELOP AND PRACTICE NEGOTIATION SKILLS

UNIT CODE : 500311111

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes required to collect information in order to negotiate to a desired outcome and participate in the negotiation.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Plan negotiations	1.1 Information on *preparing for negotiation* is identified and included in the plan 1.2 Information on creating *non-verbal environments* for positive negotiating is identified and included in the plan 1.3 Information on *active listening* is identified and included in the plan 1.4 Information on different *questioning techniques* is identified and included in the plan 1.5 Information is checked to ensure it is correct and up-to- date	1.1. Knowledge on Codes of practice and guidelines for the organization 1.2. Knowledge of organizations policy and procedures for negotiations 1.3. Decision making and conflict resolution strategies procedures 1.4. Concept of negotiation	1.1. Communication skills (verbal and listening) 1.2. Active listening 1.3. Setting conflict 1.4. Preparing conflict resolution 1.5. Problem solving strategies on how to deal with unexpected questions and attitudes during negotiation 1.6. Interpersonal skills to develop rapport with other parties
2. Participate in negotiations	2.1 Criteria for successful outcome are agreed upon by all parties 2.2 Desired outcome of all parties are considered 2.3 Appropriate language is used throughout the negotiation 2.4 A variety of questioning techniques are used 2.5 The issues and processes are documented and agreed upon by all parties 2.6 Possible solutions are discussed and their viability assessed 2.7 Areas for agreement are confirmed and recorded 2.8 Follow-up action is agreed upon by all parties	2.1. Outcome of negotiation 2.2. Knowledge on Language 2.3. Different Questioning techniques 2.4. Problem solving strategies on how to deal with unexpected questions and attitudes during negotiation 2.5. Flexibility 2.6. Empathy 2.7. Decision making and conflict resolution strategies procedures	2.1 Negotiating skill 2.2 Communication skills (verbal and listening) 2.3 Observation skills 2.4 Interpersonal skills to develop rapport with other parties 2.5 Applying effective questioning techniques 2.6 Setting conflict

RANGE OF VARIABLES

VARIABLE	RANGE

1. Preparing for negotiation	1.1 Background information on other parties to the negotiation
	1.2 Good understanding of topic to be negotiated
	1.3 Clear understanding of desired outcome/s
	1.4 Personal attributes
	   • self-awareness
	   • self esteem
	   • objectivity
	   • empathy
	   • respect for others
	1.5 Interpersonal skills
	   • listening/reflecting
	   • non- verbal communication
	   • assertiveness
	   • behavior labeling
	   • testing understanding
	   • seeking information
	   • self-disclosing
	1.6 Analytic skills
	   • observing differences between content and process
	   • identifying bargaining information
	   • applying strategies to manage process
	   • applying steps in negotiating process
	   • strategies to manage conflict
	   • steps in negotiating process
	   • options within organization and externally for resolving conflict

2. Non- verbal environments	2.1 Friendly reception 2.2 Warm and welcoming room 2.3 Refreshments offered 2.4 Lead in conversation before negotiation begins
3. Active listening	3.1 Attentive 3.2 Don't interrupt 3.3 Good posture 3.4 Maintain eye contact 3.5 Reflective listening
4. Questioning techniques	4.1 Direct 4.2 Indirect 4.3 Open-ended

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Demonstrated sufficient knowledge of the factors influencing negotiation to achieve agreed outcome 1.2 Participated in negotiation with at least one person to achieve an agreed outcome
2. Resource Implications	The following resources **MUST** be provided: 2.1 Room with facilities necessary for the negotiation process 2.2 Human resources (negotiators)
3. Methods of Assessment	Competency may be assessed through: 3.1 Written Examination 3.2 Oral questioning 3.3 Portfolio
4. Context for Assessment	4.1 Competency to be assessed in real work environment or in a simulated workplace setting.

UNIT OF COMPETENCY : **SOLVE PROBLEMS RELATED TO WORK ACTIVITIES**
UNIT CODE : **500311112**
UNIT DESCRIPTOR : This unit of covers the knowledge, skills and attitudes required to solve problems in the workplace including the application of problem solving techniques and to determine and resolve the root cause of problems.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify the problem	1.1. Variances are identified from normal operating parameters; and product quality 1.2. Extent, cause and nature of the problem are defined through observation, investigation and *analytical techniques* 1.3. *Problems* are clearly stated and specified	1.1. Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize non-standard situations 1.2. Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations 1.3. Relevant equipment and operational processes 1.4. Enterprise goals, targets and measures 1.5. Enterprise quality, OHS and environmental requirement 1.6. Enterprise information systems and data collation 1.7. Industry codes and standards 1.8. Normal operating parameters and product quality	1.1. Using range of formal problem solving techniques 1.2. Identifying and clarifying the nature of the problem 1.3. Evaluating the effectiveness of a present process in the workplace 1.4. Applying analytical techniques
2. Determine fundamental causes of the problem	2.1 Possible causes are identified based on experience and the use of problem solving tools / analytical techniques. 2.2 Possible cause statements are developed based on findings 2.3 Fundamental causes are identified per results of investigation conducted	2.1 Relevant equipment and operational processes 2.2 Enterprise goals, targets and measures 2.3 Enterprise quality, OHS and environmental requirements 2.4 Enterprise information systems and data collation 2.5 Industry codes and standards	2.1 Analysis of root causes

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Determine corrective action	3.1 All possible options are considered for resolution of the problem 3.2 Strengths and weaknesses of possible options are considered 3.3 Corrective actions are determined to resolve the problem and possible future causes 3.4 **Action *plans*** are developed identifying measurable objectives, resource needs and timelines in accordance with safety and operating procedures	3.1. Understanding the procedure in undertaking corrective action 3.2. Principles of decision making strategies and techniques 3.3. Enterprise information systems and data collation 3.4. Action planning	3.1. Identifying and clarifying the nature of the problem 3.2. Devising the best solution 3.3. Evaluating the solution 3.4. Implementing developed plan to rectify the problem 3.5. Implementing corrective and preventive actions based on root cause analysis
4. Provide recommendation to manager	4.1 Reports on recommendations are prepared according to procedures. 4.2 Recommendations are presented to appropriate personnel. 4.3 Recommendations are followed-up, if required	4.1 How to make a report and recommendation	4.1 Writing report and recommendations

RANGE OF VARIABLES

VARIABLE	RANGE
1. Analytical techniques	1.1. Brainstorming 1.2. Intuitions/Logic 1.3. Cause and effect diagrams 1.4. Pareto analysis 1.5. SWOT analysis 1.6. Gant chart, Pert CPM and graphs 1.7. Scattergrams
2. Problem	2.1. Non – routine process and quality problems 2.2. Equipment selection, availability and failure 2.3. Teamwork and work allocation problem 2.4. Safety and emergency situations and incidents
3. Action plans	3.1. Priority requirements 3.2. Measurable objectives 3.3. Resource requirements 3.4. Timelines 3.5. Co-ordination and feedback requirements 3.6. Safety requirements 3.7. Risk assessment 3.8. Environmental requirements

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1. Identified the problem
	1.2. Determined the fundamental causes of the problem
	1.3. Determined the correct / preventive action
	1.4. Provided recommendation to manager
	These aspects may be best assessed using a range of scenarios / case studies / what ifs as a stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations that may have happened.
2. Resource Implications	2.1. Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios / case studies / what ifs will be required as well as bank of questions which will be used to probe the reason behind the observable action.
3. Methods of Assessment	Competency in this unit may be assessed through:
	3.1. Written Examination
	3.2. Oral Questioning
	3.3. Portfolio
4. Context for Assessment	4.1. In all workplace, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.

UNIT OF COMPETENCY : USE MATHEMATICAL CONCEPTS AND TECHNIQUES

UNIT CODE : 500311113

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required in application of mathematical concepts and techniques.

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify mathematical tools and techniques to solve problem	1.1 Problem areas are identified based on given condition 1.2 **Mathematical techniques** are selected based on the given problem	1.1. Fundamental operation (addition, subtraction, division, multiplication) 1.2. Units of measurement and its conversion 1.3. Fundamental of units 1.4. Standard formulas 1.5. Basic measuring tools/devices 1.6. Measurement system 1.7. Basic measuring tools/devices 1.8. Steps in solving problem	1.1. Identifying and selecting different measuring tools 1.2. Applying different formulas in solving problems 1.3. Describing the units of measurement and fundamental units 1.4. Stating arithmetic calculations involving the following; addition, subtraction, division, multiplication 1.5. Applying theory into actual application on shipboard catering processes
2. Apply mathematical procedure/ solution	2.1 Mathematical techniques are applied based on the problem identified 2.2 Mathematical computations are performed to the level of accuracy required for the problem 2.3 Result of mathematical computation is determined and verified based on job requirements	2.1. Problem-based questions 2.2. Estimation 2.3. Use of mathematical tools and standard formulas 2.4. Mathematical techniques	2.1. Solving mathematical computations 2.2. Converting Metric to English 2.3. Selecting and using appropriate and efficient techniques and strategies to solve problems
3. Analyze results	3.1 Result of application is reviewed based on expected and required specifications and outcome 3.2 **Appropriate action** is applied in case of error	3.1. Techniques in analyzing the results 3.2. Process in reviewing the results 3.3. Precision and accuracy 3.4. Four fundamental operations 3.5. Steps in solving problem 3.6. Standard formulas 3.7. Conversion measurement	3.1. Analyzing the result based on the specified requirements 3.2. Interpreting and communicating the results of the analysis

RANGE OF VARIABLES

VARIABLES	RANGE
1. Mathematical techniques	May include: 1.1 Four fundamental operations 1.2 Measurements 1.3 Use/Conversion of units of measurements 1.4 Use of standard formulas
2. Appropriate action	2.1 Review in the use of mathematical techniques (e.g. recalculation, re-modeling) 2.2 Report error to immediate superior for proper action

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified, applied and reviewed the use of mathematical concepts and techniques to workplace problems
2. Resource Implications	The following resources should be provided: 2.1 Calculator 2.2 Basic measuring tools 2.3 Case Problems
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Authenticated portfolio 3.2 Written Test 3.3 Interview/Oral Questioning 3.4 Demonstration
4. Context for Assessment	4.1 Competency may be assessed in the work place or in a simulated work place setting

UNIT OF COMPETENCY : **USE RELEVANT TECHNOLOGIES**
(Apply technology effectively)

UNIT CODE : **500311114**

UNIT DESCRIPTOR : This unit of competency covers the knowledge, skills, and attitude required in selecting, sourcing and applying appropriate and affordable technologies in the workplace.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Study/ select appropriate technology	1.1 Usage of different ***technologies*** is determined based on job requirements 1.2 Appropriate technology is selected as per work specification	1.1 Awareness on technology and its function 1.2 techniques 1.3 Health and safety procedure 1.4 Company policy in relation to relevant technology 1.5 Machineries/ equipment and their application 1.6 Software programs	1.1 Identifying relevant technology on job
2. Apply relevant technology	2.1 Relevant technology is effectively used in carrying out function 2.2 Applicable software and hardware are used as per task requirement 2.3 ***Management concepts*** are observed and practiced as per established industry practices	2.1 Knowledge on operating instructions 2.2 Understanding software and hardware system 2.3 Communication techniques 2.4 Health and safety procedure 2.5 Company policy in relation to relevant technology 2.6 Different management concepts 2.7 Technology adaptability	2.1 Applying relevant technology 2.2 Communicating skills 2.3 Using software applications skills 2.4 Conducting risk assessment
3. Maintain/ enhance- relevant technology	3.1 Maintenance of technology is applied in accordance with the ***industry standard operating procedure***, ***manufacturer's operating guidelines*** and ***occupational health and safety procedure*** to ensure its operative ability 3.2 Updating of technology is maintained through continuing education or training in accordance with job requirement 3.3 Technology failure/ defect is immediately reported to the concern/responsible person or section for ***appropriate action***	3.1 Awareness on technology and its function 3.2 Repair and maintenance procedure 3.3 Health and safety procedure 3.4 Company policy in relation to relevant technology 3.5 Upgrading of technology 3.6 Organizational set-up/work flow	3.1 Performing basic troubleshooting skills 3.2 Identifying failures or defects 3.3 Communication skills 3.4 Applying corrective and preventive maintenance

RANGE OF VARIABLES

VARIABLE	RANGE
1. Technology	May include but are not limited to: 1.1 Office technology 1.2 Industrial technology 1.3 System technology 1.4 Information technology 1.5 Training technology
2. Management concepts	May include but not limited to: 2.1 Real Time Management 2.2 KAIZEN or continuous improvement 2.3 5s principles 2.4 Total Quality Management 2.5 Other management/productivity tools
3. Industry standard operating procedure	3.1 Written guidelines relative to the usage of office technology/equipment 3.2 Verbal advice/instruction from the co-worker
4. Manufacturer's operating guidelines/ instructions	4.1 Written instruction/manuals of specific technology/ equipment 4.2 General instruction manual 4.3 Verbal advise from manufacturer relative to the operation of equipment
5. Occupational health and safety procedure	5.1 Relevant statutes on OHS 5.2 Company guidelines in using technology/equipment
6. Appropriate action	6.1 Implementing preventive maintenance schedule 6.2 Coordinating with manufacturer's technician

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Studied and selected appropriate technology consistent with work requirements 1.2 Applied relevant technology 1.3 Maintained and enhanced operative ability of relevant technology
2. Resource Implications	The following resources **MUST** be provided: 2.1 Relevant technology 2.2 Interview and demonstration questionnaires 2.3 Assessment packages
3. Methods of Assessment	Competency must be assessed through: 3.1 Interview 3.2 Actual demonstration 3.3 Authenticated portfolio (related certificates of training/seminar)
4. Context for Assessment	4.1 Competency may be assessed in actual workplace or simulated environment

UNIT OF COMPETENCY: APPLY CRITICAL THINKING AND PROBLEM SOLVING TECHNIQUES IN THE WORKPLACE

UNIT CODE : **500311142**

UNIT DESCRIPTOR : This unit of covers the knowledge, skills and attitudes required to solve problems in the workplace including the application of problem solving techniques and to determine and resolve the root cause of problems.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS

1. Identify the problem	1.1. Variances are identified from normal operating parameters; and product quality
	1.2. Extent, cause and nature are of the problem are defined through observation, investigation and *analytical techniques*
	1.3. *Problems* are clearly stated and specified
		1.1. Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize nonstandard situations
		1.2. Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations
		   1.2.1. Relevant equipment and operational processes
		   1.2.2. Enterprise goals, targets and measures
		   1.2.3. Enterprise quality, OHS and environmental requirement
		   1.2.4. Enterprise information systems and data collation
		   1.2.5. Industry codes and standards
			1.1. Using range of formal problem solving techniques
			1.2. Identifying and clarifying the nature of the problem

2. Determine fundamental causes of the problem	2.1. Possible causes are identified based on experience and the use of problem solving tools / analytical techniques.
	2.2. Possible cause statements are developed based on findings
	2.3. Fundamental causes are identified per results of investigation conducted
		2.1. Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize nonstandard situations
		2.2. Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations
		   2.2.1. Relevant equipment and operational processes
		   2.2.2. Enterprise goals, targets and measures
			2.1. Using range of formal problem solving techniques
			2.2. Identifying and clarifying the nature of the problem

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		2.2.3. Enterprise quality, OHS and environmental requirement 2.2.4. Enterprise information systems and data collation 2.2.5. Industry codes and standards	
3. Determine corrective action	3.1. All possible options are considered for resolution of the problem 3.2. Strengths and weaknesses of possible options are considered 3.3. Corrective actions are determined to resolve the problem and possible future causes 3.4. *Action plans* are developed identifying measurable objectives, resource needs and timelines in accordance with safety and operating procedures	3.1. Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize nonstandard situations 3.2. Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations 3.2.1. Relevant equipment and operational processes 3.2.2. Enterprise goals, targets and measures 3.2.3. Enterprise quality, OHS and environmental requirement 3.2.4. Principles of decision making strategies and techniques 3.2.5. Enterprise information systems and data collation 3.2.6. Industry codes and standards	3.1. Using range of formal problem solving techniques 3.2. Identifying and clarifying the nature of the problem 3.3. Devising the best solution 3.4. Evaluating the solution 3.5. Implementation of a developed plan to rectify the problem
4. Provide recommendation/s to manager	4.1. Report on recommendations are prepared 4.2. Recommendations are presented to appropriate personnel. 4.3. Recommendations are followed-up, if required	4.1. Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize nonstandard situations 4.2. Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations 4.2.1. Relevant equipment and operational processes	4.1. Using range of formal problem solving techniques 4.2. Identifying and clarifying the nature of the problem 4.3. Devising the best solution 4.4. Evaluating the solution 4.5. Implementation of a developed plan to rectify the problem

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		4.2.2. Enterprise goals, targets and measures 4.2.3. Enterprise quality, OHS and environmental requirement 4.2.4. Principles of decision making strategies and techniques 4.2.5. Enterprise information systems and data collation 4.2.6. Industry codes and standards	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Analytical techniques	May include: 1.1. Brainstorming 1.2. Intuitions/Logic 1.3. Cause and effect diagrams 1.4. Pareto analysis 1.5. SWOT analysis 1.6. Gant chart, Pert CPM and graphs 1.7. Scattergrams
2. Problem	May include: 2.1. Non – routine process and quality problems 2.2. Equipment selection, availability and failure 2.3. Teamwork and work allocation problem 2.4. Safety and emergency situations and incidents
3. Action plans	May include: 3.1. Priority requirements 3.2. Measurable objectives 3.3. Resource requirements 3.4. Timelines 3.5. Co-ordination and feedback requirements 3.6. Safety requirements 3.7. Risk assessment 3.8. Environmental requirements

EVIDENCE GUIDE

1. Critical aspect of competency	Assessment requires evidence that the candidate: 1.1. Identified the problem 1.2. Determined the fundamental causes of the problem 1.3. Determined the correct / preventive action 1.4. Provided recommendation to manager These aspects may be best assessed using a range of scenarios / case studies / what ifs as a stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations that may have happened.
2. Resource implication	2.1. Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios / case studies / what ifs will be required as well as bank of questions which will be used to probe the reason behind the observable action
3. Method of assessment	Competency in this unit may be assessed through: 3.1. Case studies on solving problems in the workplace 3.2. Observation The unit will be assessed in a holistic manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation. Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual workplace and will include walk through of the relevant competency components
4. Context of Assessment	4.1. In all workplace, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units

UNIT OF COMPETENCY: USE INFORMATION CREATIVELY AND CRITICALLY

UNIT CODE   :   500311144

UNIT DESCRIPTOR   : This unit covers the knowledge, skills and attitudes required to use technical information system and information technology, and apply information technology (IT).

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Use technical information systems and information technology	1.1. Collate and organize *information* into a suitable form for reference and use 1.2. Classify stored information so that it can be quickly identified and retrieved when needed 1.3. Advise and offer guidance to people who need to find and use information 1.4. Operate the *technical information* system using agreed procedures 1.5. Operate appropriate and valid procedures for inputting, maintaining and archiving information	1.1. Application in collating information 1.2. Procedures for inputting, maintaining and archiving information 1.3. Guidance to people who need to find and use information 1.4. Organize information 1.5. Classify stored information for identification and retrieval 1.6. Operate the technical information system by using agreed procedures	1.1. Collating information 1.2. Operating appropriate and valid procedures for inputting, maintaining and archiving information 1.3. Advising and offering guidance to people who need to find and use information 1.4. Organizing information into a suitable form for reference and use 1.5. Classifying stored information for identification and retrieval 1.6. Operating the technical information system by using agreed procedures
2. Apply information technology (IT)	2.1. Utilize the *software and IT systems* that are required to execute the project activities 2.2. Handle, edit, format and check information and data obtained from a range of internal and external *sources* 2.3. Extract, enter, and process information to produce the outputs required by *customers* 2.4. Share your own skills and understanding to help others 2.5. Implement the specified *security measures* to protect the confidentiality and integrity of project data held in IT systems	2.1. Attributes and limitations of available software tools 2.2. Procedures and work instructions for the use of IT 2.3. Operational requirements for IT systems 2.4. Sources and flow paths of data 2.5. Security systems and measures that can be used 2.6. Extract data and format reports 2.7. Methods of entering and processing information 2.8. WWW enabled applications	2.1. Identifying attributes and limitations of available software tools 2.2. Using procedures and work instructions for the use of IT 2.3. Describing operational requirements for IT systems 2.4. Identifying sources and flow paths of data 2.5. Determining security systems and measures that can be used 2.6. Extracting data and format reports 2.7. Describing methods of entering and processing information 2.8. Using WWW applications

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Edit, format and check information	3.1. Basic editing techniques is used 3.2. Accuracy of documents are check 3.3. Editing and formatting tools and techniques are used for more complex documents 3.4. Proof reading techniques is used to check that documents look professional	3.1. Basic file-handling techniques 3.2. Techniques in checking documents 3.3. Techniques in editing and formatting 3.4. Proof reading techniques	3.1. Using basic file-handling techniques is used for the software 3.2. Using different techniques in checking documents 3.3. Applying editing and formatting techniques 3.4. Applying proof reading techniques

RANGE OF VARIABLES

VARIABLE	RANGE
1. Information	May include: 1.1 Property 1.2 Organizational 1.3 Technical reference
2. Technical information	May include: 2.1 Paper based 2.2 Electronic
3. Software and IT systems	May include: 3.1 Spreadsheets 3.2 Databases 3.3 Word processing 3.4 Presentation
4. Sources	May include: 4.1 Other IT system 4.2 Manually created 4.3 Within own organization 4.4 Outside own organization 4.5 Geographically remote
5. Customers	May include: 5.1 Colleagues 5.2 Company and project management 5.3 Clients
6. Security measures	May include: 6.1 Access rights to input; 6.2 Passwords; 6.3 Access rights to outputs; 6.4 Data consistency and back-up; 6.5 Recovery plans

EVIDENCE GUIDE

1. Critical aspect of competency	Assessment requires evidence that the candidate: 1.1. Used technical information systems and information technology 1.2. Applied information technology (IT) 1.3. Edited, formatted and checked information
2. Resource implication	The following resources should be provided: 2.1. Computers 2.2. Software and IT system
3. Method of assessment	Competency in this unit may be assessed through: 3.1. Direct observation 3.2. Oral interview and written test
4. Context of Assessment	4.1. Competency may be assessed individually in the actual workplace or through accredited institution

UNIT OF COMPETENCY: **WORK IN A DIVERSE ENVIRONMENT**

UNIT CODE **: 500311145**

UNIT DESCRIPTOR : This unit of covers the knowledge, skills and attitudes required to work effectively in a workplace characterized by diversity in terms of religions, beliefs, races, ethnicities and other differences.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Develop an individual's cultural awareness and sensitivity	1.1. Individual differences with clients, customers and fellow workers are recognized and respected in accordance with enterprise policies and core values. 1.2. Differences are responded to in a sensitive and considerate manner 1.3. *Diversity* is accommodated using appropriate verbal and nonverbal communication. 1.4. Actions/decisions are maintained consistent with legislative requirements and enterprise guidelines.	1.1. Understanding cultural diversity in the workplace 1.2. Awareness of individual cultures and world geography 1.3. Norms of behavior for interacting and dialogue with specific groups (e.g., Muslims and other non-Christians, non-Catholics, tribes/ethnic groups, foreigners) 1.4. Different methods of verbal and non-verbal communication in a multicultural setting 1.5. Enterprise policies on workplace diversity (Workplace Diversity Policy)	1.1. Cross-cultural communication skills (i.e. different business customs, beliefs, communication strategies) 1.2. Communication skills – reading, writing, conversational skills 1.3. Affective skills – establishing rapport and empathy, understanding, etc. 1.4. Active Listening 1.5. Openness and flexibility in communication 1.6. Giving/receiving feedback 1.7. Identifying/ Recognizing diverse groups in the workplace and community as defined by divergent culture, religion, traditions and practices
2. Work effectively in an environment that acknowledges and values cultural diversity	2.1. Knowledge, skills and experiences of others are recognized and documented in relation to team objectives. 2.2. Fellow workers are encouraged to utilize and share their specific qualities, skills or backgrounds with other team members and clients to enhance work outcomes. 2.3. Relations with customers and clients are maintained to show that diversity is valued by the business.	2.1. Recognizing and explaining the value of diversity in the economy and society in terms of Workforce development 2.2. The country's place in the global economy 2.3. Innovation 2.4. Social justice 2.5. Recognizing the importance of inclusiveness in a diverse environment	2.1. Cross-cultural communication skills 2.2. Communication skills – reading, writing, conversational skills 2.3. Affective skills – establishing rapport and empathy, understanding, etc. 2.4. Active Listening 2.5. Openness and flexibility in communication 2.6. Giving/receiving feedback

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		2.6. Developing a shared vision and understanding of and commitment to team, departmental, and organizational goals and objectives 2.7. Strategies for customer service excellence	2.7. Identifying/ Recognizing diverse groups in the workplace and community as defined by divergent culture, religion, traditions and practices 2.8. Teamwork and collaboration skills 2.9. Intercultural relations and mutual acceptance 2.10. Customer service excellence
3. Identify common issues in a multicultural and diverse environment	3.1. Diversity-related conflicts within the workplace are effectively addressed and resolved. 3.2. Discriminatory behavior towards customers/ stakeholders are minimized and addressed accordingly. 3.3. Change management policies are in place within the organization.	3.1. Understanding, valuing, and leveraging cultural diversity 3.2. Promoting inclusivity and conflict resolution 3.3. Addressing workplace harassment 3.4. Managing change and overcoming resistance to change 3.5. Advanced strategies for customer service excellence 3.6. Enterprise policies on workplace diversity (Workplace Diversity Policy)	3.1. Cross-cultural communication skills 3.2. Communication skills – reading, writing, conversational skills 3.3. Affective skills – establishing rapport and empathy, understanding, etc. 3.4. Active Listening 3.5. Openness and flexibility in communication 3.6. Giving/receiving feedback 3.7. Teamwork and collaboration skills 3.8. Intercultural relations and mutual acceptance 3.9. Advanced customer service excellence skills 3.10. Conflict management and resolution skills 3.11. Assertiveness and Negotiation

RANGE OF VARIABLES

VARIABLE	RANGE
1. Diversity	This refers to diversity in both the workplace and the community and may include divergence in – 1.1 Religion 1.2 Ethnicity, race or nationality 1.3 Culture 1.4 Gender, age or personality 1.5 Educational background

EVIDENCE GUIDE

1. Critical aspect of competency	Assessment requires evidence that the candidate: 1.1. Adjusted language and behavior as required by interactions with diversity 1.2. Identified and respected individual differences in colleagues, clients and customers 1.3. Applied relevant regulations, standards and codes of practice
2. Resource implication	The following resources should be provided: 2.1. Access to workplace and resources 2.2. Manuals and policies on Workplace Diversity
3. Method of assessment	Competency in this unit may be assessed through: 3.1. Demonstration or simulation with oral questioning 3.2. Group discussions and interactive activities 3.3. Case studies/problems involving workplace diversity issues 3.4. Third-party report 3.5. Written examination 3.6. Role Plays
4. Context of Assessment	4.1. Competency assessment may occur in workplace or any appropriately simulated environment

COMMON COMPETENCIES

UNIT TITLE : **APPLY QUALITY STANDARDS**

UNIT CODE : **ICT315202**

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

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Assess quality of received materials	1.1. Work instruction is obtained and work is carried out in accordance with standard operating procedures. 1.2. Received *materials* are checked against workplace standards and specifications. 1.3. Faulty materials related to work are identified and isolated. 1.4. *Faults* and any identified causes are recorded and/or reported to the supervisor concerned in accordance with workplace procedures. 1.5. Faulty materials are replaced in accordance with workplace procedures.	1.1. Relevant production processes, materials and products 1.2. Characteristics of materials, software and hardware used in production processes 1.3. Quality checking procedures 1.4. Quality Workplace procedures 1.5. Identification of faulty materials related to work	1.1. Reading skills required to interpret work instruction 1.2. Critical thinking 1.3. Interpreting work instructions
2. Assess own work	2.1 *Documentation* relative to quality within the company is identified and used. 2.2 Completed work is checked against workplace standards relevant to the task undertaken. 2.3 *Errors* are identified and isolated. 2.4 Information on the quality and other indicators of production performance are recorded in accordance with workplace procedures. 2.5 In cases of deviations from specific *quality standards*, causes are documented and reported in accordance with the workplace's standards operating procedures.	2.1. Safety and environmental aspects of production processes 2.2. Fault identification and reporting 2.3. Workplace procedure in documenting completed work 2.4. Workplace Quality Indicators	2.1. Carry out work in accordance with OHS policies and procedures

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Engage in quality improvement	3.1 Process improvement procedures are participated in relative to workplace assignment. 3.2 Work is carried out in accordance with process improvement procedures. 3.3 Performance of operation or quality of product of service to ensure *customer* satisfaction is monitored.	3.1. Quality improvement processes 3.2. Company customers defined	3.1. Solution providing and decision-making 3.2. Practice company process improvement procedure

RANGE OF VARIABLES

VARIABLE	RANGE

1 Materials	1.1 Materials may include but not limited to:
	   1.1.1. Manuals
	   1.1.2. Job orders
	   1.1.3. Instructional videos

2 Faults	2.1 Faults may include but not limited to:
	   2.1.1. Materials not to specification
	   2.1.2. Materials contain incorrect/outdated information
	   2.1.3. Hardware defects
	   2.1.4. Materials that do not conform with any regulatory agencies

3 Documentation	3.1 Organization work procedures 3.2 Manufacturer's instruction manual 3.3 Customer requirements 3.4 Forms

4 Errors	4.1 Errors may be related but not limited to the following:
	   4.1.1. Deviation from the requirements of the Client
	   4.1.2. Deviation from the requirement of the organization

5 Quality standards	5.1 Quality standards may be related but not limited to the following:
	   5.1.1. Materials
	   5.1.2. Hardware
	   5.1.3. Final product
	   5.1.4. Production processes
	   5.1.5. Customer service

6 Customer	6.1 Co-worker 6.2 Supplier/Vendor 6.3 Client 6.4 Organization receiving the product or service

EVIDENCE GUIDE

1	Critical aspect of competency	Assessment requires evidence that candidate: 1.1 Carried out work in accordance with the company's standard operating procedures 1.2 Performed task according to specifications 1.3 Reported defects detected in accordance with standard operating procedures 1.4 Carried out work in accordance with the process improvement procedures
2	Method of assessment	The assessor may select two (2) of the following assessment methods to objectively assess the candidate: 2.1 Observation 2.2 Questioning 2.3 Practical demonstration
3	Resource implication	3.1 Materials, software and hardware to be used in a real or simulated situation
4	Context of Assessment	4.1 Assessment may be conducted in the workplace or in a simulated environment

UNIT TITLE : **PERFORM COMPUTER OPERATIONS**
UNIT CODE : **ELC311203**
UNIT DESCRIPTOR : This unit covers the knowledge, skills, (and) attitudes and values needed to perform computer operations that include inputting, accessing, producing and transferring data using the appropriate hardware and software.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Plan and prepare for task to be undertaken	1.1. Requirements of task are determined according to job specifications 1.2. Appropriate **hardware** and **software** are selected according to task assigned and required outcome 1.3. Task is planned to ensure **OH&S guidelines** and procedures are followed 1.4. Client -specific guidelines and procedures are followed. 1.5. Required data security guidelines are applied in accordance with existing procedures.	1.1. Main types of computers and basic features of different operating systems 1.2. Main parts of a computer 1.3. Information on hardware and software 1.4. Data security guidelines	1.1. Reading and comprehension skills required to interpret work instruction and to interpret basic user manuals. 1.2. Communication skills to identify lines of communication, request advice, follow instructions and receive feedback. 1.3. Interpreting user manuals and security guidelines
2. Input data into computer	2.1. Data are entered into the computer using appropriate program/application in accordance with company procedures 2.2. Accuracy of information is checked and information is saved in accordance with standard operating procedures 2.3. Inputted data are stored in **storage media** according to requirements 2.4. Work is performed within **ergonomic guidelines**	2.1. Basic ergonomics of keyboard and computer user 2.2. Storage devices and basic categories of memory 2.3. Relevant types of software	2.1. Technology skills to use equipment safely including keyboard skills. 2.2. Entering data
3. Access information using computer	3.1. Correct program/ application is selected based on job requirements 3.2. Program/application containing the information required is accessed according to company procedures 3.3. **Desktop icons** are correctly selected, opened and closed for navigation purposes	3.1. General security, privacy legislation and copyright 3.2. Productivity Application 3.3. Business Application	3.1. Accessing information 3.2. Searching and browsing files and data

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	3.4. Keyboard techniques are carried out in line with OH&S requirements for safe use of keyboards		
4. Produce/ output data using computer system	4.1. Entered data are processed using appropriate software commands 4.2. Data printed out as required using computer hardware/peripheral devices in accordance with standard operating procedures 4.3. Files, data are transferred between compatible systems using computer software, hardware/ peripheral devices in accordance with standard operating procedures	4.1. Computer application in printing, scanning and sending facsimile 4.2. Types and function of computer peripheral devices	4.1. Computer data processing 4.2. Printing of data 4.3. Transferring files and data
5. Maintain computer equipment and systems	5.1. Systems for cleaning, minor *maintenance* and replacement of consumables are implemented 5.2. Procedures for ensuring security of data, including regular back-ups and virus checks are implemented in accordance with standard operating procedures 5.3. Basic file maintenance procedures are implemented in line with the standard operating procedures	5.1 Computer equipment/system basic maintenance procedures 5.2 Viruses 5.3 OH&S principles and responsibilities 5.4 Calculating computer capacity 5.5 System Software 5.6 Basic file maintenance procedures	5.1 Removing computer viruses from infected machines 5.2 Making backup files

RANGE OF VARIABLES

VARIABLE	RANGE
1. Hardware and peripheral devices	1.1. Personal computers 1.2. Networked systems 1.3. Communication equipment 1.4. Printers 1.5. Scanners 1.6. Keyboard 1.7. Mouse
2. Software	Software includes the following but not limited to: 2.1. Word processing packages 2.2. Data base packages 2.3. Internet 2.4. Spreadsheets
3. OH & S guidelines	3.1. OHS guidelines 3.2. Enterprise procedures
4. Storage media	Storage media include the following but not limited to: 4.1. diskettes 4.2. CDs 4.3. zip disks 4.4. hard disk drives, local and remote
5. Ergonomic guidelines	5.1. Types of equipment used 5.2. Appropriate furniture 5.3. Seating posture 5.4. Lifting posture 5.5. Visual display unit screen brightness
6. Desktop icons	Icons include the following but not limited to: 6.1. directories/folders 6.2. files 6.3. network devices 6.4. recycle bin
7. Maintenance	7.1. Creating more space in the hard disk 7.2. Reviewing programs 7.3. Deleting unwanted files 7.4. Backing up files 7.5. Checking hard drive for errors 7.6. Using up to date anti-virus programs 7.7. Cleaning dust from internal and external surfaces

EVIDENCE GUIDE

1. Critical aspect of competency	Assessment requires evidence that the candidate:
	1.1. Selected and used hardware components correctly and according to the task requirement 1.2. Identified and explained the functions of both hardware and software used, their general features and capabilities 1.3. Produced accurate and complete data in accordance with the requirements 1.4. Used appropriate devices and procedures to transfer files/data accurately 1.5. Maintained computer system
2. Method of assessment	2.1. The assessor may select two of the following assessment methods to objectively assess the candidate: 2.1.1. Observation 2.1.2. Questioning 2.1.3. Practical demonstration
3. Resource implication	3.1. Computer hardware with peripherals 3.2. Appropriate software
4. Context of Assessment	4.1. Assessment may be conducted in the workplace or in a simulated environment

CORE COMPETENCIES

UNIT TITLE : **PRODUCE TRADITIONAL KEY POSES/DRAWINGS FOR ANIMATION**

UNIT CODE : **ICT 216305**

UNIT DESRIPTOR : This unit covers the knowledge, skills and attitude required to interpret the animation specifications to produce traditional key poses/drawings for animation production.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify traditional animation equipment and materials	1.1 All relevant **key poses/ drawings** requirements are identified based on the **source material** provided. 1.2 Soundtrack is identified and listened to based on the client's audio track 1.3 Key drawing **soundtrack breakdown** requirements are identified based from the **storyboard** and **exposure sheet**. 1.4 All necessary **materials** and **equipment** to be used are identified and prepared according to the task to be undertaken. 1.5 Non-functioning and missing materials and equipment are reported to **appropriate personnel** based on company policy and procedures	1.1 Verbal Communication 1.2 Written Communication 1.3 Art and film appreciation 1.4 Physical Science 1.5 Physiology 1.6 Mechanics and Kinematics 1.7 Computer hardware requirements for linetest 1.8 production information 1.9 Linetest software 1.10 Practicing 3Rs – Reduce, Re-use, Recycle/Recover and environmental concerns	1.1 Effective Communication skills 1.2 Presentation skills 1.3 Computer operation skills 1.4 Analytical and comprehension skills 1.5 Skills in reading and analyzing storyboard, exposure sheet and layout and soundtrack breakdown. 1.6 Practicing OSHS, EHSM, 3Rs
2. Produce traditional key poses/ drawings	2.1 Key poses/drawings are produced based on the storyboard, **layout** and the exposure sheets. 2.2 Key poses/drawings of dialogue scenes are produced in sync with the soundtrack breakdown based on the design 2.3 Key poses/drawings produced are compiled based on the style of the **model pack.** 2.4 The **basic principles of animation** are applied based on the scene action 2.5 Key poses/drawings and **animation breakdowns** produced are measured	2.1 Verbal Communication 2.2 Written Communication 2.3 Physical Science 2.4 Mechanics and Kinematics 2.5 Human and animal anatomy 2.6 Behavioral science 2.7 Physics 2.8 Animation principles 2.9 Computer hardware requirements for linetest 2.10 drawing poses and rough expressions 2.11 Body attitude and facial expressions	2.1 Effective Communication skills 2.2 Presentation skills 2.3 Practicing OSHS, EHSM, 3Rs and 5S 2.4 Interpersonal skills Clean-up and In-between Drawing Skills 2.5 Visualization and interpretation skills 2.6 Animation skills and acting skills

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	based on the action, drama and staging. 2.6 Timing principle is applied based on the scene requirements and animation style. 2.7 Key poses/drawings are *line tested* based on timing, acting and movement in the storyboard or layout and exposure sheet 2.8 Finished scene is submitted to relevant personnel for checking in accordance with company policies and procedures	2.12 Rough breakdowns 2.13 Drawing and breakdown labels 2.14 Understand director's instructions 2.15 production information 2.16 Linetest software 2.17 Principles and techniques of animation production 2.18 Practicing 3Rs – Reduce, Re-use, Recycle/Recover and environmental concerns 2.19 Geometry for Basic Shapes 2.20 Basic math 2.21 Physics − Spatial relationship	2.7 Drawing skills for both living & non-living 2.8 Analytical and comprehension skills 2.9 Skills in reading and analyzing timing grids and exposure sheet 2.10 Skills in analyzing animation breakdowns 2.11 Skills in analyzing animatic 2.12 Skills in analyzing layout 2.13 Acting skills 2.14 Understanding & applying director's instructions
3. Edit/revise key poses/ drawings	3.1 *Off model* key poses/ drawings are returned for revision based on the model sheet provided. 3.2 Key poses/drawings that require additional breakdowns and additional timing are supplied by the animator following instructions of the relevant personnel in accordance to scene requirements. 3.3 Off-sync dialogue segments are adjusted with correct *mouth openings* based on audio track and track reading on exposure sheets. 3.4 Completed revised scene is resubmitted to relevant personnel.	3.1 Verbal Communication 3.2 Written Communication 3.3 Physical Science 3.4 Mechanics and Kinematics 3.5 Human and animal anatomy 3.6 Behavioral science 3.7 Physics 3.8 Spatial relationship 3.9 Computer hardware requirements for linetest 3.10 Linetest software 3.11 Rough drawing poses and rough expressions 3.12 Body attitude and facial expressions 3.13 Rough breakdowns 3.14 drawing & breakdown labels	3.1 Effective Communication skills 3.2 Presentation skills 3.3 Clean-up and In-between Drawing Skills 3.4 Drawing skills for both living & non-living 3.5 Animation skills and acting skills 3.6 Analytical and comprehension skills 3.7 Skills in reading and analyzing timing grids and exposure sheet 3.8 Skills in analyzing animation breakdowns

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		3.15 Directors instructions 3.16 production information 3.17 animation principles 3.18 Practicing 3Rs – Reduce, Re-use, Recycle/Recover and environmental concerns 3.19 Geometry for basic shapes 3.20 Basic Math	3.9 Skills in analyzing animatic 3.10 Skills in analyzing layout 3.11 Acting skills 3.12 Understanding & applying director's instructions 3.13 Practicing OSHS, EHSM, 3Rs and 5S

RANGE OF VARIABLES

VARIABLE	RANGE
1. Key poses/drawings	May include: 　1.1　Traditional character / Object poses 　1.2　Digital character / Object poses 　1.3　Effects Animation
2. Source material	May include: 　2.1　Storyboard 　2.2　Layout Poses/drawings 　2.3　Director's Instruction 　2.4　Exposure Sheet 　2.5　Soundtrack/ Audio File 　2.6　Model Sheets 　2.7　Scene Folder 　2.8　Animatics
3. Soundtrack Breakdown	May include: 　3.1　Dialogue Track 　3.2　Sound Effects 　3.3　Background Music 　3.4　Exposure sheet slugging
4. Storyboard	May include: 　4.1.　TV series storyboard 　4.2.　Film Storyboard 　4.3.　Commercial storyboard 　4.4.　AVP Presentations storyboard 　4.5.　Motion graphics storyboard
5. Exposure sheet	May include: 　5.1　Director's instruction (slugging, thumbnails) 　5.2　Camera instruction 　5.3　Background shot 　5.4　Key poses/drawings 　5.5　In-between poses/drawings 　5.6　Breakdown poses/drawings 　5.7　Production details 　5.8　Track reading 　5.9　Mouth opening breakdowns
6. Materials	May include: 　6.1　Animation Paper 　6.2　Ruler 　6.3　Bull Clip 　6.4　Magic Tape 　6.5　Light Colored Pencils 　6.6　Lead Pencils 　6.7　Rubber/ Kneaded Eraser 　6.8　Pegbar 　6.9　Reinforcement Peghole Stickers 　6.10　Bond Paper 　6.11　Copier Machine Paper 　6.12　Scene folder

VARIABLE	RANGE
7. Equipment	May include: 7.1 Animation Table 7.2 Lightbox 7.3 Animation Disc 7.4 Manual/ Electric Sharpener 7.5 Desk Lamp 7.6 Chair 7.7 Photocopy Machine 7.8 Printer 7.9 Line Test Machine / Computer 7.10 Linetest Software 7.11 USB 7.12 Removable Hard Drive 7.13 Earphones 7.14 Speakers 7.15 Mirror 7.16 Internet 7.17 Webcam for linetest 7.18 Animation puncher
8. Appropriate personnel	May Include: 8.1 Production manager 8.2 Animation director 8.3 Production coordinator / Assistants 8.4 Checkers
9. Layout	May include: 9.1 Character poses 9.2 Background setup 9.3 Field guides / camera instructions
10. Model Pack	May include: 10.1 Size comparison 10.2 Character turnarounds 10.3 Mouth chart 10.4 Attitude & expressions poses 10.5 Special effects guide 10.6 Props 10.7 Key backgrounds 10.8 Character construction guide
11. Principles of animation	May include: 11.1 Appeal 11.2 Solid drawing/Dynamic pose (silhouettes, volume) 11.3 Staging/ composition 11.4 Exaggeration 11.5 Anticipation 11.6 Follow through/overlapping/wave/figure 8 principle 11.7 Pose to pose / straight ahead

VARIABLE	RANGE

	11.8 Timing with texture/ Spacing/
	  ◦ Balance
	  ◦ weight
	  ◦ body attitude
	  ◦ line of action
	 11.9 Stretch & squash
	 11.10 Arcs
	 11.11 Secondary action
	 11.12 Slow in / slow out

12. Animation breakdown	May include: 12.1 Arcs 12.2 Favored drawing 12.3 Secondary action 12.4 Mouth shape 12.5 Eye movement/ position 12.6 Path of action
13. Line tested	May include: 13.1 Pencil test machine 13.2 CTP pro 13.3 Flipbook 13.4 Photoshop CS3 & above 13.5 Retas Pro 13.6 TV Paint
14. Off model	May include: 14.1 Off proportion 14.2 Missing details 14.3 Wrong costume 14.4 Wrong character 14.5 Wrong size comparison 14.6 Size inconsistencies
15. Mouth openings	May include: 15.1 Phonetics / Visemes 15.2 Mouth chart A,B,C,D,E, F,G,H 15.3 Special mouths O,TH, PH etc 15.4 1(closed mouth); 2 (half-open mouth); 3 (open mouth)

EVIDENCE GUIDE

1. Critical Aspect of Competency	Assessment requires evidence that the candidate: 1.1 Identified traditional animation equipment and materials. 1.2 Produced traditional key poses/drawings. 1.3 Edited/revised key poses/drawings.
2. Method of Assessment	The assessor must assess the candidate through the following: 2.1 Direct Observation/Demonstration with oral questioning 2.2 Interview
3. Resource Implication	The following resources should be provided: 3.1 Appropriate supplies and materials 3.2 Applicable equipment
4. Context of Assessment	4.1 Competency maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.

UNIT TITLE   :   **CREATE TRADIGITAL ANIMATION**
UNIT CODE   :   **ICT216306**
UNIT DESCRIPTOR   :   This unit covers the skills and knowledge required to build animation object library and use digital animation techniques and software to create traditional-digital (tradigital) animation.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify requirements and materials for tradigital animation	1.1 ***Digital model pack library, digital storyboard*** are obtained with ***relevant personnel*** based on company policies and procedures 1.2 ***Animatics*** and ***production technical specifications*** are discussed with Director/ supervisor based on scene provided 1.3 Software selected is installed in accordance with the specified ***delivery platform***	1.1 Verbal Communication 1.2 Written Communication 1.3 Intellectual Property rights and concerns 1.4 OHS processes and procedure for Computer Hardware 1.5 Computer hardware requirements for animation 1.6 Digital animation equipment & materials 1.7 Model sheets 1.8 2D animation software 1.9 Cross platform/ delivery platform 1.10 Basic Math	1.1 Effective Communication skills 1.2 Computer operation skills 1.3 Drawing skills 1.4 Analytical and comprehension skills 1.5 Reporting skills 1.6 Skills in reading and analyzing model sheet, storyboard and soundtrack breakdown. 1.7 Presentation skills 1.8 Practicing OSHS, EHSM, 3Rs
2. Produce tradigital animation	2.1 ***Materials*** of the assigned scene are obtained from relevant personnel based on company policies 2.2 Character placement, composition and size comparison are referenced to the ***digital backgrounds*** provided by relevant personnel 2.3 Character is animated applying the ***Principles of Animation*** based on the storyboard and animatic. 2.4 ***Lip-synch or sound effects*** is integrated for dialogue animation if necessary. 2.5 Animated scene is reviewed through	2.1 Verbal Communication 2.2 Written Communication 2.3 Intellectual Property rights and concerns 2.4 OHS processes and procedure for Computer Hardware 2.5 Human and animal anatomy 2.6 Behavioural science 2.7 Animation principles 2.8 Perspective 2.9 Spatial perception 2.10 Phonetics 2.11 Physics 2.12 Computer hardware requirements for animation 2.13 Digital animation equipment & materials	2.1 Clean-up and In-between Drawing Skills 2.2 Drawing skills for both living & non-living 2.3 Animation skills 2.4 Analytical and comprehension skills 2.5 Skills in analyzing animatic 2.6 Skills in analyzing layout 2.7 Acting skills 2.8 Voice acting skill 2.9 Understanding & applying director's instructions

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	playback to check movements and lipsync 2.6 Produced tradigital animation is saved based on appropriate delivery format. 2.7 Finished animated scene is submitted to relevant personnel based on production procedures.	2.14 Model sheets 2.15 2D animation software 2.16 Cross platform/ delivery platform 2.17 Principles and techniques of animation production 2.18 Basic Math 2.19 Geometry	2.10 Effective Communication skills 2.11 Presentation skills 2.12 Computer and software skills 2.13 Practicing OSHS, EHSM, 3Rs and 5S
3 Revise / Edit tradigital animation	3.1 Revisions are received and discussed with director/ animation supervisor based on scene submitted. 3.2 Revision changes are incorporated to the animation in accordance with director's instruction 3.3 Revised scene is resubmitted to relevant personnel based on company policies and procedures	3.1 Verbal Communication 3.2 Written Communication 3.3 Intellectual Property rights and concerns 3.4 OHS processes and procedure for Computer Hardware 3.5 Human and animal anatomy 3.6 Behavioural science 3.7 Animation principles 3.8 Perspective 3.9 Spatial perception 3.10 Phonetics 3.11 Physics 3.12 Computer hardware requirements for animation 3.13 Digital animation equipment & materials 3.14 Model sheets 3.15 2D animation software 3.16 Cross platform/ delivery platform 3.17 Basic Math 3.18 Geometry	3.1 Clean-up and In-between Drawing Skills 3.2 Drawing skills for both living & non-living 3.3 Animation skills 3.4 Analytical and comprehension skills 3.5 Skills in analyzing animatic 3.6 Skills in analyzing layout 3.7 Acting skills 3.8 Voice acting skill 3.9 Understanding & applying director's instructions 3.10 Effective Communication skills 3.11 Presentation skills 3.12 Computer and software skills 3.13 Practicing OSHS, EHSM, 3Rs and 5S

RANGE OF VARIABLES

VARIABLE	RANGE
1. Digital Model pack library	May include: 1.1. Character turnarounds 1.2. Objects /props 1.3. Size comparison 1.4. Attitudes and expressions 1.5. Mouth chart 1.6. Background reference 1.7. Effects
2. Materials	May include: 2.1. Storyboard (softcopy) 2.2. Animatics 2.3. Effects
3. Digital storyboard	May include: 3.1. Title, episode, sequence / act 3.2. Scene elements (background, poses, character, camera movements) 3.3. Dialogue / audio indication 3.4. Action notes (time set up, location, action needed)
4. Animatics	May include video of: 4.1. Character movement 4.2. Camera movement 4.3. Sequence cut 4.4. Dialogue cut 4.5. Time elapse / frame count / FPS 4.6. Scene/ panel number
5. Production Technical specifications	May include: 5.1. Timing 5.2. Animation style/ movement 5.3. effects 5.4. 3D elements
6. Relevant personnel	May include: 6.1. Animation Director 6.2. Production Manager 6.3. Production Coordinator
7. Software	May include: 7.1. Adobe Flash/ animate 7.2. Toon Boom Harmony 7.3. Retas Pro 7.4. TV paint 7.5. Adobe photoshop

VARIABLE	RANGE
8. Delivery platforms	May include: 8.1. .Fla 8.2. .Swf 8.3. .Avi 8.4. .Mp4 8.5. .Mov 8.6. Targa 8.7. .Png 8.8. Image sequence 8.9. .gif
9. Items	May include: 9.1. model pack 9.2. characters 9.3. Props / objects
10. Digital backgrounds	May include 10.1. Interior 10.2. Exterior

11. Principles of Animation	May include:
	
	11.1. Appeal
	11.2. Solid drawing/ Dynamic pose (silhouettes, volume)
	11.3. Staging/ composition
	11.4. Exaggeration
	11.5. Anticipation
	11.6. Follow through/ overlapping/wave/figure 8 principle
	11.7. Pose to pose / straight ahead
	11.8. Timing with texture/ Spacing/
	  ◦ Balance
	  ◦ weight
	  ◦ body attitude
	  ◦ line of action
	11.9. Stretch & squash
	11.10. Arcs
	11.11. Secondary action
	11.12. Slow in / slow out

12. Lipsync	May include: 12.1. Phonetics / Visemes 12.2. Mouth chart A,B,C,D,E, F,G,H 12.3. Special mouths O,TH, PH etc 12.4. 1(closed mouth) 2 (half-open mouth) 3 (open mouth)

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment **requires evidence** that the candidate: 1.1 Identified requirements and materials for tradigital animation. 1.2 Produced tradigital animation. 1.3 Revised/Edited tradigital animation.
2. Method of Assessment	The assessor must assess the candidate through the ff: 2.1 Demonstration with oral questioning 2.2 interview
3. Resource Implication	The following resources should be provided: 3.1 Appropriate materials 3.2 Applicable software and equipment
4. Context of Assessment	4.1. Competency maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.

UNIT TITLE   :   **CREATE 2D DIGITAL CUT-OUT ANIMATION**
UNIT CODE   :   **ICT216306**
UNIT DESCRIPTOR   :   This unit covers the skills and knowledge required to build animation object library and use digital animation techniques and software to create 2D digital cut-out animation.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify and gather requirements and materials for 2D digital cut-out animation	1.1 ***Digital model pack, stock library, digital storyboard*** are obtained with ***relevant personnel*** based on company policies and procedures 1.2 ***Animatics*** and ***production technical specifications*** are discussed with Director/ supervisor based on scene provided 1.3 Software selected is installed in accordance with the specified ***delivery platform***	1.1 Verbal Communication 1.2 Written Communication 1.3 Intellectual Property rights and concerns 1.4 OHS processes and procedure for Computer Hardware 1.5 Computer hardware requirements for animation 1.6 Digital animation equipment & materials 1.7 Model sheets 1.8 2D animation software 1.9 Cross platform/ delivery platform 1.10 Basic Math	1.1 Effective Communication skills 1.2 Computer operation skills 1.3 Drawing skills 1.4 Analytical and comprehension skills 1.5 Reporting skills 1.6 Skills in reading and analyzing model sheet, storyboard and soundtrack breakdown. 1.7 Presentation skills 1.8 Practicing OSHS, EHSM, 3Rs
2. Build digital library of characters and objects	2.1 ***Character turn-around***, ***special effects***, ***props/objects*** are acquired based on digital model sheet. 2.2 All acquired ***elements*** are traced, drawn or built based on given model sheet/poses/drawings. 2.3 Segmented elements are colored, saved and backed up in accordance with company SOP 2.4 All characters are segmented and grouped according to body parts' and joints' parenting structures. 2.5 All segmented elements are properly labeled with correct naming convention. 2.6 Complete segmented parts of characters and objects are saved and submitted for final review and approval based on client's requirements	2.1 Verbal Communication 2.2 Written Communication 2.3 Intellectual Property rights and concerns 2.4 OHS processes and procedure for Computer Hardware 2.5 Human and animal anatomy 2.6 Behavioural science 2.7 Computer hardware requirements for animation 2.8 Digital animation equipment & materials 2.9 Model sheets 2.10 2D animation software 2.11 Cross platform/ delivery platform 2.12 Basic Math 2.13 Geometry	2.1 Effective Communication skills 2.2 Presentation skills 2.3 Computer operating skills 2.4 Drawing skills for both living & non-living 2.5 Animation skills 2.6 Analytical and comprehension skills 2.7 Skills in analyzing animatics 2.8 Acting skills 2.9 Understanding & applying director's instructions 2.10 OSHS, EHSM, 3Rs and 5S

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Produce 2D digital cut-out animation	3.1 ***Materials*** of the assigned scene are obtained from relevant personnel based on production procedures 3.2 Required characters, objects/props and background are set-up for the particular scene 3.3 Scene is digitally animated using items found in the provided materials based on the animatic or storyboard applying the ***Principles of animation*** 3.4 Appropriate body parts are selected and substituted from the digital library for the action required in a particular scene. 3.5 ***Lipsync or sound effects*** is incorporated (if necessary) on specific dialogue areas in the scene based on animatics. 3.6 Created 2D digital cut-out animation is saved based on appropriate delivery format. 3.7 Animated scene is reviewed through playback to check movements and lipsync 3.8 Finished animated scene is submitted to relevant personnel based on company policies and procedures	3.1 Verbal Communication 3.2 Written Communication 3.3 Intellectual Property rights and concerns 3.4 OHS processes and procedure for Computer Hardware 3.5 Human and animal anatomy 3.6 Behavioural science 3.7 Animation principles 3.8 Perspective 3.9 Spatial perception 3.10 Phonetics 3.11 Physics 3.12 Computer hardware requirements for animation 3.13 Digital animation equipment & materials 3.14 Model sheets 3.15 2D animation software 3.16 Cross platform/ delivery platform 3.17 Principles and techniques of animation production 3.18 Basic Math 3.19 Geometry	3.1 Clean-up and In-between Drawing Skills 3.2 Drawing skills for both living & non-living 3.3 Animation skills 3.4 Analytical and comprehension skills 3.5 Skills in analyzing animatic 3.6 Skills in analyzing layout 3.7 Acting skills 3.8 Voice acting skill 3.9 Understanding & applying director's instructions 3.10 Effective Communication skills 3.11 Presentation skills 3.12 Computer and software skills 3.13 Practicing OSHS, EHSM, 3Rs and 5S
4. Revise / Edit 2D digital cut-out animation	4.1. Revisions are received and discussed with director/ animation supervisor based on scene submitted. 4.2. Revision changes are incorporated to the animation in accordance with director's instruction 4.3. Revised scene is resubmitted to relevant personnel based on company policies and procedures	4.1. Verbal Communication 4.2. Written Communication 4.3. Intellectual Property rights and concerns 4.4. OHS processes and procedure for Computer Hardware 4.5. Human and animal anatomy 4.6. Behavioural science 4.7. Animation principles 4.8. Perspective 4.9. Spatial perception 4.10. Phonetics 4.11. Physics	4.1. Clean-up and In-between Drawing Skills 4.2. Drawing skills for both living & non-living 4.3. Animation skills 4.4. Analytical and comprehension skills 4.5. Skills in analyzing animatic 4.6. Skills in analyzing layout 4.7. Acting skills 4.8. Voice acting skill

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		4.12. Computer hardware requirements for animation 4.13. Digital animation equipment & materials 4.14. Model sheets 4.15. 2D animation software 4.16. Cross platform/ delivery platform 4.17. Basic Math 4.18. Geometry	4.9. Understanding & applying director's instructions 4.10. Effective Communication skills 4.11. Presentation skills 4.12. Computer and software skills 4.13. Practicing OSHS, EHSM, 3Rs and 5S

RANGE OF VARIABLES

VARIABLE	RANGE
1. Digital Model pack library	May include: 1.1. Character turnarounds 1.2. Objects /props 1.3. Size comparison 1.4. Attitudes and expressions 1.5. Mouth chart 1.6. Background reference 1.7. Effects
2. Materials	May include: 2.1. Character parts: eyes, hands, heads, etc 2.2. Symbols / nodes 2.3. Storyboard (softcopy) 2.4. Animatics 2.5. Effects
3. Digital storyboard	May include: 3.1. Title, episode, sequence / act 3.2. Scene elements (background, poses, character, camera movements) 3.3. Dialogue / audio indication 3.4. Action notes (time set up, location, action needed)
4. Animatics	May include video of: 4.1. Character movement 4.2. Camera movement 4.3. Sequence cut 4.4. Dialogue cut 4.5. Time elapse / frame count / FPS 4.6. Scene/ panel number
5. Production Technical specifications	May include: 5.1. Timing 5.2. Animation style/ movement 5.3. effects 5.4. 3D elements
6. Relevant personnel	May include: 6.1. Animation Director 6.2. Production Manager 6.3. Production Coordinator
7. Software	May include: 7.1. Adobe Flash/ animate 7.2. Toon Boom Harmony 7.3. Retas Pro 7.4. TV paint 7.5. After effects 7.6. Adobe photoshop

VARIABLE	RANGE
8. Delivery platforms	May include: 8.1. .Fla 8.2. .Swf 8.3. .Avi 8.4. .Mp4 8.5. .Mov 8.6. Targa 8.7. .Png 8.8. Image sequence 8.9. .gif
9. Character turnaround	May include: 9.1. Front view 9.2. side view 9.3. back view 9.4. quarter view
10. Special effects	May include the following: 10.1. Explosion 10.2. Water effects 10.3. Smoke effects 10.4. Dust 10.5. Fire 10.6. etc.
11. Objects	May Include: 11.1. Props 11.2. Overlays 11.3. Underlays 11.4. Characters 11.5. Background
12. Items	May include: 12.1. model pack 12.2. characters 12.3. parts: hands, eyes, heads, legs etc. 12.4. Props / objects
13. Digital backgrounds	May include 13.1. Interior 13.2. Exterior

14. Principles of Animation	May include:
	14.1. Appeal
	14.2. Solid drawing/ Dynamic pose (silhouettes, volume)
	14.3. Staging/ composition
	14.4. Exaggeration
	14.5. Anticipation
	14.6. Follow through/ overlapping/wave/figure 8 principle
	14.7. Pose to pose / straight ahead
	14.8. Timing with texture/ Spacing/
	    ◦ Balance
	    ◦ weight

VARIABLE	RANGE
	◦ body attitude ◦ line of action 14.9. Stretch & squash 14.10. Arcs 14.11. Secondary action 14.12. Slow in / slow out
15. Lipsync	May include: 15.1. Phonetics / Visemes 15.2. Mouth chart A,B,C,D,E, F,G,H 15.3. Special mouths O,TH, PH etc 15.4. 1(closed mouth) 2 (half-open mouth) 3 (open mouth)

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment **requires evidence** that the candidate:
	1.1 Identified and gathered requirements and materials for 2D digital cut-out animation.
	1.2 Built digital library of characters and objects
	1.3 Produced 2D digital cut-out animation.
	1.4 Revised/Edit 2D digital cut-out animation.
2. Method of Assessment	The assessor must assess the candidate through the ff:
	2.1 Demonstration with oral questioning
	2.2 interview
3. Resource Implication	The following resources should be provided:
	3.1 Appropriate materials
	3.2 Applicable software and equipment
4. Context of Assessment	4.1. Competency maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.

UNIT TITLE : **EXPORT ANIMATION TO VIDEO FILE FORMAT**
UNIT CODE : **ICT 216307**
UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitude required to export finished animation to a video file format in accordance to industry standards.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Check all animation items in the scene to be exported	1.1. All elements including audio track are checked and placed in correct layers based on client's specifications 1.2. All relevant layers needed are visible in the scene based on client's specifications 1.3. All elements are viewed in accordance to director's/ client's viewing requirements.	1.1. Verbal Communication 1.2. Written Communication 1.3. Computer hardware, software knowledge 1.4. production information 1.5. Practicing 3Rs – Reduce, Re-use, Recycle/Recover and environmental concerns 1.6. Basic Math	1.1 Analytical and comprehension skills 1.2 Skills in reading and analyzing storyboard, exposure sheet and layout and soundtrack breakdown. 1.3 Effective Communication skills 1.4 Presentation skills 1.5 Computer operation skills 1.6 Practicing OSHS, EHSM, 3Rs
2. Identify and select delivery platform to export	2.1. Specific delivery platform is identified according to client's specifications 2.2. *File output* is selected as specified in the requirements.	2.1. Verbal Communication 2.2. Written Communication 2.3. Computer hardware, software knowledge 2.4. Production information 2.5. Familiar with different types of media 2.6. Practicing 3Rs – Reduce, Re-use, Recycle/Recover and environmental concerns 2.7. Basic Math	2.1. Analytical and comprehension skills 2.2. Effective Communication skills 2.3. Presentation skills 2.4. Computer operation skills 2.5. Practicing OSHS, EHSM, 3Rs
3. Export and save digital animation	3.1. Exported animation file is saved in a designated folder 3.2. Back-ups and extra copies of important images and video files are created on the specific file allocation in accordance to assigned project. 3.3. File is submitted and informed to relevant personnel.	3.1. Verbal Communication 3.2. Written Communication 3.3. Computer hardware, software knowledge 3.4. Production information 3.5. Familiar with different types of media 3.6. Practicing 3Rs – Reduce, Re-use, Recycle/Recover and environmental concerns 3.7. Basic Math	3.1. Analytical and comprehension skills 3.2. Effective Communication skills 3.3. Presentation skills 3.4. Computer operation skills 3.5. Practicing OSHS, EHSM, 3Rs

RANGE OF VARIABLES

VARIABLE	RANGE
1. File output	May include: 1.1. Video output format 1.2. Raw files/scene folder

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Checked all animation items in the scene to be exported. 1.2 Identified and selected delivery platform to export. 1.3 Exported and saved digital animation/file output.
2. Method of Assessment	The assessor must assess the candidate through the following: 2.1 Demonstration with oral questioning 2.2 Interview
3. Resource Implication	The following resources should be provided: 3.1 Appropriate materials 3.2 Applicable software and equipment
4. Context of Assessment	4.1. Competency maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.

SECTION 3   TRAINING ARRANGEMENTS

These standards are set to provide technical and vocational education and training (TVET) providers with information and other important requirements to consider when designing training programs for **2D Animation NC III.**

They include information on curriculum design; training delivery; trainee entry requirements; tools and equipment; training facilities; and   trainer's qualification.

3.1   CURRICULUM DESIGN

TESDA shall provide the training on the development of competency-based curricula to enable training providers develop their own curricula with the components mentioned below.

Delivery of knowledge requirements for the basic, common and core units of competency specifically in the areas of mathematics, science/technology, communication/language and other academic subjects shall be contextualized. To this end, TVET providers shall develop a Contextual Learning Matrix (CLM) to include green technology, issues on health and drugs and catering to persons with disabilities (PWD's) to accompany their curricula.

Course Title: 2D Animation   **NC Level:** NC III

Nominal Training Duration: 68 hrs – Basic Competencies
                                                28 hrs – Common Competencies
                                               872 hrs – Core Competencies
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                          Total   968 hrs

Course Description:

This course is designed to develop & enhance the knowledge, skills, & attitudes of an Animator in accordance with industry standards. It covers the basic & common competencies in addition to the core competencies such as to produce traditional key poses/drawings for animation, create tradigital animation, create 2D digital cut-out animation and to export animation to video file format.

The nominal duration of 968 hours covers the required units at 2D Animation NC III. TVET providers can however, offer a longer, ladderized course covering the NC III basic, common and core units.

To obtain this, all units prescribed for this qualification must be achieved.

BASIC COMPETENCIES
(68 hours)

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration

1. Lead workplace communication	1.1 Communicate information about workplace processes	• Lecture and discussion on:
		  o Effective verbal communication methods
		  o Sources of information
		• Practice organizing information
		• Identify organization requirements for written and electronic communication methods
		• Follow organization requirements for the use of written and electronic communication methods
		• Perform exercises on understanding and conveying intended meaning scenario
			• Lecture
			• Demonstration
			• Practical exercises
			• Demonstration
			• Role Play
				• Written Test
				• Observation
					2 Hours

	1.2 Lead workplace discussions	• Lecture and discussion on:
		  o Organizational policy on production, quality and safety
		  o Goals/ objectives and action plan setting
		• Read effective verbal communication methods
		• Prepare/set action plans based on organizational goals and objectives
			• Group discussion
			• Lecture
			• Demonstration
				• Oral evaluation
				• Written Test
				• Observation
					2 Hours

	1.3 Identify and communicate issues arising in the workplace	• Lecture and discussion on: o Organizational policy in dealing with issues and problems • Read effective verbal communication methods • Practice organizing information • Perform exercises on understanding and conveying intended meaning scenario	• Group discussion • Lecture • Demonstration • Role Play	• Oral evaluation • Written Test • Observation	2 Hours
2. Lead small teams	2.1 Provide team leadership	• Lecture and discussion on: o Company policies and procedures • Identify client expectations • Practice team building skills	• Group discussion • Lecture • Demonstration • Role Play	• Oral evaluation • Written examination • Observation	2 Hours

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Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		• Perform exercises on communication skills required for leading teams			
	2.2 Assign responsibilities among members	• Lecture and discussion on: ○ Team member's duties and responsibilities • Identify client expectations • Practice negotiating skills • Perform group exercises showing the skills and techniques in promoting team building	• Group discussion • Lecture • Demonstration • Role Play	• Oral evaluation • Written examination • Observation	2 Hours

	2.3 Set performance expectation for team members.	• Lecture and discussion on:
		  ○ Team member's duties and responsibilities
		  ○ How performance expectations are set
		• Identify client expectations
		• Perform group exercises in setting individual target/ expectation
		• Read instruction and requirements in up to date dissemination to members
			• Group discussion
			• Lecture
			• Demonstration
			• Role Play
				• Oral evaluation
				• Observation
				• Written examination
					2 Hours

	2.4 Supervise team performance	• Discuss listening and treating individual team members concern • Identify methods of Monitoring Performance • Perform group exercises showing the skills in monitoring team performance	• Group discussion • Lecture • Demonstration	• Oral evaluation • Written examination • Observation	2 Hours

3. Develop and practice negotiation skills	3.1. Plan negotiations	• Lecture and discussion on:
		  ○ codes of practice and guidelines for the organization
		  ○ differences between content and process
		• Read:
		  ○ Organizations policy and procedures for negotiations
		  ○ Decision making and conflict resolution strategies procedures
		  ○ Strategies to manage conflict
		  ○ Steps in negotiating process
		• Identify bargaining information
		• Apply strategies to manage process
			• Group Discussion
			• Lecture
			• Demonstration
				• Oral evaluation
				• Written examination
				• Observation
					4 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		• Apply steps in negotiating process			
	3.2. Participate in negotiations	• Discuss/Describe the following strategies during negotiation: ○ Decision making and conflict resolution strategies procedures ○ Problem solving strategies on how to deal with unexpected questions and attitudes during negotiation • Practice the following scenarios in a group activity: ○ Perform interpersonal skills to develop rapport with other parties ○ Perform verbal communication and listening skill ○ observation skills ○ negotiation skills • Describe the Procedure in documenting negotiations • Apply a filing system in managing information • Demonstrate filing of documents	• Group Discussion • Case studies • Demonstration • Simulation/ Role play	• Oral evaluation • Observation	4 Hours
4. Solve workplace problem related to work activities	4.1. Identify the problem	• Discussion on Normal operating parameters & product quality • Identify & clarify the nature of problem • Read: ○ Brainstorming ○ Cause and effect diagrams ○ PARETO analysis ○ SWOT analysis ○ GANT chart ○ PERT CPM & graph ○ SCATTERGRAMS	• Group discussion • Lecture • Demonstration	• Oral evaluation • Written examination • Observation	2 Hours

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Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		• Apply observation, investigation and analytical techniques in solving problem in the workplace			

	4.2. Determine fundamental cause of the problem	• Discussion on Teamwork and work allocation problem
		• Read:
		  o Using range of formal problem solving techniques
		  o Enterprise goals, targets and measures
		  o Enterprise quality, OHS and environmental requirement
		  o Non-routine process and quality problems
		• Perform group exercises showing safety in emergency situations and incidents
		• Identify & clarify the nature of problem
		• Select relevant equipment and operational processes
			• Group discussion
			• Lecture
			• Demonstration
			• Role Play
				• Oral evaluation
				• Written examination
				• Observation
					2 Hour

	4.3. Determine correct / preventive action	• Discussion on principles of decision making strategies and techniques
		• Read:
		  o Evaluating the solution
		  o Devising the best solution
		• Perform group exercise how to implement the developed plan to rectify a problem
			• Group Discussion
			• Lecture
			• Demonstration
			• Role Play
				• Oral evaluation
				• Written examination
				• Observation
					2 Hour

	4.4. Provide recommendation to manager	• Discuss industry codes and standards • Apply enterprise information systems and data collation • Prepare recommendation letter	• Group Discussion • Demonstration	• Oral evaluation • Observation	2 Hour

5. Use mathematical concepts and techniques	5.1 Identify mathematical tools and techniques to solve problem	• Discussion on the four fundamental operation (addition, subtraction, division, multiplication)
		• Read:
		  o Measurement system
		  o Precision and accuracy
			• Group Discussion
			• Lecture
			• Demonstration
				• Oral evaluation
				• Written examination
				• Observation
					2 Hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		o Basic measuring tools/devices • Apply mathematical computations • Demonstrate activities on: o Use of calculator o Use of different measuring tools			
	5.2 Apply mathematical procedures/ solution	• Lecture and discussion on: o Estimation o Problem-based questions o Mathematical techniques • Apply mathematical computations • Demonstrate activities on: o Use of calculator o Use of different measuring tools o Use of mathematical tools and standard formulas	• Lecture • Demonstration • Simulation/ Role play	• Written examination • Observation	4 Hours
	5.3 Analyze results	• Discussion on the four fundamental operation (addition, subtraction, division, multiplication) • Read: o Measurement system o Precision and accuracy o Basic measuring tools/devices • Apply mathematical computations • Demonstrate activities on: o Use of calculator o Use of different measuring tools	• Group Discussion • Lecture • Demonstration	• Oral evaluation • Written examination • Observation	2 Hours
6. Use relevant technologies	6.1 Identify appropriate technology	• Discussion on company policy in relation to relevant technology • Read: o Awareness on technology and its function o Relevant technology application/ implementation o Operating instructions • Practice basic communication skill in a group activity	• Group Discussion • Lecture • Demonstration • Simulation/ Role Play	• Oral evaluation • Written examination • Observation	2 Hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration

	6.2 Apply relevant technology	• Discussion on different management concepts
		• Read:
		  ○ Relevant technology application/ implementation
		  ○ Technology adaptability
		  ○ Different management concepts
		  ○ Health and safety procedure
		  ○ Communication techniques
		  ○ Apply software applications skills
		• Practice drills on installing application software
		• Practice basic communication skill in a group activity
			• Group Discussion
			• Lecture
			• Demonstration
			• Simulation/ Role Play
				• Oral evaluation
				• Written examination
				• Observation
					4 Hours

	6.3 Maintain/ enhance relevant technology	• Lecture and discussion on:
		  ○ Repair and maintenance procedure
		  ○ Operating instructions
		• Practice drills:
		  ○ Installing application software
		  ○ Basic troubleshooting skills
			• Lecture
			• Demonstration
			• Simulation/ Role Play
				• Written examination
				• Observation
					2 Hours

7. Apply critical thinking and problem solving techniques in the workplace	7.1. Identify the problem	• Lecture and discussion on
		  ○ Processes, normal operating parameters, and product quality to recognize nonstandard situations
		  ○ Enterprise goals, targets and measures
		  ○ Analytical techniques
		  ○ Types of problems
			• Lecture
			• Group Discussion
				• Oral evaluation
				• Written Examination
					2 Hours

	7.2. Determine fundamental causes of the problem	• Lecture and collaboration on
		  ○ Root cause of the problem
		  ○ Problem solving tools
		• Exercise on cause and effect
			• Lecture
			• Group Discussion
				• Oral evaluation
				• Written Examination
					2 Hours

	7.3. Determine corrective action	• Lecture and discussion on ○ Identification and analysis of possible options for problem resolution	• Lecture • Group Discussion	• Oral evaluation	2 Hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		○ Corrective actions ○ Principles of decision making strategies and techniques • Layouting of action plans		• Written Examination • Observation	
	7.4. Provide recommendation/s to manager	• Using range of formal problem solving techniques • Preparation and presentation of sample recommendation report	• Lecture • Group Discussion	• Oral evaluation • Written Examination • Presentation	2 Hours
8. Use information creatively and critically	8.1. Use technical information systems and information technology	• Lecture and discussion on: ○ Application in collating information ○ Procedures for inputting, maintaining and archiving information ○ Guidance to people who need to find and use information • Organizing information into a suitable form for reference and use • Classify stored information for identification and retrieval • Operate the technical information system by using agreed procedures	• Lecture • Group Discussion • Self-paced handout/ module • Hands on • Demonstration	• Oral evaluation • Written Examination • Presentation	4 Hours
	8.2. Apply information technology (IT)	• Lecture and discussion on: ○ Attributes and limitations of available software tool ○ Procedures and work instructions for the use of IT ○ Operational requirements for IT systems ○ Sources and flow paths of data ○ Security systems and measures that can be used ○ Methods of entering and processing information	• Lecture • Group Discussion • Self-paced handout/ module • Hands on • Demonstration	• Oral evaluation • Written Examination • Presentation	2 Hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		• Use procedures and work instructions for the use of IT • Extract data and format reports • Use WWW applications			

	8.3. Edit, format and check information	• Lecture and discussion on:
		  o Basic file-handling techniques
		  o Techniques in checking documents
		  o Techniques in editing and formatting
		  o Proof reading techniques
		• Use different techniques in checking documents
		• Edit and format information applying different techniques
		• Proof read information applying different techniques
			• Lecture
			• Group Discussion
			• Self-paced handout/ module
			• Hands on
			• Demonstration
				• Oral evaluation
				• Written Examination
				• Presentation
					2 Hours

9. Work in a diverse environment	9.1. Develop an individual's cultural awareness and sensitivity	• Lecture and discussion on:
		  o Enterprise policies and core values
		  o Awareness on individual cultures and world geography
		  o Different methods of verbal and non-verbal communication in a multicultural setting
		  o Workplace Diversity Policy
			• Lecture
			• Group Discussion
				• Oral evaluation
				• Written Examination
				• Presentation
					2 hrs

	9.2. Work effectively in an environment that acknowledges and values cultural diversity	• Lecture and discussion on:
		  o The value of diversity in the economy and society in terms of Workforce development
		  o Innovation
		  o Social justice
		  o Customer service excellence
		  o Teamwork and collaboration
		• Applying strategies for customer service excellence
			• Lecture
			• Group Discussion
				• Oral evaluation
				• Written Examination
				• Presentation
					2 hrs

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration

	9.3. Identify common issues in a multicultural and diverse environment	• Lecture and discussion on:
		  o Diversity-related conflicts within the workplace
		  o Change management policies
		  o Advance strategies for customer service excellence
		• Identifying and addressing workplace harassment
		• Applying advance strategies for customer service excellence
			• Lecture
			• Group Discussion
				• Oral evaluation
				• Written Examination
				• Presentation
					2 hrs

Note: Basic competencies may be embedded in the core competencies.

COMMON COMPETENCIES
28 hrs

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
1. Apply Quality Standards	1.1 Assess quality of received materials	• Identify relevant production processes, materials and products • Study and interpret characteristics of materials, software and hardware used in production processes • Perform quality checking procedures • Apply quality Workplace procedures • Identify faulty materials • Check quality of materials or component parts as per manufacturer's standards • Interpret specifications or symbols	• Lecture • Field trip • Symposium • Video clips • Simulation/ Role playing	• Written test • Demonstration & questioning • Observation & questioning	3 hours
	1.2 Assess own work	• Perform workplace procedure in documenting completed work • Perform fault identification and reporting • Observe safety and environmental aspects of production processes • Utilize workplace quality indicators • Document and report deviations from specified quality standards	• Field trip • Symposium • Simulation • On the job training	• Demonstration & questioning • Observation & questioning	3 hours

	1.3 Engage in quality improvement	• Participate in quality improvement processes
		   a. IEC/ISO standards
		   b. Environmental and safety standards
		• Carry out work as per process improvement procedures
		• Monitor operation performance
		• Implement continuous improvement
			• Field trip
			• Symposium
			• Simulation
			• On the job training
				• Demonstration & questioning
				• Observation & questioning
					2 hours

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Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
2. Perform Computer Operations	1.1 Plan and prepare for task to be undertaken	• Plan and prepare computer operation activity • Determine task requirements based on required output • Determine appropriate hardware and software • Identify/Select types of computers and basic features of different operating systems • Interpret and follow client-specific guidelines & procedures • Plan task as per data security guidelines	• Lecture • Modular • Computer based training (e-learning) • Project method • On the job training	• Written/Oral examination • Practical demonstration	4 hours
	1.2 Input data into computer	• Apply basic ergonomics of keyboard and computer user • Enter/Encode data using appropriate computer programs/applications • Check accuracy of encoded data/information per SOP • Save and store inputted data in storage media • Storage devices and basic categories of memory • Identify and define relevant types of software	• Lecture • Modular • Group discussion • Project method • On the job training	• Written/Oral examination • Practical demonstration	4 hour

	1.3 Access information using computer	• Select correct program/ application based on job requirements
		• Access computer data/files
		• Interpret general security, privacy legislation & copyright
		• Use Productivity Application
		  • Microsoft office applications
		• Learn Business Application
		  • Introduction to Basic Programming software
			• Lecture
			• Computer based training (e-learning)
			• On the job training
				• Written/Oral examination
				• Practical demonstration
					5 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		• Apply basic ergonomics of keyboard and computer user			

	1.4 Produce/output data using computer system	• Identify types and function of computer peripheral devices
		• Print and scan office documents and materials
		• Send office/ business documents through facsimile
		• Transfer files or data between compatible systems using computer software, hardware/ peripheral devices
		• Save documents in storage devices
		   a. CD/DVD
		   b. USB drives
		   c. Hard disk drives
			• Lecture
			• Group discussion
			• Modular
			• On the job training
				• Written/Oral examination
				• Practical demonstration
					5 hours

	1.5 Maintain computer equipment and systems	• Perform computer equipment/ system basic maintenance procedures
		   a. Perform basic file maintenance procedures
		   b. Perform cleaning of PC parts/ hardware components
		   c. Scan/Debug computer software and applications
		   d. Perform cleaning and defragmentation of computer files
		   e. Perform backup of computer files
		• Enumerate and define different types of computer viruses
			• Demonstration
			• Simulation
			• Modular
			• Video clips
			• Computer based training (e-learning)
				• Written/Oral examination
				• Practical demonstration
					2 hours

CORE COMPETENCIES
872 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
1. Produce Traditional key poses/ drawings for animation	1.1 Identify Traditional animation equipment and materials	• Identify all relevant key drawing requirements based on the source material provided. • Identify key drawing soundtrack breakdown requirements based from the storyboard and exposure sheet. • Identify and prepare all necessary materials and equipment to be used according to the task to be undertaken. • Report non-functioning and missing materials and equipment to appropriate personnel	• Lecture/ Discussion • Hands on • Exercises • Demonstration • Viewing multimedia	• Written exam • Practical exam Observation in workplace • Interviews/ questioning	16 hours
	1.2 Produce traditional key poses/ drawings	• Produce key poses/drawings based on the storyboard, layout and the exposure sheets. • Comply key poses/drawings produced with the style of the model pack. • Produce key poses/drawings of dialogue scenes in sync with the soundtrack breakdown. • Apply the 12 principles of animation in relation and as required in the scene action. • Sufficient quantity of key poses/drawings and animation breakdowns produced to establish a convincing action, drama and staging. • Line test the Key poses/drawings to check timing, acting and movement as required in the exposure sheet. • Submit finished scene to relevant personnel for checking.	• Lecture/ Discussion • Hands on • Exercises • Demonstration • Viewing multimedia	• Practical exam • Observation in workplace • Interviews/ questioning	200 hours

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Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
	1.3 Edit/revise key poses/drawings	• Return off model key poses/drawings for revision. • Supply key poses/drawings that require additional breakdowns and additional by the animator following instructions of the relevant personnel. • Adjust off sync dialogue segments with correct mouth openings. • Resubmit completed revised scene to relevant personnel	• Lecture/ Discussion • Hands on • Exercises • Demonstration • Viewing multimedia	• Practical exam • Observation in workplace • Interviews/ questioning	24 hours
2. Create tradigital animation	2.1 Identify and gather requirements and materials for tradigital animation	• Obtain digital model pack library, digital storyboard with relevant personnel. • Discuss animatic and production technical specifications with Director / supervisor. • Install software selected in accordance with the specified delivery platform.	• Lecture/ Discussion • Hands on • Exercises • View Multimedia	• Direct observation • Demonstration with oral questioning	16 hours
	2.2 Produce tradigital animation	• Import animatic of the assigned scene from relevant personnel. • Scene analysis based on animatic and character study • Animate scene applying the principles of animation • Integration of sound track for lipsynch animation and special effects for actions or objects required in a particular scene. • Review animated scene through playback to check movements and lip-synch. • Save produced tradigital animation in appropriate delivery format. • Submit finish animated scene to relevant personnel.	• Lecture/ Discussion • Hands on • Exercises	• Direct observation • Demonstration with oral questioning	200 hours

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Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
	2.3 Revise / Edit tradigital animation	• Receive and discuss revisions with relevant personnel. • Incorporate revision changes to the animations. • Resubmit revised scene to relevant personnel.	• Lecture/ Discussion • Hands on • Exercises	• Direct observation • Demonstration with oral questioning	24 hours
3. Create 2D digital cut-out animation	3.1. Identify and gather requirements and materials for 2D digital cut-out animation	• Identification of Digital Model Pack or stock library, digital storyboard. • Discussion on materials, animatics and production technical specifications. • Identify and familiarized installed software required for the production	• Lecture/ Discussion • Hands on • Exercises • View Multimedia	• Direct observation • Demonstration with oral questioning	24 hours
	3.2. Build digital characters and objects	• Import character turn-around, special effects, and objects from digital model sheet. • Trace, vectorize, digitally color, save and back up all acquired items in the stock library. • Grouping of body parts and joints through parenting • Labeling of segmented element by proper naming convention • Saving of segmented elements to the stock library.	• Lecture/ Discussion • Hands on • Exercises • View Multimedia	• Direct observation • Demonstration with oral questioning	160 hours
	3.3. Produce 2D digital cut-out animation	• Discussion on animatic of a scene • Building of scene by importing characters, props and background required in a scene • Producing key poses (pose to pose action) based on animatics • Animate scene using selected animation software tools applying principles of animation • Substituting proper body parts to achieve required action poses, expressions and gestures • Integration of sound track to lipsynch animation	• Lecture/ Discussion • Hands on • Exercises	• Direct observation • Demonstration with oral questioning	160 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		• Applying required sound effects to the animation • Review animated scene through playback to check movements and lip-synch. • Save produced 2D digital cut-out animation in appropriate delivery format. • Upload/Transfer finished animated scene to designated file folder.			
	3.4. Revise / Edit 2D digital cut-out animation	• Discussion of scene revisions • Incorporation of revision changes to the animations. • Saving and uploading/transferring of revised animation to designated file folder	• Lecture/ Discussion • Hands on • Exercises	• Direct observation • Demonstration with oral questioning	40 hours
4. Export animation to video file format	4.1. Check all animation items in the scene to be exported	• Check and place all elements including audio track in correct layers. • Make all relevant layers visible that are needed in the scene. • View all elements in final playback prior to exporting.	• Lecture/ Discussion • Hands on • Exercises • Demonstration • Viewing multimedia	• Practical exam • Observation in workplace • Interviews/ questioning	1 hour
	4.2. Identify and select delivery platform to export	• Identify video codec and correct resolution for the required scene. • Identify specific delivery platform according to client's specifications • Select file output as specified in the requirements.	• Lecture/ Discussion • Demonstration • Viewing multimedia	• Practical exam • Observation in workplace • Interviews/ questioning	1 hour
	4.3. Export and save digital animation	• Save exported animation file in a designated folder • Create back-ups and extra copies of important images and video files on the specific file allocation for the assigned project. • Inform and submit file to relevant personnel	• Demonstration • Viewing multimedia	• Practical exam • Observation in workplace • Interviews/ questioning	6 hours

3.2 TRAINING DELIVERY

1. The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET.

   a. Course design is based on competency standards set by the industry or recognized industry sector; (**Learning system is driven by competencies written to industry standards**)

   b. Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies;

   c. Training can be done on an actual workplace setting, simulation of a workplace and/or through adoption of modern technology.

   d. Assessment is based in the collection of evidence of the performance of work to the industry required standards;

   e. Assessment of competency takes the trainee's knowledge and attitude into account but requires evidence of actual performance of the competency as the primary source of evidence.

   f. Training program allows for recognition of prior learning (RPL) or current competencies;

   g. Training completion is based on satisfactory completion of all specified competencies not on the specified nominal duration of learning.

2. The competency-based TVET system recognizes various types of delivery modes, both on-and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities and their variations/components may be adopted singly or in combination with other modalities when designing and delivering training programs:

   2.1 **Institution- Based:**

   - Dual Training System (DTS)/Dualized Training Program (DTP) which contain both in-school and in-industry training or fieldwork components. Details can be referred to the Implementing Rules and Regulations of the DTS Law and the TESDA Guidelines on the DTP;

   - Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, audio, video, computer technologies or other modern technology that can be used to facilitate learning and formal and non-formal training. Specific guidelines on this mode shall be issued by the TESDA Secretariat.

   - The traditional classroom-based or in-center instruction may be enhanced through use of learner-centered methods as well as laboratory or field-work components.

2.2 **Enterprise-Based:**

- Formal Apprenticeship – Training within employment involving a contract between an apprentice and an enterprise on an approved apprenticeable occupation.

- Informal Apprenticeship - is based on a training (and working) agreement between an apprentice and a master craftsperson wherein the agreement may be written or oral and the master craftsperson commits to training the apprentice in all the skills relevant to his or her trade over a significant period of time, usually between one and four years, while the apprentice commits to contributing productively to the work of the business. Training is integrated into the production process and apprentices learn by working alongside the experienced craftsperson.

- Enterprise-based Training- where training is implemented within the company in accordance with the requirements of the specific company. Specific guidelines on this mode shall be issued by the TESDA Secretariat.

2.3 **Community-Based:**

- Community-Based Training – short term programs conducted by non-government organizations (NGOs), LGUs, training centers and other TVET providers which are intended to address the specific needs of a community. Such programs can be conducted in informal settings such as barangay hall, basketball courts, etc. These programs can also be mobile training program (MTP).

3.3 **TRAINEE ENTRY REQUIREMENTS**

The trainees who wish to enter the course should possess the following requirements:

- Must have Animation NCII certificate or have industry-based Asst. Animator/ Clean-Up and In-Between experience
- Must pass creative/drawing test given by institution
- Able to communicate both oral and written

This list does not include specific institutional requirements such as educational attainment, appropriate work experience and others that may be required from the trainees by the school or training center delivering the TVET program.

3.4   LIST OF TOOLS, EQUIPMENT AND MATERIALS

Recommended list of tools, equipment and materials for the conduct of training in 2D Animation NC III (class size of 20 students/trainees):

TOOLS		EQUIPMENT		MATERIALS	
Qty.	Description	Qty.	Description	Qty.	Description
21	Any of the following: – Lightbox (with animation disc/peg bar) – Animation table with disc	21pcs.	Ergonomic computer tables and chairs	2 sets (20 sheets per set)	Samples of animation model packs – cartoony and realistic
21	Must have any of the following 2D software*: – Toonboom – Flash – Retas Pro – After effects	21units	Desktop computer with mouse and keyboard (*Software dependent specifications}*	2 pcs.	Whiteboard markers
				1 pc.	Whiteboard eraser
				3 boxes	Light colored pencils
1	Must have any of the following 2D software* for line test purpose only: – Flip book – CTP Pro	1 unit	Desktop computer with mouse and keyboard – for line test (*Software dependent specifications}*		
21pcs	Peg bar	21units	Pen Tablet 4" x 6"	5 reams	Animation paper
16	Operating system	1 unit	Colored printer	1 roll	Masking tape 1"
1 pc	1 TB External hard drive	1 unit	whiteboard	1 roll	magic tape 1"
6 pairs	Earphones	1 unit	Web camera	2 boxes	Lead Pencil
1 box	Eraser				
1 box	Rubber/ kneaded eraser				
4 pcs	Pencil sharpener				
3pcs	Ruler				

* Can be either educational, license and open-source software

In cases where there are specialized tools, equipment and facilities that are not generally considered standard requirements or not absolute requisites for training, the industry working group or TESDA may provide guidelines or specific advice on such matters.

3.5   TRAINING FACILITIES

Based on class size of 20 students/trainees the space requirements for   the teaching/learning and circulation areas are as follows:

TEACHING/LEARNING AREAS	SIZE IN METERS	AREA IN SQ. METERS	QTY	TOTAL AREA IN SQ. METERS
Lecture Area	5 x 8	40	1	40
Learning Resource Area	4 x 5	15	1	15
Wash ,Toilet & Locker Room	2 x 5	4	2	8
Facilities / Equipment / Circulation**				20
Total Area				**83**

** *Area requirement is equivalent to 30% of the total teaching/learning areas*

Appropriate consideration should be given in providing and allocating work space, communications facilities, and the usual workplace amenities to ensure a proper learning environment. Where applicable, training shall be held or conducted in learning facilities in accordance with generally accepted industry standards and practice.

3.6   TRAINERS QUALIFICATIONS

- Must be a holder of National TVET Trainer Certificate (NTTC) level I in 2D Animation NC III;
- Must have at least five (5)-years animation artist industry experience within the last 7 years.

3.7   INSTITUTIONAL ASSESSMENT

Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency. The institutional assessment is administered by the trainer/assessor.

The result of the institutional assessment may be considered as evidence for the assessment for national certification.

SECTION 4. ASSESSMENT AND CERTIFICATION ARRANGEMENT

Competency Assessment is the process of collecting evidence and making judgments whether competency has been achieved. The purpose of assessment is to confirm that an individual can perform to the standards expected at the workplace as expressed in relevant competency standards.

The assessment process is based on evidence or information gathered to prove achievement of competencies. The process may be applied to an employable unit(s) of competency in partial fulfillment of the requirements of the national qualification.

4.1. NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS

4.1.1   To attain the National Qualification of **2D Animation NC III**, the candidate must demonstrate competency in all the units listed in Section 1. Successful candidates shall be awarded a **National Certificate III level** signed by the TESDA Director General.

4.1.2   The qualification of **2D Animation NC III** may be attained through:

   4.1.2.1   Accumulation of Certificates of Competency (COCs) in all the following units of competency:

   COC 1 - **Producing traditional key poses/drawings for animation**
   - Produce traditional key poses/drawings for animation
   - Export animation to video file format

   COC 2 - **Creating tradigital animation**
   - Create tradigital animation
   - Export animation to video file format

   COC 3 - **Creating 2D digital cut-out animation**
   - Create 2D digital cut-out animation
   - Export animation to video file format

   Successful candidates shall be awarded a **Certificate of Competency (COC)** in each of the core units.

   4.1.2.2   Demonstration of competence through a single comprehensive project-type assessment covering all required units of competency of this qualification.

4.1.3   Upon accumulation and submission of all COCs acquired for all the relevant units of competency comprising this qualification, an individual shall be issued the corresponding National Certificate.

4.1.4   Assessment shall cover all competencies, with basic and common integrated or assessed concurrently with the core units of competency.

4.1.5 Any of the following are qualified to apply for assessment and certification:

4.1.5.1 Graduate of formal, non-formal, and informal, including enterprise-based, training programs.

4.1.5.2 Experienced workers (wage employed or self-employed)

4.1.6 Existing National Certificates (NCs) and Certificates of Competency (COCs) of individuals in 2D Animation NCIII shall continue to be in effect until the said NCs and COCs will have expired. The NCs or COCs in this qualification maybe renewed under this amended/updated TR provided that the:

4.1.6.1 NC holders present evidence that they are currently or have been employed in animation job for the past three (3) years; and

4.1.6.2 Said NC holders pass the performance assessment of the new COC#1 (Produce Traditional key poses/drawings for animation) under this amended/updated TR;

4.1.6.3 COC holders for "Create 2D digital animation" present evidence that they are currently or have been employed in 2D animation job for the past three (3) years.

4.1.7 The guidelines on assessment and certification are discussed in detail in the *"Procedures Manual on Assessment and Certification"* and *"Guidelines on the Implementation of the Philippine TVET Competency Assessment and Certification System (PTCACS)"*.

4.2. COMPETENCY ASSESSMENT REQUISITE

4.2.1 *Self-Assessment Guide*. The self-assessment guide (SAG) is accomplished by the candidate prior to actual competency assessment. SAG is a pre-assessment tool to help the candidate and the assessor determine what evidence is available, where gaps exist, including readiness for assessment.

This document can:
a. Identify the candidate's skills and knowledge
b. Highlight gaps in candidate's skills and knowledge
c. Provide critical guidance to the assessor and candidate on the evidence that need to be presented
d. Assist the candidate to identify key areas in which practice is needed or additional information or skills that should be gained prior to assessment.

4.2.2 *Accredited Assessment Center*. Only Assessment Center accredited by TESDA is authorized to conduct competency assessment. Assessment centers undergo a quality assured procedure for accreditation before they are authorized by TESDA to manage the assessment for National Certification.

4.2.3 *Accredited Competency Assessor*. Only accredited competency assessor is authorized to conduct assessment of competence. Competency assessors undergo a quality assured system of accreditation procedure before they are authorized by TESDA to assess the competencies of candidates for National Certification.

ANNEX A. ICT COMPETENCY MAP – 2D ANIMATION NC III

BASIC COMPETENCIES

Receive and Respond to Workplace Communication	Work with Others	Demonstrate work values	Practice basic housekeeping procedures	Participate in Workplace Communication
Work in a Team Environment	Practice career professionalism	Practice occupational health and safety procedures	**Lead Workplace Communication**	**Lead Small Team**
Develop and practice negotiation skills	**Solve Problems Related to Work Activities**	**Use mathematical concepts and techniques**	**Use relevant technologies**	Utilize Specialist Communication Skills
Develop Team and Individuals	Apply Problem Solving Techniques in the Workplace	Collect, analyze and organize information	Plan and Organize Work	Promote environmental protection

COMMON COMPETENCIES

Apply Quality Standards	**Operate a Personal Computer**

CORE COMPETENCIES

Communicate effectively in a customer contact center	Render quality customer service	Utilize enterprise/ company technology	Conduct contact center campaign	Provide specialized support and assistance to customers
Lead a contact center work team	Manage the activities of a contact center work team	Use business technology	Use medical technology to carry out task	Produce text from audio transcription
Review/edit documents	Lead a team in delivering quality service	Apply traditional drawing techniques for animation	Produce traditional cleaned-up drawings	Produce traditional in-between drawings
Produce Traditional key poses/drawings for animation	**Create 2D digital animation**	**Export Animation into Video file format**	Produce digital cleaned-up drawings	Produce digital in-between drawings
Produce background designs	Composite and edit animation sequence	Create 3D digital animation	Produce storyboard for animation	Coordinate the production of animation
Produce over-all designs for animation	Produce key drawings for animation	Create 3D models for animation	Apply 3D texture and lighting to 3D models	Set character rigging
Animate character	Composite and render animation sequence	Create 2D digital animation	Produce cleaned-up and in-between drawings	Use an authoring tool to create an interactive sequence
Produce key drawings for animation	Utilize Software Methodologies	Develop Responsive Web Design	Create Interactive Websites (Using JavaScript)	Develop Website Backend Systems
Develop designs for a logo	Develop designs for print media	Develop designs for user experience	Develop designs for user interface	Develop designs for product packaging
Design booth and product/window display				

DEFINITION OF TERMS

GENERAL

1) **Certification -** is the process of verifying and validating the competencies of a person through assessment

2) **Certificate of Competency (COC)** – is a certification issued to individuals who pass the assessment for a single unit or cluster of units of competency

3) **Common Competencies** - are the skills and knowledge needed by all people working in a particular industry

4) **Competency** - is the possession and application of knowledge, skills and attitudes to perform work activities to the standard expected in the workplace

5) **Competency Assessment -** is the process of collecting evidence and making judgements on whether competency has been achieved

6) **Competency Standard (CS)** - is 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 - are** the specific skills and knowledge needed in a particular area of work - 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 -** are the additional skills and knowledge required by the individual or enterprise for work

11**)** **Elements** - are the building blocks of a unit of competency. They describe in outcome terms the functions that a person performs in the workplace

12) **Evidence Guide** - is 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)** – is 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** - are evaluative statements that specify what is to be assessed and the required level of performance

17) **Qualification** - is 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) **Range of Variables** - describes the circumstances or context in which the work is to be performed

19) **Recognition of Prior Learning (RPL)** – is the acknowledgement of an individual's skills, knowledge and attitudes gained from life and work experiences outside registered training programs

20) **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

21) **Basic Competencies -** are the skills and knowledge that everyone needs for work

22) **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

23) **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

24) **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

25) **Unit of Competency** – is 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

1. **Animation** – a simulation of movement created by displaying a series of pictures, or frames. Cartoons on television are one example of animation. Animation on computers is one of the chief ingredients of multimedia presentations. There are many software applications that enable you to create animations that you can display on a computer monitor.

2. **2D Animation** – the creation of moving pictures in a two-dimensional environment, such as through "traditional" cel animation or in computerized animation software. This is done by sequencing consecutive images, or "frames", that simulate motion by each image showing the next in a gradual progression of steps.

3. **Browser** – a software package that provides the user interface for accessing Internet, intranet and extranet Web sites.

4. **Clean-up** - refers to the process of refining the rough artwork of 2D animation. The purpose of clean-up is to recreate the animation with smooth, consistent line art and line weights before it is transferred to cels for painting.

5. **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.

6. **Computer Terminal** – any input/output device connected by telecommunications links to a computer.

7. **Data** - objective measurements of the attributes (characteristics) of entities such as people, places, things, and events.

8. **Documentation** – a collection of documents or information.

9. **Edit** – to modify the form or format of data

10. **Encryption** – to scramble data or convert it, prior to transmission, to a secret code that masks the meaning of he data to unauthorized recipients.

11. **End user –** anyone who uses an information system or the information it produces.

12. **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.

13. **Information** – data placed in a meaningful and useful context for an end user.

14. **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.

15. **Key frame** - is a single still image in an animated sequence that occurs at an important point in that sequence; key frames are defined throughout an animated sequence, in order to define pivotal points of motion before the frames in between are drawn or otherwise created to "tween" the motion between the two key frames.

16. **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.

17. **Outsourcing** – turning over all or part of an organization's information systems operation to outside contractors, known as systems integrators or facilities management companies.

18. **Quality Assurance –** methods for ensuring that information systems are free from errors and fraud and provide information products of high quality.

19. **Simulation** - the process of imitating a real phenomenon with a set of mathematical formulas. Advanced computer programs can simulate weather conditions, chemical reactions, atomic reactions, even biological processes.

20. **Software –** computer programs and procedures concerned with the operation of an information system.

21. **Standards –** measures of performance developed to evaluate the progress of a system toward its objectives

22. **System –** an assembly of methods, procedures, or techniques unified by regulated interaction to form an organized whole

23. **Tween** - is actually short for "**in-between**", and refers to the creation of successive frames of animation between key frames. In computer animation, the term is most commonly used for Flash's "shape tweening" and "motion tweening" processes, where the user can define two key frames and Flash will automatically create the in-between frames, either morphing one shape into another over a set period of time or else moving a shape or shapes from point A to point B over a set period of time. 3D animation programs also have their own method of "tweening".

24. **Vector** - is a line or a movement defined by end-points or, essentially, the distance between point A and point B. Vectors can be used to calculate animated motion mathematically instead of through the use of manual key frames; vectors can also be used to define computer-animated shapes.

25. **Vector animation** - is a term used to refer to animation whose art or motion is controlled by vectors rather than pixels. Vector animation often allows cleaner, smoother animation, because images are displayed and/or resized using mathematical values instead of stored pixel values. One of the most commonly used vector animation programs is Macromedia's Flash.

26. **User- friendly** – a characteristic of human-operated equipment and systems that makes them safe, comfortable, and easy to use.

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Qualification Code: <u>ICTA2D318</u>

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