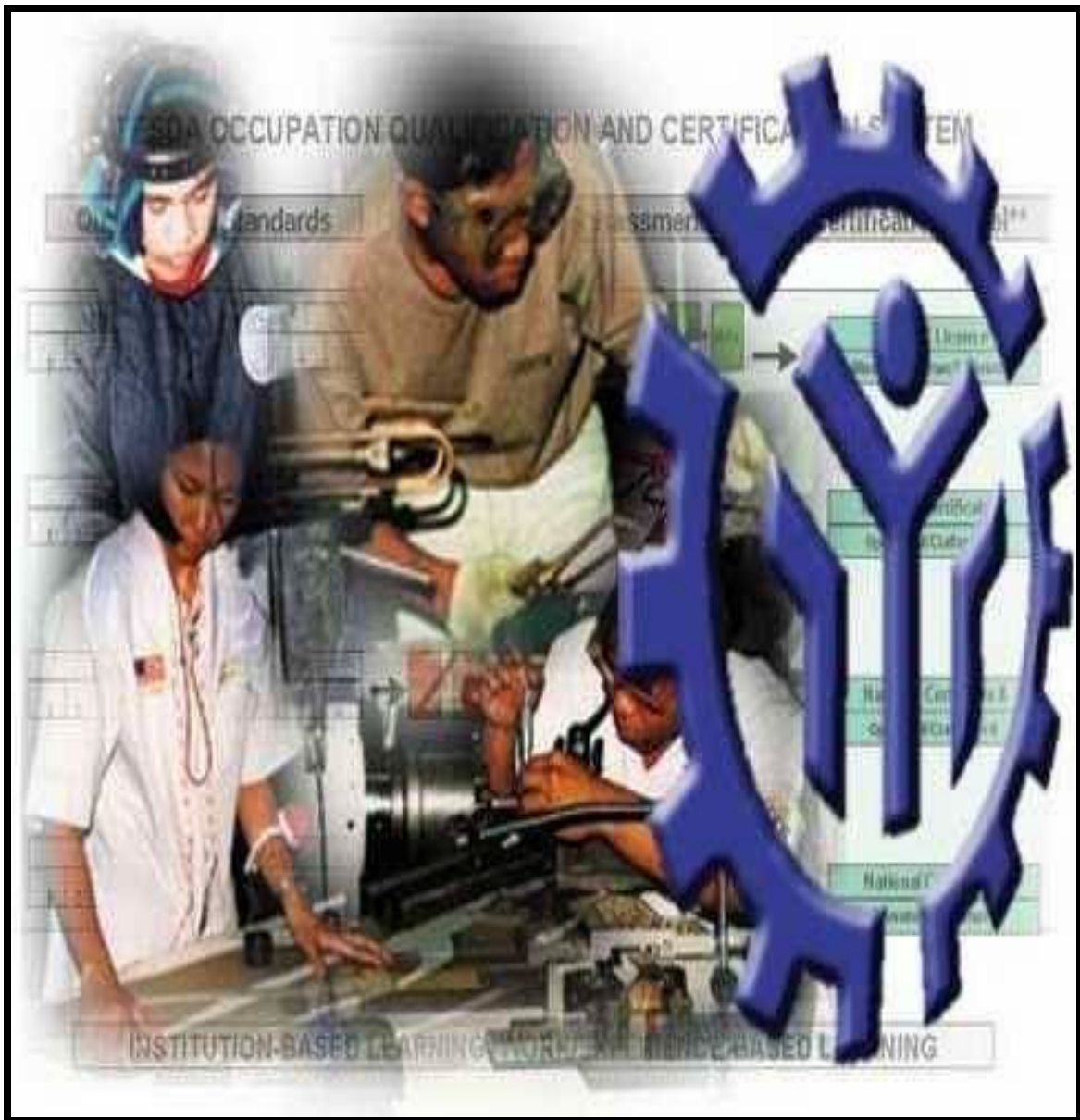
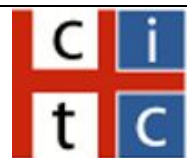


TRAINING REGULATIONS

BIOMEDICAL EQUIPMENT SERVICING NC II



HEALTH, SOCIAL, AND OTHER COMMUNITY DEVELOPMENT SERVICES SECTOR



Health Care
Industry Training
Council, Inc.



Technical
Education and
Skills
Development

*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 skill 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 - refers to the group of competencies that describes the different functions of the qualification.
- Section 2 Competency Standards - gives the specifications of competencies required for effective work performance.
- Section 3 Training Standards - contains information and requirements in designing training program for certain Qualification. It includes curriculum design; training delivery; trainee entry requirements; tools, equipment and materials; training facilities; trainer's qualification; and institutional assessment.
- Section 4 National Assessment and Certification Arrangement - describes the policies governing assessment and certification procedure.

TABLE OF CONTENTS
HEALTH, SOCIAL AND OTHER COMMUNITY
DEVELOPMENT SERVICES SECTOR

BIOMEDICAL EQUIPMENT SERVICING NC II

	Page No.	
SECTION 1	BIOMEDICAL EQUIPMENT SERVICING NC II	
	QUALIFICATION	1
SECTION 2	COMPETENCY STANDARD	
	• Basic Competencies	2-13
	• Common Competencies	14-29
	• Core Competencies	30-52
SECTION 3	TRAINING STANDARDS	
	3.1 Curriculum Design	
	• Basic Competencies	53
	• Common Competencies	54
	• Core Competencies	55-56
	3.2 Training Delivery	56
	3.3 Trainee Entry Requirements	57
	3.4 List of Tools, Equipment and Materials	57
	3.5 Training Facilities	58
	3.6 Trainers' Qualifications	58
	3.7 Institutional Assessment	58
SECTION 4	NATIONAL ASSESSMENT AND	
	CERTIFICATION ARRANGEMENTS	59
	COMPETENCY MAP	60
	DEFINITION OF TERMS	61
	ACKNOWLEDGEMENTS	

TRAINING REGULATIONS FOR BIOMEDICAL EQUIPMENT SERVICING NC II

SECTION 1 BIOMEDICAL EQUIPMENT SERVICING NC II QUALIFICATION

This **BIOMEDICAL EQUIPMENT SERVICING NC II** Qualification consists of competencies that a person must achieve to install, perform corrective and preventive maintenance, repair biomedical equipment, assess and refer biomedical equipment.

The Units of Competency comprising this qualification include the following:

UNIT CODE	BASIC COMPETENCIES
500311105	Participate in workplace communication
500311106	Work in a team environment
500311107	Practice career professionalism
500311108	Practice occupational health and safety procedures
UNIT CODE	COMMON COMPETENCIES
HCS323201	Implement and monitor infection control policies and procedures
HCS323202	Respond effectively to difficult/challenging behavior
HCS323203	Apply basic first aid
HCS323204	Maintain high standard of patient services
UNIT CODE	CORE COMPETENCIES
HCS311301	Install biomedical equipment
HCS311302	Perform corrective maintenance on biomedical equipment
HCS311303	Perform preventive maintenance on biomedical equipment
HCS311304	Repair biomedical equipment
HCS311305	Assess and refer biomedical equipment

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

- Biomedical Equipment Technician (BMET)**
- Medical Equipment Mechanic / Repairer**

SECTION 2 COMPETENCY STANDARDS

This section gives the details of the contents of the basic, common and core units of competency required in **BIOMEDICAL EQUIPMENT SERVICING NC II**.

BASIC COMPETENCIES

UNIT OF COMPETENCY : **PARTICIPATE IN WORKPLACE COMMUNICATION**

UNIT CODE : **500311105**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables
1. Obtain and convey workplace information	1.1 Specific and relevant information is accessed from appropriate sources . 1.2 Effective questioning , active listening and speaking skills are used to gather and convey information. 1.3 Appropriate medium is used to transfer information and ideas 1.4 Appropriate non- verbal communication is used. 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed. 1.6 Defined workplace procedures for the location and storage of information are used. 1.7 Personal interaction is carried out clearly and concisely.
2. Participate in workplace meetings and discussions	2.1 Team meetings are attended on time. 2.2 Own opinions are clearly expressed and those of others are listened to without interruption. 2.3 Meeting inputs are consistent with the meeting purpose and established protocols . 2.4 Workplace interactions are conducted in a courteous manner. 2.5 Questions about simple routine workplace procedures and matters concerning working conditions of employment are asked and responded to. 2.6 Meetings outcomes are interpreted and implemented.
3. Complete relevant work related documents	3.1 Range of forms relating to conditions of employment are completed accurately and legibly. 3.2 Workplace data is recorded on standard workplace forms and documents. 3.3 Basic mathematical processes are used for routine calculations. 3.4 Errors in recording information on forms/ documents are identified and properly acted upon. 3.5 Reporting requirements to supervisor are completed according to organizational guidelines.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Appropriate sources	1.1 Team members 1.2 Suppliers 1.3 Trade personnel 1.4 Local government 1.5 Industry bodies
2. Medium	2.1 Memorandum 2.2 Circular 2.3 Notice 2.4 Information discussion 2.5 Follow-up or verbal instructions 2.6 Face to face communication
3. Storage	3.1 Manual filing system 3.2 Computer-based filing system
4. Forms	4.1 Personnel forms, telephone message forms, safety reports
5. Workplace interactions	5.1 Face to face 5.2 Telephone 5.3 Electronic and two way radio 5.4 Written including electronic, memos, instruction and forms, non-verbal including gestures, signals, signs and diagrams
6. Protocols	6.1 Observing meeting 6.2 Compliance with meeting decisions 6.3 Obeying meeting instructions

EVIDENCE GUIDE

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Prepared written communication following standard format of the organization 1.2 Accessed information using communication equipment 1.3 Made use of relevant terms as an aid to transfer information effectively 1.4 Conveyed information effectively adopting the formal or informal communication
<p>2. Underpinning knowledge</p>	<ul style="list-style-type: none"> 2.1 Effective communication 2.2 Different modes of communication 2.3 Written communication 2.4 Organizational policies 2.5 Communication procedures and systems 2.6 Technology relevant to the enterprise and the individual's work responsibilities
<p>3. Underpinning skills</p>	<ul style="list-style-type: none"> 3.1 Follow simple spoken language 3.2 Perform routine workplace duties following simple written notices 3.3 Participate in workplace meetings and discussions 3.4 Complete work related documents 3.5 Estimate, calculate and record routine workplace measures 3.6 Basic mathematical processes of addition, subtraction, division and multiplication 3.7 Ability to relate to people of social range in the workplace 3.8 Gather and provide information in response to workplace Requirements
<p>4. Resource implications</p>	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Fax machine 4.2 Telephone 4.3 Writing materials 4.4 Internet
<p>5. Method of assessment</p>	<p>Competency MUST be assessed through:</p> <ul style="list-style-type: none"> 5.1 Direct observation with questioning 5.2 Oral interview and written test
<p>6. Context of assessment</p>	<ul style="list-style-type: none"> 6.1 Competency may be assessed individually in the actual workplace or through accredited institution

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

UNIT CODE : **500311106**

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes to identify role and responsibility as a member of a team.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables
1. Describe team role and scope	1.1 The <i>role and objective of the team</i> is identified from available <i>sources of information</i> . 1.2 Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources.
2. Identify own role and responsibility within team	2.1 Individual role and responsibilities within the team environment are identified. 2.2 Roles and responsibility of other team members are identified and recognized. 2.3 Reporting relationships within team and external to team are identified.
3. Work as a team member	3.1 Effective and appropriate forms of communications used and interactions undertaken with team members who contribute to known team activities and objectives. 3.2 Effective and appropriate contributions made to complement team activities and objectives, based on individual skills and competencies and <i>workplace context</i> . 3.3 Observed protocols in reporting using standard operating procedures. 3.4 Contribute to the development of team work plans based on an understanding of team's role and objectives and individual competencies of the members.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Role and objective of team	1.1 Work activities in a team environment with enterprise or specific sector 1.2 Limited discretion, initiative and judgment maybe demonstrated on the job, either individually or in a team environment
2. Sources of information	2.1 Standard operating and/or other workplace procedures 2.2 Job procedures 2.3 Machine/equipment manufacturer's specifications and instructions 2.4 Organizational or external personnel 2.5 Client/supplier instructions 2.6 Quality standards 2.7 OHS and environmental standards
3. Workplace context	3.1 Work procedures and practices 3.2 Conditions of work environments 3.3 Legislation and industrial agreements 3.4 Standard work practice including the storage, safe handling and disposal of chemicals 3.5 Safety, environmental, housekeeping and quality guidelines

EVIDENCE GUIDE

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Operated in a team to complete workplace activity 1.2 Worked effectively with others 1.3 Conveyed information in written or oral form 1.4 Selected and used appropriate workplace language 1.5 Followed designated work plan for the job 1.6 Reported outcomes
<p>2. Underpinning knowledge</p>	<ul style="list-style-type: none"> 2.1 Communication process 2.2 Team structure 2.3 Team roles 2.4 Group planning and decision making
<p>3. Underpinning skills</p>	<ul style="list-style-type: none"> 3.1 Communicate appropriately, consistent with the culture of the workplace
<p>4. Resource implications</p>	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 4.2 Materials relevant to the proposed activity or tasks
<p>5. Method of assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 5.1 Observation of the individual member in relation to the work activities of the group 5.2 Observation of simulation and or role play involving the participation of individual member to the attainment of organizational goal 5.3 Case studies and scenarios as a basis for discussion of issues and strategies in teamwork
<p>6. Context of assessment</p>	<ul style="list-style-type: none"> 6.1 Competency may be assessed in workplace or in a simulated workplace setting 6.2 Assessment shall be observed while task are being undertaken whether individually or in group

UNIT OF COMPETENCY : **PRACTICE CAREER PROFESSIONALISM**

UNIT CODE : **500311107**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in promoting career growth and advancement.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables
1. Integrate personal objectives with organizational goals	1.1 Personal growth and work plans are pursued towards improving the qualifications set for the profession. 1.2 Intra and interpersonal relationships is are maintained in the course of managing oneself based on performance evaluation . 1.3 Commitment to the organization and its goal is demonstrated in the performance of duties.
2. Set and meet work priorities	2.1 Competing demands are prioritized to achieve personal, team and organizational goals and objectives. 2.2 Resources are utilized efficiently and effectively to manage work priorities and commitments. 2.3 Practices along economic use and maintenance of equipment and facilities are followed as per established procedures.
3. Maintain professional growth and development	3.1 Trainings and career opportunities are identified and availed of based on job requirements. 3.2 Recognitions are -sought/received and demonstrated as proof of career advancement. 3.3 Licenses and/or certifications relevant to job and career are obtained and renewed.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Evaluation	1.1 Performance Appraisal 1.2 Psychological Profile 1.3 Aptitude Tests
2. Resources	2.1 Human 2.2 Financial 2.3 Technology 2.3.1 Hardware 2.3.2 Software
3. Trainings and career opportunities	3.1 Participation in training programs 3.1.1 Technical 3.1.2 Supervisory 3.1.3 Managerial 3.1.4 Continuing Education 3.2 Serving as Resource Persons in conferences and workshops
4. Recognitions	4.1 Recommendations 4.2 Citations 4.3 Certificate of Appreciations 4.4 Commendations 4.5 Awards 4.6 Tangible and Intangible Rewards
5. Licenses and/or certifications	5.1 National Certificates 5.2 Certificate of Competency 5.3 Support Level Licenses 5.4 Professional Licenses

EVIDENCE GUIDE

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Attained job targets within key result areas (KRAs) 1.2 Maintained intra - and interpersonal relationship in the course of managing oneself based on performance evaluation 1.3 Completed trainings and career opportunities which are based on the requirements of the industries 1.4 Acquired and maintained licenses and/or certifications according to the requirement of the qualification
<p>2. Underpinning knowledge</p>	<ul style="list-style-type: none"> 2.1 Work values and ethics (Code of Conduct, Code of Ethics, etc.) 2.2 Company policies 2.3 Company-operations, procedures and standards 2.4 Fundamental rights at work including gender sensitivity 2.5 Personal hygiene practices
<p>3. Underpinning skills</p>	<ul style="list-style-type: none"> 3.1 Appropriate practice of personal hygiene 3.2 Intra and Interpersonal skills 3.3 Communication skills
<p>4. Resource implications</p>	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Workplace or assessment location 4.2 Case studies/scenarios
<p>5. Method of assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 5.1 Portfolio Assessment 5.2 Interview 5.3 Simulation/Role-plays 5.4 Observation with questioning 5.5 Third Party Reports 5.6 Exams and Tests
<p>6. Context of assessment</p>	<ul style="list-style-type: none"> 6.1 Competency may be assessed in the work place or in a simulated work place setting

UNIT OF COMPETENCY : **PRACTICE OCCUPATIONAL HEALTH AND SAFETY PROCEDURES**

UNIT CODE : **500311108**

UNIT DESCRIPTOR : This unit covers the outcomes required to comply with regulatory and organizational requirements for occupational health and safety.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables
1. Identify hazards and risks	1.1 Safety regulations and workplace safety and hazard control practices and procedures are clarified and explained based on organization procedures. 1.2 Hazards/risks in the workplace and their corresponding indicators are identified to minimize or eliminate risk to co-workers, workplace and environment in accordance with organization procedures. 1.3 Contingency measures during workplace accidents, fire and other emergencies are recognized and established in accordance with organization procedures.
2. Evaluate hazards and risks	2.1 Terms of maximum tolerable limits which when exceeded will result in harm or damage are identified based on threshold limit values (TLV). 2.2 Effects of the hazards are determined. 2.3 OHS issues and/or concerns and identified safety hazards are reported to designated personnel in accordance with workplace requirements and relevant workplace OHS legislation.
3. Control hazards and risks	3.1 Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace are consistently followed. 3.2 Procedures for dealing with workplace accidents, fire and emergencies are followed in accordance with organization OHS policies. 3.3 Personal protective equipment (PPE) is correctly used in accordance with organization OHS procedures and practices. 3.4 Appropriate assistance is provided in the event of a workplace emergency in accordance with established organization protocol.
4. Maintain OHS awareness	4.1 Emergency-related drills and trainings are participated in as per established organization guidelines and procedures. 4.2 OHS personal records are completed and updated in accordance with workplace requirements.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Safety regulations	May include but are not limited to: <ol style="list-style-type: none"> 1.1 Clean Air Act 1.2 Building code 1.3 National Electrical and Fire Safety Codes 1.4 Waste management statutes and rules 1.5 Philippine Occupational Safety and Health Standards 1.6 DOLE regulations on safety legal requirements 1.7 ECC regulations
2. Hazards/risks	May include but are not limited to: <ol style="list-style-type: none"> 2.1 Physical hazards – impact, illumination, pressure, noise, vibration, temperature, radiation 2.2 Biological hazards- bacteria, viruses, plants, parasites, mites, molds, fungi, insects 2.3 Chemical hazards – dusts, fibers, mists, fumes, smoke, gasses, vapors 2.4 Ergonomics <ul style="list-style-type: none"> • Psychological factors – over exertion/ excessive force, awkward/static positions, fatigue, direct pressure, varying metabolic cycles • Physiological factors – monotony, personal relationship, work out cycle
3. Contingency measures	May include but are not limited to: <ol style="list-style-type: none"> 3.1 Evacuation 3.2 Isolation 3.3 Decontamination 3.4 (Calling designed) emergency personnel
4. PPE	May include but are not limited to: <ol style="list-style-type: none"> 4.1 Mask 4.2 Gloves 4.3 Goggles 4.4 Hair Net/cap/bonnet 4.5 Face mask/shield 4.6 Ear muffs 4.7 Apron/Gown/coverall/jump suit 4.8 Anti-static suits
5. Emergency-related drills and training	<ol style="list-style-type: none"> 5.1 Fire drill 5.2 Earthquake drill 5.3 Basic life support/CPR 5.4 First aid 5.5 Spillage control 5.6 Decontamination of chemical and toxic 5.7 Disaster preparedness/management
6. OHS personal records	<ol style="list-style-type: none"> 6.1 Medical/Health records 6.2 Incident reports 6.3 Accident reports 6.4 OHS-related training completed

EVIDENCE GUIDE

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Explained clearly established workplace safety and hazard control practices and procedures 1.2 Identified hazards/risks in the workplace and its corresponding indicators in accordance with company procedures 1.3 Recognized contingency measures during workplace accidents, fire and other emergencies 1.4 Identified terms of maximum tolerable limits based on threshold limit value- TLV. 1.5 Followed Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace 1.6 Used Personal Protective Equipment (PPE) in accordance with company OHS procedures and practices 1.7 Completed and updated OHS personal records in accordance with workplace requirements
<p>2. Underpinning knowledge</p>	<ul style="list-style-type: none"> 2.1 OHS procedures and practices and regulations 2.2 PPE types and uses 2.3 Personal hygiene practices 2.4 Hazards/risks identification and control 2.5 Threshold Limit Value -TLV 2.6 OHS indicators 2.7 Organization safety and health protocol 2.8 Safety consciousness 2.9 Health consciousness
<p>3. Underpinning skills</p>	<ul style="list-style-type: none"> 3.1 Practice of personal hygiene 3.2 Hazards/risks identification and control skills 3.3 Interpersonal skills 3.4 Communication skills
<p>4. Resource implications</p>	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Workplace or assessment location 4.2 OHS personal records 4.3 PPE 4.4 Health records
<p>5. Method of assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 5.1 Portfolio Assessment 5.2 Interview 5.3 Case Study/Situation
<p>6. Context of assessment</p>	<ul style="list-style-type: none"> 6.1 Competency may be assessed in the work place or in a simulated work place setting

COMMON COMPETENCIES

UNIT OF COMPETENCY : **IMPLEMENT AND MONITOR INFECTION- CONTROL POLICIES AND PROCEDURES**

UNIT CODE : **HCS323201**

UNIT DESCRIPTOR : This unit is concerned with infection control responsibilities of employees with supervisory accountability to implement and monitor infection control policy and procedures in a specific work unit or team within an organization. This unit does not apply to a role with organization-wide responsibilities for infection control policy and procedure development, implementation or monitoring.

ELEMENT	PERFORMANCE CRITERIA
1. Provide information to the work group about the organization's infection control policies and procedures	<p>1.1 Relevant information about the organization's infection control policy and procedures, and applicable <i>industry codes of practice</i> are accurately and clearly explained to the work group.</p> <p>1.2 Information about identified <i>hazards and the outcomes of infection risk assessments</i> is regularly provided to the work group.</p> <p>1.3 Opportunity is provided for the work group to seek further information on workplace infection control issues and practices.</p>
2. Integrate the organization's infection control policy and procedure into work practices	<p>2.1 <i>Infection-control policy</i> and procedures are implemented by supervisor and members of the work group.</p> <p>2.2 Liaison is maintained with person responsible for organization-wide infection control.</p> <p>2.3 The Supervisor's coaching support ensures that individuals/teams are able to implement infection control practices.</p> <p>2.4 Work procedures are adopted to reflect appropriate infection control practice.</p> <p>2.5 Issues raised through consultation are dealt with and resolved promptly or referred to the appropriate personnel for resolution.</p> <p>2.6 Workplace procedures for dealing with infection control risks and hazardous events are implemented whenever necessary.</p> <p>2.7 Employees are encouraged to report infection risks and to improve infection control procedures.</p>

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables
<p>3. Monitor infection control performance and implement improvements in practices</p>	<p>3.1 Infection control hazardous events are investigated promptly to identify their cause in accordance with organization policy and procedures.</p> <p>3.2 Work procedures to control infection risks are monitored to ensure compliance.</p> <p>3.3 Work procedures are regularly reviewed and adjusted to ensure improvements in infection control practice.</p> <p>3.4 Supervisor provides feedback to team and individuals on compliance issues, changes in work procedures and infection control outcomes.</p> <p>3.5 Training in work procedures is provided as required to ensure maintenance <i>of infection control standards.</i></p> <p>3.6 Inadequacies in work procedures and infection control measures are identified, corrected or reported to <i>designated personnel.</i></p> <p>3.7 Records of infection control risks and incidents are accurately maintained as required.</p> <p>3.8 <i>Aggregate infection control</i> information reports are used to identify hazards, to monitor and improve risk control methods and to indicate training needs.</p>

RANGE OF VARIABLES

VARIABLE	RANGE
<p>1. Infection Control Policies and Procedures</p>	<p>This may include but not limited to:</p> <ul style="list-style-type: none"> 1.1 Cleaning procedures and schedules 1.2 Cleaning agents 1.3 Cleaning equipment 1.4 Handling, storage and disposal of all types of waste 1.5 Food handling and food safety 1.6 Hygiene procedures 1.7 Infection control risk management 1.8 Infection control incident and hazard reporting 1.9 Sterilizing 1.10 Linen production and handling 1.11 Maintenance procedures 1.12 Storage requirements 1.13 Personal protective clothing 1.14 Work flows 1.15 Management of blood and body fluid spills 1.16 Single use of disposables 1.17 Aseptic techniques 1.18 Skin preparation procedures 1.19 Immunization 1.20 Needle stick injuries 1.21 Personal contact with infectious patients 1.22 Standard and additional precautions 1.23 Confidentiality 1.24 Employee training 1.25 Contractors
<p>2. Industry Codes of Practice</p>	<ul style="list-style-type: none"> 2.1 National Health and Medical Research Council Guidelines for infection control 2.2 Local & National Government Guidelines and Standards 2.3 Manufacturer's recommendations and operating manuals
<p>3. Identified hazards and the outcomes of infection risk assessments</p>	<ul style="list-style-type: none"> 3.1 Sharps 3.2 Glass 3.3 Waste 3.4 Human waste and human tissues 3.5 Personal contact with infectious patients 3.6 Animals, insects and vermin 3.7 Stock, including food, which has passed "used-by" dates. 3.8 Incorrect concentration of disinfectants and chemicals 3.9 Cleaning procedures

VARIABLE	RANGE
	3.10 Linen handling procedures 3.11 Work flows 3.12 Use of personal protective clothing 3.13 Food safety 3.14 Personal hygiene
4. Infection Control Monitoring Procedures	4.1 Observations 4.2 Interviews 4.3 Surveys and inspections 4.4 Quality assurance activities 4.5 Review of outcomes 4.6 Data analysis
5. Designated Personnel	5.1 Manager 5.2 Infection Control Coordinator 5.3 Quality Improvement Coordinator 5.4 Infection Control Committee 5.5 Occupational Health and Safety Committee
6. Aggregate Infection Control Information	6.1 Records of needle stick injuries 6.2 Hospital-acquired infection rates 6.3 DOH healthcare standards clinical indicators 6.4 HACCP records 6.5 Hazard reports

EVIDENCE GUIDE

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Communicated with team and individuals on organizational policy and procedures for infection control 1.2 Applied infection control policies and procedures which impact on work processes of the specific work unit 1.3 Applied procedures for adopting appropriate infection practices within work unit 1.4 Provided appropriate supervision of work group
<p>2. Underpinning knowledge</p>	<ul style="list-style-type: none"> 2.1 Working knowledge, consistent with the elements of competence, of the organization's applicable infection control policy and procedures and relevant industry codes of practice 2.2 The hierarchy risk control measures from most to least preferred, that is, elimination, engineering controls, administrative control, and lastly, personal protective equipment 2.3 Knowledge of infection risks and control measures in specific work unit and related work processes 2.4 The significance of patient confidentiality in relation to infection control 2.5 The significance of other management systems and procedures for infection control 2.6 Literacy levels and communication skills of work group members and consequent suitable communication techniques 2.7 Organizational procedures for monitoring, training 2.8 Basic understanding of communicable disease transmission
<p>3. Underpinning skills</p>	<ul style="list-style-type: none"> 3.1 Effective communication and interpersonal skills including: <ul style="list-style-type: none"> – language competence – literacy and reading competence 3.2 Negotiation 3.3 Work planning and management 3.4 Management of change of work processes 3.5 Monitoring compliance with policy and procedures 3.6 Maintain and interpret infection control records
<p>4. Resource implications</p>	<p>The following resources MUST be provided</p> <ul style="list-style-type: none"> 4.1 Workplace infection control and health and safety policies and procedures 4.2 Waste management procedures 4.3 Food safety procedures 4.4 Other organizational policies and procedures 4.5 Duties statements and/or job descriptions
<p>5. Method of assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 5.1 Observation with questioning 5.2 Interview 5.3 Portfolio 5.4 Demonstration with questioning
<p>6. Context of assessment</p>	<ul style="list-style-type: none"> 6.1 Assessment may be done in the workplace or in a simulated workplace setting.

UNIT OF COMPETENCY : **RESPOND EFFECTIVELY TO DIFFICULT/ CHALLENGING BEHAVIOR**

UNIT CODE : **HCS323202**

UNIT DESCRIPTOR : This unit of competency covers the knowledge, skills and attitudes required to effectively respond to difficult or challenging behaviour of patients.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables
1. Plan responses	1.1 Responses are planned to instances of difficult or challenging behavior to maximize the availability of other appropriate staff and resources. 1.2 Specific manifestations of difficult or challenging behavior are identified and strategies appropriate to these behaviors are planned as required. 1.3 Safety of self and others is given priority in responding to difficult or challenging behavior according to institutional policies and procedures.
2. Apply response	2.1 Difficult or challenging behavior is dealt with promptly, firmly and diplomatically in accordance with institutional policy and procedures . 2.2 Communication is used effectively to achieve the desired outcomes in responding to difficult or challenging behavior. 2.3 Appropriate strategies are selected to suit particular instances of difficult or challenging behavior.
3. Report and review incidents	3.1 Incidents are reported according to institutional policies and procedures. 3.2 Incidents are reviewed with appropriate staff and suggestions appropriate to area of responsibility are made. 3.3 Debriefing mechanisms and other activities are used and participated in. 3.4 Advice and assistance is sought from legitimate sources when appropriate.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Planned responses	1.1 Own ability and experience 1.2 Established institutional procedures 1.3 Knowledge of individual persons and underlying causes
2. Difficult or challenging behaviors	2.1 Aggression/Assaultive behavior 2.2 Confusion or other cognitive impairment 2.3 Noisiness 2.4 Manipulative 2.5 Wandering 2.6 Self-destructive 2.7 Intoxication 2.8 Withdrawn/depressed 2.9 Negativistic 2.10 Intrusive behavior 2.11 Verbal offensiveness
3. Strategies for dealing with challenging behaviors	3.1 Diversional activities 3.2 Referring to appropriate personnel e.g. supervisor, security officer 3.3 Following established emergency response procedures
4. Selection of strategies for dealing with challenging behaviors	4.1 The nature of the incident 4.2 Potential effect on different parties, patient, staff and others 4.3 Established procedures and guidelines
5. Institutional policies and procedures	5.1 Incident reporting and documentation 5.2 Operational guidelines for handling incidents and/or cases involving difficult and challenging behavior 5.3 Debriefing of staff involved in the incident

EVIDENCE GUIDE

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Identified specific manifestations of difficult or challenging behavior and strategies are planned, selected and applied as required 1.2 Maintained personal safety and the safety of others 1.3 Reported incidents, reviewed and responded quickly and effectively to contingencies 1.4 Debriefing mechanisms are used
<p>2. Underpinning knowledge</p>	<ul style="list-style-type: none"> 2.1 OSH and issues relating to difficult and challenging behavior 2.2 Patient issues which need to be referred to an appropriate health professional 2.3 Ability to interpret and follow the instructions and guidance of health professionals involved with the care of patient/client
<p>3. Underpinning skills</p>	<ul style="list-style-type: none"> 3.1 Effectively using techniques for monitoring own service area including client satisfaction 3.2 Speaking in a firm, diplomatic and culturally appropriate manner 3.3 Remaining calm and positive in adversity 3.4 Thinking and responding quickly and strategically 3.5 Remaining alert to potential incidents of difficult or challenging behavior 3.6 Monitoring and/or maintaining security equipment 3.7 Working with others and displaying empathy with patient and relatives
<p>4. Resource implications</p>	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 4.2 Relevant institutional policy, guidelines, procedures and protocols 4.3 Emergency response procedures and employee support arrangements
<p>5. Method of assessment</p>	<p>Competency MUST be assessed through:</p> <ul style="list-style-type: none"> 5.1 Observation with questioning 5.2 Demonstration with questioning
<p>6. Context of assessment:</p>	<ul style="list-style-type: none"> 6.1 Assessment may be done in the workplace or in a simulated workplace setting.

UNIT OF COMPETENCY : **APPLY BASIC FIRST AID**

UNIT CODE : **HCS323203**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to provide an initial response where First Aid is required. In this unit it is assumed that the First Aider is working under supervision and / or according to established workplace First Aid procedures and policies

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables
1. Assess the situation	1.1 Physical hazards to self and casualty's health and safety are identified. 1.2 Immediate risks to self and casualty's occupational health and safety (OSH)are minimized by controlling the hazard in accordance with OSH requirements. 1.3 Casualty's vital signs and physical condition are assessed in accordance with workplace procedures.
2. Apply basic first aid techniques	2.1 First Aid management is provided in accordance with established First Aid procedures. 2.2 Casualty is reassured in a caring and calm manner and made comfortable using available resources. 2.3 First Aid assistance is sought from others in a timely manner and as appropriate. 2.4 Casualty's condition is monitored and responded to in accordance with effective First Aid principles and workplace procedures. 2.5 Details of casualty's physical condition, changes in conditions, management and response are accurately recorded in line with organizational procedures. 2.6 Casualty management is finalized according to his/her needs and First Aid principles.
3. Communicate details of the incident	3.1 Appropriate medical assistance is requested using relevant communication media and equipment . 3.2 Details of casualty's condition and management activities are accurately conveyed to emergency services/relieving personnel. 3.3 Reports to supervisors are prepared in a timely manner, presenting all relevant facts according to established company procedures.

RANGE OF VARIABLES

VARIABLE	RANGE
1. First Aid Management	This may include but not limited to: <ul style="list-style-type: none"> 1.1 Workplace policies and procedures 1.2 Industry/site specific regulations, codes 1.3 OSH 1.4 State and territory workplace health and safety requirements 1.5 Allergies the casualty may have
2. Physical Hazards	Physical hazards may include: <ul style="list-style-type: none"> 2.1 Workplace hazards 2.2 Environmental hazards 2.3 Proximity of other people 2.4 Hazards associated with casualty management processes
3. Risks	Risks may include: <ul style="list-style-type: none"> 3.1 Worksite equipment, machinery and substances 3.2 Environmental risks 3.3 Bodily fluids 3.4 Risk of further injury to the casualty 3.5 Risk associated with the proximity of the others and bystanders
4. Casualty's Condition	Casualty's condition may include but not limited to the following: <ul style="list-style-type: none"> 4.1 Abdominal injuries 4.2 Allergic reactions 4.3 Bleeding 4.4 Burns-thermal, chemical, friction, electrical 4.5 Cardiac conditions 4.6 Chemical contamination 4.7 Cod injuries 4.8 Crush injuries 4.9 Dislocations 4.10 Drowning 4.11 Eye injuries 4.12 Fractures 4.13 Head injuries 4.14 Epilepsy 4.15 Minor skin injuries 4.16 Neck and spinal injuries 4.17 Needle stick injuries 4.18 Poisoning and toxic substances 4.19 Shock 4.20 Smoke inhalation

VARIABLE	RANGE
5. Equipment and Resources	Equipment and other resources may include: <ul style="list-style-type: none"> 5.1 Defibrillation units 5.1 Pressure bandages 5.2 Thermometers 5.3 First Aid kit 5.4 Eyewash 5.5 Thermal blankets 5.6 Pocket face masks 5.7 Rubber gloves 5.8 Dressing 5.9 Space device 5.10 Cervical collars
6. Communication system	<ul style="list-style-type: none"> 6.1 Mobile phone 6.2 Satellite phones 6.3 HF/VHF radio 6.4 Flags 6.5 Flares 6.6 Two - way radio 6.7 Email 6.8 Electronic equipment
7. Vital signs	<ul style="list-style-type: none"> 7.1 Breathing 7.2 Circulation 7.3 Consciousness
8. First Aid Principles	<ul style="list-style-type: none"> 8.1 Checking the site for danger to self, casualty' and others and minimizing the danger 8.2 Checking and maintaining the casualty's airways, breathing and circulation

EVIDENCE GUIDE

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Complied with institutional requirements, OSH laws infections control and manual handling procedures and relevant health regulations 1.2 Identified physical hazards of the casualty and minimized immediate risks 1.3 Assessed and monitored the physical condition of the casualty 1.4 Responded to emergency using basic life support measures. 1.5 Provided initial response where First Aid is required 1.6 Dealt with complex casualties or incident 1.7 Prepared reports to concerned personnel in a timely manner
<p>2. Underpinning knowledge</p>	<ul style="list-style-type: none"> 2.1 Basic anatomy and physiology 2.2 Company standard operating procedures (SOPs) 2.3 Dealing with confidentiality 2.4 Knowledge of the First Aiders' skills limitations 2.5 OSH legislation and regulations 2.6 How to gain access to and interpret material safety data sheets
<p>3. Underpinning skills</p>	<ul style="list-style-type: none"> 3.1 Resuscitation 3.2 Safe manual handling of casualty 3.3 Consideration of the welfare of the casualty 3.4 Report preparation 3.5 Communication skills 3.6 Ability to interpret and use listed documents
<p>4. Resource implications</p>	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Access to relevant work station 4.2 Relevant institutional policies, guidelines procedure and protocol 4.3 Equipment and materials relevant to the proposed activities
<p>5. Method of assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 5.1 Demonstration with questioning 5.2 Interview 5.3 Third Party Report 5.4 Portfolio
<p>6. Context of assessment</p>	<ul style="list-style-type: none"> 6.1 Assessment may be done in a workplace or simulated work area setting.

UNIT OF COMPETENCY : **MAINTAIN HIGH STANDARDS OF PATIENT SERVICES**

UNIT CODE : **HCS323204**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required in the maintenance of high standards of patient services.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables
1. Communicate appropriately with patients	1.1 Effective communication strategies and techniques are identified and used to achieve best patient service outcomes. 1.2 Complaints are responded to in accordance with organizational policy to ensure best service to patients. 1.3 Complaints are dealt with in accordance with established procedures. 1.4 Interpreter services are accessed as required. 1.5 Action is taken to resolve conflicts either directly, where a positive outcome can be immediately achieved, or by referral to the appropriate personnel. 1.6 Participation in work team is constructive and collaborative and demonstrates an understanding of own role.
2. Establish and maintain good interpersonal relationship with patients	2.1 Rapport is established to ensure the service is appropriate to and in the best interests of patients. 2.2 Effective listening skills are used to ensure a high level of effective communication and quality of service. 2.3 Patient concerns and needs are correctly identified and responded to responsibly and accordingly established procedures and guidelines. 2.4 Effectiveness of interpersonal interaction is consistently monitored and evaluated to ensure best patient service outcomes.
3. Act in a respectful manner at all times	3.1 Respect for differences is positively, actively and consistently demonstrated in all work. 3.2 Confidentiality and privacy of patients is maintained. 3.3 Courtesy is demonstrated in all interactions with patients, their visitors, carers and family. 3.4 Assistance with the care of patients with challenging behaviors is provided in accordance with established procedures. 3.5 Techniques are used to manage and minimize aggression.
4. Evaluate own work to maintain a high standard of patient service	4.1 Advice and assistance is received or sought from appropriate sources on own performance . 4.2 Own work is adjusted, incorporating recommendations that address performance issues, to maintain the agreed standard of patient support.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Patients	This may include but not limited to: 1.1 Patients 1.2 Prospective patients to the service or services 1.3 Patients may be in contact with the institution through appropriate health care personnel and professionals or other advocates or agencies
2. Others with whom interaction is required in regard to patient services	2.1 Other staff and team members 2.2 Service units or departments 2.3 Family members, carers and friends of patients 2.4 Professional representatives or agents of patients such as: – Medical specialists – Nurses – Social workers – Dietitians – Therapists – Allied health professionals – Volunteers – Teachers and/or spiritual – Community 2.5 General public
3. Communication	3.1 English/Tagalog/vernacular 3.2 Sign language 3.3 Through an interpreter 3.4 Community language as required by the service / organization
4. Modes of communication	4.1 Continuing interaction with patients and clients 4.2 Verbal conversations either in person or via telephone 4.3 Written notes by post or electronic media 4.4 Worker, family member friend or professional interpreter who has relevant languages
5. Respect for difference	5.1 Physical 5.2 Cognitive/mental or intellectual issues that may impact on communication 5.3 Cultural and ethnic 5.4 Religious/spiritual 5.5 Social 5.6 Age 5.7 Language literacy and numeracy abilities 5.8 Sexuality and sexual preference

VARIABLE	RANGE
6. Confidentiality and privacy of patients	6.1 Fees 6.2 Health fund entitlements 6.3 Welfare entitlements 6.4 Payment methods and records 6.5 Public environments 6.6 Legal and ethical requirements 6.7 Writing details i.e. medical and consent forms 6.8 Conversations on the telephone 6.9 Secure location for written records 6.10 Offering a private location for discussions 6.11 Information disclosed to an appropriate person consistent with one's level of responsibility
7. Performance monitoring	7.1 Self-monitoring 7.2 Supervisor assessment 7.3 Patient feedback

EVIDENCE GUIDE

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Communicated appropriately with patients 1.2 Handled complaints and resolved conflict, or referred matters to supervisors when required 1.3 Complied with relevant policies, protocols, guidelines and procedures of the organization 1.4 Established and maintained good interpersonal relationship with patients 1.5 Demonstrated courtesy in all interactions with patients, their visitors, and family
<p>2. Underpinning knowledge</p>	<ul style="list-style-type: none"> 2.1 Roles and responsibilities of self and other workers within the organization 2.2 When client/patient issues need to be referred to an appropriate health professional 2.3 Organizational policies and procedures for privacy and confidentiality of information provided by patients and others 2.4 Knowledge of cultures relevant to the particular service 2.5 Institutional policy on patient rights and responsibilities
<p>3. Underpinning skills</p>	<ul style="list-style-type: none"> 3.1 Establishing and maintaining relationships, taking into account individual differences 3.2 Using effective listening techniques 3.3 Using appropriate verbal and non verbal communication styles 3.4 Interpreting and following the instructions and guidance of health professionals involved with the care of patient/clients 3.5 Oral and written communication 3.6 Problem solving skills required include the ability to use available resources and prioritise workload 3.7 Dealing with conflict 3.8 Working with others and displaying empathy with patient and relatives
<p>4. Resource implications</p>	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 4.2 Relevant government and organizational policy, guidelines, procedures and protocols 4.3 Any relevant legislation in relation to service delivery
<p>5. Method of assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 5.1 Demonstration with questioning 5.2 Interview 5.3 Third party report
<p>6. Context of assessment</p>	<ul style="list-style-type: none"> 6.1 Assessment may be done in a simulated workplace setting

CORE COMPETENCIES

UNIT OF COMPETENCY : **INSTALL BIOMEDICAL EQUIPMENT**

UNIT CODE : **HCS311301**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes necessary to install biomedical equipment related to patient care.

ELEMENT	PERFORMANCE CRITERIA
	<i>Italicized terms</i> are elaborated in the Range of Variables
1. Interpret work instructions	<p>1.1 Work instructions are read and interpreted to determine job requirements.</p> <p>1.2 Tools and testing devices needed to carry out the installation work are selected in accordance with established procedures and checked for correct operation and safety.</p> <p>1.3 Materials necessary to complete the work are obtained in accordance with job requirements.</p>
2. Install equipment and accessories	<p>2.1 Equipment and components are prepared for correct sequential installation.</p> <p>2.2 OSH policies and procedures for installation are followed according to manufacturer's specifications.</p> <p>2.3 PPE is used according to institution's requirements.</p> <p>2.4 Electrical cabling and wiring devices of correct loading capacity are selected and safely installed according to National Electrical Code.</p> <p>2.5 Equipment is installed in accordance with manufacturer's instructions, requirements, and without damage to self and others or surrounding place or environment.</p> <p>2.6 Unplanned events or conditions are responded to in accordance with established institutional procedures.</p>
3. Test installed equipment and accessories	<p>3.1 Equipment is tested in accordance with manufacturer's instructions.</p> <p>3.2 Final inspections are undertaken to ensure that the installed device conforms with manufacturer's instructions.</p> <p>3.3 Work site is cleaned and cleared of all debris and left safe in accordance with the institution's requirements.</p> <p>3.4 Report on installation and testing of equipment is prepared and submitted according to institution's procedures.</p> <p>3.5 Endorse equipment to appropriate end user according to institution's requirements.</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Tools	Tools for: cutting, shaping, drilling, threading, tapping, finishing, dismantling/assembling. Tool set includes but is not limited to: <ul style="list-style-type: none"> 1.1 Pliers; (assorted) 1.2 Screwdrivers; (assorted) 1.3 Soldering gun/iron 1.4 Electric drill and assorted bits 1.5 Tool kit 1.6 Wrench and spanners (spanners) 1.7 Staple gun
2. Testing devices	Include but are not limited to: <ul style="list-style-type: none"> 2.1 Multi-tester 2.2 Signal generator 2.3 Oscilloscope 2.4 Calibrators 2.5 Gauges (assorted)
3. Materials	Include but are not limited to: <ul style="list-style-type: none"> 3.1 Tape (assorted) 3.2 Sealing materials 3.3 Cables 3.4 Wires 3.5 Soldering Lead 3.6 Wire tie
4. Equipment	Equipment includes but not limited to: <ul style="list-style-type: none"> 4.1 Weighing scale, Infant/Adult 4.2 Clinical weighing scale 4.3 Gooseneck lamp/Examining light 4.4 Oxygen gauge 4.5 Sphygmomanometer 4.6 Suction apparatus 4.7 Autoclave 4.8 OR/DR light 4.9 OR table 4.10 Nebulizer 4.11 Rotator/Shaker 4.12 Electromuscular stimulator 4.13 Spectrophotometer 4.14 Uninterruptible power supply 4.15 Bag valve mask (Pedia and Adult) 4.16 Anesthesia bag 4.17 Clinical oven
5. Personal protection equipment	Includes but is not limited to: <ul style="list-style-type: none"> 5.1 Industrial Mask 5.2 Safety goggles 5.3 Coveralls 5.4 Gloves 5.5 Shoe cover
6. OSH policies and procedures	<ul style="list-style-type: none"> 6.1 National Electrical Code 6.2 OSH guidelines 6.3 Philippine environmental standards

VARIABLE	RANGE
7. Unplanned events or conditions	Include but are not limited to: 7.1 Fire 7.2 Flood 7.3 Earthquake 7.4 Electrical shock 7.5 Power interruption 7.6 Power overload 7.7 Alert levels
8. Worksite	Includes but not limited to: 8.1 Laboratory 8.2 Clinics 8.3 Operating room/Delivery room 8.4 Wards/Units 8.5 Emergency room

EVIDENCE GUIDE

1. Critical aspects of competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Interpreted work instructions according to job requirements 1.2 Appropriately selected electrical cabling and wiring devices used 1.3 Installed equipment in accordance with manufacturer's instructions 1.4 Tested installed equipment according to manufacturer's instructions
2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1 Occupational safety and health guidelines 2.2 Specifications and proper use of tools 2.3 General concepts and principles in electronics and electricity <ul style="list-style-type: none"> 2.3.1 AC/DC power supplies 2.3.2 Operational amplifiers 2.3.3 Digital electronics 2.3.4 Wiring techniques 2.4 Use of test equipment and/ or instruments 2.5 Clinical application of equipment/instruments/tools 2.6 Drawing interpretation 2.7 Electronic hand soldering 2.8 Knowledge in computer
3. Underpinning skills	<ul style="list-style-type: none"> 3.1 Reading skills required to interpret work instructions, diagrams, schematics 3.2 Communication skills needed to interpret, define and explain work procedures 3.3 Problem solving in emergency situation(s) 3.4 Soldering skills 3.5 Troubleshooting 3.6 Courtesy and helping attitude 3.7 Use of computer
4. Method of assessment	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 4.1 Observation with questioning 4.2 Interview 4.3 Demonstration with questioning 4.4 Third party assessment 4.5 Portfolio
5. Resource implications	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 5.1 Tools 5.2 Test equipment and instruments 5.3 Materials 5.4 Work station 5.5 Job orders/requests
6. Context of assessment	<ul style="list-style-type: none"> 6.1 Assessment may be conducted in the workplace or in a simulated environment

UNIT OF COMPETENCY : **PERFORM CORRECTIVE MAINTENANCE ON BIOMEDICAL EQUIPMENT**

UNIT CODE : **HCS311302**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitude required in conducting corrective maintenance.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables
1. Respond to client/customer service request	1.1 Appropriate request form is received in accordance with institution protocols. 1.2 Covered biomedical equipment is identified. 1.3 Prompt service is conducted on-site or in the workshop.
2. Prepare unit/equipment	2.1. Complete assembly check-up and fault symptoms are conducted, identified, and verified against client description and properly documented. 2.2. Repair history is verified in line with the institution procedures. 2.3. Service manuals and service information required for the corrective maintenance are made available at the beginning of the corrective maintenance activities. 2.4. Workplace is cleaned in accordance with the institution procedure. 2.5. Necessary tools, test instrument and personal protective equipment are prepared in line with job requirement.
3. Diagnose faults	3.1. Systematic pre-testing procedure is observed in accordance with manufacturer's instruction. 3.2. System detect is identified using appropriate tools and test equipment and in accordance with organizational policies and procedures. 3.3. Accurate diagnosis is completed within the specified timeframe. 3.4. Diagnosis and findings of basic biomedical equipment failures or technical problems are completely and accurately documented in accordance with institution standard. 3.5 Fault/s, defects and range of the problems are properly and courteously explained to the client in accordance with institution policy.
4. Repair biomedical equipment	4.1 Safety equipment is used to protect self and others in accordance with established Occupational Health and Safety practices. 4.2 Defective spare parts/components are replaced with equivalent and/or better performing spare parts/components. 4.3 Repair and/or replaced parts/components are soldered in accordance to current best industry practice. 4.4 Necessary circuit adjustment, re-calibration and testing

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables
	<p>procedure is done and in conformance with equipment manufacturer specification standards.</p> <p>4.5 Necessary modification, conversion of parts and/or circuits is applied in accordance with industry best practice and equipment manufacturer specifications.</p> <p>4.6 Spare parts substitution is in accordance with the manufacturer's specification or equivalent.</p> <p>4.7 Corrective maintenance activity is accomplished within the required time frame.</p> <p>4.8 Care and extreme precaution in handling the unit is observed.</p>
5. Reassemble and test repaired unit	<p>5.1 Performance and functional test is conducted immediately after re-assembly.</p> <p>5.2 Equipment status and performance is checked and ensured conformance with equipment manufacturer standard and other health safety regulations.</p> <p>5.3 Complete and accurate documentation is prepared.</p> <p>5.4 Tools and test instrument are cleaned and cared as per organizational procedure.</p> <p>5.5 Waste materials are disposed in accordance with hospital waste management and other <i>environmental requirements</i>.</p>
6. Re-commission biomedical equipment	<p>6.1. Basic biomedical equipment and its immediate surrounding are cleaned in accordance with institution policy.</p> <p>6.2. Appropriate staff is communicated on the status of the equipment as per institution standards.</p>
7. Perform and maintain biomedical equipment corrective maintenance documentation.	<p>7.1 Health care equipment corrective maintenance form and other relevant reports are accomplished in strict observance of institution standards.</p> <p>7.2 Reports are submitted to proper officer/offices in accordance with institution policy.</p> <p>7.3 Corrective maintenance documents are systematically kept and updated as per institution standards.</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Appropriate request form	1.1 Proper service request form 1.2 Formal service request letter 1.3 Verbal service request (actual or phone) 1.4 Electronic communication equipment
2. Biomedical equipment	2.1 Weighing scale; Infant/digital 2.2 Clinical weighing scale 2.3 Gooseneck lamp/Examining light 2.4 Oxygen gauge 2.5 Sphygmomanometer 2.6 Suction apparatus 2.7 Autoclave 2.8 OR/DR light 2.9 OR table 2.10 Nebulizer 2.11 Rotator/Shaker 2.12 Electromuscular stimulator 2.13 Spectrophotometer 2.14 Uninterrupted power supply 2.15 Bag valve mask (Pedia and Adult) 2.16 Anesthesia bag 2.17 Clinical oven
3. Service manuals and information	3.1 Operation's Manuals 3.2 Service/Technical Manual 3.3 Installation Manual 3.4 Parts List Manual 3.5 Job Report Sheets 3.6 Job Request/Order 3.7 Spare-Parts List Replacement Guide Book 3.8 Requisition Slip 3.9 Equipment History Card 3.10 Supplier Index

VARIABLE	RANGE
4. Tools and test instrument	Includes but not limited to: 4.1 Screwdrivers (assorted) 4.2 Soldering iron/gun 4.3 De-soldering tool 4.4 Wrenches (assorted) 4.5 Pliers (assorted) 4.6 Cleaning Brush 4.7 Thermometer (digital & mercurial) 4.8 Electrical Safety Analyzer 4.9 Multi-tester (analog/digital) 4.10 Utility knife 4.11 Hammer (Shock less/mechanical) 4.12 Alignment tool
5. Personal Protective Equipment	5.1 Work clothes 5.2 Hand gloves 5.3 Goggles 5.4 Mask 5.5 Shoe cover
6. Environment requirement	6.1 DOH Hospital Waste Management Circular 6.2 DENR Circular

EVIDENCE GUIDE

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ol style="list-style-type: none"> 1.1 Demonstrate efficient application of effective troubleshooting technique. 1.2 Demonstrate effective testing of parts and components 1.3 Demonstrate quality corrective service. 1.4 Demonstrate the proper procedures in equipment testing electrical safety, calibration, cleaning and basic biomedical equipment disinfecting. 1.5 Demonstrate the conversion, substitution, modification of parts and circuits and in compliance with basic biomedical equipment manufacturer standards and established occupational health safety regulations. 1.6 Demonstrate the use of proper use of tools, test equipment and other equipment properly. 1.7 Demonstrate proper interpretation of service manual specification/instructions. 1.8 Identify faults and problem accurately. 1.9 Receive service request promptly and courteously. 1.10 Correct the basic biomedical equipment problem accurately and properly within the established timeframe. 1.11 Document the required corrective maintenance works accurately.
<p>2. Underpinning knowledge</p>	<ol style="list-style-type: none"> 2.1 General knowledge on the human physiology and anatomy system on the covered basic biomedical equipment. 2.2 General knowledge on the block and schematic diagrams and other essential circuits and components of the covered basic biomedical equipment. 2.3 General knowledge on the various mechanical, pneumatic, electronic and electrical and components used directly or indirectly in the covered basic biomedical equipment. 2.4 General knowledge on efficient application of effective troubleshooting technique. 2.5 General knowledge on the principle of operation, operating requirement, essential parts and functions of the covered basic biomedical equipment. 2.6 General knowledge on the special safety precautions and the established Occupational Health and Safety Practices. 2.7 General knowledge on the technical specification, reading and interpreting diagrams, troubleshooting technique, maintenance management, spare parts suppliers and list of technical persons capable to assist in the corrective

	<p>maintenance of the covered basic biomedical equipment.</p> <p>2.8 General knowledge on the use of mathematics, physics, electrical, electronics, pneumatic, hydraulic, mechanical and other related subjects use to solve the technical problem on the covered basic biomedical equipment.</p> <p>2.9 General knowledge on various types and models and the distinctions between one unit with the other of the covered basic biomedical equipment.</p> <p>2.10 Knowledge in computer</p>
3. Underpinning skills	<p>3.1 Effective client human relations and communications.</p> <p>3.2 Effective information gathering with the client, peers, equipment service engineers/staff and supervisors relevant in the corrective maintenance activity.</p> <p>3.3 Effective and efficient work and safety practices.</p> <p>3.4 Effective data analysis.</p> <p>3.5 Effective work safety practices and time management.</p> <p>3.6 Effective documentation</p> <p>3.7 Use of computer</p>
4. Resource implications	<p>The following resources MUST be provided:</p> <p>4.1 Tools and test instrument.</p> <p>4.2 Complete spare parts and consumables.</p> <p>4.3 Calibrating instrument (Air pressure calibrator ...etc.)</p> <p>4.4 Basic Biomedical Equipment service Manuals</p> <p>4.5 Work area/bench</p> <p>4.6 Basic Biomedical Equipment checklist forms and other reporting forms.</p>
5. Method of assessment	<p>Competency MUST be assessed through:</p> <p>5.1 Competency in this unit may be assessed through direct observation of application of task and questions (written/oral) to underpinning knowledge.</p>
6. Context of assessment	<p>6.1 Competency may be assessed in the workplace, assessment center or in a simulated workplace.</p>

UNIT OF COMPETENCY : **PERFORM PREVENTIVE MAINTENANCE ON BIOMEDICAL EQUIPMENT**

UNIT CODE : **HCS311303**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required in conducting preventive maintenance.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables
1. Prepare preventive maintenance protocol	1.1 Covered biomedical equipment and accessories is identified. 1.2 Update basic biomedical equipment inventory on the covered BBE is secured and used as reference for preventive maintenance preparation. 1.3 Repair history and equipment consumables are verified in line with the institution's procedure. 1.4 Appropriate checklist forms tools, test equipment, calibrating tools, fast moving consumables and personal protective equipment are secured in line with job requirements.
2. Implement preliminary preventive maintenance protocol	2.1 Preventive maintenance program is properly communicated with the appropriate staff . 2.2 Immediate surrounding of covered BBE is secured from unnecessary hazards . 2.3 Performed basic biomedical equipment ocular inspection in accordance with institution's procedure. 2.4 Cleaned and sanitized BBE in accordance with manufacturer standard and/or institution's procedure.
3. Perform electrical safety testing	3.1 Set-up appropriate test equipment in accordance with equipment manufacturer standards and established occupational health and safety practices. 3.2 Line voltage, ground resistance and current leakage of the covered BBE are measured in accordance with manufacturer standards and in strict observance of the established occupational health and safety practices. 3.3 Electrical safety test results with equipment manufacturer's safety standards are analyzed. 3.4 Electrical faults are corrected in accordance with equipment manufacture standards.
4. Perform health care equipment functional test	4.1 Equipment set-up and start-up operation is performed in accordance with equipment manufacturer standards. 4.2 Set equipment controls in accordance with equipment manufacture's functional test standard. 4.3 Controls and start up signals are checked in accordance with manufacture standard operating procedure and safety regulations.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables
	<p>4.4 BBE operation protocols are simulated in accordance with manufacturer standard.</p> <p>4.6 Equipment lubrication is done in accordance with manufacturer standards.</p> <p>4.7 Accessories of the covered BBE are inspected and set-up in accordance with institution and equipment manufacturer standard respectively.</p> <p>4.8 Appropriate equipment consumables are replaced in accordance with manufacturer standards</p> <p>4.9 Functional test is completed within the specified time as provided in the institution BBE preventive maintenance procedure.</p>
5. Check and perform BBE calibration	<p>5.1 Appropriate calibration procedures and parameters are determined in accordance with equipment manufacturer standards and/or institution's guidelines.</p> <p>5.2 Calibration equipment is set-up in accordance with manufacturer standard and occupational and health safety practices.</p> <p>5.3 BBE operation is simulated in accordance with equipment manufacturer standards.</p> <p>5.4 Calibration controls are crossed check and verified in accordance with manufacturer's standards.</p> <p>5.5 Necessary adjustments are made in accordance with equipment manufacturer's instruction.</p> <p>5.6 Covered BBE is subjected to final test in accordance with institution guidelines and procedures.</p>
6. Re-commission BBE.	<p>6.1 Reassembled BBE are subjected to final testing in accordance with institution standard.</p> <p>6.2 BBE and its immediate surrounding are cleaned in accordance with institution policy.</p> <p>6.3 Communicated with appropriate staff that preventive maintenance procedure is done and brief's the same on equipment status as per institution standard.</p>
7. Perform and maintain BBE preventive maintenance documentation	<p>7.1 Basic biomedical equipment checklist forms and other preventive maintenance documents are accomplished in strict observance of institution standards.</p> <p>7.2 Reports are submitted to proper officer/office in accordance with institution policy.</p> <p>7.3 Preventive maintenance documents are systematically kept and updated as per institution standards.</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Equipment	1.1 Weighing scale (Infant/Adult) 1.2 Clinical weighing scale 1.3 Gooseneck lamp/Examining light 1.4 Oxygen gauge 1.5 Sphygmomanometer 1.6 Suction apparatus 1.7 Autoclave 1.8 OR/DR light 1.9 OR table 1.10 Nebulizer 1.11 Clinical Rotator/Shaker 1.12 Electromuscular stimulator 1.13 Spectrophotometer 1.14 Uninterrupted power supply 1.15 Bag valve (Pedia and Adult) 1.16 Anesthesia bag 1.17 Clinical oven
2. Checklist form	2.1 Covered equipment P.M. checklist form
3. Tools, test equipment and calibrating tool	Includes but not limited to: 3.1 Screwdrivers (assorted) 3.2 Soldering iron/gun 3.3 De-soldering tool 3.4 Wrenches (assorted) 3.5 Pliers (assorted) 3.6 Cleaning Brush 3.7 Thermometer (digital & mercurial) 3.8 Electrical Safety Analyzer 3.9 Multi-tester (analog/digital) 3.10 Utility knife 3.11 Alignment tool
4. Service manuals and information	4.1 Operation's Manuals 4.2 Service/Technical Manual 4.3 Installation Manual 4.4 Parts List Manual 4.5 Job Report Sheets 4.6 Job Request/Order 4.7 Equipment History Card 4.8. Supplier Index

VARIABLE	RANGE
5. Fast moving consumables	5.1 Oil, cleaning agents 5.2 Fuses (assorted) 5.3 Contact cleaner 5.4 Soldering lead 5.5 Tape (assorted) 5.6 Filters (assorted) 5.7 Sealing materials 5.8 Screws (assorted) 5.9 Wire tie
6. Appropriate staff	6.1 End-user 6.2 Immediate supervisor 6.3 Managers
7. Personal Protective Equipment	7.1 Working clothes 7.2 Hand Gloves 7.3 Goggles 7.4 Mask 7.5 Shoe cover
8. Unnecessary hazards	8.1 People 8.2 Wet floors 8.3 Open electrical wiring 8.4 Location

EVIDENCE GUIDE

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Interpreted work instructions according to job requirements. 1.2 Appropriately selected electrical cabling and wiring devices used. 1.3 Installed equipment in accordance with manufacturer's instructions. 1.4 Tested installed equipment according to manufacturer's instructions
<p>2. Underpinning knowledge</p>	<ul style="list-style-type: none"> 2.1 Occupational safety and health guidelines 2.2 Specification and proper use of tools 2.3 General concepts and principles of in electronics and electricity <ul style="list-style-type: none"> 2.3.1 AC/DC power supplies 2.3.2 Operational amplifiers 2.3.3 Digital electronics 2.3.4 Wiring techniques 2.4 Use of test equipment/instruments 2.5 Clinical application of equipment/instruments/tools 2.6 Drawing interpretation 2.7 Electronic hand soldering
<p>3. Underpinning skills</p>	<ul style="list-style-type: none"> 3.1 Reading skills required to interpret work instructions, diagrams, schematics 3.2 Communication skills needed to interpret and define and explain work procedures 3.3 Problem solving in emergency situation 3.4 Soldering skills 3.5 Troubleshooting 3.6 Courtesy and helping attitude
<p>4. Method of assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 4.1 Observation with questioning 4.2 Interview 4.3 Demonstration with questioning 4.4 Third party report 4.5 Portfolio
<p>5. Resource implications</p>	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 5.1 Tools 5.2 Test equipment and instruments 5.3 Materials 5.4 Work station 5.5 Job orders/requests
<p>6. Context of assessment</p>	<ul style="list-style-type: none"> 6.1 Assessment may be conducted in the workplace or in a simulated environment

UNIT OF COMPETENCY : **REPAIR BIOMEDICAL EQUIPMENT**

UNIT CODE : **HCS311304**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes necessary to repair biomedical equipment related to patient care.

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables
1. Inspect equipment for repair	1.1 Identify equipment for repair in accordance to institutional rules and regulations. 1.2 Sort and classify equipment for repair. 1.3 Prioritize equipment for repair.
2. Plan and prepare for repair	2.1 Repair is planned and prepared in line with job requirements. 2.2 OSH policies and procedures are followed in line with job requirements. 2.3 Equipment is checked against specification and requirements. 2.4 Materials and supplies necessary to complete the work are obtained in accordance with established procedures and checked against job requirements. 2.5 Tools, equipment and testing devices needed to carry out the work are obtained in accordance with established procedures and checked for correct operation and safety.
3. Repair equipment	3.1 Appropriate personal protective equipment is used and OSH policies and procedures are followed. 3.2 Normal function of equipment is checked in accordance with manufacturer's instructions. 3.3 Fault or problem in the equipment is diagnosed in line with the standard operating procedures. 3.4 Determine most cost-effective repair solution in accordance with institution's requirements. 3.5 Equipment is repaired or replaced in line with the standard operating procedures.
4. Inspect the test equipment	4.1 Final inspections are undertaken to ensure that the testing conducted on the equipment and circuits conforms with the manufacturer's instruction/manual. 4.2 Equipment is checked to ensure safe operation. 4.3 Unplanned events or conditions are responded to in accordance with established procedures. 4.4 Work site is cleaned and cleared of all debris and left in a safe condition in accordance with established procedures. 4.5 Report is prepared/completed according to company requirements. 4.6 Endorse equipment to appropriate end user according to institution's requirements.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Tools	Tools for: cutting, shaping, drilling, threading, tapping, finishing, dismantling/assembling. Tool set includes but not limited to: <ul style="list-style-type: none"> 1.1 Pliers; (assorted) 1.2 Screwdrivers; (assorted) 1.3 Soldering gun/iron 1.4 Drill and assorted bits 1.5 Tool kit 1.6 Wrench and spanners (assorted) 1.7 Puller
2. Testing devices	Includes but not limited to: <ul style="list-style-type: none"> 2.1 Multi-tester 2.2 Signal generator 2.3 Oscilloscope 2.4 Calibrators 2.5 Gauges (assorted) 2.6 Variable power supply
3. Materials and supplies	Includes but not limited to: <ul style="list-style-type: none"> 3.1 Tape (assorted) 3.2 Sealing materials (assorted) 3.3 Cables 3.4 Wires 3.5 Soldering Lead 3.6 Wire tie 3.7 Oil, Cleaning agent 3.8 Grease
4. Equipment	Includes but not limited to: <ul style="list-style-type: none"> 4.1 Weighing scale, (Infant/Digital) 4.2 Clinical weighing scale 4.3 Gooseneck lamp/Examining light 4.4 Medical gauges 4.5 Sphygmomanometer 4.6 Suction apparatus 4.7 Autoclave 4.8 OR/DR light 4.9 OR table 4.10 Nebulizer 4.11 Clinical Rotator/Shaker 4.12 Electromuscular stimulator 4.13 Spectrophotometer

VARIABLE	RANGE
	4.14 Uninterrupted power supply 4.15 Bag valve (Pedia and Adult) 4.16 Anesthesia bag 4.17 Clinical oven
5. Personal Protective Equipment	Includes but not limited to: 5.1 Gloves 5.2 Industrial Mask 5.3 Safety goggles 5.4 Coveralls 5.5 Shoe cover
6. OHS policies and procedures	6.1 National Electrical Code 6.2 OSH guidelines 6.3 Philippine environmental standards
7. Unplanned events or conditions	Includes but not limited to: 7.1 Fire 7.2 Flood 7.3 Earthquake 7.4 Electrical shock 7.5 Power interruption 7.6 Power overload 7.7 Alert levels
8. Worksite	Includes but not limited to: 8.1 Laboratory 8.2 Clinics 8.3 Operating room 8.4 Wards/Units 8.5 Emergency room

EVIDENCE GUIDE

1. Critical aspect of competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Interpreted work instructions according to job requirements. 1.2 Diagnosed faults in equipment and circuits 1.3 Repaired or replaced defective components. 1.4 Conducted test on the repaired equipment according to manufacturer's instructions 1.5 Documented tasks undertaken
2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1 Fundamentals of Chemistry 2.2 Fundamentals of Physics 2.3 Medical terminologies 2.4 OHS requirements 2.5 Use of tools 2.6 Use of tools equipment 2.7 Electrical theory 2.8 AC/DC principles 2.9 Wiring techniques 2.10 Drawing interpretation and sketching 2.11 Digital electronics 2.12 Hospital ethics 2.13 Hospital safety 2.14 Concepts of instrumentation 2.15 Pressure measurement 2.16 Fluid flow 2.17 Temperature measurement 2.18 Process control 2.19 Process control system 2.20 Transmitters and converters 2.21 Programmable controllers 2.22 Control valves 2.23 Telemetry 2.24 Indicators and recorders
3. Underpinning skills	<ul style="list-style-type: none"> 3.1 Reading skills required to interpret work instructions 3.2 Communication skills needed to interpret and explain work procedures 3.3 Problem solving in emergency situation 3.4 Soldering skills
4. Method of assessment	<p>Competency assessment may be assessed through:</p> <ul style="list-style-type: none"> 4.1 Observation with questioning 4.2 Third party report 4.3 Portfolio
5. Resource implications	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 5.1 Materials 5.2 Tools and test equipment/instrument 5.3 Equipment to be used in a real or simulated situations
6. Context of assessment	<ul style="list-style-type: none"> 6.1 Assessment may be conducted in the workplace or in a simulated environment

UNIT OF COMPETENCY : **ASSESS AND REFER BIOMEDICAL EQUIPMENT**

UNIT CODE : **HCS311305**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required in the assessment and referral of biomedical equipment.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables
1. Plan and prepare	1.1 Identification of equipment faults / defects is planned and prepared in line with job requirements. 1.2 Occupational Safety and Health (OSH) policies and procedures needed are followed in line with job requirements. 1.3 Materials necessary to complete the work are obtained in accordance with job establish procedures and checked against job requirements. 1.4 Appropriate personnel are consulted to ensure that the work is effectively coordinated. 1.5 Tools, equipment and testing devices needed to carry out the work are obtained in accordance with established procedures and checked for proper operation and safety. 1.6 System and equipment defects are checked against job requirements.
2. Assess faults / defects	2.1 Appropriate personal protective equipment (PPE) is used in accordance with job requirements and manufacturer's requirements. 2.2 Equipment faults / defects are assessed in accordance with standard operating procedures. 2.3 Contingency measures are managed and implemented in accordance with established procedures. 2.4 Unplanned events or conditions are responded to in accordance with established institutional procedures.
3. Refer for re-assessment / repair	3.1 Necessary report prepared as per institutional requirements. 3.2 Where applicable, details of referrals (e.g. name, company, specialization) are identified based on equipment assessment 3.3 Identify and inform appropriate personnel regarding assessment findings according to established protocol. 3.4 Submit report in accordance with institutional policies and requirements.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Tools	Tools for: cutting, shaping, drilling, threading, tapping, finishing, dismantling/assembling. Tool set includes but not limited to: <ul style="list-style-type: none"> 1.1 Pliers; (assorted) 1.2 Screwdrivers; (assorted) 1.3 Soldering gun/iron 1.4 Drill and assorted bits 1.5 Tool kit 1.6 Wrench and spanners (assorted)
2. Testing devices	Includes but not limited to: <ul style="list-style-type: none"> 2.1 Multi-tester 2.2 Signal generator 2.3 Oscilloscope 2.4 Calibrators 2.5 Gauges (assorted)
3. Materials	Includes but not limited to: <ul style="list-style-type: none"> 3.1 Tape (assorted) 3.2 Sealing materials 3.3 Cables 3.4 Wires 3.5 Soldering Lead
4. Equipment	Includes but not limited to: <ul style="list-style-type: none"> 4.1 Digital weighing scale 4.2 Infant weighing scale 4.3 Clinical weighing scale 4.4 Gooseneck lamp/Examining light 4.5 Oxygen gauge 4.6 Sphygmomanometer 4.7 Suction apparatus 4.8 Autoclave 4.9 OR/DR light 4.10 OR table 4.11 Nebulizer 4.12 Rotator/Shaker 4.13 Electromuscular stimulator 4.14 Spectrophotometer 4.15 *Uninterrupted power supply 4.16 Bag valve (Pedia and Adult) 4.17 Anesthesia bag 4.18 Clinical oven

VARIABLE	RANGE
5. PPE	Includes but not limited to: 5.1 Gloves 5.2 Industrial Mask 5.3 Safety goggles 5.4 Coveralls
6. OSH policies and procedures	6.1 National Electrical Code 6.2 OSH guidelines 6.3 Philippine environmental standards
7. Unplanned events or conditions	Includes but not limited to: a. Fire b. Flood c. Earthquake d. Electrical shock e. Power interruption f. Power overload g. Alert levels
8. Worksite	Includes but not limited to: a. Laboratory b. Clinics c. Operating room d. Wards/Units e. Emergency room

EVIDENCE GUIDE

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Interpreted work instructions according to job requirements. 1.2 Assessed and referred faults / defects equipment. 1.3 Appropriately selected electrical cabling and wiring devices used 1.4 Conducted test accurately on the equipment. 1.5 Reported the task undertaken.
<p>2. Underpinning knowledge</p>	<ul style="list-style-type: none"> 2.1 Occupational safety and health guidelines 2.2 Specifications and proper use of tools. 2.3 General concepts and principles of in electronics and electricity <ul style="list-style-type: none"> 2.3.1 AC/DC power supplies 2.3.2 Operational amplifiers 2.3.3 Digital electronics 2.3.4 Wiring techniques 2.4 Knowledge of test equipment/instruments 2.5 Knowledge on faults / defects. 2.6 Clinical application of equipment/instruments/tools 2.7 Drawing interpretation
<p>3. Underpinning skills</p>	<ul style="list-style-type: none"> 3.1 Reading skills required interpreting work instructions, diagrams, and schematics. 3.2 Communication skills needed to interpret and explain work procedures 3.3 Problem solving in emergency situation 3.4 Soldering skills 3.5 Troubleshooting 3.6 Courtesy and helping attitude
<p>4. Method of assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 4.1 Observation with questioning 4.2 Interview 4.3 Demonstration with questioning 4.4 Third party report 4.5 Portfolio
<p>5. Resource implications</p>	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 5.1 Tools 5.2 Test equipment and instruments 5.3 Materials 5.4 Work station 5.5 Job orders/requests
<p>6. Context of assessment</p>	<ul style="list-style-type: none"> 6.1 Assessment may be conducted in the workplace or in a simulated environment

SECTION 3 TRAINING STANDARDS

This set of standards provides Technical and Vocational Education and Training (TVET) providers with information and other important requirements to consider when designing training programs for **BIOMEDICAL EQUIPMENT SERVICING NCII**.

This includes information on curriculum design, training delivery, trainee entry requirements, tools, materials and equipment, training facilities and trainers qualification and national assessment and certification arrangements.

3.1 CURRICULUM DESIGN

Course Title: **BIOMEDICAL EQUIPMENT SERVICING**

NC Level: **NC II**

Nominal Training Hours: **960 Hours**

Course Description:

This course is designed to enhance the knowledge, skills and attitudes of **BIOMEDICAL EQUIPMENT SERVICING** in accordance with industry standards. It covers basic, common and core competencies in NC II.

BASIC COMPETENCIES

UNIT OF COMPETENCY	LEARNING OUTCOMES	METHODOLOGY	ASSESSMENT APPROACH
1. Participate in workplace communication	1.1 Obtain and convey workplace information. 1.2 Complete relevant work related documents. 1.3 Participate in workplace meeting and discussion.	<ul style="list-style-type: none"> • Group discussion • Interaction 	<ul style="list-style-type: none"> • Demonstration • Observation • Interviews/ • Questioning
2. Work in a team environment	2.1 Describe and identify team role and responsibility in a team. 2.2 Describe work as a team member.	<ul style="list-style-type: none"> • Discussion • Interaction 	<ul style="list-style-type: none"> • Demonstration • Observation • Interviews/ • Questioning
3. Practice career professionalism	3.1 Integrate personal objectives with organizational goals. 3.2 Set and meet work priorities. 3.3 Maintain professional growth and development.	<ul style="list-style-type: none"> • Group discussion • Interaction 	<ul style="list-style-type: none"> • Demonstration • Observation • Interviews/ • Questioning
4. Practice occupational health and safety	4.1 Evaluate hazard and risks. 4.2 Control hazards and risks. 4.3 Maintain occupational health and safety awareness.	<ul style="list-style-type: none"> • Discussion • Plant Tour • Symposium 	<ul style="list-style-type: none"> • Observation • Interviews

COMMON COMPETENCIES

UNIT OF COMPETENCY	LEARNING OUTCOMES	METHODOLOGY	ASSESSMENT APPROACH
1. Implement and monitor infection control policies and procedures	1.1 Provide information to the work group about the organization's infection control policies and procedures. 1.2 Integrate the organization's infection control policy and procedure into work practices. 1.3 Monitor infection control performance and implement improvements in practices	<ul style="list-style-type: none"> • Lecturette • Interaction 	<ul style="list-style-type: none"> • Observation and oral questioning • Grid questioning • Practical exercise
2. Respond effectively to difficult/challenging behavior	2.1 Plan and respond to emergencies. 2.2 Report and review incidents.	<ul style="list-style-type: none"> • Lecturette • Brainstroming 	<ul style="list-style-type: none"> • Observation and oral questioning • Grid questioning • Practical exercise
3. Apply basic first aid	3.1 Assess the situation. 3.2 Apply basic first aid techniques. 3.3 Communicate details of the incident.	<ul style="list-style-type: none"> • Lecturrette • Brainstorming 	<ul style="list-style-type: none"> • Observation and oral questioning • Grid questioning • Practical exercise
4. Maintain high standard of patient services	4.1 Communicate appropriately with patients. 4.2 Establish and maintain good interpersonal relationship with patients. 4.3 Act in a respectful manner at all times. 4.4 Evaluate own work to maintain a high standard of patient service.	<ul style="list-style-type: none"> • Lecturette • Brainstorming 	<ul style="list-style-type: none"> • Observation and oral questioning • Grid questioning • Practical exercise

CORE COMPETENCIES

UNIT OF COMPETENCY	LEARNING OUTCOME	METHODOLOGY	ASSESSMENT APPROACH
1. Install biomedical equipment	1.1 Interpret work instructions 1.2 Install instrumentation and control devices 1.3 Test installed instrumentation and control devices	<ul style="list-style-type: none"> • Lecture • Questioning • On-the- Job Practice 	<ul style="list-style-type: none"> • Observation • Demonstration • Third Party Report • Return Demonstration
2. Perform corrective maintenance on biomedical equipment	2.1 Respond to client/customer service request 2.2 Prepare unit 2.3 Diagnose faults 2.4 Repair Basic Biomedical Equipment 2.5 Reassemble and test repaired unit 2.6 Re-commission Basic Biomedical Equipment 2.7 Perform and maintain basic biomedical equipment corrective maintenance documentation	<ul style="list-style-type: none"> • Lecture • Questioning • On-the- Job Practice 	<ul style="list-style-type: none"> • Observation • Demonstration • Third Party Report • Return Demonstration
3. Perform preventive maintenance on biomedical equipment	3.1 Prepare preventive maintenance protocol 3.2 Implements preliminary preventive maintenance protocol 3.3 Perform electrical safety testing 3.4 Perform basic biomedical equipment functional test.	<ul style="list-style-type: none"> • Lecture • Questioning • On-the- Job Practice • Demonstration 	<ul style="list-style-type: none"> • Observation • Demonstration • Third Party Report • Return Demonstration
	3.5 Check and perform basic biomedical equipment calibration. 3.6 Re-commission Basic Biomedical Equipment. 3.7 Perform and maintain basic biomedical equipment preventive maintenance documentation.	<ul style="list-style-type: none"> • Lecture • Questioning • On-the- Job Practice • Demonstration 	<ul style="list-style-type: none"> • Observation • Demonstration • Third Party Report • Return Demonstration
4. Repair biomedical equipment	4.1 Inspect equipment for repair. 4.2 Plan and prepare for repair. 4.3 Repair equipment. 4.4 Inspect the test equipment.	<ul style="list-style-type: none"> • Lecture • Questioning • On-the- Job Practice • Demonstration 	<ul style="list-style-type: none"> • Observation • Demonstration • Third Party Report • Return Demonstration

UNIT OF COMPETENCY	LEARNING OUTCOME	METHODOLOGY	ASSESSMENT APPROACH
5. Assess and refer biomedical equipment	5.1 Plan and prepare. 5.2 Assess faults/defects 5.3 Refer for further re-assessment	<ul style="list-style-type: none"> • Lecture • Questioning • On-the- Job Practice • Demonstration 	<ul style="list-style-type: none"> • Observation • Demonstration • Third Party Report • Return Demonstration

3.2 TRAINING DELIVERY

The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of competency-based TVET.

- The training is based on curriculum developed from the competency standards;
- Learning is modular in its structure;
- Training delivery is individualized and self-paced;
- Training is based on work that must be performed;
- Training materials are directly related to the competency standards and the curriculum modules;
- Assessment is based in the collection of evidence of the performance of work to the industry required standard;
- Training is based both on and off-the-job components;
- Allows for recognition of prior learning (RPL) or current competencies;
- Training allows for multiple entry and exit; and
- Approved training programs are nationally accredited.

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 may be adopted when designing training programs:

- The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in-school and in – industry training or fieldwork components. Details can be referred to the Dual Training System (DTS) Implementing Rules and Regulations.
- Modular/self-paced learning is a competency-based training modality wherein the trainee is allowed to progress at his own pace. The trainer facilitates the training delivery
- Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners
- Supervised industry training or on-the-job training is an approach in training designed to enhance the knowledge an skills of the trainee through actual experience in the workplace to acquire specific competencies prescribed in the training regulations.
- 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, or audio, video or computer technologies.
- Project-Based Instruction is an authentic instructional model or strategy in which students plan, implement and evaluate projects that have real world applicants.

3.3 TRAINEE ENTRY REQUIREMENTS:

Trainees or students wishing to gain entry into these qualifications should possess the following requirements:

- 16 years old and above
- Must pass the trainability / aptitude test
- Can communicate effectively both in oral and written form
- Physically, emotionally and mentally fit
- Can perform basic mathematical computation

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

3.4 TOOLS, MATERIALS AND EQUIPMENT: BIOMEDICAL EQUIPMENT SERVICING NC II

Recommended list of tools, equipment and materials for the training of 25 trainees for BIOMEDICAL EQUIPMENT SERVICING NCII are as follows:

TOOLS		EQUIPMENT		MATERIALS	
Qty.	Description	Qty.	Description	Qty.	Description
4 sets	Pliers; (assorted)	1	Microscope		Electronic devices assorted
	Screwdrivers; (assorted)	1	Medical Refrigerator/Freezer		Soldering lead
	Soldering iron/gun	1	ECG machine		Sealing materials
	Electric hand drill and assorted bits	1	Clinical weighing scale		Work clothes
	Alligator clip with wire	1	Defibrillator		Hand gloves
	De-soldering tool	1	EENT Diagnostic set		Goggles
	Wrenches (assorted)	1	Gooseneck lamp/ Examining light		Mask
	Power supply variables	1	Laryngoscope with blades		Tape (assorted)
	Cleaning brush	1	Oxygen unit		Oil, cleaning agent
	Work bench	1	Sphygmomanometer		
	Hammer (Shock less/Mechanical)	1	Suction apparatus		
	Breadboard	1	Anesthesia machine		
	Tester Analog/Digital	1	Autoclave		
	Oscilloscope	1	OR/DR light		
	Signal Generator	1	OR table		
	Integrated Circuit Extractor		Infant Incubator		
		1	Clinical Incubator		
		1	Nebulizer		
		1	Heart/Lung machine		
		1	Cardiac monitor		
		1	Circoelectric bed		
		1	Centrifuge		

3.5 TRAINING FACILITIES BIOMEDICAL EQUIPMENT SERVICING NC II

The Biomedical Equipment Servicing Learning Facility must be of concrete structure. Based on class size of **25** students / trainees the space requirements for the teaching / learning and curriculum areas are as follows.

TEACHING / LEARNING AREAS	SIZE IN METERS	AREA IN S. METERS	QTY.	TOTAL AREA IN SQ. METERS
Laboratory Area	5 X 10	50	1	50
Tool Room	4 X 5	20	1	20
Storage Room/	4X5	20	1	20
Learning Resources Area*	5 X 7	35	1	35
Wash Area/Comfort Room (male & female)*	2.5 X 4	10	1	10
Admin and Staff Room	5 X 5	25	1	25
Circulation Area**			1	30
Total				200
Total Workshop Area				200

3.6 TRAINER QUALIFICATION (TQ II)

- Must be a certified electrical or electronic technician with background/orientation on health care/services
- Must have undergone training on Training Methodology II (TM II) or equivalent in training/experience
- Must be physically, emotionally and mentally fit
- Must possess good moral character
- With at least 2 years experience in the health service industry

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.

SECTION 4 NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS

- 4.1 To attain the National Qualification of **Biomedical Equipment Servicing NC II**, the candidate must demonstrate competence through project-type assessment covering all units listed in Section 1. Successful candidates shall be awarded a National Certificate, NC II signed by the TESDA Director General.
- 4.2 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units.
- 4.3 The following are qualified to apply for assessment and certification:
 - 4.3.1 Graduates of formal, non-formal and informal including enterprise-based training programs.
 - 4.3.2 Experienced Workers (wage employed or self – employed)
- 4.4 Re-assessment in a unit of competency is allowed only after one month from the date of assessment. Re-assessment for a National Certificate shall be done only on the task/s that the candidate did not successfully achieve.
- 4.5 A candidate who fails the assessment for two (2) consecutive times will be required to go through a refresher course before taking another assessment.
- 4.6 The guidelines on assessment and certification are discussed in detail in the Procedures Manual on Assessment and Certification.

COMPETENCY MAP – HEALTH SECTOR (BIOMEDICAL EQUIPMENT SERVICING NC II)

BASIC COMPETENCIES

Receive and respond to workplace communication	Work with others	Demonstrate work values	Participate in workplace communication	Work in a team environment	Practice career professionalism	Practice occupational health and safety procedures
Practice housekeeping procedures (5S)	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 specialized communication skills	Develop team and individual	Apply problem solving techniques in the workplace	Collect, analyze and organize information	Plan and organize work	Promote environmental protection	

COMMON COMPETENCIES

Implement and monitor infection control policies and procedures	Respond effectively to difficult/challenging behavior	Apply basic first aid	Maintain high standard of patient services
-----------------------------------------------------------------	-------------------------------------------------------	-----------------------	--------------------------------------------

CORE COMPETENCIES

Provide care and support to infants and toddlers	Provide care and support to children	Foster social, intellectual, creative and emotional development of children	Foster the physical development of children	Provide care and support to elderly	Provide care and support to people with special needs	Maintain a healthy and safe environment
Respond to emergency	Clean living room, dining room, bedrooms, toilet and bathroom	Wash and iron clothes, linen and fabric	Prepare hot and cold meals/food	Prepare and maintain beds	Collect and maintain linen stocks at end-users location	Assist in patient mobility
Assist in transporting patients	Assist in bio-psychosocial support care of patients	Handle waste in a health care environment	Install biomedical equipment	Perform corrective maintenance on biomedical equipment	Perform preventive maintenance on biomedical equipment	Repair biomedical equipment
Assess and refer biomedical equipment	Perform basic life support	Maintain life support equipment and resources	Implement safe access and extrication procedures in an emergency	Manage request for an ambulance service	Allocate ambulance service resources	Coordinate emergency resources
Deliver basic ambulance communication skills	Supervise on-road operations	Manage the scene of an emergency	Manage the scene of a special event	Manage routine scene	Deliver pre-hospital patient care	Deliver intensive pre-hospital patient care
Manage ambulance operations	Transport emergency patients	Transport non-emergency patients	Drive vehicles under operational conditions	Work within a holistic therapeutic massage framework	Perform therapeutic massage assessment	Plan the therapeutic massage treatment
Implement therapeutic massage treatment	Perform remedial therapeutic massage treatment	Work within a community development framework	Prepare for work in the community service industry	Support community resources	Provide primary/residential care	Support community participation
Recruit and coordinate volunteers	Respond holistically to client issues	Develop and provide health education program in the community	Implement health promotion and community interventions			

DEFINITION OF TERMS

For the purpose of this standard, the word

Maintenance	A combination of any action carried out to retain an item in, or restore it to an acceptable operation condition.
Preventive Maintenance	Maintained carried out a predetermined interval, or to other prescribed criteria, and intended to reduce the like hood of an item not meeting an acceptable condition.
Corrective Maintenance	Maintenance carried out to restore (including adjustment and repair) an item, which has ceased to meet an acceptable condition.
Electro cardiograph (ECG)	An instrument for recording the changes of electrical potential occurring during the heartbeat; used especially in diagnosing abnormalities of the heart action.
Spectrophotometer	A device for measuring the concentration of a substance in a solution using single beam of light that passes through the solution.
Blood Pressure Apparatus	An equipment use to measure arterial blood pressure in the lateral pressure of force exerted by blood on a unit area of the blood vessel wall.
Weighing Scale	A measuring instrument for determining the weight of an object: amount of mass in terms of kilogram (kg) or pounds (lbs)
Nebulizer	A device used to turn liquid medicine into a fine spray, or nebulas, usually liquid form medicine for asthma; for quick nasal ingestion.
Laryngoscope	A flexible, lighted tube used to examine the larynx.
Stethoscope	A medical instrument for listening to the sounds generated inside the body which otherwise could not be heard by a human ear unaided.
Sterilizer	A device for heating substances above their boiling point. Use to manufacture chemicals of to sterilized surgical instrument.
Water bath	A device for regulating the temperature of anything subjected to heat, by surrounding the vessel containing it with another vessel containing water that can be kept at a desired temperature.

ACKNOWLEDGMENT

The Technical Education and Skills Development Authority (TESDA) wishes to extend thanks and appreciation to the many representatives of business, industry, academe and government agencies, non-government organizations including professional associations who donated their time and expertise to the development and validation of this Training Regulations.

EXECUTIVE COMMITTEE, Health Care Industry Training Council, Inc.

- **Dr. Juan Ma. Pablo R. Nañagas, MPH, MNSA**
Chairperson
- **Dr. Kenneth Vincent Ronquillo, MPH**
Deputy Chair
- **Pilar L. Singson Malabunga, RN, MAN**
Secretary (2003-2004)
- **Evangeline E. Rafael, RN, MPA, MHA, PhD**
Secretary
- **Dr. Irineo Bernardo, III**
Treasurer
- **Professor Quintin G. Tan**
Board Member
- **Ma. Rita V. Tamse, RN, MN**
Board Member

Committee Chairs, Health Care Industry Training Council

- **Dr. Rodel Nodora, EMBA**
Planning Research, Marketing and Advocacy Committee
- **Ma. Rita V. Tamse, RN, MN**
Standards and Assessment Development Committee (2003-2004)
- **Ms. Gwyn Grace M. Dacurawat**
Standards and Assessment Development Committee
- **Prof. Agnes Rosario A. De Leon, RN, MHA, CHCM**
Training and Development Committee

PAQTVET

- **Mark Douglas Kilner**
Australian Project Director and Industry Advisor, Health Sector
- **Mr. Nicholas Crosling**
- **Ms. Sonya Casey**
- **Mr. Patrick Cummings**
- **Mr. Anthony Audley**
- **Mr. Dexter Merquita**
- **Ms. Erma David**
- **Ms. Olivia Angel**
- **Ms. Dazymea Gaan**
- **Mr. Charles Del Rosario**
- **Ms. Rabbi Morata**

Committee on Standards and Assessment Development

- **Ms. Gwynn Marantan Dacurawat, RN, MAN**
Deputy Chair
- **Dr. Ponciano Jerez**
National Vice President, Philippine Government Employees Association
- **Dr. Leopoldo Vocalan, Jr.**
Veterans Memorial Medical Center
- **Ms. Imelda A. Mangaser, RN, MN**
Division of Nursing Education and Training, Philippine General Hospital
- **Dr. Remigia Lorenzo, RN, DEd**
Holy Spirit Occupational Skills Training Ctr.
- **Ms. Hiyasmin Lozada, RM, RN**
New Lucena Polytechnic College
- **Mr. Antonio P. Gunay, Jr.**
Organization of Non-Academic Personnel of UP (ONAPUP)/Philippine Government Employees Association
- **Ms. Nanette JC. Masangkay**
Philippine General Hospital

Committee on Planning Research, Marketing & Advocacy

- **Mr. Hermenegildo Caronan, Jr., MPA, Deputy Chair**
- **Mrs. Anesia B. Dionisio, RN, MN**
- **Dr. Ruben Caragay**
- **Dr. Bernardino Vicente, MHA**
- **Dr. Benito F. Arca, MPH**
- **Ms. Evangeline E. Rafael, RN, MPA, MHA**
- **Ms. Estela A. Quirapas**
- **Ms. Mariquita Macaroyo, RN**
- **Dr. Jose O. Priela**
- **Ms. Gloria G. Almariego**
- **Mr. Danilo Walo**
- **Dr. Kenneth Vincent Ronquillo, MPH**
- **Mr. Paulino O. Cruz, Jr., Secretariat**

Committee on Curriculum and Training Development

- **Ms. Elena P. Yu, RN, MAN, Deputy Chair**
- **Dr. Jorge M. Concepcion, FPCS**
- **Dean Marilyn Coladilla, RN, Ed.D**
- **Professor Quintin Tan**
- **Mr. Enrico Roceles**
- **Ms. Elizabeth Acuin**
- **Mr. Rafael Mapalo**
- **Mr. Keith Abelar**
- **Ms. Susana P. Magtubo**
- **Ms. Corazon R. Cruz**
- **Mr. Honorio A. Alumno/Mr. Marlo Aranguren**
- **Dr. Ramona Luisa Pablo Santos**
- **Ms. Lorna Bernas, Secretariat**

Board of Management:

- **Dr. Juan Ma. Pablo R. Nañagas**, MPH,MNSA, Hosp.Admin/Academe
- **Dr. Kenneth Vincent Ronquillo**, MHA, MPH, DOH
- **Ms. Pilar L Singson Malabunga**, RN, MAN (Lai), Labor/Employees' Association
- **Atty. Francis Tolentino**, League of Municipalities of the Philippines
- **Mayor Ramon Guico Jr.**, League of Cities of the Philippines
- **Atty. Democrito Mendoza**, Trade Union Congress of the Philippines
- **Gov. Rodolfo Del Rosario**, League of Governors of the Philippines
- **Dr. Roberto M. Paterno**, Philippine Cancer Society
- **Ms. Esperanza Ocampo**, Philippine Government Employees Association

Administrative Officer:

- **Cyrelle J. Ridad**

The Participants in the National Validation of this Training Regulations

- **Mr. Carlos Co**, Cebu Chamber of Commerce and Industry
- **Mr. Mr. Jose Mari Bigornia**, Cebu Chamber of Commerce and Industry
- **Ms. Estrella C.Siega**, ONAPUP Cebu
- **Dr. Romeo Ceniza**, UP School of Health Sciences
- **Dir. Rosario Marilyn S. Benabaye**, DOH-CHD-CV
- **Dr. Salvador G. Aquino**, DOH Davao City
- **Dr. Joe Marie Tiguelo**, DOH-CHD4
- **Ms. Lucina T. Esguerra**, DOH, CHD4
- **Dr. Ma. Cristina Giangco**, Provincial Health Office, Cebu
- **Dr. Fe Lyn Tampo**, AMHOP Cebu
- **Mrs. Emerlinda Abadiano**, National Federation of Barangay Health Workers, Cebu
- **Dr. Maria Emmaline B. Yu**, Cebu Doctors' College
- **Dr. Filomena delos Santos**, Don Vicente Sotto Medical Center
- **Sister Zeta Rivero**, Perpetual Succour Hospital
- **Mr. Constancio Sia**, Asian College of Science and Technology Foundation
- **Ms. Emily Tabaloc**, Global Link Training Center Inc.
- **Dr. Josefa L. Poblete**, PHA Cebu
- **Mr. Butch Omilig**, Cebu Caregiving Studies and Development Center
- **Ms. Josephine Formanes**, Evergreen International Health Care
- **Dr. Helen Estrella**, University of Cebu-Banilad
- **Mr. Jaime L. Tinio**, Can-Care Caregiver Training Assessment & Devt. Center
- **Dr. Dhanna K. B. Rodas**, University of Baguio
- **Mr. Esteban F. Paredes**, Holy Spirit OSOC
- **Ms. Guillerna A. Manigbas**, De La Salle University-HSC
- **Ms. Ma. Salve K. Sibulo**, PGH
- **Ms. Editha C. Mora**, PGH
- **Mr. Ranil C. Machitar**, PGH
- **Mr. Juanito Formoso**, PGH
- **Ma. Theresa P. Palmaira**, NLPC Iloilo
- **Ms. Flordeliza C. Gozum**, Primacare
- **Ms. Normariciaire D. Dallego**, Primacare
- **Ms. Carolina P. Davao**, Pamantasan ng Lungsod ng Pasig
- **Ms. Lorna Caballero**, Pamantasan ng Lungsod ng Pasig
- **Ms. Maria Concepcion Moll Talan-Aslor**, Naga College Foundation
- **Ms. Lalaine P. Bajamunde**, Naga College Foundation
- **Ms. Jocelyn A. Apalla**, University of Baguio
- **Mr. Venancio B. Andales**, West Visayas College
- **Ms. Marina Lourdes Reyes**, DMMC – Batangas
- **Ms. Virginia Dechavez**, DMMC – Batangas
- **Ms. Elizabeth F. Acuin**, Philhealth

The Standards Setting and Systems Development Committee

- **Dr. Alberto Victor P. Fenix, Jr.**, Chairperson
- **Dr. Mona Saldaña Ricafort**
- **Dr. Teresita U. Quirino**
- **Atty. Ranulfo P. Payos**
- **BM Isidro Antonio C. Asper**
- **BM Teresita M. Borgoños**
- **BM Rene Luis M. Tadle**

The Management and Staff of the TESDA

- **Office of Apprenticeship (OA)**
- **SDCO**
- **Dir. Ernesto Beltran**, RD7
- **Ms. Madelina Salarza**, RO7
- **Ms. Arceli A.J. Chavez**, PMMS
- **Mr. Eduardo B. Alminiana**, NITVET
- **Mr. Wally Paiton**, NITVET
- **Mr. Allen Simon**, NITVET
- **Ms. Merlita L. Dalire**
- **Mr. Fernando De Jesus**
- **Ms. Evelyn DC. de Leon**
- **Ms. Rosalinda Almeria**
- **Mr. Edwin G. Maglalang**

List of Published Training Regulations

- Animal Production NC II
- Aquaculture NC II
- Automotive Body Painting/Finishing NC II
- Automotive Body Repair NC II
- Automotive Engine Rebuilding NC II
- Automotive Servicing NC II
- Bartending NC II
- Biomedical Equipment Servicing NC II**
- Building Wiring Installation NC II
- Carpentry NC II
- Commercial Cooking NC II
- Computer Hardware Servicing NC II
- Deck Seafaring NC II
- Dressmaking NC II
- Driving NC II
- Engine Seafaring NC II
- Food and Beverage Services NC II
- Footwear Making NC II
- Heavy Equipment Operation NC II
- Horticulture NC II
- Household Services NC II
- Housekeeping NC II
- Health Care Services NC II
- Machining NC II
- Masonry NC II
- Motorcycle and Small Engine Servicing NC II
- Plumbing NC II
- Pyrotechnics NC II
- RAC Servicing NC I
- RAC Servicing NC II
- Security Services NC II
- Tailoring NC II
- Tour Guiding Services NC II
- Transport RAC Servicing NC II
- Travel Services NC II
- Welding NC II

These materials are available in both printed and electronic copies.

For more information please contact:

Technical Education and Skills Development Authority (TESDA)

Telephone Nos.: 893-8303, 893-2139; 817-4076 to 82 loc. 615 to 617

or visit our website: www.tesda.gov.ph