

# Model Curriculum

## Cardiac Care Technician

**SECTOR: HEALTHCARE**

**SUB-SECTOR: ALLIED HEALTH & PARAMEDICS**

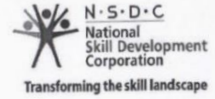
**OCCUPATION: CARDIAC CARE TECHNICIAN**

**REF ID: HSS/Q0101, VERSION 1.0**

**NSQF LEVEL: 4**

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## Certificate

### CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

HEALTHCARE SECTOR SKILL COUNCIL

for the

MODEL CURRICULUM


Complying to National Occupational Standards of

Job Role/ Qualification Pack: 'Cardiac Care Technician' QP No. 'HSS/Q 0101 NSQF Level 4'

Date of Issuance: November 30<sup>th</sup>, 2015

Valid up to: November 29<sup>th</sup>, 2016

\* Valid up to the next review date of the Qualification Pack



Authorised Signatory  
(Healthcare Sector Skill Council)

# Cardiac Care Technician

## CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Cardiac Care Technician”, in the “Healthcare” Sector/Industry and aims at building the following key competencies amongst the learner

<b>Program Name</b>	<b>&lt;Cardiac Care Technician&gt;</b>		
<b>Qualification Pack Name &amp; Reference ID.</b>	HSS/Q0101, version 1.0		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	15 – 12 – 2015
<b>Pre-requisites to Training</b>	Class XII in Science Or Level 3 ECG Technician with Experience of minimum 3 Years		
<b>Training Outcomes</b>	<p><b>After completing this programme, participants will be able to:</b></p> <ul style="list-style-type: none"> <li>• Independently handle the latest technology relevant to heart diseases, diagnosis &amp; treatment</li> <li>• Know and apply the principles of sterilization, disinfection, infection control and aseptic techniques</li> <li>• Perform invasive and non-invasive diagnostic examinations and therapeutic interventions of the heart and/or blood vessels under supervision</li> <li>• Ensure availability of medical and diagnostic supplies</li> <li>• Identify and know the instruments and equipment used in different procedures</li> <li>• Acquire sound knowledge of special procedures and able to assist in all.</li> <li>• Able to work effectively with others and have good communication abilities</li> </ul>		

This course encompasses 17 out of 17 National Occupational Standards (NOS) of “Cardiac Care Technician” Qualification Pack issued by “SSC: Healthcare Sector Skill Council”.

S.No	Module	Key Learning Outcomes	Equipment Required
1	<p><b>Function of the Cardiac department in a variety of settings (hospital, clinic, diagnostic center, mobile service)</b></p> <p><b>Theory Duration</b> (hh:mm) 05:00</p> <p><b>Practical Duration</b> (hh:mm) 05:00</p> <p><b>Corresponding NOS Code</b> Introduction</p>	<ul style="list-style-type: none"> <li>• Basic understanding of Healthcare Service Providers (primary, secondary &amp; tertiary)</li> <li>• Basic understanding of cardiac department in a hospital</li> <li>• Basic understanding of Cath lab, CCU, invasive and non invasive labs and various department pertaining to heart ailments/diagnosis/treatment</li> </ul>	<p>Self learning and understanding</p> <p>Mannequin, chart and poster demonstration, heart impressions for easy learning and understanding</p>
2.	<p><b>Introduction To Human Body; Structure &amp; Function</b></p> <p><b>Theory Duration</b> (hh:mm) 30:00</p> <p><b>Practical Duration</b> (hh:mm) 10:00</p> <p><b>Corresponding NOS Code</b> HSS/ N 0101, 0102, 0103, 0104, 0105</p>	<ul style="list-style-type: none"> <li>• Understanding different parts of body</li> <li>• Basic sensitization towards different types of body systems</li> </ul>	<p>Self learning and understanding</p> <p>Mannequin, chart and poster demonstration, heart impressions for easy learning and understanding</p>
3.	<p><b>Role of Cardiac Care Technician</b></p> <p><b>Theory Duration</b> (hh:mm) 20:00</p> <p><b>Practical Duration</b></p>	<ul style="list-style-type: none"> <li>• To develop broad understanding of the functions to be performed by CCT</li> <li>• To understand various types of procedures carried out in the cardiac catheterization laboratory and other labs carrying out diagnostic services in cardiology</li> <li>• To gain broad understanding regarding:</li> </ul>	<p>Self learning and understanding</p> <p>Mannequin, chart and poster demonstration, heart impressions for easy learning and understanding</p>

S.No	Module	Key Learning Outcomes	Equipment Required
	(hh:mm) 20:00  <b>Corresponding NOS Code</b> HSS/ N 0101, 0102, 0103, 0104, 0105, 0106, 0107, 0108, 9602	<ul style="list-style-type: none"> <li>Type of Sample</li> <li>Sample Handling</li> <li>different equipment useful &amp; correct method for blood sample collection</li> <li>correct procedure of sample transportation.</li> <li>To exhibit Ethical Behavior and understanding of administrative functions of CCT</li> <li>To understand the need for counselling patient and family before, during and after the procedure(s)</li> <li>To understand the need for engagement and interaction with other providers in order to maintain quality and continuous care.</li> </ul>	
4.	<b>Personnel Hygiene</b>  <b>Theory Duration</b> (hh:mm) 10:00  <b>Practical Duration</b> (hh:mm) 10:00  <b>Corresponding NOS Code</b> HSS / N / 5204, HSS/N 5201, HSSC/N 5206	<ul style="list-style-type: none"> <li>To develop understanding of the concept of Healthy Living</li> <li>To develop understanding &amp; procedures of Hand Hygiene</li> <li>To develop techniques of Grooming</li> <li>To be equipped with Techniques of use of PPE</li> <li>To ensure vaccination against common Infectious Diseases.</li> </ul>	Self learning and understanding  Mannequin, chart and poster demonstration, heart impressions for easy learning and understanding
5.	<b>Role of CCT- Sanitation , Safety &amp; First Aid</b>  <b>Theory Duration</b> (hh:mm) 30:00  <b>Practical Duration</b> (hh:mm) 30:00  <b>Corresponding NOS</b>	<ul style="list-style-type: none"> <li>To understand regarding environmental safety</li> <li>To understand regarding major safety and security requirement at a health care unit</li> <li>To develop an understanding for handling the hazardous situation safely.</li> <li>Describe basics of first aid To develop understanding and precautions to ensure self safety</li> <li>To understand the role of an CCT in monitoring healthy and safe environment.</li> <li>To understand the safety measures for disabled, pediatric &amp; geriatric patients</li> <li>To understand the impact of medical</li> </ul>	Patient safety tools such as wheel chairs, trolleys, side rails, PPE, First Aid kit, betadine, cotton, bandages, sanitizers, disinfectants etc

S.No	Module	Key Learning Outcomes	Equipment Required
	<p><b>Code</b></p> <p>HSS/ N 9609, 9603, 9606, 9610</p>	<p>negligence in clinical management and their different types</p> <ul style="list-style-type: none"> <li>To understand Surgical Site Infection and measures to prevent them</li> <li>To understand various strategies which can be initiated for minimizing risk for patients</li> <li>To develop broad understanding regarding role of hospital on the occurrence of a disaster</li> <li>To understand fire prevention strategies and electrical safety measures which should be known to health worker</li> </ul>	
6.	<p><b>Bio Medical Waste Management</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 10:00</p> <p><b>Corresponding NOS Code</b> HSS/N 5201, HSS/N 5202, HSS/N 5203, HSS/N 5205, HSS/N 5206</p>	<ul style="list-style-type: none"> <li>To gain understanding of importance of proper and safe disposal of bio-medical waste &amp; treatment</li> <li>To gain understanding of categories of bio-medical waste</li> <li>To learn about disposal of bio-medical waste – colour coding, types of containers, transportation of waste, etc.</li> <li>To gain broad understanding of standards for bio-medical waste disposal</li> <li>To gain broad understanding of means of bio-medical waste treatment</li> <li>To understand the role of an infection control team</li> </ul>	Different coded color bins, different variety of bio medical waste management, Visit to treatment plan of bio medical waste etc.
7	<p><b>Soft Skills &amp; Communication-I</b></p> <p><b>Theory Duration</b> (hh:mm) 05:00</p> <p><b>Practical Duration</b> (hh:mm) 15:00</p> <p><b>Corresponding NOS Code</b> HSS / N/9603, HSS/N/9604 &amp;</p>	<ul style="list-style-type: none"> <li>Understand art of effective communication</li> <li>Able to handle effective communication with Patients &amp; Family</li> <li>Able to handle effective Communication with Peers/ colleagues using medical terminology in communication</li> <li>Learn basic reading and writing skills</li> <li>Learn sentence formation</li> <li>Learn grammar and composition</li> <li>Learn how to enhance vocabulary</li> <li>Learn problem solving</li> <li>Understand need for customer service and service excellence in Medical service</li> </ul>	Self-learning and understanding

S.No	Module	Key Learning Outcomes	Equipment Required
	HSS/N/9605	<ul style="list-style-type: none"> <li>Understand work ethics in hospital set up</li> <li>Learn Goal setting, team building, team work, time management, thinking and reasoning &amp; communicating with others</li> </ul>	
8.	<p><b>Anatomy and physiology of the cardiovascular system - Detailed anatomy and physiology of the heart</b></p> <p><b>Theory Duration</b> (hh:mm) 20:00</p> <p><b>Practical Duration</b> (hh:mm) 10:00</p> <p><b>Corresponding NOS Code</b> HSS/ N 0101, 0102, 0103, 0105, 0104, 0106, 0107</p>	<ul style="list-style-type: none"> <li>To develop an understanding of Cardiovascular System</li> <li>Basic understanding regarding size, shape, location and different layers of the heart</li> <li>Basic understanding of SA node and its functional significance</li> <li>To understand the coronary circulation</li> <li>What all are the different sounds produced in the heart and what is its significance</li> </ul>	Mannequin, E-modules, charts of different body parts
9	<p><b>Introduction to common heart diseases their processes and terminology</b></p> <p><b>Theory Duration</b> (hh:mm) 40:00</p> <p><b>Practical Duration</b> (hh:mm) 10:00</p> <p><b>Corresponding NOS Code</b> HSS/ N 0101, 0102, 0103, 0105, 0104, 0106, 0107</p>	<ul style="list-style-type: none"> <li>To understand cardiovascular diseases &amp; risk factors behind occurrence of cardiac abnormalities</li> <li>To develop an understanding regarding various diseases of heart</li> <li>To understand the significance of coronary circulation, systemic circulation, types of vessels etc.</li> <li>To Identify the warning signs and symptoms of heart related disease condition</li> </ul>	Mannequin, E-modules, charts of different body parts



S.No	Module	Key Learning Outcomes	Equipment Required
10	<p><b>Electrocardiography and Echocardiography</b></p> <p><b>Theory Duration</b> (hh:mm) 20:00</p> <p><b>Practical Duration</b> (hh:mm) 30:00</p> <p><b>Corresponding NOS Code</b> HSS/ N 0101, 0104, 0104, 0105, 9604, 9602, 0108, 9603</p>	<ul style="list-style-type: none"> <li>To develop understanding regarding ECG &amp; it's procedure</li> <li>Basic understanding of different wave forms in ECG &amp; common interpretation</li> <li>To understand the Tilt Table Testing</li> <li>Enumerate the measures to be taken before, after and during ECG procedure</li> <li>To develop an understanding regarding Echocardiography</li> <li>Explain the position of transducers To understand the role of CCT while assisting cardiologist during Echocardiography / cardiac ultrasound</li> </ul>	<p>Patient Couch, ECG Machine, leads, pads, gauges, tissue paper, Tilt Table for test, mannequin, hand sanitizer, PPE, ECHO machine access, transducer, patient jelly</p>
11.	<p><b>Infection Control Measures - Policies and Procedures</b></p> <p><b>Theory Duration</b> (hh:mm) 15:00</p> <p><b>Practical Duration</b> (hh:mm) 15:00</p> <p><b>Corresponding NOS Code</b> HSS/ N 9610</p>	<ul style="list-style-type: none"> <li>To understand the importance of hand washing and its steps</li> <li>To understand ; Needle Stick Injuries (NSI)</li> <li>To gain understanding regarding transmission based precautions and &amp; its types</li> <li>To understand the meaning of ventilation and state it's clinical significance</li> <li>To understand the principles of linen management</li> <li>To understand the process of cleaning, sterilization and disinfection of equipment and lab along with it's significance</li> <li>To understand various occupational hazards for a health worker</li> </ul>	<p>Hand sanitizers, PPE, Hand washing techniques, steriliser, disinfectants, policies and procedures for infection control</p>
12.	<p><b>Basic Life Support</b></p> <p><b>Theory Duration</b> (hh:mm) 15:00</p> <p><b>Practical Duration</b> (hh:mm) 15:00</p> <p><b>Corresponding NOS Code</b> HSS/ N 9610</p>	<ul style="list-style-type: none"> <li>Sensitization &amp; overview regarding Cardiac Arrest</li> <li>To understand regarding fundamentals of early defibrillation</li> <li>To understand principles of BLS (Adult chain of survival, CABD's of giving CPR),</li> <li>To understand operation of AED</li> <li>Principles of Adult BLS/Child BLS/Infant BLS</li> </ul>	<p>Emergency kits, mannequins, defibrillator, AED's</p>

S.No	Module	Key Learning Outcomes	Equipment Required
13.	<p><b>Soft Skills And Communication II</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 10:00</p> <p><b>Corresponding NOS Code</b> Introductory</p>	<ul style="list-style-type: none"> <li>Learn objection handling</li> <li>Learn Telephone and Email etiquettes</li> <li>Learn Basic computer working like feeding the data, saving the data and retrieving the data.</li> <li>Learn to analyze, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently</li> <li>Learn planning and organization of work</li> <li>Learn identification of rapidly changing situations and adapt accordingly</li> <li>Learn decision making ability</li> </ul>	Self-Learning and understanding
14.	<p><b>An introduction to the components, function, and proper use of the EKG/ECG machine</b></p> <p><b>Normal anatomy of the chest wall for proper lead placement</b></p> <p><b>Theory Duration</b> (hh:mm) 05:00</p> <p><b>Practical Duration</b> (hh:mm) 15:00</p> <p><b>Corresponding NOS Code</b> (HSS /N 0101)</p>	<ul style="list-style-type: none"> <li>To understand about ambulatory ECG and it's significance</li> <li>To understand regarding different types of Ambulatory ECG</li> <li>To understand how to prepare and position the patient for ECG</li> <li>Understand proper placement of leads on chest wall for ECG</li> <li>To understand the various complications associated with Exercise ECG</li> </ul>	Patient Couch, ECG Machine, leads, pads, gauges, tissue paper, Tilt Table for test, mannequin, hand sanitizer, PPE, ECHO machine access, transducer, patient jelly
15.	<p><b>Treadmill Test</b></p> <p><b>Theory Duration</b> (hh:mm) 20:00</p> <p><b>Practical Duration</b> (hh:mm) 20:00</p>	<ul style="list-style-type: none"> <li>To develop an understanding regarding treadmill test</li> <li>To understand regarding different type of Stress TEST</li> <li>To understand the procedure for carrying out stress Echo including the placement of leads during the test</li> <li>To understand how to prepare the patient for a cardiac stress echo, DSE, etc.</li> <li>Understand various differences in the findings</li> </ul>	TMT Machine, sample reports, mannequins, visit to healthcare facility etc, couch, ECG Machine, leads, pads, gauges, tissue paper, Tilt Table for test, mannequin, hand sanitizer, PPE

S.No	Module	Key Learning Outcomes	Equipment Required
	<p><b>Corresponding NOS Code</b> (HSS /N 0102)</p>	<p>of a normal and an ischemic heart</p> <ul style="list-style-type: none"> <li>To understand the working &amp; procedure of an isotope stress test</li> <li>To develop broad understanding regarding necessary precautions which to be taken while performing an isotope stress test</li> </ul>	
16.	<p><b>Role Of CCT During Trans Esophageal Cardiac Ultrasound Studies</b></p> <p><b>Theory Duration</b> (hh:mm) 20:00</p> <p><b>Practical Duration</b> (hh:mm) 20:00</p> <p><b>Corresponding NOS Code</b> HSS/ N 0104</p>	<ul style="list-style-type: none"> <li>To understand regarding Trans esophageal echocardiography, it's types, scope, indication for procedure &amp; associated complications</li> <li>To gain broad understanding regarding findings which is to be expected during the procedure</li> <li>To understand the safety &amp; privacy aspect of this procedure for the patient</li> <li>To understand the roles and responsibilities of a technician during the procedure</li> </ul>	Echo Machine, sample reports, mannequins, visit to healthcare facility etc
17	<p><b>Introduction To Pacemaker &amp; Leads</b></p> <p><b>Theory Duration</b> (hh:mm) 20:00</p> <p><b>Practical Duration</b> (hh:mm) 10:00</p> <p><b>Corresponding NOS Code</b> HSS/ N 0106</p>	<ul style="list-style-type: none"> <li>To gain understanding regarding the artificial pacemaker &amp; temporary pacemakers</li> <li>To understand the significance behind the implantation of an artificial pacemaker</li> <li>To understand the meaning of an implantable cardioverter defibrillator and it's significance</li> <li>To carry out initial assessment of patient before the implantation of a pace maker</li> <li>To understand factors which to be considered when the patient is on a pacemaker</li> <li>To gain broad understanding regarding warning signs of pacemaker infection</li> </ul>	Different types of pacemakers such as ICD, CRT-D, CRT-P, Dual chamber PPI, Single Chamber PPI, leads, programmer etc
18	<p><b>Role Of CCT During Implant Of Temporary Pacemakers</b></p> <p><b>Theory Duration</b> (hh:mm) 30:00</p> <p><b>Practical Duration</b></p>	<ul style="list-style-type: none"> <li>To differentiate between artificial and temporary pacemaker implantation procedure</li> <li>To understand regarding temporary trans venous pacing</li> <li>To understand the common problems which may occur during the insertion of pacemaker</li> <li>To understand the meaning of pace maker</li> </ul>	Mannequins, patient unit, leads, ECG machine, Different types of pacemakers such as ICD, CRT-D, CRT-P, Dual chamber PPI, Single Chamber PPI, leads, programmer etc

S.No	Module	Key Learning Outcomes	Equipment Required
	(hh:mm) 10:00  <b>Corresponding NOS Code</b> HSS/ N 0107	syndrome To gain understanding regarding complications to be expected during the procedure <ul style="list-style-type: none"> <li>To understand the significance of investigations which should be carried out pre and post implantation.</li> <li>To gain understanding regarding indication for a temporary pace making.</li> <li>To understand the significance of elective pace making</li> <li>To understand procedure for applying an external pacemaker</li> <li>To understand common complication during implantation of temporary pacemaker</li> <li>To understand the emergency measures which is to be taken in case of pacemaker failure</li> </ul>	
19	<b>Intent Inventory</b>  <b>Theory Duration</b> (hh:mm) 05:00  <b>Practical Duration</b> (hh:mm) 05:00  <b>Corresponding NOS Code</b> HSS/ N 9602	<ul style="list-style-type: none"> <li>To understand to whom to contact in case if there is a need of replenishing supplies</li> <li>To understand the guidelines for medical and diagnostic supplies and content of the kit</li> <li>To develop an understanding regarding need of maintaining record of supplies</li> </ul>	All kinds of inventory
20.	<b>Introduction To Cardiac Related Equipment</b>  <b>Theory Duration</b> (hh:mm) 10:00  <b>Practical Duration</b> (hh:mm) 20:00  <b>Corresponding NOS Code</b>	<ul style="list-style-type: none"> <li>To enlist the commonly used cath lab equipment</li> <li>Describes and differentiate and understand the use of following equipment:</li> <li>C arm &amp; u arm</li> <li>x ray tube</li> <li>X ray detecting device</li> <li>x ray switching and pulse controller ,</li> <li>Digital image processor,</li> <li>Fluoroscopic imaging system,</li> <li>Physiologic recorder,</li> <li>Contrast powder injector ray table</li> </ul>	All equipment related to cardiac facility such as ECG machine, all kinds of pacemakers, TMT machine, ECHO machine, Leads etc

S.No	Module	Key Learning Outcomes	Equipment Required
	HSS/ N 0108	<ul style="list-style-type: none"> <li>Crash cart and defibrillator</li> <li>Intubation equipment,</li> <li>Central vein catheter,</li> <li>Cardiac drugs',</li> <li>Sterile equipment and supplies,</li> <li>Liquid cooling system, etc.</li> <li>To develop broad understanding regarding major equipment used in the cath lab setting and its operating methods</li> <li>To understand the technical specification of common equipment in cath lab</li> <li>Understand the regulatory framework for medical equipment</li> </ul>	
21.	<p><b>To develop an understanding regarding Pericardiocentesis and it's types</b></p> <p><b>Theory Duration</b> (hh:mm) 30:00</p> <p><b>Practical Duration</b> (hh:mm) 20:00</p> <p><b>Corresponding NOS Code</b> HSS/ N 0105</p>	<ul style="list-style-type: none"> <li>To develop an understanding regarding Pericardiocentesis and it's types</li> <li>To understand procedure for Pericardiocentesis and requisite equipment</li> <li>To understand indications and complications of needle peri-cardiocentesis</li> <li>To understand indications and complications of open pericardiocentesis</li> <li>To understand role of a technician while carrying out the procedure</li> </ul>	Pericardiocentesis equipment's such as , gauge, wires, balloons, sheath etc
22.	<p><b>Act Within The Limits Of Competence And Authority</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 10:00</p> <p><b>Corresponding NOS</b></p>	<ul style="list-style-type: none"> <li>Understand the meaning of relations and types of relationship</li> <li>To understand effective working relationships with the people external to the team, with which the individual works on a regular basis</li> <li>To understand the effect of boundary violation in technician client relationships</li> <li>To understand the code of ethics for cardiac care technicians</li> </ul>	Internet use for learning and adopting best practices

S.No	Module	Key Learning Outcomes	Equipment Required
	Code HSS/ N 9603		
23.	<p><b>Work Effectively With Others</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 10:00</p> <p><b>Corresponding NOS Code</b> HSS/ N 9604</p>	<ul style="list-style-type: none"> <li>• Understand the importance of a team and team work</li> <li>• To understand the types of team in health care organization</li> <li>• To understand the elements and principles of team work and team based health care</li> <li>• Understand how to manage the conflict in health care facility</li> </ul>	Internet use for learning and adopting best practices
24.	<p><b>Manage Work To Meet Requirements</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 10:00</p> <p><b>Corresponding NOS Code</b> HSS/ N 9605</p>	<ul style="list-style-type: none"> <li>• To develop broad understanding regarding management of work so as to meet professional expectations</li> <li>• To understand the significance of keeping the hospital clean</li> <li>• To understand the significance of maintaining confidentiality in work environment</li> <li>• To understand how to manage stress</li> </ul>	Internet use for learning and adopting best practices
25.	<p><b>Monitor And Assure Quality</b></p> <p><b>Theory Duration</b> (hh:mm) 30:00</p> <p><b>Practical Duration</b> (hh:mm) 20:00</p> <p><b>Corresponding NOS Code</b> HSS/ N 9611</p>	<ul style="list-style-type: none"> <li>• To understand the significance of quality, perception &amp; its dimension</li> <li>• To understand the components of quality system</li> <li>• Enumerate the stages &amp; elements quality system</li> <li>• Understand the process of quality system</li> <li>• To understand the significance of attending CME's for technician</li> <li>• To develop a broad understanding regarding</li> <li>• 1) Hospital Information System</li> <li>• 2) Quality Improvement Plan</li> <li>• 3) Total Quality Management</li> <li>• To understand difference between quality control and assurance</li> </ul>	Internet use for learning and adopting best practices

S.No	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>To understand the factors which influences quality of care</li> </ul>	
26.	<p><b>Consent, Documentation &amp; Records</b></p> <p><b>Theory Duration</b> (hh:mm) 20:00</p> <p><b>Practical Duration</b> (hh:mm) 10:00</p> <p><b>Corresponding NOS Code</b> HSS/N5114, 5115, 9605</p>	<ul style="list-style-type: none"> <li>Understand guidelines for documentation</li> <li>Learn various types of records of importance for Cardiac Care Technician</li> <li>Understand use and importance of records and consent</li> <li>Understand abbreviations and symbols</li> <li>Enter, transcribe, record, store, or maintain information in written or electronic/magnetic form</li> </ul>	Internet use for learning and adopting best practices
27.	<p><b>Basic Computer Knowledge</b></p> <p><b>Theory Duration</b> (hh:mm) 05:00</p> <p><b>Practical Duration</b> (hh:mm) 15:00</p> <p><b>Corresponding NOS Code</b> Introductory</p>	<ul style="list-style-type: none"> <li>To gain broad understanding about Application of computers in laboratory Practice</li> <li>Give Introduction to Computers: <ul style="list-style-type: none"> <li>Block diagram</li> <li>Input and Output devices</li> <li>Storage devices</li> </ul> </li> <li>Give Introduction to operating systems <ul style="list-style-type: none"> <li>Need of Operating systems (OS)</li> <li>Function of OS</li> <li>Windows 2000 – Utilities and basic operations</li> <li>Microsoft office 2000 – MS Word, MS Excel</li> </ul> </li> </ul>	Computer/Internet
	<p><b>Total Duration</b></p> <p><b>Theory Duration</b> (hh:mm) 455:00</p> <p><b>Practical Duration</b> (hh:mm) 385:00</p> <p><b>OJT Duration</b> (hh:mm) 660:00</p>	<p>Unique Equipment Required: Patient Couch, A floor or ceiling mounted Image intensifier, Set of viewing monitors, Realtime ECG/Blood pressure/Oxygen Saturation measurements with software to record and measure these when needed, Injector Pump used for imaging the Left Ventricle or Aorta, X-ray software for the recording and playback of the Fluoroscopy runs acquired during the procedure, Diagnostic Catheters, Guide catheters, Guidewires, Angioplasty Balloons, stents (drug eluting and bare metal), sheaths, closure devices, general nursing supplies, defibrillator, drugs, recovery bays, reporting station, scrub area,</p> <p>Class Room equipped with following arrangements:</p> <ul style="list-style-type: none"> <li>Interactive lectures &amp; Discussion</li> <li>Brain Storming</li> <li>Charts &amp; Models</li> <li>Activity</li> </ul>	

S.No	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>• Video presentation</li> <li>• Visit to Primary Health Centre, Hospital set-up and Cardiac Centre</li> </ul>	

**Grand Total Course Duration: 0840:00 Hours (Theory Duration: 455:00+ Practical Duration:385:00)**

**Mandatory 660 Hours of OJT/Internship/Clinical or Laboratory Training)**

*(This syllabus/ curriculum has been approved by [SSC: Healthcare Sector Skill Council](#))*



## Trainer Prerequisites for Job role: “Cardiac Care Technician” mapped to Qualification Pack: “HSS/Qo101, version 1.0”

Sr. No.	Area	Details
1	<b>Description</b>	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “HSS/Qo101”.
2	<b>Personal Attributes</b>	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field.
3	<b>Minimum Educational Qualifications</b>	<ul style="list-style-type: none"> <li>• MBBS doctor with one year experience in cardiac department or B.Sc Nurse with five years’ experience in cardiac department</li> <li>• or</li> <li>• cardiac care technician/cath lab technician with five years’ experience in cardiac department</li> </ul>
4a	<b>Domain Certification</b>	Certified for Job Role: “Cardiac Care Technician” mapped to QP: “HSS/Qo101”version 1.0. with scoring of minimum 85%.
4b	<b>Platform Certification</b>	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “SSC/Q1402” with scoring of minimum 90%.
5	<b>Experience</b>	<ul style="list-style-type: none"> <li>• Experience in teaching Cardiac Care Technician course (HSS/Qo101, version 1.0)</li> <li>• 5 years of experience for Level 4 certified Cardiac Care Technician (HSS/Qo101, version 1.0)</li> </ul>

## Annexure: Assessment Criteria

Assessment Criteria for Cardiac Care technician	
Job Role	Cardiac Care Technician
Qualification Pack Code	HSS/Q 0101, version 1.0
Sector Skill Council	Healthcare Sector Skill Council

Sr. No.	Guidelines for Assessment
1.	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2.	The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3.	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4.	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5.	To pass the Qualification Pack, every trainee should score as per assessment grid.
6.	In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack
7.	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
8.	The assessment for the theory part will be based on knowledge bank of questions created by the SSC

<b>Skills Practical and Viva (80% weightage)</b>	
	Marks Allotted
Grand Total-1 (Subject Domain)	400
Grand Total-2 (Soft Skills and Communication)	100
Grand Total-(Skills Practical and Viva)	500
Passing Marks (80% of Max. Marks)	400
<b>Theory (20% weightage)</b>	
	Marks Allotted
Grand Total-1 (Subject Domain)	80
Grand Total-2 (Soft Skills and Communication)	20
Grand Total-(Theory)	100
Passing Marks (50% of Max. Marks)	50
Grand Total-(Skills Practical and Viva + Theory)	600
Overall Result	Criteria is to pass in both theory and practical individually. If fail in any one of them, then candidate is fail
<b>Detailed Break Up of Marks</b>	<b>Skills Practical &amp; Viva</b>
Subject Domain	Pick any 2 NOS each of 200 marks totaling 400

Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (400)	Out Of	Marks Allocation	
				Viva	Skills Practical
1. HSS/ N 0101 Monitor patients' heart rate and rhythm using electrocardiogram (ECG) equipment	PC1. Set the room for taking the ECG readings	200	20	5	15
	PC2. Attach, connect, and operate electrodes from specified body areas to leads from electrocardiograph machine		60	20	40
	PC3. Review patient's record and instructs patients prior to procedures		40	10	30
	PC4. Set the ECG machines and explain the ECG procedures clearly to the patient		40	10	30
	PC5. Monitor patient during procedures and report any abnormal findings		20	10	10
	PC6. Edit and forward results to attending physician for analysis and interpretation		10	5	5
	PC7. Maintains ECG equipment and supplies		10	5	5
<b>Total</b>			200	65	135
2.HSS/ N 0102: Perform treadmill test (TT) to assess cardiovascular response	PC1. Take consent from patient base on ECG results	200	20	5	15
	PC2. Prepare patient for test		20	5	15
	PC3. Ensure patient identification and review indication for procedure		20	5	15
	PC4. Take pertinent patient history including cardiac risk factors and medications		30	10	20
	PC5. Explain purpose and procedure to the patient and clarify requirements of them for the test		20	10	10
	PC6. Continually observe the patient's condition and reactions, monitor ECG and take required measurements and recordings, at intervals appropriate to patient's symptoms and/or test protocol		60	20	40
	PC7. Assist in evaluating test results		30	10	20
<b>Total</b>			200	65	135
3.HSS/ N 0103: Assist cardiologist in assessing cardiac structure and function using cardiac ultrasound	PC1. Ensure patient identification and explain procedure to the patient	200	20	10	10
	PC2. Record patient's demographic data and vitals		50	20	30
	PC3. Activate machine, calibrate if required		50	20	30
	PC4. Know about heart function and anatomy		30	30	0
	PC5. Prepare patients for ultrasound		50	10	40
<b>Total</b>			200	90	110
4.HSS/ N 0104: Assist with transesophageal cardiac ultrasound studies	PC1. Ensure patient identification	200	20	10	10
	PC2. Obtain patient's informed consent if required as per the protocols		20	10	10
	PC3. Review indication and explain the procedure and requirements to patient		40	20	20
	PC4. Arrange the set up for transesophageal ultrasound		60	20	40
	PC5. Assemble tray for procedure, including intravenous setup, and draw up medication as required		60	20	40
<b>Total</b>			200	80	120
5.HSS/ N 0105:	PC1. Ensure patient identification and obtain patient's	200	40	20	20

Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (400)	Out Of	Marks Allocation	
				Viva	Skills Practical
Assist with pericardiocentesis procedure by echocardiography	informed consent		60	20	40
	PC2. Explain the indication for the test and the procedure to the patient				
	PC3. Set up pericardiocentesis tray				
	<b>Total</b>				
6.HSS/ N 0106: Assist with implant of pacemakers by establishing lead integrity	PC1. Confirm identity of patient	200	20	10	10
	PC2. Explain procedure and have patient sign informed consent				
	PC3. Prepare table and assist in patient transfer				
	PC4. Follow the instructions to determine the type of the lead to be used				
	<b>Total</b>				
7.HSS/ N 0107: Assist with insertion of temporary pacemakers	PC1. Ensure patient identification	200	20	10	10
	PC2. Explain procedure and take informed consent				
	PC3. Prepare table and assist in patient transfer				
	PC4. Ensure that a defibrillator and other resuscitation equipment are immediately accessible				
	PC5. Ensure that strict aseptic technique is used like using a mask, gown and gloves				
	<b>Total</b>				
8. HSS/ N 0108: Demonstrate proficiency in using equipment	PC1. Prepare the cardiovascular equipment and hemodynamic monitoring system in preparing for various diagnostic procedure treatment	200	20	10	10
	PC2. Prepare the physiologic and analytical equipment during diagnostic and therapeutic procedures performed by the physician				
	PC3. Assists in the performance of diagnostic cardiac equipment				
	PC4. Interpret pressure waveforms and operates all physiological recording equipment				
	PC5. Perform procedures on equipment such as:				
	· Calipers				
	· Computers/keyboards/databases				
	· Single-channel and three channel electrocardiographs				
	· Ambulatory ECG recorder/monitor				
	· Ambulatory ECG analysis systems				
	· Oscilloscopes				
	· Treadmills and stress system recording devices				
	· Ergometer and bicycle				
	· Digital, mercury, aneroid				
	· Sphygmomanometers				
	· Oxygen saturation devices				
	· External pacemakers				
	· External defibrillators				
	· External pacing systems				
	· ECG management systems				
· ECG/BP computer systems					

Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (400)	Out Of	Marks Allocation	
				Viva	Skills Practical
	· Simulators		2	0	2
	· Intravenous pumps		2	0	2
	· Tilt table		2	0	2
	· Stethoscope		2	0	2
	· Resuscitation cart		2	0	2
	· Transtelephonic recorders		2	0	2
	· Oxygen regulators		2	0	2
	· Suction devices		2	0	2
	· Ambulatory blood pressure recorders/monitors		2	0	2
	· Pacing leads		2	0	2
	· Esophageal pacing leads		2	0	2
	· Temporary pacemakers		2	0	2
	· Pacemaker minclinic		2	0	2
	· Pacemaker magnet		2	0	2
	· All types of electrodes		2	0	2
	· Pacemaker system analysers		2	0	2
	PC6. Identify new equipment and accessories that are needed		20	10	10
	PC7. Review technical specifications of equipment required		20	10	10
	PC8. Compare cost/benefits of equipment to assist in purchasing recommendations		22	20	2
	<b>Total</b>		<b>200</b>	<b>72</b>	<b>128</b>
9. HSS/ N 9610 (Follow infection control policies and procedures)	PC1. Perform the standard precautions to prevent the spread of infection in accordance with organisation requirements	<b>200</b>	5	0	5
	PC2. Perform the additional precautions when standard precautions alone may not be sufficient to prevent transmission of infection		5	0	5
	PC3. Minimise contamination of materials, equipment and instruments by aerosols and splatter		5	5	0
	PC4. Identify infection risks and implement an appropriate response within own role and responsibility		20	10	10
	PC5. Document and report activities and tasks that put patients and/or other workers at risk		5	0	5
	PC6. Respond appropriately to situations that pose an infection risk in accordance with the policies and procedures of the organization		5	0	5
	PC7. Follow procedures for risk control and risk containment for specific risks		10	0	10
	PC8. Follow protocols for care following exposure to blood or other body fluids as required		10	0	10
	PC9. Place appropriate signs when and where appropriate		20	10	10
	PC10. Remove spills in accordance with the policies and procedures of the organization		5	0	5
	PC11. Maintain hand hygiene by washing hands before and after patient contact and/or after any activity likely to cause contamination		5	0	5
	PC12. Follow hand washing procedures		5	0	5

Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (400)	Out Of	Marks Allocation	
				Viva	Skills Practical
	PC13. Implement hand care procedures		5	0	5
	PC14. Cover cuts and abrasions with water-proof dressings and change as necessary		5	5	0
	PC15. Wear personal protective clothing and equipment that complies with Indian Standards, and is appropriate for the intended use		5	0	5
	PC16. Change protective clothing and gowns/aprons daily, more frequently if soiled and where appropriate, after each patient contact		5	0	5
	PC17. Demarcate and maintain clean and contaminated zones in all aspects of health care work				
	PC18. Confine records, materials and medicaments to a well-designated clean zone		20	10	10
	PC19. Confine contaminated instruments and equipment to a well-designated contaminated zone				
	PC20. Wear appropriate personal protective clothing and equipment in accordance with occupational health and safety policies and procedures when handling waste		5	0	5
	PC21. Separate waste at the point where it has been generated and dispose of into waste containers that are colour coded and identified		5	0	5
	PC22. Store clinical or related waste in an area that is accessible only to authorised persons		5	5	0
	PC23. Handle, package, label, store, transport and dispose of waste appropriately to minimise potential for contact with the waste and to reduce the risk to the environment from accidental release		5	0	5
	PC24. Dispose of waste safely in accordance with policies and procedures of the organisation and legislative requirements		5	5	0
	PC25. Wear personal protective clothing and equipment during cleaning procedures		5	0	5
	PC26. Remove all dust, dirt and physical debris from work surfaces		5	0	5
	PC27. Clean all work surfaces with a neutral detergent and warm water solution before and after each session or when visibly soiled		5	0	5
	PC28. Decontaminate equipment requiring special processing in accordance with quality management systems to ensure full compliance with cleaning, disinfection and sterilisation protocols		5	0	5
	PC29. Dry all work surfaces before and after use		5	0	5
	PC30. Replace surface covers where applicable		5	0	5
	PC31. Maintain and store cleaning equipment		5	5	0
	<b>Total</b>		200	55	145
<b>Grand Total-1 (Subject Domain)</b>			<b>400</b>		
<b>Soft Skills and Communication</b>			<b>Pick one field from both parts each carrying 50 marks totaling 100</b>		
<b>Part 1 (Pick one field randomly carrying 50 marks)</b>					

Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (400)	Out Of	Marks Allocation	
				Viva	Skills Practical
<b>1. Attitude</b>					
HSS/ N 9603 (Act within the limits of one's competence and authority)	PC1. Adhere to legislation, protocols and guidelines relevant to one's role and field of practice	30	2	0	2
	PC2. Work within organisational systems and requirements as appropriate to one's role		2	0	2
	PC3. Recognise the boundary of one's role and responsibility and seek supervision when situations are beyond one's competence and authority		8	4	4
	PC4. Maintain competence within one's role and field of practice		2	0	2
	PC5. Use relevant research based protocols and guidelines as evidence to inform one's practice		4	2	2
	PC6. Promote and demonstrate good practice as an individual and as a team member at all times		4	2	2
	PC7. Identify and manage potential and actual risks to the quality and safety of practice		4	2	2
	PC8. Evaluate and reflect on the quality of one's work and make continuing improvements		4	2	2
			30	12	18
HSS/ N 9607 (Practice Code of conduct while performing duties)	PC1. Adhere to protocols and guidelines relevant to the role and field of practice	20	3	1	2
	PC2. Work within organisational systems and requirements as appropriate to the role		3	1	2
	PC3. Recognise the boundary of the role and responsibility and seek supervision when situations are beyond the competence and authority		3	1	2
	PC4. Maintain competence within the role and field of practice		1	0	1
	PC5. Use protocols and guidelines relevant to the field of practice		4	2	2
	PC6. Promote and demonstrate good practice as an individual and as a team member at all times		1	0	1
	PC7. Identify and manage potential and actual risks to the quality and patient safety		1	0	1
	PC8. Maintain personal hygiene and contribute actively to the healthcare ecosystem		4	2	2
			20	7	13
<b>Attitude Total</b>		<b>50</b>	50	19	31
<b>2. Work Management</b>					
HSS/ N 9602 (Ensure availability of medical and diagnostic)	PC1. Maintain adequate supplies of medical and diagnostic supplies	25	5	5	0
	PC2. Arrive at actual demand as accurately as possible		5	3	2
	PC3. Anticipate future demand based on internal, external and other contributing factors as accurately as possible		10	5	5



Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (400)	Out Of		Marks Allocation	
					Viva	Skills Practical
supplies)	PC4. Handle situations of stock-outs or unavailability of stocks without compromising health needs of patients/ individuals		5	5	0	
			25	18	7	
HSS/ N 9605 (Manage work to meet requirements)	PC1. Clearly establish, agree, and record the work requirements	25	10	5	5	
	PC2. Utilise time effectively		3	0	3	
	PC3. Ensure his/her work meets the agreed requirements		3	0	3	
	PC4. Treat confidential information correctly		3	3	0	
	PC5. Work in line with the organisation's procedures and policies and within the limits of his/her job role		6	3	3	
			25	11	14	
<b>Work Management Total</b>		<b>50</b>	<b>50</b>	<b>29</b>	<b>21</b>	
<b>Part 2 (Pick one field as per NOS marked carrying 50 marks)</b>						
<b>1. Team Work</b>						
HSS/ N 9604 (Work effectively with others)	PC1. Communicate with other people clearly and effectively	50	3	0	3	
	PC2. Integrate one's work with other people's work effectively		3	0	3	
	PC3. Pass on essential information to other people on timely basis		3	0	3	
	PC4. Work in a way that shows respect for other people		3	0	3	
	PC5. Carry out any commitments made to other people		6	6	0	
	PC6. Reason out the failure to fulfil commitment		6	6	0	
	PC7. Identify any problems with team members and other people and take the initiative to solve these problems		16	8	8	
	PC8. Follow the organisation's policies and procedures		10	4	6	
			50	24	26	
<b>2. Safety management</b>						
HSS/ N 9606 (Maintain a safe, healthy, and secure working environment)	PC1. Identify individual responsibilities in relation to maintaining workplace health safety and security requirements	50	6	2	4	
	PC2. Comply with health, safety and security procedures for the workplace		4	0	4	
	PC3. Report any identified breaches in health, safety, and security procedures to the designated person		4	3	1	
	PC4. Identify potential hazards and breaches of safe work practices		6	4	2	
	PC5. Correct any hazards that individual can deal with safely, competently and within the limits of authority		6	4	2	
	PC6. Promptly and accurately report the hazards that individual is not allowed to deal with, to the relevant person and warn other people who may get affected		6	4	2	
	PC7. Follow the organisation's emergency procedures promptly, calmly, and efficiently		6	2	4	

Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (400)	Out Of		Marks Allocation	
					Viva	Skills Practical
	PC8. Identify and recommend opportunities for improving health, safety, and security to the designated person		6	4		2
	PC9. Complete any health and safety records legibly and accurately		6	2		4
			50	25		25
<b>3. Waste Management</b>						
HSS/ N 9609 (Follow biomedical waste disposal protocols)	PC1. Follow the appropriate procedures, policies and protocols for the method of collection and containment level according to the waste type	50	6	2		4
	PC2. Apply appropriate health and safety measures and standard precautions for infection prevention and control and personal protective equipment relevant to the type and category of waste		8	4		4
	PC3. Segregate the waste material from work areas in line with current legislation and organisational requirements		4	0		4
	PC4. Segregation should happen at source with proper containment, by using different colour coded bins for different categories of waste		8	4		4
	PC5. Check the accuracy of the labelling that identifies the type and content of waste		4	2		2
	PC6. Confirm suitability of containers for any required course of action appropriate to the type of waste disposal		4	4		0
	PC7. Check the waste has undergone the required processes to make it safe for transport and disposal		4	4		0
	PC8. Transport the waste to the disposal site, taking into consideration its associated risks		4	4		0
	PC9. Report and deal with spillages and contamination in accordance with current legislation and procedures		4	4		0
	PC10. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, local policies and protocols		4	4		0
		50	32		18	
<b>4. Quality Assurance</b>						
HSS/ N 9611: Monitor and assure quality	PC1. Conduct appropriate research and analysis	50	6	2		4
	PC2. Evaluate potential solutions thoroughly		8	4		4
	PC3. Participate in education programs which include current techniques, technology and trends pertaining to the dental industry		4	0		4
	PC4. Read Dental hygiene, dental and medical publications related to quality consistently and thoroughly		8	4		4
	PC5. Report any identified breaches in health, safety, and security procedures to the designated person		4	2		2
	PC6. Identify and correct any hazards that he/she can deal with safely, competently and within the limits of his/her authority		4	4		0
	PC7. Promptly and accurately report any hazards that		4	4		0

Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (400)	Out Of	Marks Allocation	
				Viva	Skills Practical
	he/she is not allowed to deal with to the relevant person and warn other people who may be affected				
	PC8. Follow the organisation's emergency procedures promptly, calmly, and efficiently		4	4	0
	PC9. Identify and recommend opportunities for improving health, safety, and security to the designated person		4	4	0
	PC10. Complete any health and safety records legibly and accurately		4	4	0
			50	32	18
<b>Grand Total-2 (Soft Skills and Communication)</b>			<b>100</b>		
<b>Detailed Break Up of Marks</b>			<b>Theory</b>		
<b>Subject Domain</b>			<b>Pick any 40 PCs each carrying 2 marks totaling 80</b>		

Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (80)	Marks Allocation
			Theory
1. HSS/ N 0101 Monitor patients' heart rate and rhythm using electrocardiogram (ECG) equipment	PC1. Set the room for taking the ECG readings	14	2
	PC2. Attach, connect, and operate electrodes from specified body areas to leads from electrocardiograph machine		2
	PC3. Review patient's record and instructs patients prior to procedures		2
	PC4. Set the ECG machines and explain the ECG procedures clearly to the patient		2
	PC5. Monitor patient during procedures and report any abnormal findings		2
	PC6. Edit and forward results to attending physician for analysis and interpretation		2
	PC7. Maintains ECG equipment and supplies		2
	<b>Total</b>		<b>14</b>
2.HSS/ N 0102: Perform treadmill test (TT) to assess cardiovascular response	PC1. Take consent from patient base on ECG results	14	2
	PC2. Prepare patient for test		2
	PC3. Ensure patient identification and review indication for procedure		2
	PC4. Take pertinent patient history including cardiac risk factors and medications		2
	PC5. Explain purpose and procedure to the patient and clarify requirements of them for the test		2
	PC6. Continually observe the patient's condition and reactions, monitor ECG and take required measurements and recordings, at intervals appropriate to patient's symptoms and/or test protocol		2
	PC7. Assist in evaluating test results		2
	<b>Total</b>		<b>14</b>
3.HSS/ N 0103: Assist cardiologist in assessing cardiac structure and function using cardiac ultrasound	PC1. Ensure patient identification and explain procedure to the patient	10	2
	PC2. Record patient's demographic data and vitals		2
	PC3. Activate machine, calibrate if required		2
	PC4. Know about heart function and anatomy		2
	PC5. Prepare patients for ultrasound		2
	<b>Total</b>		<b>10</b>
4.HSS/ N 0104: Assist with transesophageal cardiac ultrasound studies	PC1. Ensure patient identification	10	2
	PC2. Obtain patient's informed consent if required as per the protocols		2
	PC3. Review indication and explain the procedure and requirements to patient		2
	PC4. Arrange the set up for transesophageal ultrasound		2
	PC5. Assemble tray for procedure, including intravenous setup, and draw up medication as required		2
	<b>Total</b>		<b>10</b>
5.HSS/ N 0105: Assist with pericardiocentesis procedure by echo	PC1. Ensure patient identification and obtain patient's informed consent	6	2
	PC2. Explain the indication for the test and the procedure to the patient		2

Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (80)	Marks Allocation
			Theory
cardiography	PC3. Set up pericardiocentesis tray		2
	<b>Total</b>		6
6.HSS/ N 0106: Assist with implant of pacemakers by establishing lead integrity	PC1. Confirm identity of patient	8	2
	PC2. Explain procedure and have patient sign informed consent		2
	PC3. Prepare table and assist in patient transfer		2
	PC4. Follow the instructions to determine the type of the lead to be used		2
	<b>Total</b>		8
7.HSS/ N 0107: Assist with insertion of temporary pacemakers	PC1. Ensure patient identification	10	2
	PC2. Explain procedure and take informed consent		2
	PC3. Prepare table and assist in patient transfer		2
	PC4. Ensure that a defibrillator and other resuscitation equipment are immediately accessible		2
	PC5. Ensure that strict aseptic technique is used like using a mask, gown and gloves		2
	<b>Total</b>		10
8. HSS/ N 0108: Demonstrate proficiency in using equipment	PC1. Prepare the cardiovascular equipment and hemodynamic monitoring system in preparing for various diagnostic procedure treatment	20	2
	PC2. Prepare the physiologic and analytical equipment during diagnostic and therapeutic procedures performed by the physician		2
	PC3. Assists in the performance of diagnostic cardiac equipment		2
	PC4. Interpret pressure waveforms and operates all physiological recording equipment		2
	PC5. Perform procedures on equipment such as:		6
	· Calipers		
	· Computers/keyboards/databases		
	· Single-channel and three channel electrocardiographs		
	· Ambulatory ECG recorder/monitor		
	· Ambulatory ECG analysis systems		
	· Oscilloscopes		
	· Treadmills and stress system recording devices		
	· Ergometer and bicycle		
	· Digital, mercury, aneroid		
	· Sphygmomanometers		
	· Oxygen saturation devices		
	· External pacemakers		
	· External defibrillators		
	· External pacing systems		
	· ECG management systems		
· ECG/BP computer systems			
· Simulators			
· Intravenous pumps			
· Tilt table			

Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (80)	Marks Allocation
			Theory
	<ul style="list-style-type: none"> <li>· Stethoscope</li> <li>· Resuscitation cart</li> <li>· Transtelephonic recorders</li> <li>· Oxygen regulators</li> <li>· Suction devices</li> <li>· Ambulatory blood pressure recorders/monitors</li> <li>· Pacing leads</li> <li>· Esophageal pacing leads</li> <li>· Temporary pacemakers</li> <li>· Pacemaker minclinic</li> <li>· Pacemaker magnet</li> <li>· All types of electrodes</li> <li>· Pacemaker system analysers</li> </ul>		
	PC6. Identify new equipment and accessories that are needed		2
	PC7. Review technical specifications of equipment required		2
	PC8. Compare cost/benefits of equipment to assist in purchasing recommendations		2
	<b>Total</b>		20
9. HSS/ N 9610 (Follow infection control policies and procedures)	PC1. Perform the standard precautions to prevent the spread of infection in accordance with organisation requirements	<b>36</b>	2
	PC2. Perform the additional precautions when standard precautions alone may not be sufficient to prevent transmission of infection		
	PC3. Minimise contamination of materials, equipment and instruments by aerosols and splatter		
	PC4. Identify infection risks and implement an appropriate response within own role and responsibility		2
	PC5. Document and report activities and tasks that put patients and/or other workers at risk		
	PC6. Respond appropriately to situations that pose an infection risk in accordance with the policies and procedures of the organization		
	PC7. Follow procedures for risk control and risk containment for specific risks		
	PC8. Follow protocols for care following exposure to blood or other body fluids as required		
	PC9. Place appropriate signs when and where appropriate		
	PC10. Remove spills in accordance with the policies and procedures of the organization		2
	PC11. Maintain hand hygiene by washing hands before and after patient contact and/or after any activity likely to cause contamination		
	PC12. Follow hand washing procedures		
	PC13. Implement hand care procedures		
	PC14. Cover cuts and abrasions with water-proof dressings and change as necessary		
	PC15. Wear personal protective clothing and equipment that		2

Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (80)	Marks Allocation
			Theory
	complies with Indian Standards, and is appropriate for the intended use		
	PC16. Change protective clothing and gowns/aprons daily, more frequently if soiled and where appropriate, after each patient contact		
	PC17. Demarcate and maintain clean and contaminated zones in all aspects of health care work		
	PC18. Confine records, materials and medicaments to a well-designated clean zone		2
	PC19. Confine contaminated instruments and equipment to a well-designated contaminated zone		
	PC20. Wear appropriate personal protective clothing and equipment in accordance with occupational health and safety policies and procedures when handling waste		2
	PC21. Separate waste at the point where it has been generated and dispose of into waste containers that are colour coded and identified		2
	PC22. Store clinical or related waste in an area that is accessible only to authorised persons		2
	PC23. Handle, package, label, store, transport and dispose of waste appropriately to minimise potential for contact with the waste and to reduce the risk to the environment from accidental release		2
	PC24. Dispose of waste safely in accordance with policies and procedures of the organisation and legislative requirements		
	PC25. Wear personal protective clothing and equipment during cleaning procedures		2
	PC26. Remove all dust, dirt and physical debris from work surfaces		
	PC27. Clean all work surfaces with a neutral detergent and warm water solution before and after each session or when visibly soiled		2
	PC28. Decontaminate equipment requiring special processing in accordance with quality management systems to ensure full compliance with cleaning, disinfection and sterilisation protocols		2
	PC29. Dry all work surfaces before and after use		
	PC30. Replace surface covers where applicable		2
	PC31. Maintain and store cleaning equipment		
	<b>Total</b>		36
<b>Grand Total-1 (Subject Domain)</b>		<b>80</b>	<b>80</b>
<b>Soft Skills and Communication</b>		<b>Select each part each carrying 10 marks totaling 20</b>	

Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (20)	Marks Allocation
			Theory
<b>Part 1</b>			
<b>1. Attitude</b>			
HSS/ N 9603 (Act within the limits of one's competence and authority)	PC1. Adhere to legislation, protocols and guidelines relevant to one's role and field of practice	2	2
	PC2. Work within organisational systems and requirements as appropriate to one's role		
	PC3. Recognise the boundary of one's role and responsibility and seek supervision when situations are beyond one's competence and authority		
	PC4. Maintain competence within one's role and field of practice		
	PC5. Use relevant research based protocols and guidelines as evidence to inform one's practice		
	PC6. Promote and demonstrate good practice as an individual and as a team member at all times		
	PC7. Identify and manage potential and actual risks to the quality and safety of practice		
	PC8. Evaluate and reflect on the quality of one's work and make continuing improvements		
<b>Total</b>			2
HSS/ N 9607 (Practice Code of conduct while performing duties)	PC1. Adhere to protocols and guidelines relevant to the role and field of practice	2	2
	PC2. Work within organisational systems and requirements as appropriate to the role		
	PC3. Recognise the boundary of the role and responsibility and seek supervision when situations are beyond the competence and authority		
	PC4. Maintain competence within the role and field of practice		
	PC5. Use protocols and guidelines relevant to the field of practice		
	PC6. Promote and demonstrate good practice as an individual and as a team member at all times		
	PC7. Identify and manage potential and actual risks to the quality and patient safety		
	PC8. Maintain personal hygiene and contribute actively to the healthcare ecosystem		
<b>Total</b>			2
<b>Attitude Total</b>		<b>4</b>	<b>4</b>
<b>2. Work Management</b>			
HSS/ N 9602 (Ensure availability of medical and diagnostic supplies)	PC1. Maintain adequate supplies of medical and diagnostic supplies	2	4
	PC2. Arrive at actual demand as accurately as possible		
	PC3. Anticipate future demand based on internal, external and other contributing factors as accurately as possible		
	PC4. Handle situations of stock-outs or unavailability of stocks without compromising health needs of patients/ individuals		
<b>Total</b>			4
HSS/ N 9605 (Manage work to meet requirements)	PC1. Clearly establish, agree, and record the work requirements	2	2
	PC2. Utilise time effectively		
	PC3. Ensure his/her work meets the agreed requirements		
	PC4. Treat confidential information correctly		



Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (20)	Marks Allocation
			Theory
	PC5. Work in line with the organisation's procedures and policies and within the limits of his/her job role		
	<b>Total</b>		2
	<b>Work Management Total</b>	<b>4</b>	<b>6</b>
	<b>Part 1 Total</b>	<b>10</b>	<b>10</b>
<b>Part 2</b>			
<b>1. Team Work</b>			
HSS/ N 9604 (Work effectively with others)	PC1. Communicate with other people clearly and effectively	<b>2</b>	<b>2</b>
	PC2. Integrate one's work with other people's work effectively		
	PC3. Pass on essential information to other people on timely basis		
	PC4. Work in a way that shows respect for other people		
	PC5. Carry out any commitments made to other people		
	PC6. Reason out the failure to fulfil commitment		
	PC7. Identify any problems with team members and other people and take the initiative to solve these problems		
	PC8. Follow the organisation's policies and procedures		
	<b>Total</b>		<b>2</b>
<b>2. Safety management</b>			
HSS/ N 9606 (Maintain a safe, healthy, and secure working environment)	PC1. Identify individual responsibilities in relation to maintaining workplace health safety and security requirements	<b>2</b>	<b>2</b>
	PC2. Comply with health, safety and security procedures for the workplace		
	PC3. Report any identified breaches in health, safety, and security procedures to the designated person		
	PC4. Identify potential hazards and breaches of safe work practices		
	PC5. Correct any hazards that individual can deal with safely, competently and within the limits of authority		
	PC6. Promptly and accurately report the hazards that individual is not allowed to deal with, to the relevant person and warn other people who may get affected		
	PC7. Follow the organisation's emergency procedures promptly, calmly, and efficiently		
	PC8. Identify and recommend opportunities for improving health, safety, and security to the designated person		
	PC9. Complete any health and safety records legibly and accurately		
	<b>Total</b>		<b>2</b>
<b>3. Waste Management</b>			
HSS/ N 9609 (Follow biomedical waste disposal protocols)	PC1. Follow the appropriate procedures, policies and protocols for the method of collection and containment level according to the waste type	<b>4</b>	<b>4</b>
	PC2. Apply appropriate health and safety measures and standard precautions for infection prevention and control and personal protective equipment relevant to the type and category of waste		
	PC3. Segregate the waste material from work areas in line with current legislation and organisational requirements		
	PC4. Segregation should happen at source with proper containment,		

Assessable Outcomes	Assessment Criteria for the Assessable Outcomes	Total Marks (20)	Marks Allocation
			Theory
	by using different colour coded bins for different categories of waste PC5. Check the accuracy of the labelling that identifies the type and content of waste PC6. Confirm suitability of containers for any required course of action appropriate to the type of waste disposal PC7. Check the waste has undergone the required processes to make it safe for transport and disposal PC8. Transport the waste to the disposal site, taking into consideration its associated risks PC9. Report and deal with spillages and contamination in accordance with current legislation and procedures PC10. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, local policies and protocols		
<b>Total</b>			4
<b>4. Quality Assurance</b>			
HSS/ N 9611: Monitor and assure quality	PC1. Conduct appropriate research and analysis	2	2
	PC2. Evaluate potential solutions thoroughly		
	PC3. Participate in education programs which include current techniques, technology and trends pertaining to the dental industry		
	PC4. Read Dental hygiene, dental and medical publications related to quality consistently and thoroughly		
	PC5. Report any identified breaches in health, safety, and security procedures to the designated person		
	PC6. Identify and correct any hazards that he/she can deal with safely, competently and within the limits of his/her authority		
	PC7. Promptly and accurately report any hazards that he/she is not allowed to deal with to the relevant person and warn other people who may be affected		
	PC8. Follow the organisation's emergency procedures promptly, calmly, and efficiently		
	PC9. Identify and recommend opportunities for improving health, safety, and security to the designated person		
	PC10. Complete any health and safety records legibly and accurately		
<b>Total</b>			2
<b>Part 2 Total</b>		<b>10</b>	<b>10</b>
<b>Grand Total-2 (Soft Skills and Communication)</b>		<b>20</b>	