Model Curriculum

QP Name: Biomedical Equipment Assistant

(Electives:
1. Anesthesiology equipment and devices
2. Pain Management equipment and devices
3. Cardiovascular equipment and devices
4. Dental equipment and devices
5. Ear, Nose, Throat (ENT) equipment and devices
6. Gastroenterological equipment and devices
7. Urological equipment and devices
8. General Hospital equipment and devices
9. Operation Theater (OT) equipment and devices
10. Respiratory equipment and devices
11. Neurological equipment and devices
12. Personnel use equipment and devices
13. Obstetrical and Gynecological (OG) equipment and devices
14. Ophthalmic equipment and devices
15. Rehabilitation equipment and devices
16. Physical support equipment and devices
17. Interventional and Radiology equipment and devices
18. Rheumatology equipment and devices
19. Dermatology and Plastic Surgery equipment and devices

20. Pediatric and Neonatology Medical equipment and devices
21. Oncology equipment and devices
22. Radiotherapy equipment and devices
23. Nephrology and Renal care equipment and devices
24. In-Vitro Diagnostics (IVD) Devices
25. Ambulance equipment and devices
26. Medical software
27. CSSD equipment and devices
28. PSA Based Oxygen plants & Medical Gas Pipeline Systems)

QP Code: HSS/Q5601

QP Version: 4.0

NSQF Level: 4

Model Curriculum Version: 1.0

Healthcare Sector Skill Council || Healthcare Sector Skill Council,520, DLF Tower A, 5th Floor, Jasola District Centre, New Delhi – 110025

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Training Parameters

Sector	Healthcare
Sub-Sector	Allied Health & Paramedics
Occupation	Non-Direct Care
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3211.0501
Minimum Educational Qualification and Experience	• 12th grade pass or equivalent or • 10th grade pass with two years of any combination of NTC/NAC/CITS or equivalent. or • 11th Grade Pass with 1.5-year relevant experience or • 10th Grade Pass with 3-year relevant experience or • Previous relevant Qualification of NSQF Level 3.5 with 1.5-year relevant experience or • Previous relevant Qualification of NSQF Level 3.0 with 3-year relevant experience
Pre-Requisite License or Training	Not Applicable
Minimum Job Entry Age	18 Years
Last Reviewed On	18-02-2025
Next Review Date	18-02-2028
NSQC Approval Date	18-02-2025
QP Version	4.0
Model Curriculum Creation Date	18-02-2025
Model Curriculum Valid Up to Date	18-02-2028

Model Curriculum Version	1.0
Minimum Duration of the Course	390 Hrs. (with one elective)
Maximum Duration of the Course	2850 Hrs. (With 28 electives)

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills.

- Familiarize with medical device industry, categories of medical devices, equipment and In-Vitro Diagnostic (IVD) Devices, PSA Based Oxygen plants & Medical Gas Pipeline Systems
- Demonstrate technical skills during delivery, installation and set-up of the medical equipment/devices.
- Provide post-installation technical assistance and instruction to the hospital staff on the installed medicalequipment, operation and maintenance safely and correctly.
- Conduct scheduled calibration and periodic preventive maintenance
- Maintain inventory and supply chain of parts and supplies
- Diagnose, repair and provide on-call and on-site assistance for equipment malfunctions.
- Schedule and oversee third party repair and maintenance work
- Describe and follow safety procedures while working with the equipment and at the workplace
- Manage work efficiently in the professional practice of bio-medical instrumentation services
- Demonstrate technical and communication skills while facilitating biomedical instrumentation services for medical equipment

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5616: Deliver, install, set-up medical equipment/devices and provide post-installation instructions to hospital/ facility staff	**60:00**	**45:00**	**30.00**	**00:00**	**135:00**
Module 1: Introductionto healthcare delivery systems and medical device industry	2:30	7:30	00:00	00:00	
Module 2: Fundamentals of Electro/Mechanical, thermos-dynamics, physics & instrumentations	22:30	15:00	00:00	00:00	

Module 3: Fundamentals of delivery, installation and set-up of the medical equipment/devices	22:30	12:30	00:00	00:00	
Module 4: Fundamentals of post-installation instructions of medical equipment/devices to hospital/ facility staff	12:30	10:00	00:00	00:00	
HSS/N5617: Diagnose, Repair, Calibrate, maintain, troubleshoot and provide technical assistance for equipment malfunctions	**60:00**	**45:00**	**30.00**	**00:00**	**135:00**
Module 5: Fundamentals of Calibration, periodic preventive and corrective maintenance of medical equipment	20:00	15:00	00:00	00:00	
Module 6: On-call/on-site assistance and Troubleshooting for faults in the medical equipment	15:00	08:00	00:00	00:00	
Module 7: Inventory & Supply Chain Management	10:00	07:00	00:00	00:00	
Module 8: Safety practices/Emergency Response and Circular economy practices	15:00	15:00	00:00	00:00	
Sub-Total	**120:00**	**90:00**	**60:00**	**00:00**	**270:00**
Module 9: DGT/VSQ/N0101 : Employability Skills (30 Hours)	30:00	00:00	00:00	00:00	60:00
Total	**150:00**	**90:00**	**60:00**	**00:00**	**300:00**

Elective Modules

The table lists the modules and their duration corresponding to the Elective NOS of the QP.

Elective 1 Anesthesiology equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5618: Facilitate Biomedical Instrumentation Services for Anesthesiology equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 10: Fundamental knowledge of function and operation of Anesthesiology equipment and devices	20:00	15:00	00:00	00:00	
Module 11: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Anesthesiology equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 2 Pain Management equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5619: Facilitate Biomedical Instrumentation Services for Pain Management equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 12: Fundamental knowledge of function and operation of Pain Management equipment and devices	20:00	15:00	00:00	00:00	
Module 13: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Pain Management equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 3 Cardiovascular equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5620: Facilitate Biomedical Instrumentation Services for Cardiovascular equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 14: Fundamental knowledge of function and operation of Cardiovascular equipment and devices	20:00	15:00	00:00	00:00	
Module 15: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Cardiovascular equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 4 Dental equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5621: Facilitate Biomedical Instrumentation Services for Dental equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 16: Fundamental knowledge of function and operation of Dental equipment and devices	20:00	15:00	00:00	00:00	
Module 17: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Dental equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 5 Ear, Nose, Throat (ENT) equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5622: Facilitate Biomedical Instrumentation Services for Ear, Nose, Throat (ENT) equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 18: Fundamental knowledge of function and operation of Ear, Nose, Throat (ENT) equipment and devices	20:00	15:00	00:00	00:00	
Module 19: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Ear, Nose, Throat (ENT) equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 6 Gastroenterological equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5623: Facilitate Biomedical Instrumentation Services for Gastroenterological equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 20: Fundamental knowledge of function and operation of Gastroenterological equipment and devices	20:00	15:00	00:00	00:00	
Module 21: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Gastroenterological equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 7 Urological equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5624: Facilitate Biomedical Instrumentation Services for Urological equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 22: Fundamental knowledge of function and operation of Urological equipment and devices	20:00	15:00	00:00	00:00	
Module 23: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Urological equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 8 General Hospital equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5625: Facilitate Biomedical Instrumentation Services for General Hospital equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 24: Fundamental knowledge of function and operation of General Hospital equipment and devices	20:00	15:00	00:00	00:00	
Module 25: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for General Hospital equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 9 Operation Theatre (OT) equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5626: Facilitate Biomedical Instrumentation Services for Operation Theatre (OT) equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 26: Fundamental knowledge of function and operation of Operation Theatre (OT) equipment and devices	20:00	15:00	00:00	00:00	
Module 27: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Operation Theatre (OT) equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 10 Respiratory equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5627: Facilitate Biomedical Instrumentation Services for Respiratory equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 28: Fundamental knowledge of function and operation of Respiratory equipment and devices	20:00	15:00	00:00	00:00	
Module 29: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Respiratory equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 11 Neurological equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5628: Facilitate Biomedical Instrumentation Services for Neurological equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 30: Fundamental knowledge of function and operation of Neurological equipment and devices	20:00	15:00	00:00	00:00	
Module 31: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Neurological equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 12 Personnel use equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5629: Facilitate Biomedical Instrumentation Services for Personnel use equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 32: Fundamental knowledge of function and operation of Personnel use equipment and devices	20:00	15:00	00:00	00:00	
Module 33: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Personnel use equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 13 Obstetrical and Gynaecological (OG) equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5630: Facilitate Biomedical Instrumentation Services for Obstetrical and Gynaecological (OG) equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 34: Fundamental knowledge of function and operation of Obstetrical and Gynaecological (OG) equipment and devices	20:00	15:00	00:00	00:00	
Module 35: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Obstetrical and Gynaecological (OG) equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 14 Ophthalmic equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5631: Facilitate Biomedical Instrumentation Services for Ophthalmic equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 36: Fundamental knowledge of function and operation of Ophthalmic equipment and devices	20:00	15:00	00:00	00:00	
Module 37: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Ophthalmic equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 15 Rehabilitation equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5632: Facilitate Biomedical Instrumentation Services for Rehabilitation equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 38: Fundamental knowledge of function and operation of Rehabilitation equipment and devices	20:00	15:00	00:00	00:00	
Module 39: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Rehabilitation equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 16 Physical support equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5633: Facilitate Biomedical Instrumentation Services for Physical support equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 40: Fundamental knowledge of function and operation of Physical support equipment and devices	20:00	15:00	00:00	00:00	
Module 41: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Physical support equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 17 Interventional and Radiology equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5634: Facilitate Biomedical Instrumentation Services for Interventional and Radiology equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 42: Fundamental knowledge of function and operation of Interventional and Radiology equipment and devices	20:00	15:00	00:00	00:00	
Module 43: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Interventional and Radiology equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 18 Rheumatology equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5635: Facilitate Biomedical Instrumentation Services for Rheumatology equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 44: Fundamental knowledge of function and operation of Rheumatology equipment and devices	20:00	15:00	00:00	00:00	
Module 45: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Rheumatology equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 19 Dermatology and Plastic Surgery equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5636: Facilitate Biomedical Instrumentation Services for Dermatology and Plastic Surgery equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 46: Fundamental knowledge of function and operation of Dermatology and Plastic Surgery equipment and devices	20:00	15:00	00:00	00:00	
Module 47: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Dermatology and Plastic Surgery equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 20 Paediatric and Neonatology Medical equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5637: Facilitate Biomedical Instrumentation Services for Paediatric and Neonatology Medical equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 48: Fundamental knowledge of function and operation of Paediatric and Neonatology Medical equipment and devices	20:00	15:00	00:00	00:00	
Module 49: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Paediatric and Neonatology Medical equipment and devices	10:00	15:00	00:00	00:00	

Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 21 Oncology equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5638: Facilitate Biomedical Instrumentation Services for Oncology equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 50: Fundamental knowledge of function and operation of Oncology equipment and devices	20:00	15:00	00:00	00:00	
Module 51: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Oncology equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 22 Radiotherapy equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5639: Facilitate Biomedical Instrumentation Services for Radiotherapy equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 52: Fundamental knowledge of function and operation of Radiotherapy equipment and devices	20:00	15:00	00:00	00:00	
Module 53: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Radiotherapy equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 23 Nephrology and Renal care equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5640: Facilitate Biomedical Instrumentation Services for Nephrology and Renal care equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 54: Fundamental knowledge of function and operation of Nephrology and Renal care equipment and devices	20:00	15:00	00:00	00:00	
Module 55: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Nephrology and Renal care equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 24 In-Vitro Diagnostics Devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5641: Facilitate Biomedical Instrumentation Services for In-Vitro Diagnostics (IVD) devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 56: Fundamental knowledge of function and operation of In-Vitro Diagnostics	20:00	15:00	00:00	00:00	
Module 57: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for In-Vitro Diagnostics	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 25 Ambulance Equipment and Devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5642: Facilitate Biomedical Instrumentation Services for Ambulance Equipment and Devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 58: Fundamental knowledge of function and operation of Medical software	20:00	15:00	00:00	00:00	
Module 59: Fundamentals on Installation, set-up, repair, maintenance, calibration and biomedical instrumentation Services for Ambulance Equipment and Devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 26 Medical Software

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5643: Facilitate Biomedical Instrumentation Services for medical software, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 60: Fundamental knowledge of function and operation of medical software	20:00	15:00	00:00	00:00	
Module 61: Fundamentals on Installation, set-up, repair, maintenance, calibration and services for medical software	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 27 CSSD equipment and devices

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N5644: Facilitate Biomedical Instrumentation Services for CSSD equipment and devices, V1.0	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 62: Fundamental knowledge of function and operation of CSSD equipment and devices	20:00	15:00	00:00	00:00	
Module 63: Fundamentals on Installation, set-up, repair, maintenance, calibration and services for CSSD equipment and devices	10:00	15:00	00:00	00:00	
Total	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**

Elective 28 PSA Based Oxygen plants & Medical Gas Pipeline Systems

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
HSS/N0929: Facilitate Biomedical Instrumentation Services for PSA Based Oxygen plants & Medical Gas Pipeline Systems, V1.0	**45:00**	**30:00**	**45:00**	**00:00**	**120:00**
Module 64: Fundamental knowledge of function and operation of PSA Based Oxygen plants & Medical Gas Pipeline Systems	20:00	15:00	00:00	00:00	
Module 65: Fundamentals on Installation, set-up, repair, maintenance, calibration and services for PSA Based Oxygen plants & Medical Gas Pipeline Systems	25:00	15:00	00:00	00:00	
Total	**45:00**	**30:00**	**45:00**	**00:00**	**120:00**

Module Details

Module 1: Introduction to healthcare delivery systems and medical devices industry

Mapped to: HSS/N5610

Terminal Outcomes:

- Describe the basic structure and function of healthcare delivery system in India.
- Familiarize with medical device industry.
- Apply basic medical terminology in everyday professional conversation.

Duration: *02:30*	**Duration**: *07:30*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
Healthcare Delivery System • Discuss the healthcare delivery system in India at the primary, secondary, tertiary, and quaternary levels. • Distinguish between private, public, and non-profit healthcare delivery systems. • Differentiate between various healthcareservices. • List the different departments in a hospital. **Medical Device Industry** • Sensitize on value chain of medical device industry. • List the medical device manufacturers, suppliers and service providers • Discuss what makes a product a medical device. • Differentiate between medical devices andmedical equipment • List the different categories of medical devices and basis of categorization. • Familiarize with the medical terminology, medical abbreviations and acronyms used in everyday practice.	• Research on one District Hospital (or scan the HMIS), one PHC, one SC and one CHC and list out the Equipment available and Manpower available in these centres • Make yourself familiar with the Medical Equipment and Devices list that should be available in the various facilities.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
NA	

Module 2: Fundamentals of Electro/Mechanical, thermo dynamics, physics & instrumentations

Mapped to: HSS/N5610

Terminal Outcomes:

- Measure dimensions by using appropriate instruments accurately.
- Select proper measuring instrument on the basis of range, least count & precision required for measurement.
- Identify the resistor markings and typical values.
- Identify the properties of metals, alloys, and non-metallic materials related to engineering applications.
- Select proper material for intended purpose by studying properties of materials.
- Analyze relation among pressure, volume and temperature of gas & interpret the results
- Understand the specification, construction and working principle of the electronic component.
- Apply fundamental concepts of electricity and electronics, bio-medical instrumentation, computer systems and digital technology during delivering the work.
- Describe mechanical knowledge and use of tools.

Duration: *22:30*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
Basic Physics • Identify units and measurements • Identify good & bad conductors of heat. • List general properties of matter- elasticity, surface tension, viscosity • Sensitize about the properties of light, Laser, sound, x-rays, photo-electricity and photoelectric field • Discuss the applications of spectrum and electro-magnetic radiations in Biomedical Instrumentation. **Basic Chemistry** • Identify Atomic structures • Recapitulate basic concepts of electro- chemistry, metals and alloys, nonmetallic materials. **Basic Mathematics** • Recapitulate basic concepts of Logarithms, partial fractions, ratios, factorization, inverse ratios, points and distance, straight lines, circles. **Computer circuit and laboratory** • Discuss basic functions, types, working, constructional diagram and specifications of resistors, Capacitors, Switches, Relays and Displays • Differentiate between switch & relay - operating time, release time, bounce time, electrical life, and mechanical life. **Fundamental concepts of electricityand electronics** • Discuss fundamental concepts of ac circuits, dc circuits, magnetic circuits, transformers, ac machines and other electrical machines. • Discuss application of electrical machines in Biomedical	• Identify the electronic components used in Household appliances, communication kits, and electrical appliances. • Represent the formation of molecules schematically. • Prepare a chart depicting the electroniccomponents and their functions. • Recognize the component & type of component and the material used for the construction of component. • Read the various symbols of a circuitdiagram and a circuit diagram. • Draw the basic circuits of rectifier, filter,regulator and amplifiers. • Practice designing and evaluation of bipolar and FET linear circuits using the oscilloscope and curve tracer • Perform the testing using multimeter. • Identify the different tools required to solder and desolder the surface mounted devices (SMDs). • Identify the typical case sizes, shape andmarkings of some

Instrumentation **Electronic components and application** • List various types and components of Inductors and Cable Connectors- ferrimagnetic, B-H curve, Hard & soft Magnetic Materials, etc. • Describe Color coding of Inductor using color band system. • Discuss basic concepts about Connectors- General specifications of connectors- contact resistance, breakdown voltage, insulation resistance Constructional diagram, applications of BNC, D series, Audio, Video, printer, edge, FRC, RJ 45 connectors. • Discuss the various plug and socket classifications based on their types. **Electronic circuit** • Discuss Linear circuit analysis and design. • Discuss basic operation of diodes and bipolar and field-effect transistors using circuit analysis. • Sensitize on integrated circuits. • Differentiate between Power amplifiers and oscillators. **Fundamental concepts of Biomedical Instrumentation** • Discuss the basic principles of biomedical instrumentation • Discuss concepts of measurement, Sensors, transducers, actuators, analog instruments, measuring circuits, display devices, soldering, etc. and their application in Biomedical Instrumentation. • Describe the steps of Printed Circuit Boards (PCB) fabrication process. • Describe the importance of reading datasheets of diode and transistors. • List the various tools used for performing basicrepair and maintenance of medical equipment. • Explain the functions of each tool. **Computer systems and digital technology** • Discuss fundamental concepts of computersystems like data, management and informatics related systems and their application in Biomedical Instrumentation. • Discuss fundamental concepts of digitaltechnology and their application in Biomedical Instrumentation.	common SMDs. • Practice in fabricating, trouble-shooting and testing solid-state linear circuits using the oscilloscope, generators and the distortion analyzer. • Design details of cascade resistance and direct coupled amplifiers. • Demonstrate the steps of PCB fabricationprocess. • Read data sheets of diode and transistorsand test accordingly. • Create a portable tool kit usedfor performing basic repair and maintenance of medical equipment.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, board eraser	
Tools, Equipment and Other Requirements	
Equipment dummies, Circuit, SMDs, multimeter, some electrical appliances, Various types of sockets, plugs, connectors, wires, PCBs, Charts and diagrams of circuits, Defibrillator analyzer, Hand tools, Non-invasive blood pressure (NIBP) analyzer, Tachometer, Spectrum analyzer, Electrical safety analyzer, Electrical surgical unit (ESU) analyzer, Patient simulators (e.g. SpO2 simulator), Personal protective equipment (PPE), Frequency scanner, Fetal monitor simulator, Phantoms, O2 meter, Watt meter, Cabling, terminals, Test lungs, IV testers, Pressure meters, Diagnostic software, Test equipment, Maintenance Management Systems	

Module 3: Fundamentals of delivery, installation and set-up of the medical equipment

Mapped to: HSS/N5610

Terminal Outcomes:

- Perform pre-installation site visit before delivery.
- Receive, inspect and inventory equipment upon delivery at installation location.
- Help with the installation of equipment.
- Complete documentation process related to delivery and installation of equipment.

Duration: *22:30*	**Duration**: *12:30*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
Perform pre-installation site visit before delivery • Describe the importance of assessing the requirements of the department concerned regarding necessary equipment and item(s) required to operate the equipment time to time. • Describe the importance of assessing the technical requirement as stated by the Equipment manufacturer at installation site before delivery. **Receive and inspect equipment upon delivery at installation location** • Describe the importance of checking that all required equipment, accessories, spare parts, operating and service manuals item(s) are delivered in a timely manner as agreed upon by the supplier, and is consistent with the order, needs, and limitations of the department concerned • Describe the importance of affixed inspection sticker and asset/control number on the equipment. • Discuss the protocols and personnel involved during delivery and set-up of equipment to installation location safely. • Discuss the importance of visual inspection conducted by supervisor and/or department concerned. **Help with the installation of equipment** • Describe the importance of reviewing the manufacturer's recommendation/manual to avoid any risk or any technical error that may occur before installation of the equipment. • Discuss the role of MEA during the installation of the medical equipment. • List the do's and don'ts of lifting/handling Techniques while working with medical equipment. • Describe the importance of assessing the requirement of additional help for mechanical alignment of heavy medical equipment. • Discuss the steps of assembling and dissembling the equipment appropriately. • Discuss the importance and steps of performing	• Check, fill and enter the dummy inspectionform, work order form, installation form, commissioning form, QA form, and other forms required during equipment set-up. • Dissemble and assemble the various partsof the basic clinical equipment. • Demonstrate the lifting and handling techniques of medical equipment. • Demonstrate steps of quality assurancetests and dry run testing. • Practice receipt, installation and commissioning of equipment through roleplays. • Prepare a sample checklist to check receipt of equipment, accessories, spareparts, operating and service manuals.

quality assurance (QA) tests and dry run testing before commissioning. • Discuss importance of reporting and required action to be taken in case of any discrepancy or variation is observed during QA tests. • Discuss the protocols of receipt, installationand commissioning of equipment. **Documentation** • Describe the importance of checking, fillingand entering the related forms required during equipment set-up like inspection form, work order form, installation form, commissioning form, QA form, etc. • Emphasize on the importance of indication of passing electrical safety test and performance verification (functional) test & meeting fire safety standards on Installation work order. • Emphasize the importance of signing of Commissioning certificate by both end user and the commissioning body • Describe protocols of documenting installation in management systems with all relevant checklists complete.	
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
dummy inspection form, work order form, installation form, commissioning form, QA form, and other forms required during equipment set-up	

Module 4: Fundamentals of post-installation instructions of medical equipment/devices to hospital/ facility staff

Mapped to: HSS/N5610

Terminal Outcomes:

- Provide post-installation technical assistance and instruction to the hospital/facility staff on the installed medicalequipment operation and maintenance safely and correctly

Duration: *12:30*	**Duration**: *10:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the importance of training andeducating the hospital/facility staff on safe andeffective use and troubleshooting of equipment. • Describe the importance of reviewing the manufacturer documentation or checklist and retrieving appropriate information related to the set-up, features, routine use, trouble shooting, cleaning, and maintenance of equipment of department concerned. • Describe the importance of providing relevant information and/or instructions about infection control issues related to the use of equipment of department concerned. • Discuss how to set up apparatus for demonstration or other purposes. • Discuss how to evaluate whether the hospital/facility staff can use all equipment provided safely and effectively • Discuss the importance of providing training and instructions to the hospital/facility staff complying with the risks, complexity, and manufacturer's instructions and/or specifications for the equipment • Discuss approaches to the needs, abilities,learning preferences, and language of the concerned hospital while tailoring trainingand instruction materials based on manufacturer documentation or checklist. • Discuss the importance of providing written instructions to the hospital staff for equipment. • Describe the importance of documentationof all training and communication in the providers record, participant sign-in sheet verified by supervisor, all favorable facilitystaff feedback received during supervisor rounds, etc.	• Perform a role play on setting up of apparatus for demonstration of a dummy equipment. • Create training and instruction materials related to the set-up, features, routine use,trouble shooting, cleaning, and maintenance of basic equipment based on provided sample manufacturer documentation or checklist.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Sample instruction and training materials on use of equipment, dummy service manuals, equipment dummies	

Module 5: Fundamentals of calibration, periodic preventive and corrective maintenance of the medical equipment

Mapped to: HSS/N5611

Terminal Outcomes:

- Ensure calibration task is complete within specified departmental time period or manufacturer's recommendations
- Ensure preventive maintenance tasks are complete within specified departmental time period.
- Carry out proper documentation of calibration and preventive maintenance tasks.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
Guidelines and Protocols • Describe the importance of reviewing technical manuals and regularly attending training sessions. • Discuss the protocols related to conducting, recording and taking necessary action during calibration and maintenance. • Discuss the components of work order/calibration sheet and its specifications, documentation, updation,review, verification and involved officials. **Calibration** • Discuss process of testing and calibrating parts and equipment according to the manufacturer's recommendations, study protocols • Describe the importance of completing the calibration task within a specified departmental time period or manufacturer's recommendations • Describe the importance of affixing of current sticker/s or tag conforming the calibration done on medical equipment • Describe the process of entering and maintaining calibration record for the equipment • Describe the importance of maintaining the Calibration sheet for inspection by the regulatory authorities and other relevant authorities **Corrective and periodic preventive maintenance:** • Differentiate between corrective and preventive maintenance. • Discuss the required standard frequency and schedule of conducting Maintenance of medical equipment. • List the components of the toolkit required to be available on site on the day of maintenance • List the components of the maintenance checklist (such as: Power cable, power module, functional check, calibration if required using the electrical safety analyser, etc.) needs to be followed on the day of maintenance. • Discuss steps of maintaining software application for medical equipment having computerized operation	• Observe, assist and demonstrate steps of testing and calibrating the equipment • Practice entering sample calibration, maintenance and work order forms/sheets/records/tags. • Identify gaps and complete sample calibration, maintenance and work order forms/sheets/records/tags. • Prepare a sample maintenance checklist(such as: Power cable, power module, functional check, calibration if required using the electrical safety analyser, etc.) • Prepare a chart of Do's and Don'ts to be followed during calibration and maintenance tasks. • Perform a mock drill for understanding scheduling, conducting and recording corrective maintenance. • Prepare a dummy portable toolkit requiredfor preventive maintenance. • Observe, assist and demonstrate the steps of cleaning all assemblies and checking of quantity andquality machine oil and distilled water inmedical equipment. • Observe, assist and demonstrate oiling or greasing of the mechanical moving parts.

• Discuss the steps of cleaning all assemblies and checking of quantity andquality machine oil and distilled water inmedical equipment. • Discuss list of documents needs to be attached with the closed Maintenance work order indicating successfully passing of electrical safety test, performance verification (functional) test and equipment operating within range of manufacturer specifications. • Describe the importance of affixing of current sticker/s or tag conforming the maintenance done on medical equipment • Describe the importance of completing the maintenance task within a specified departmental time period or manufacturer's recommendations • Describe the process of entering and maintaining the record of the corrective and periodic Preventive Maintenance reports • Discuss the importance of verification of corrective and periodic Preventive Maintenance reports by the seniors.	
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Toolkit, sample checklists and forms required for equipment calibration and maintenance, dummy service manuals, case studies, guidelines and protocols	

Module 6: On-call/ on-site assistance and Troubleshooting for faults in the medical equipment

Mapped to: HSS/N5611

Terminal Outcomes:

- Respond to device failures reported by users on-call.
- Diagnose and repair basic equipment malfunctions on-site.
- Troubleshoot for major equipment malfunctions.
- Schedule and oversee third party repair and maintenance work.
- Carry out proper documentation of on-call and on-site assistance and repairs.

Duration: *15:00*	**Duration**: *08:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
Diagnose faults • Identify the types of main disconnect and service panel capacities (60, 100, 200 amp,etc.). • Discuss the remedial measures for commonmain disconnect problems. **On-Call Assistance** • Discuss the scope and limitations ofproviding on-call assistance. • Discuss the importance of providing on-callassistance in case of any urgency or emergency **On-Site assistance** • Discuss the importance of taking special care while doing repair of the medical equipment sometimes when it is being used on the patient to ensure that repairsdo not disturb patients. • Discuss about winding and rating of motor. • Discuss the importance of maintaining the dignity and privacy of patients and clients in facility. • Discuss the escalation matrix for the next level for support, if individual cannot resolve/ correct the problem with the equipment **Troubleshooting and Third-Party Repairs** • Discuss the determination and techniques of troubleshooting and the corrective measures to be taken. • Differentiate whether the fault could be corrected by the person or requires thirdparty interface. **Protocols and Documentation** • Discuss the regulations to test, evaluate,and classify excess or in-use medical equipment. • Discuss protocols to conduct, record andtake necessary action during on-call and on-site assistance for equipment malfunctions. • Identify the need for a third-party interfaceand appropriate vendors for the same. • List the resources required to facilitaterepairs through third party.	• Identify the common fault in the sampleequipment. • Demonstrate opening of the motor,rectifying and repairing of the fault. • Demonstrate opening of the motherboard,checking the circuit and repairing the fault. • Demonstrate fitting or refitting of the motor or pumps in heavy machines withproper alignment. • Determine serviceability, condition, anddisposition of medical equipment in accordance with regulations. • Identify the equipment malfunction/ maintenance which needs to be addressed through third party vendor. • Carry out performance verification and finaloperational check of the equipment repaired/part replaced/ maintenance done as per manufacturer specification and users' requirements. • Prepare a sample documentation filerelated to self-repairs and third-partyrepairs. • Practice reviewing the sample documentation file related to completion ofall required input and relevant checklists or forms. • Practice entering dummy data in the facilitymaintenance management system.

• Discuss the importance of conducting quality assurance checks of both self-repairsand third-party repairs. • List the elements that needs to be verified in thethird-party documentation of repairs. • Explain the documentation related to equipment returned to the unit or facility afterrepair and maintenance.	

Classroom Aids:
Charts, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Board eraser
Tools, Equipment and Other Requirements
Various types of sockets, plugs, connectors, wires, PCBs. Dummy medical equipment like BP instrument, thermometer, glucometer, ward equipment, sterilization equipment, stethoscope, scales, bariatric equipment, recliners Charts and diagrams of circuits

Module 7: Inventory & Supply Chain Management

Mapped to: HSS/N5611

Terminal Outcomes:

- Maintain the inventory of the equipment, accessories, spare parts, operating and service manuals and their inventory communication and ensure its proper storage, documentation and retrieval whenever necessary.
- Maintain orders, supplies and returns of parts or equipment through approved vendors or manufacturers.

Duration: *10:00*	**Duration**: *07:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
Inventory Management • Describe the best inventory management practices. • Discuss the condemnation guidelines for equipment or logistics which are outdated or in non-working condition. • Discuss how to maintain the record of available equipment, accessories, spare parts, operating and service manuals and their inventory communication with concerned hospital staff. • Discuss about SOP reporting or discarding the expired consumables. • Describe the importance of maintaining the inventory of the spare parts of the specific medical Equipment and ensuring its proper storage, documentation and retrieval whenever necessary. **Supply Chain management** • Discuss the process of selection and finalization of the best of the manufacturers', suppliers and service providers consistent with order, needs, and limitations of the department concerned and seniors. • Describe the importance of correct identification of the orders, supplies and returns of new or replacement parts or equipment on order documentation. • Discuss importance of ordering parts or equipment from approved vendor/manufacturer • Discuss importance of ordering parts or equipment with respect to priority of repair • Discuss the importance of ordering sufficient supply replacements to complete device recall • Discuss importance of returning defective or recalled part(s) as required according to recall instructions • Describe the documentation process in maintenance management systems as per organizational policy. • Discuss the importance of checking and completing the Return documentation with all required data including serial numbers, model numbers, etc., according to recall instructions. • Discuss the importance of national/international hospital standards while maintenance of medical devices and documentation in maintenance management systems.	• Prepare a sample checklist to check the availability of various types of equipment, accessories, spare parts, operating and service manuals and their inventory communication in inventory room. • Demonstrate the compilation of all relevant information in sample formats leveraged in the inventory room. • Demonstrate the steps of maintaining the inventory of the spare parts of the dummy medical Equipment with its proper storage. • Perform role play of retrieval of the dummy medical Equipment. • Perform class discussion listing the best of the manufacturers', suppliers and service providers consistent with the sample order, needs, and limitations. • Check correctness and identify gaps in sample order documentation and Return documentation for the orders, supplies and returns of new or replacement parts or equipment. • Demonstrate the documentation process in maintenance management systems
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	

Tools, Equipment and Other Requirements
Case studies and demonstrative videos on teamwork, group dynamics

Module 8: Safety practices/Emergency Response and Circular economy practices

Mapped to: HSS/N5611

Terminal Outcomes:

- Respond to institutional emergencies appropriately.
- Ensure self, public and employee safety in and around work areas
- Displaying appropriate professional appearance for the workplace.
- Apply self-hygiene and follow infection control guidelines.
- Demonstrate correct waste disposal methods as per guidelines and regulations
- Demonstrate circular economy practices in the medical device sector.

Duration: *15:00*	**Duration**: *15:00*
Theory - Key Learning Outcomes	**Practical - Key Learning Outcomes**
Self, public and employee safety practices in and around work areas • Discuss the various electrical, temperature and pressure standards. • Describe the importance of participating in mandatory periodic safety training and achieving satisfactory scores on both written and performance assessments • Describe the importance of following the manufacturer's recommendations stated in the operational & service manual of each equipment. • List the precautions to be taken forpersonal safety. • Explain the use of protective devices suchas safety devices. • Emphasize the importance of using personal protective equipment during installation/ maintenance activity. • List the hazards which could happen in and around work areas and importance of setting up appropriate barriers and precautions to ensure public and employee safety in the healthcare facility. • Discuss the emission of pollutants from medical equipment and its effect on environment and the suggested preventive measures/safety protocols. • Discuss ways of identifying and reporting hazards to proper personnel for remediation • Discuss the ways of restricting access to areas of work as and when necessary, such as proper signage posted in area and, if necessary, reporting to safety committee through supervisor. • Discuss the specific regulations for dealing with radiations, pressure, vacuum, etc. • List the considered dangerous and critical support equipment in the medical field. • Describe the special care needed when dealing with mother board and other electronic components. **Respond to emergencies**	• Demonstrate basic emergency response in a mock drill depicting aninstitutional emergency. • Create a chart depicting different types of protective devices such assafety devices. • Demonstrate the method ofbandages and dressing. • Identify safety hazards, troubleshoot the problem, take corrective measures within short span of time. • Demonstrate the correct way of washing hands using soap and water,and alcohol-based hand rubs. • Display the correct way of donning, doffing and discarding PPE such as facemasks, hand gloves, face shields, PPE suits, etc. • Demonstrate appropriate social and behavioural etiquette (greeting andmeeting people, spitting/coughing/sneezing, etc.). • Prepare a list of local emergency responseagencies such as Emergency Medical Service (EMS) team, ambulance, bomb disposal squads, fire and police departments, etc. along with their contactdetails. • Demonstrate correct technique of providing CPR on manikin using both singlerescuer and two rescuer methods. • Design a dummy portable and segregablefirst aid kit as per requirements. • Select different types of waste and various types of colour coded bins/containers used for disposal

• List facility public address alerts and codes and its functions. • List the possible internal and external emergencies • Describe the importance of participating in emergency and disaster drills • Discuss about the chain of survival (in & outof hospital scenario). • Explain about fire emergencies and safe useof electrical appliances • Explain about disaster managementtechniques to deal with institutionalemergencies. • List the common emergencies which could happen in and out of institutions like trauma, snake bites, accidents, dog-bite, sprains, choking, fainting, unconsciousness,etc. • Discuss about importance of basic awareness about safety precautions, method of troubleshooting in emergency and escalation matrix for next level for support **Self-hygiene, infection control guidelines and waste disposal methods** • Identify PPE to be used at workplace and the process of donning, doffing, and discarding them. • Discuss the importance and process of identifying and reporting symptoms to the concerned authorities. • Explain the importance of professional appearance: clean uniform, neat and combed hair, polished footwear, well- manicured nails, etc. • Explain the steps of social hand hygiene. • Discuss organizational hygiene and sanitation guidelines and ways of following them and reporting breaches/gaps if any. • Describe the standard procedure of Cardio Pulmonary Resuscitation (CPR). • Explain the basic components of first aid kit and its uses. • Explain the importance and mechanism of proper and safe disposal, transportation, and treatment of waste.	of waste.

Classroom Aids:
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster
Tools, Equipment and Other Requirements
PPE kit, fire extinguisher, Different coded color bins, chart for color coding of bins, CPR Manikin, Ambu Bag with Mask Adult

Module 9: Employability Skills (30 hours)
Mapped to DGT/VSQ/N0101 : Employability Skills (30 Hours)

Mandatory Duration: *30:00*			
Location: On-Site			
S.No.	**Module Name**	**Key Learning Outcomes**	**Duration (hours)**
1.	Introduction to Employability Skills	• Discuss the importance of Employability Skills in meeting the job requirements.	1
2.	Constitutional values - Citizenship	• Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. thatare required to be followed to become a responsible citizen. • Show how to practice different environmentally sustainable practices.	1
3.	Becoming a Professional in the 21st Century	• Discuss 21st century skills. • Display positive attitude, self -motivation, problem solving, time management skills and continuous learning mindset in different situations.	1
4.	Basic English Skills	• Use appropriate basic English sentences/phrases while speaking.	2
5.	Communication Skills	• Demonstrate how to communicate in a well -mannered way with others. • Demonstrate working with others in a team.	4
6.	Diversity & Inclusion	• Show how to conduct oneself appropriately with all genders and PwD. • Discuss the significance of reporting sexual harassment issues in time.	1
7.	Financial and Legal Literacy	• Discuss the significance of using financial products and services safely and securely. • Explain the importance of managing expenses, income, and savings. • Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws.	4
8.	Essential Digital Skills	• Show how to operate digital devices and use the associated applications and features, safely and securely. • Discuss the significance of using internet for browsing, accessing social media platforms, safely and securely.	3
9.	Entrepreneurship	• Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges.	7
10.	Customer Service	• Differentiate between types of customers. • Explain the significance of identifying customer needs and addressing them. • Discuss the significance of maintaining hygiene and dressing appropriately.	4
11	Getting ready for apprenticeship & Jobs	• Create a biodata. • Use various sources to search and apply for jobs. • Discuss the significance of dressing up neatly and maintaining hygiene for an interview. • Discuss how to search and register for apprenticeship opportunities.	2

LIST OF TOOLS & EQUIPMENT FOR EMPLOYABILITY SKILLS		
S No.	**Name of the Equipment**	**Quantity**
1.	Computer (PC) with latest configurations – and Internet connection with standard operating system and standard word processor and worksheet software (Licensed) (all software should either be latest version or one/two version below)	As required
2.	UPS	As required
3.	Scanner cum Printer	As required
4.	Computer Tables	As required
5.	Computer Chairs	As required
6.	LCD Projector	As required
7.	White Board 1200mm x 900mm	As required
Note: Above Tools &Equipment not required, if Computer LAB is available in the institute.		

Elective 1: Anesthesiology equipment and devices

Module 10: Fundamental knowledge of function and operation of Anesthesiology equipment and devices

Mapped to: HSS/N5612

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the anesthesiology equipment and devices.
- Apply the principles of operation of anesthesiology equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of anesthesiology equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all anesthesiology equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of anesthesiology equipment and devices. • Identify the circuits of the anesthesiology equipment and devices. • Identify the electronic components in the anesthesiology equipment and devices. • Identify different types of cables and connectors used in anesthesiology equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the anesthesiology equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of anesthesiology equipment and devices as per latest guidelines.	• Identify name and uses of all listed anesthesiology Equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof anesthesiology Equipment and devices. • Prepare a chart depicting various components of the anesthesiology equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy anesthesiology equipment and devices as listed in qualification file	

Module 11: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Anesthesiology equipment and devices

Mapped to: HSS/N5612

Terminal Outcomes:

- Perform installation and setting-up of the anesthesiology equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of anesthesiology equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the anesthesiology equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the anesthesiology equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for anesthesiology equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of anesthesiology equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of anesthesiology equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to anesthesiology equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to anesthesiology equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of anesthesiology equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of anesthesiology equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to anesthesiology equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of anesthesiology equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of anesthesiology equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for anesthesiology equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy anesthesiology equipment and devices as listed in qualification file	

Elective 2: Cardiovascular equipment and devices

Module 12: Fundamental knowledge of function and operation of Cardiovascular equipment and devices

Mapped to: HSS/N5613

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Cardiovascular equipment and devices.
- Apply the principles of operation of Cardiovascular equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Cardiovascular equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Cardiovascular equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Cardiovascular equipment and devices. • Identify the circuits of Cardiovascular equipment and devices. • Identify the electronic components in the Cardiovascular equipment and devices. • Identify different types of cables and connectors used in Cardiovascular equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Cardiovascular equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Cardiovascular equipment and devices as per latest guidelines.	• Identify name and uses of all listed Cardiovascular equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Cardiovascular equipment and devices. • Prepare a chart depicting various components of the Cardiovascular equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Cardiovascular equipment and devices as listed in qualification file	

Module 13: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Cardiovascular equipment and devices

Mapped to: HSS/N5613

Terminal Outcomes:

- Perform installation and setting-up of the Cardiovascular equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Cardiovascular equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Cardiovascular equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Cardiovascular equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Cardiovascular equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Cardiovascular equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Cardiovascular equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Cardiovascular equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Cardiovascular equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Cardiovascular equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Cardiovascular equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Cardiovascular equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Cardiovascular equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Cardiovascular equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Cardiovascular equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Cardiovascular equipment and devices as listed in qualification file	

Elective 3: Cardiovascular equipment and devices

Module 14: Fundamental knowledge of the function and operation of Cardiovascular equipment and devices

Mapped to: HSS/N5614

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Cardiovascular equipment and devices.
- Apply the principles of operation of Cardiovascular equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Cardiovascular equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Cardiovascular equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Cardiovascular equipment and devices. • Identify the circuits of Cardiovascular equipment and devices. • Identify the electronic components in Cardiovascular equipment and devices. • Identify different types of cables and connectors used in Cardiovascular equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Cardiovascular equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Cardiovascular equipment and devices as per latest guidelines.	• Identify name and uses of all listed Cardiovascular equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Cardiovascular equipment and devices. • Prepare a chart depicting various components of the Cardiovascular equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Cardiovascular equipment and devices as listed in qualification file	

Module 15: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Cardiovascular equipment and devices

Mapped to: HSS/N5614

Terminal Outcomes:

- Perform installation and setting-up of the Cardiovascular equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Cardiovascular equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of Cardiovascular equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up Cardiovascular equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Cardiovascular equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Cardiovascular equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Cardiovascular equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Cardiovascular equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Cardiovascular equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Cardiovascular equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Cardiovascular equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Cardiovascular equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Cardiovascular equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Cardiovascular equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Cardiovascular equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Cardiovascular equipment and devices as listed in qualification file	

Elective 4: Dental equipment and devices

Module 16: Fundamental knowledge of function and operation of Dental equipment and devices

Mapped to: HSS/N5615

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Dental equipment and devices.
- Apply the principles of operation of Dental equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Dental equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Dental equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Dental equipment and devices. • Identify the circuits of the Dental equipment and devices. • Identify the electronic components in theDental equipment and devices. • Identify different types of cables and connectors used in Dental equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Dental equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Dental equipment and devices as per latest guidelines.	• Identify name and uses of all listed Dental equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Dental equipment and devices. • Prepare a chart depicting various components of the Dental equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Dental equipment and devices as listed in qualification file	

Module 17: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Dental equipment and devices

Mapped to: HSS/N5615

Terminal Outcomes:

- Perform installation and setting-up of the Dental equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Dental equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Dental equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Dental equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Dental equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Dental equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Dental equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Dental equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Dental equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Dental equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Dental equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Dental equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Dental equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Dental equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Dental equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Dental equipment and devices as listed in qualification file	

Elective 5: Ear, Nose, Throat (ENT) equipment and devices

Module 18: Fundamental knowledge of function and operation of Ear, Nose, Throat (ENT) equipment and devices

Mapped to: HSS/N5616

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Ear, Nose, Throat (ENT) equipment and devices.
- Apply the principles of operation of Ear, Nose, Throat (ENT) equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Ear, Nose, Throat (ENT) equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Ear, Nose, Throat (ENT) equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Ear, Nose, Throat (ENT) equipment and devices. • Identify the circuits of the Ear, Nose, Throat (ENT) equipment and devices. • Identify the electronic components in theEar, Nose, Throat (ENT) equipment and devices. • Identify different types of cables and connectors used in Ear, Nose, Throat (ENT) equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Ear, Nose, Throat (ENT) equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Ear, Nose, Throat (ENT) equipment and devices as per latest guidelines.	• Identify name and uses of all listed Ear, Nose, Throat (ENT) equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Ear, Nose, Throat (ENT) equipment and devices. • Prepare a chart depicting various components of the Ear, Nose, Throat (ENT) equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Ear, Nose, Throat (ENT) equipment and devices as listed in qualification file	

Module 19: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Ear, Nose, Throat (ENT) equipment and devices

Mapped to: HSS/N5616

Terminal Outcomes:

- Perform installation and setting-up of the Ear, Nose, Throat (ENT) equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Ear, Nose, Throat (ENT) equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Ear, Nose, Throat (ENT) equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Ear, Nose, Throat (ENT) equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Ear, Nose, Throat (ENT) equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Ear, Nose, Throat (ENT) equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Ear, Nose, Throat (ENT) equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Ear, Nose, Throat (ENT) equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Ear, Nose, Throat (ENT) equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Ear, Nose, Throat (ENT) equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Ear, Nose, Throat (ENT) equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Ear, Nose, Throat (ENT) equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Ear, Nose, Throat (ENT) equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Ear, Nose, Throat (ENT) equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Ear, Nose, Throat (ENT) equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Ear, Nose, Throat (ENT) equipment and devices as listed in qualification file	

Elective 6: Gastroenterological equipment and devices

Module 20: Fundamental knowledge of function and operation of Gastroenterological equipment and devices

Mapped to: HSS/N5617

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Gastroenterological equipment and devices.
- Apply the principles of operation of Gastroenterological equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Gastroenterological equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Gastroenterological equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Gastroenterological equipment and devices. • Identify the circuits of the Gastroenterological equipment and devices. • Identify the electronic components in the Gastroenterological equipment and devices. • Identify different types of cables and connectors used in Gastroenterological equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Gastroenterological equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Gastroenterological equipment and devices as per latest guidelines.	• Identify name and uses of all listed Gastroenterological equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Gastroenterological equipment and devices. • Prepare a chart depicting various components of the Gastroenterological equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Gastroenterological equipment and devices as listed in qualification file	

Module 21: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Gastroenterological equipment and devices

Mapped to: HSS/N5617

Terminal Outcomes:

- Perform installation and setting-up of the Gastroenterological equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Gastroenterological equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Gastroenterological equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Gastroenterological equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Gastroenterological equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Gastroenterological equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Gastroenterological equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Gastroenterological equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Gastroenterological equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Gastroenterological equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Gastroenterological equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Gastroenterological equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Gastroenterological equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Gastroenterological equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Gastroenterological equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Gastroenterological equipment and devices as listed in qualification file	

Elective 7: Urological equipment and devices

Module 22: Fundamental knowledge of function and operation of Urological equipment and devices

Mapped to: HSS/N5618

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Urological equipment and devices.
- Apply the principles of operation of Urological equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Urological equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Urological equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Urological equipment and devices. • Identify the circuits of the Urological equipment and devices. • Identify the electronic components in theUrological equipment and devices. • Identify different types of cables and connectors used in Urological equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Urological equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Urological equipment and devices as per latest guidelines.	• Identify names and uses of all listed Urological equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Urological equipment and devices. • Prepare a chart depicting various components of the Urological equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Urological equipment and devices as listed in qualification file	

Module 23: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Urological equipment and devices

Mapped to: HSS/N5618

Terminal Outcomes:

- Perform installation and setting-up of the Urological equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Urological equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Urological equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Urological equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Urological equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Urological equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Urological equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Urological equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Urological equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Urological equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Urological equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Urological equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Urological equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Urological equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Urological equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Urological equipment and devices as listed in qualification file	

Elective 8: General Hospital equipment and devices

Module 24: Fundamental knowledge of function and operation of General Hospital equipment and devices

Mapped to: HSS/N5619

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the General Hospital equipment and devices.
- Apply the principles of operation of General Hospital equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of General Hospital equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all General Hospital equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of General Hospital equipment and devices. • Identify the circuits of the General Hospital equipment and devices. • Identify the electronic components in theGeneral Hospital equipment and devices. • Identify different types of cables and connectors used in General Hospital equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the General Hospital equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of General Hospital equipment and devices as per latest guidelines.	• Identify name and uses of all listed General Hospital equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof General Hospital equipment and devices. • Prepare a chart depicting various components of the General Hospital equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy General Hospital equipment and devices as listed in qualification file	

Module 25: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for General Hospital equipment and devices

Mapped to: HSS/N5619

Terminal Outcomes:

- Perform installation and setting-up of the General Hospital equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of General Hospital equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the General Hospital equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the General Hospital equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for General Hospital equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of General Hospital equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of General Hospital equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to General Hospital equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to General Hospital equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of General Hospital equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of General Hospital equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to General Hospital equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of General Hospital equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of General Hospital equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for General Hospital equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy General Hospital equipment and devices as listed in qualification file	

Elective 9: Operation Theatre (OT) equipment and devices

Module 26: Fundamental knowledge of function and operation of Operation Theatre (OT) equipment and devices

Mapped to: HSS/N5620

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Operation Theatre (OT) equipment and devices.
- Apply the principles of operation of Operation Theatre (OT) equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Operation Theatre (OT) equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Operation Theatre (OT) equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Operation Theatre (OT) equipment and devices. • Identify the circuits of the Operation Theatre (OT) equipment and devices. • Identify the electronic components in theOperation Theatre (OT) equipment and devices. • Identify different types of cables and connectors used in Operation Theatre (OT) equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Operation Theatre (OT) equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Operation Theatre (OT) equipment and devices as per latest guidelines.	• Identify name and uses of all listed Operation Theatre (OT) equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Operation Theatre (OT) equipment and devices. • Prepare a chart depicting various components of the Operation Theatre (OT) equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Operation Theatre (OT) equipment and devices as listed in qualification file	

Module 27: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Operation Theatre (OT) equipment and devices

Mapped to: HSS/N5620

Terminal Outcomes:

- Perform installation and setting-up of the Operation Theatre (OT) equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Operation Theatre (OT) equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Operation Theatre (OT) equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Operation Theatre (OT) equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Operation Theatre (OT) equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Operation Theatre (OT) equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Operation Theatre (OT) equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Operation Theatre (OT) equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Operation Theatre (OT) equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Operation Theatre (OT) equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Operation Theatre (OT) equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Operation Theatre (OT) equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Operation Theatre (OT) equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Operation Theatre (OT) equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Operation Theatre (OT) equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Operation Theatre (OT) equipment and devices as listed in qualification file	

Elective 10: Respiratory equipment and devices

Module 28: Fundamental knowledge of function and operation of Respiratory equipment and devices

Mapped to: HSS/N5621

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Respiratory equipment and devices.
- Apply the principles of operation of Respiratory equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Respiratory equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Respiratory equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Respiratory equipment and devices. • Identify the circuits of the Respiratory equipment and devices. • Identify the electronic components in theRespiratory equipment and devices. • Identify different types of cables and connectors used in Respiratory equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Respiratory equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Respiratory equipment and devices as per latest guidelines.	• Identify name and uses of all listed Respiratory equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Respiratory equipment and devices. • Prepare a chart depicting various components of the Respiratory equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Respiratory equipment and devices as listed in qualification file	

Module 29: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Respiratory equipment and devices

Mapped to: HSS/N5621

Terminal Outcomes:

- Perform installation and setting-up of the Respiratory equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Respiratory equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Respiratory equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Respiratory equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Respiratory equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Respiratory equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Respiratory equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Respiratory equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Respiratory equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Respiratory equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Respiratory equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Respiratory equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Respiratory equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Respiratory equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Respiratory equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Respiratory equipment and devices as listed in qualification file	

Elective 11: Neurological equipment and devices

Module 30: Fundamental knowledge of function and operation of Neurological equipment and devices

Mapped to: HSS/N5622

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Neurological equipment and devices.
- Apply the principles of operation of Neurological equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Neurological equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Neurological equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Neurological equipment and devices. • Identify the circuits of the Neurological equipment and devices. • Identify the electronic components in theNeurological equipment and devices. • Identify different types of cables and connectors used in Neurological equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Neurological equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Neurological equipment and devices as per latest guidelines.	• Identify name and uses of all listed Neurological equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Neurological equipment and devices. • Prepare a chart depicting various components of the Neurological equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Neurological equipment and devices as listed in qualification file	

Module 31: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Neurological equipment and devices

Mapped to: HSS/N5622

Terminal Outcomes:

- Perform installation and setting-up of the Neurological equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Neurological equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Neurological equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Neurological equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Neurological equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Neurological equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Neurological equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Neurological equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Neurological equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Neurological equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Neurological equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Neurological equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Neurological equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Neurological equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Neurological equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Neurological equipment and devices as listed in qualification file	

Elective 12: Personnel use equipment and devices

Module 32: Fundamental knowledge of function and operation of Personnel use equipment and devices

Mapped to: HSS/N5623

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Personnel use equipment and devices.
- Apply the principles of operation of Personnel use equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Personnel use equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Personnel use equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Personnel use equipment and devices. • Identify the circuits of the Personnel use equipment and devices. • Identify the electronic components in thePersonnel use equipment and devices. • Identify different types of cables and connectors used in Personnel use equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Personnel use equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Personnel use equipment and devices as per latest guidelines.	• Identify name and uses of all listed Personnel use equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Personnel use equipment and devices. • Prepare a chart depicting various components of the Personnel use equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Personnel use equipment and devices as listed in qualification file	

Module 33: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Personnel use equipment and devices

Mapped to: HSS/N5623

Terminal Outcomes:

- Perform installation and setting-up of the Personnel use equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Personnel use equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Personnel use equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Personnel use equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Personnel use equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Personnel use equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Personnel use equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Personnel use equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Personnel use equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Personnel use equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Personnel use equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Personnel use equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Personnel use equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Personnel use equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Personnel use equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Personnel use equipment and devices as listed in qualification file	

Elective 13: Obstetrical and Gynaecological (OG) equipment and devices

Module 34: Fundamental knowledge of function and operation of Obstetrical and Gynaecological (OG) equipment and devices

Mapped to: HSS/N5624

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Obstetrical and Gynaecological (OG) equipment and devices.
- Apply the principles of operation of Obstetrical and Gynaecological (OG) equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Obstetrical and Gynaecological (OG) equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Obstetrical and Gynaecological (OG) equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Obstetrical and Gynaecological (OG) equipment and devices. • Identify the circuits of the Obstetrical and Gynaecological (OG) equipment and devices. • Identify the electronic components in theObstetrical and Gynaecological (OG) equipment and devices. • Identify different types of cables and connectors used in Obstetrical and Gynaecological (OG) equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Obstetrical and Gynaecological (OG) equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Obstetrical and Gynaecological (OG) equipment and devices as per latest guidelines.	• Identify name and uses of all listed Obstetrical and Gynaecological (OG) equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Obstetrical and Gynaecological (OG) equipment and devices. • Prepare a chart depicting various components of the Obstetrical and Gynaecological (OG) equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Obstetrical and Gynaecological (OG) equipment and devices as listed in qualification file	

Module 35: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Obstetrical and Gynaecological (OG) equipment and devices

Mapped to: HSS/N5624

Terminal Outcomes:

- Perform installation and setting-up of the Obstetrical and Gynaecological (OG) equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Obstetrical and Gynaecological (OG) equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Obstetrical and Gynaecological (OG) equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Obstetrical and Gynaecological (OG) equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Obstetrical and Gynaecological (OG) equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Obstetrical and Gynaecological (OG) equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Obstetrical and Gynaecological (OG) equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Obstetrical and Gynaecological (OG) equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Obstetrical and Gynaecological (OG) equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Obstetrical and Gynaecological (OG) equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Obstetrical and Gynaecological (OG) equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Obstetrical and Gynaecological (OG) equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Obstetrical and Gynaecological (OG) equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Obstetrical and Gynaecological (OG) equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Obstetrical and Gynaecological (OG) equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Obstetrical and Gynaecological (OG) equipment and devices as listed in qualification file	

Elective 14: Ophthalmic equipment and devices

Module 36: Fundamental knowledge of function and operation of Ophthalmic equipment and devices

Mapped to: HSS/N5625

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Ophthalmic equipment and devices.
- Apply the principles of operation of Ophthalmic equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Ophthalmic equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Ophthalmic equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Ophthalmic equipment and devices. • Identify the circuits of the Ophthalmic equipment and devices. • Identify the electronic components in theOphthalmic equipment and devices. • Identify different types of cables and connectors used in Ophthalmic equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Ophthalmic equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Ophthalmic equipment and devices as per latest guidelines.	• Identify name and uses of all listed Ophthalmic equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Ophthalmic equipment and devices. • Prepare a chart depicting various components of the Ophthalmic equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Ophthalmic equipment and devices as listed in qualification file	

Module 37: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Ophthalmic equipment and devices

Mapped to: HSS/N5625

Terminal Outcomes:

- Perform installation and setting-up of the Ophthalmic equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Ophthalmic equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Ophthalmic equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Ophthalmic equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Ophthalmic equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Ophthalmic equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Ophthalmic equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Ophthalmic equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Ophthalmic equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Ophthalmic equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Ophthalmic equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Ophthalmic equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Ophthalmic equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Ophthalmic equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Ophthalmic equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Ophthalmic equipment and devices as listed in qualification file	

Elective 15: Rehabilitation equipment and devices

Module 38: Fundamental knowledge of function and operation of Rehabilitation equipment and devices

Mapped to: HSS/N5626

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Rehabilitation equipment and devices.
- Apply the principles of operation of Rehabilitation equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Rehabilitation equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Rehabilitation equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Rehabilitation equipment and devices. • Identify the circuits of the Rehabilitation equipment and devices. • Identify the electronic components in the Rehabilitation equipment and devices. • Identify different types of cables and connectors used in Rehabilitation equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Rehabilitation equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Rehabilitation equipment and devices as per latest guidelines.	• Identify name and uses of all listed Rehabilitation equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Rehabilitation equipment and devices. • Prepare a chart depicting various components of the Rehabilitation equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Rehabilitation equipment and devices as listed in qualification file	

Module 39: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Rehabilitation equipment and devices

Mapped to: HSS/N5626

Terminal Outcomes:

- Perform installation and setting-up of the Rehabilitation equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Rehabilitation equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Rehabilitation equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Rehabilitation equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Rehabilitation equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Rehabilitation equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Rehabilitation equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Rehabilitation equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Rehabilitation equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Rehabilitation equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Rehabilitation equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Rehabilitation equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Rehabilitation equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Rehabilitation equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Rehabilitation equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Rehabilitation equipment and devices as listed in qualification file	

Elective 16: Physical support equipment and devices

Module 40: Fundamental knowledge of function and operation of Physical support equipment and devices

Mapped to: HSS/N5627

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Physical support equipment and devices.
- Apply the principles of operation of Physical support equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Physical support equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Physical support equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Physical support equipment and devices. • Identify the circuits of the Physical support equipment and devices. • Identify the electronic components in thePhysical support equipment and devices. • Identify different types of cables and connectors used in Physical support equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Physical support equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Physical support equipment and devices as per latest guidelines.	• Identify name and uses of all listed Physical support equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Physical support equipment and devices. • Prepare a chart depicting various components of the Physical support equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Physical support equipment and devices as listed in qualification file	

Module 41: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Physical support equipment and devices

Mapped to: HSS/N5627

Terminal Outcomes:

- Perform installation and setting-up of the Physical support equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Physical support equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Physical support equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Physical support equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Physical support equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Physical support equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Physical support equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Physical support equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Physical support equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Physical support equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Physical support equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Physical support equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Physical support equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Physical support equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Physical support equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Physical support equipment and devices as listed in qualification file	

Elective 17: Interventional and Radiology equipment and devices

Module 42: Fundamental knowledge of function and operation of Interventional and Radiology equipment and devices

Mapped to: HSS/N5628

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Interventional and Radiology equipment and devices.
- Apply the principles of operation of Interventional and Radiology equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Interventional and Radiology equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Interventional and Radiology equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Interventional and Radiology equipment and devices. • Identify the circuits of the Interventional and Radiology equipment and devices. • Identify the electronic components in the Interventional and Radiology equipment and devices. • Identify different types of cables and connectors used in Interventional and Radiology equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Interventional and Radiology equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Interventional and Radiology equipment and devices as per latest guidelines.	• Identify name and uses of all listed Interventional and Radiology equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Interventional and Radiology equipment and devices. • Prepare a chart depicting various components of the Interventional and Radiology equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Interventional and Radiology equipment and devices as listed in qualification file	

Module 43: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Interventional and Radiology equipment and devices

Mapped to: HSS/N5628

Terminal Outcomes:

- Perform installation and setting-up of the Interventional and Radiology equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Interventional and Radiology equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Interventional and Radiology equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Interventional and Radiology equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Interventional and Radiology equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Interventional and Radiology equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Interventional and Radiology equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Interventional and Radiology equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Interventional and Radiology equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Interventional and Radiology equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Interventional and Radiology equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Interventional and Radiology equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Interventional and Radiology equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Interventional and Radiology equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Interventional and Radiology equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Interventional and Radiology equipment and devices as listed in qualification file	

Elective 18: Rheumatology equipment and devices

Module 44: Fundamental knowledge of function and operation of Rheumatology equipment and devices

Mapped to: HSS/N5629

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Rheumatology equipment and devices.
- Apply the principles of operation of Rheumatology equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Rheumatology equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Rheumatology equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Rheumatology equipment and devices. • Identify the circuits of the Rheumatology equipment and devices. • Identify the electronic components in the Rheumatology equipment and devices. • Identify different types of cables and connectors used in Rheumatology equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Rheumatology equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Rheumatology equipment and devices as per latest guidelines.	• Identify name and uses of all listed Rheumatology equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Rheumatology equipment and devices. • Prepare a chart depicting various components of the Rheumatology equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Rheumatology equipment and devices as listed in qualification file	

Module 45: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Rheumatology equipment and devices

Mapped to: HSS/N5629

Terminal Outcomes:

- Perform installation and setting-up of the Rheumatology equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Rheumatology equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Rheumatology equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Rheumatology equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Rheumatology equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Rheumatology equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Rheumatology equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Rheumatology equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Rheumatology equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Rheumatology equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Rheumatology equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Rheumatology equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Rheumatology equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Rheumatology equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Rheumatology equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Rheumatology equipment and devices as listed in qualification file	

Elective 19: Dermatology and Plastic Surgery equipment and devices

Module 46: Fundamental knowledge of function and operation of Dermatology and Plastic Surgery equipment and devices

Mapped to: HSS/N5630

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Dermatology and Plastic Surgery equipment and devices.
- Apply the principles of operation of Dermatology and Plastic Surgery equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Dermatology and Plastic Surgery equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Dermatology and Plastic Surgery equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Dermatology and Plastic Surgery equipment and devices. • Identify the circuits of the Dermatology and Plastic Surgery equipment and devices. • Identify the electronic components in theDermatology and Plastic Surgery equipment and devices. • Identify different types of cables and connectors used in Dermatology and Plastic Surgery equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Dermatology and Plastic Surgery equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Dermatology and Plastic Surgery equipment and devices as per latest guidelines.	• Identify name and uses of all listed Dermatology and Plastic Surgery equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Dermatology and Plastic Surgery equipment and devices. • Prepare a chart depicting various components of the Dermatology and Plastic Surgery equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Dermatology and Plastic Surgery equipment and devices as listed in qualification file	

Module 47: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Dermatology and Plastic Surgery equipment and devices

Mapped to: HSS/N5630

Terminal Outcomes:

- Perform installation and setting-up of the Dermatology and Plastic Surgery equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Dermatology and Plastic Surgery equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Dermatology and Plastic Surgery equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Dermatology and Plastic Surgery equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Dermatology and Plastic Surgery equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Dermatology and Plastic Surgery equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Dermatology and Plastic Surgery equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Dermatology and Plastic Surgery equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Dermatology and Plastic Surgery equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Dermatology and Plastic Surgery equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Dermatology and Plastic Surgery equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Dermatology and Plastic Surgery equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Dermatology and Plastic Surgery equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Dermatology and Plastic Surgery equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Dermatology and Plastic Surgery equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Dermatology and Plastic Surgery equipment and devices as listed in qualification file	

Elective 20: Paediatric and Neonatology Medical equipment and devices

Module 48: Fundamental knowledge of function and operation of Paediatric and Neonatology Medical equipment and devices

Mapped to: HSS/N5631

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Paediatric and Neonatology Medical equipment and devices.
- Apply the principles of operation of Paediatric and Neonatology Medical equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Paediatric and Neonatology Medical equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Paediatric and Neonatology Medical equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Paediatric and Neonatology Medical equipment and devices. • Identify the circuits of the Paediatric and Neonatology Medical equipment and devices. • Identify the electronic components in thePaediatric and Neonatology Medical equipment and devices. • Identify different types of cables and connectors used in Paediatric and Neonatology Medical equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Paediatric and Neonatology Medical equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Paediatric and Neonatology Medical equipment and devices as per latest guidelines.	• Identify name and uses of all listed Paediatric and Neonatology Medical equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Paediatric and Neonatology Medical equipment and devices. • Prepare a chart depicting various components of the Paediatric and Neonatology Medical equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Paediatric and Neonatology Medical equipment and devices as listed in qualification file	

Module 49: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Paediatric and Neonatology Medical equipment and devices

Mapped to: HSS/N5631

Terminal Outcomes:

- Perform installation and setting-up of the Paediatric and Neonatology Medical equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Paediatric and Neonatology Medical equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Paediatric and Neonatology Medical equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Paediatric and Neonatology Medical equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Paediatric and Neonatology Medical equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Paediatric and Neonatology Medical equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Paediatric and Neonatology Medical equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Paediatric and Neonatology Medical equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Paediatric and Neonatology Medical equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Paediatric and Neonatology Medical equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Paediatric and Neonatology Medical equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Paediatric and Neonatology Medical equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Paediatric and Neonatology Medical equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Paediatric and Neonatology Medical equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Paediatric and Neonatology Medical equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Paediatric and Neonatology Medical equipment and devices as listed in qualification file	

Elective 21: Oncology equipment and devices

Module 50: Fundamental knowledge of function and operation of Oncology equipment and devices

Mapped to: HSS/N5632

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Oncology equipment and devices.
- Apply the principles of operation of Oncology equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Oncology equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Oncology equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Oncology equipment and devices. • Identify the circuits of the Oncology equipment and devices. • Identify the electronic components in theOncology equipment and devices. • Identify different types of cables and connectors used in Oncology equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Oncology equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Oncology equipment and devices as per latest guidelines.	• Identify name and uses of all listed Oncology equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Oncology equipment and devices. • Prepare a chart depicting various components of the Oncology equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Oncology equipment and devices as listed in qualification file	

Module 51: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Oncology equipment and devices

Mapped to: HSS/N5632

Terminal Outcomes:

- Perform installation and setting-up of the Oncology equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Oncology equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Oncology equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Oncology equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Oncology equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Oncology equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Oncology equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Oncology equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Oncology equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Oncology equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Oncology equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Oncology equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Oncology equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Oncology equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Oncology equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Oncology equipment and devices as listed in qualification file	

Elective 22: Radiotherapy equipment and devices

Module 52: Fundamental knowledge of function and operation of Radiotherapy equipment and devices

Mapped to: HSS/N5633

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Radiotherapy equipment and devices.
- Apply the principles of operation of Radiotherapy equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Radiotherapy equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Radiotherapy equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Radiotherapy equipment and devices. • Identify the circuits of the Radiotherapy equipment and devices. • Identify the electronic components in the Radiotherapy equipment and devices. • Identify different types of cables and connectors used in Radiotherapy equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Radiotherapy equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Radiotherapy equipment and devices as per latest guidelines.	• Identify name and uses of all listed Radiotherapy equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Radiotherapy equipment and devices. • Prepare a chart depicting various components of the Radiotherapy equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Radiotherapy equipment and devices as listed in qualification file	

Module 53: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Radiotherapy equipment and devices

Mapped to: HSS/N5633

Terminal Outcomes:

- Perform installation and setting-up of the Radiotherapy equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Radiotherapy equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Radiotherapy equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Radiotherapy equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Radiotherapy equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Radiotherapy equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Radiotherapy equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Radiotherapy equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Radiotherapy equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Radiotherapy equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Radiotherapy equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Radiotherapy equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Radiotherapy equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Radiotherapy equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Radiotherapy equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Radiotherapy equipment and devices as listed in qualification file	

Elective 23: Nephrology and Renal care equipment and devices

Module 54: Fundamental knowledge of function and operation of Nephrology and Renal care equipment and devices

Mapped to: HSS/N5634

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Nephrology and Renal care equipment and devices.
- Apply the principles of operation of Nephrology and Renal care equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Nephrology and Renal care equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Nephrology and Renal care equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Nephrology and Renal care equipment and devices. • Identify the circuits of the Nephrology and Renal care equipment and devices. • Identify the electronic components in theNephrology and Renal care equipment and devices. • Identify different types of cables and connectors used in Nephrology and Renal care equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Nephrology and Renal care equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Nephrology and Renal care equipment and devices as per latest guidelines.	• Identify name and uses of all listed Nephrology and Renal care equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Nephrology and Renal care equipment and devices. • Prepare a chart depicting various components of the Nephrology and Renal care equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Nephrology and Renal care equipment and devices as listed in qualification file	

Module 55: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Nephrology and Renal care equipment and devices

Mapped to: HSS/N5634

Terminal Outcomes:

- Perform installation and setting-up of the Nephrology and Renal care equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Nephrology and Renal care equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Nephrology and Renal care equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Nephrology and Renal care equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Nephrology and Renal care equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Nephrology and Renal care equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Nephrology and Renal care equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Nephrology and Renal care equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Nephrology and Renal care equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Nephrology and Renal care equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Nephrology and Renal care equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Nephrology and Renal care equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Nephrology and Renal care equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Nephrology and Renal care equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Nephrology and Renal care equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Nephrology and Renal care equipment and devices as listed in qualification file	

Elective 24: In-Vitro Diagnostics (IVD) devices

Module 56: Fundamental knowledge of function and operation of In-Vitro Diagnostics devices

Mapped to: HSS/N5635

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the In-Vitro Diagnostics devices.
- Apply the principles of operation of In-Vitro Diagnostics devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**

• List the various categories of In-Vitro Diagnostics (IVD) devices (analyzers and instruments):
  ○ Clinical chemistry
  ○ Hematology
  ○ Immunology
  ○ Microbiology
  ○ Toxicology
• List the various types of In-Vitro Diagnostics devices required in the healthcare settings.
• Discuss the basic features, specifications, functioning, risk category and operation of all In-Vitro Diagnostics devices listed as per the latest guidelines.
• List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of In-Vitro Diagnostics devices.
• Identify the circuits of the In-Vitro Diagnostics devices.
• Identify the electronic components in theIn-Vitro Diagnostics devices.
• Identify different types of cables and connectors used in In-Vitro Diagnostics devices.
• Identify the types of socket outlets, plugs and wiring of sockets and plugs in the In-Vitro Diagnostics devices.
• Keep abreast of the latest technology or new medical equipment/device under category of In-Vitro Diagnostics devices as per latest guidelines.
	• Identify name and uses of all listed In-Vitro Diagnostics devices as per latest guidelines.
	• Demonstrate the basic functioning and operationof In-Vitro Diagnostics devices.
	• Prepare a chart depicting various components of the In-Vitro Diagnostics devices.

Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy In-Vitro Diagnostics devices as listed in qualification file	

Module 57: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for In-Vitro Diagnostics devices

Mapped to: HSS/N5635

Terminal Outcomes:

- Perform installation and setting-up of the In-Vitro Diagnostics devices.
- Maintain defined periodicity of calibration, repair and maintenance of In-Vitro Diagnostics devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the In-Vitro Diagnostics devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the In-Vitro Diagnostics devices. • Discuss specific points to remember for calibration and maintenance checklist for In-Vitro Diagnostics devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of In-Vitro Diagnostics devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of In-Vitro Diagnostics devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to In-Vitro Diagnostics devices. • Discuss the escalation matrix to handle safety hazards with respect to In-Vitro Diagnostics devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of In-Vitro Diagnostics devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of In-Vitro Diagnostics devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to In-Vitro Diagnostics devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of In-Vitro Diagnostics devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of In-Vitro Diagnostics devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for In-Vitro Diagnostics devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy In-Vitro Diagnostics devices as listed in qualification file	

Elective 25: Ambulance equipment and devices

Module 58: Fundamental knowledge of function and operation of Ambulance equipment and devices

Mapped to: HSS/N5636

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Ambulance equipment and devices.
- Apply the principles of operation of Ambulance equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Ambulances and types of Ambulance equipment and devices required in each type of ambulance. • Discuss the basic features, specifications, functioning, risk category and operation of all Ambulance equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Ambulance equipment and devices. • Identify the circuits of the Ambulance equipment and devices. • Identify the electronic components in theAmbulance equipment and devices. • Identify different types of cables and connectors used in Ambulance equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the Ambulance equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of Ambulance equipment and devices as per latest guidelines.	• Identify name and uses of all listed Ambulance equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof Ambulance equipment and devices. • Prepare a chart depicting various components of the Ambulance equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Ambulance equipment and devices as listed in qualification file	

Module 59: Fundamentals on installation, set-up, repair, maintenance, calibration and biomedical instrumentation services for Ambulance equipment and devices

Mapped to: HSS/N5636

Terminal Outcomes:

- Perform installation and setting-up of the Ambulance equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of Ambulance equipment and devices.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Ambulance equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Ambulance equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for Ambulance equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Ambulance equipment and devices as per policies, regulations and specifications. • Discuss basic breakdown states of ambulance and how to quickly perform basic repair. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Ambulance equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Ambulance equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to Ambulance equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Ambulance equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Ambulance equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Ambulance equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Ambulance equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Ambulance equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Ambulance equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Ambulance equipment and devices as listed in qualification file	

Elective 26: Medical software

Module 60: Fundamental knowledge of the function and operation of Medical software

Mapped to: HSS/N5637

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the Medical software.
- Apply the principles of operation of Medical software during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of Medical software required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all Medical software listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of Medical software. • Identify the various components of the Medical software. • Keep abreast of the latest technology or new medical equipment/device under category of Medical software as per latest guidelines.	• Identify name and uses of all listed Medical software as per latest guidelines. • Demonstrate the basic functioning and operationof Medical software. • Prepare a chart depicting various components of the Medical software.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Medical software as listed in qualification file	

Module 61: Fundamentals on installation, set-up, repair, maintenance, calibration and services for medical software

Mapped to: HSS/N5637

Terminal Outcomes:

- Perform installation and setting-up of the medical software.
- Maintain defined periodicity of calibration, repair and maintenance of Medical software.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the Medical software on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the Medical software. • Discuss specific points to remember for calibration and maintenance checklist for Medical software. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of Medical software as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of Medical software. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to Medical software. • Discuss the escalation matrix to handle safety hazards with respect to Medical software. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of Medical software.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of Medical software indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to Medical software. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of Medical software using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of Medical software in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for Medical software.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy Medical software as listed in qualification file	

Elective 27: CSSD equipment and devices

Module 62: Fundamental knowledge of the function and operation of CSSD and Mechanized Laundry Units equipment and devices

Mapped to: HSS/N5638

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the CSSD and Mechanized Laundry Units equipment and devices.
- Apply the principles of operation of CSSD and Mechanized Laundry Units equipment and devices during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of CSSD and Mechanized Laundry Units equipment and devices required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all CSSD equipment and devices listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of CSSD equipment and devices. • Identify the circuits of the CSSD equipment and devices. • Identify the electronic components in theCSSD equipment and devices. • Identify different types of cables and connectors used in CSSD equipment and devices. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the CSSD equipment and devices. • Keep abreast of the latest technology or new medical equipment/device under category of CSSD equipment and devices as per latest guidelines.	• Identify name and uses of all listed CSSD equipment and devices as per latest guidelines. • Demonstrate the basic functioning and operationof CSSD equipment and devices. • Prepare a chart depicting various components of the CSSD equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy CSSD equipment and devices as listed in qualification file	

Module 63: Fundamentals on installation, set-up, repair, maintenance, calibration and services for CSSD and Mechanized Laundry Units equipment and devices

Mapped to: HSS/N5638

Terminal Outcomes:

- Perform installation and setting-up of the CSSD and Mechanized Laundry Units equipment and devices.
- Maintain defined periodicity of calibration, repair and maintenance of CSSD and Mechanized Laundry Units equipment and devices
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *10:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the CSSD equipment and devices on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the CSSD equipment and devices. • Discuss specific points to remember for calibration and maintenance checklist for CSSD equipment and devices. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair CSSD equipment and devices as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of CSSD equipment and devices. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to CSSD equipment and devices. • Discuss the escalation matrix to handle safety hazards with respect to CSSD equipment and devices. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of CSSD equipment and devices.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of CSSD equipment and devices indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to CSSD equipment and devices. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of CSSD equipment and devices using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of CSSD equipment and devices in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for CSSD equipment and devices.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy CSSD equipment and devices as listed in qualification file	

Elective 28: PSA Based Oxygen plants & Medical Gas Pipeline Systems

Module 64: Fundamental knowledge of the function and operation of PSA Based Oxygen plants & Medical Gas Pipeline Systems

Mapped to: HSS/N5639

Terminal Outcomes:

- Differentiate between normal and abnormal functioning of the PSA Based Oxygen plants & Medical Gas Pipeline Systems.
- Apply the principles of operation of PSA Based Oxygen plants & Medical Gas Pipeline Systems during their inspection, performance evaluation, calibration, testing, etc.

Duration: *20:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of PSA Based Oxygen plants & Medical Gas Pipeline Systems required in the healthcare settings. • Discuss the basic features, specifications, functioning, risk category and operation of all PSA Based Oxygen plants & Medical Gas Pipeline Systems listed as per the latest guidelines. • List all possible spare parts, tools, different types of resources, and regulatory requirements for successful installation and operation of PSA Based Oxygen plants & Medical Gas Pipeline Systems. • Identify the circuits of the PSA Based Oxygen plants & Medical Gas Pipeline Systems. • Identify the electronic components in thePSA Based Oxygen plants & Medical Gas Pipeline Systems. • Identify different types of cables and connectors used in PSA Based Oxygen plants & Medical Gas Pipeline Systems. • Identify the types of socket outlets, plugs and wiring of sockets and plugs in the PSA Based Oxygen plants & Medical Gas Pipeline Systems. • Keep abreast of the latest technology or new medical equipment/device under category of PSA Based Oxygen plants & Medical Gas Pipeline Systems as per latest guidelines.	• Identify name and uses of all listed PSA Based Oxygen plants & Medical Gas Pipeline Systems as per latest guidelines. • Demonstrate the basic functioning and operationof PSA Based Oxygen plants & Medical Gas Pipeline Systems. • Prepare a chart depicting various components of the PSA Based Oxygen plants & Medical Gas Pipeline Systems.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy PSA Based Oxygen plants & Medical Gas Pipeline Systems as listed in qualification file	

Module 65: Fundamentals on installation, set-up, repair, maintenance, calibration and services for PSA Based Oxygen plants & Medical Gas Pipeline Systems

Mapped to: HSS/N5639

Terminal Outcomes:

- Perform installation and setting-up of the PSA Based Oxygen plants & Medical Gas Pipeline Systems.
- Maintain defined periodicity of calibration, repair and maintenance of PSA Based Oxygen plants & Medical Gas Pipeline Systems.
- Carry out activities in compliance with all relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies.

Duration: *25:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss steps of procurement of the PSA Based Oxygen plants & Medical Gas Pipeline Systems on a qualitative, reasonable, timely and priority basis as per the consumer demand/specifications. • Discuss ways of finding the best possible manufactures, vendors, suppliers, service providers and third-party interface for procurement and set up the PSA Based Oxygen plants & Medical Gas Pipeline Systems. • Discuss specific points to remember for calibration and maintenance checklist for PSA Based Oxygen plants & Medical Gas Pipeline Systems. • Discuss necessary documentation required for each step, each person and each stakeholder involved in successful installation, calibration, preventive maintenance, technical assistance and repair of PSA Based Oxygen plants & Medical Gas Pipeline Systems as per policies, regulations and specifications. • State the relevant laws, regulations, and codes for technology and technical safety laid down by regulatory bodies for setting up and operationalization of PSA Based Oxygen plants & Medical Gas Pipeline Systems. • Identify specific safety hazards, troubleshooting techniques and the corrective measures to be taken with respect to PSA Based Oxygen plants & Medical Gas Pipeline Systems. • Discuss the escalation matrix to handle safety hazards with respect to PSA Based Oxygen plants & Medical Gas Pipeline Systems. • Discuss the standard biological precautions to be taken during diagnosis, repair, calibration and final testing/ verification of PSA Based Oxygen plants & Medical Gas Pipeline Systems.	• Prepare a work-plan for the installation, calibration, preventive maintenance, technical assistance and repair of PSA Based Oxygen plants & Medical Gas Pipeline Systems indicating the deliverables, timelines, requisites, involved personnel, supportive equipment, tools, resources, and regulatory pre-requisites. • Prepare a sample work order depicting various specifications related to PSA Based Oxygen plants & Medical Gas Pipeline Systems. • Demonstrate the basic steps involved in facilitating periodic calibration, repair, maintenance and troubleshooting of PSA Based Oxygen plants & Medical Gas Pipeline Systems using the sample service manuals and circuit diagrams. • Demonstrate basic steps for facilitating the delivery, installation and set-up of PSA Based Oxygen plants & Medical Gas Pipeline Systems in mock set-up. • Perform a role play demonstrating post-installation instructions and user maintenance checklist for PSA Based Oxygen plants & Medical Gas Pipeline Systems.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, White-Board/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Dummy PSA Based Oxygen plants & Medical Gas Pipeline Systems as listed in qualification file	

Mandatory Duration: *60:00*	
Module Name: On-the-Job Training 90 hours **Location: On Site**	
Terminal Outcomes • Orientation to different departments in Hospital • Identify different types of medical instruments and equipment and its components, circuit, cables, connectors, PCB, etc. and the tool kit to be used for its repair and maintenance • Clinical use and principle of operation of different types and models of basic clinical equipment. • Hands-on experience in installation, set-up, operation, routine maintenance, internal components and functional verification testing, and demonstration of Cleaning and safety measures, Features and Setup of equipment's and its routine use to hospital staff • Information to hospital staff about use of equipment with respect to risk factor associated with the use of equipment, complexity, manufacturer's instruction and specification, effective use of instruments. • Demonstration of documentation and recording of equipments to hospital staff with data entry as per protocols: reading of instrument/equipment, recording and record maintenance • Follow self and scene safety measures while responding to an emergency • Demonstrate skills of coordination with local emergency agencies and bystanders for help during an emergency situation. • Demonstrate Cardio Pulmonary Resuscitation (CPR). • Demonstrate handling of waste through its segregation in different coloured dustbin. • Demonstrate spillage management with 1% hypochlorite solution.	

Each Elective

Mandatory Duration: *30:00*	Recommended Duration: *00:00*
Module Name: On-the-Job Training **Location: On Site**	
Terminal Outcomes • provide, or coordinate the provision of, appropriate information related to the set-up, features, routine use, trouble shooting, cleaning, and maintenance of all equipment provided • provide relevant information and/or instructions about infection control issues related to the use of all equipment provided • ensure that the hospital staff can use all equipment provided safely and effectively • make sure training and instructions provided to the hospital staff shall be commensurate with the risks, complexity, and manufacturer's instructions and/or specifications for the equipment • document all training and communication in the providers record, including the date, time, and signature of the person providing the service • demonstrate installation, set-up, operation, calibration, maintenance, internal components and functional verification testing of all equipment provided	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
B.E./B.Tech.	Bio-medical Engineer	1				
B.Sc.	Bio-medical Instrumentation	2				
B.E./B.Tech.	Electrical/ Mechanical Engineering	3	Biomedical instrumentation			

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Biomedical Equipment Assistant" mapped to QP: "HSS/Q5601 v4.0" with minimum score of 80%.	Recommended that the Trainer is certified for the Job Role: "Trainer (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2601, v2.0" with minimum score of 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
B.E./B.Tech.	Bio-medical Engineer	2		1		
B.Sc.	Bio-medical Instrumentation	3		1		
B.E./B.Tech.	Electrical/ Mechanical Engineering	4	Biomedical instrumentation	1		

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Medical Equipment Assistant" mapped to QP: "HSS/Q5601 v4.0" with minimum score of 80%.	Recommended that the Assessor is certified for the Job Role: "Assessor (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2701, v2.0" with minimum score of 80%.

Assessment Strategy

The emphasis is on 'learning-by-doing' and practical demonstration of skills and knowledge based on the performance criteria. Accordingly, assessment criteria for each job role is set and made available in qualification pack.

The assessment papers for both theory and practical would be developed by Subject Matter Experts (SME) hired by Healthcare Sector Skill Council or with the HSSC accredited Assessment Agency as per the assessment criteria mentioned in the Qualification Pack. The assessments papers would also be checked for the various outcome-based parameters such as quality, time taken, precision, tools and equipment requirement etc.

Each NOS in the Qualification Pack (QP) is assigned a relative weightage for assessment based on the criticality of the NOS. Therein each Element/Performance Criteria in the NOS is assigned marks on relative importance, criticality of function and training infrastructure.

The following tools would be used for final assessment:

1. Practical Assessment: This comprises of a creation of mock environment in the skill lab which is equipped with all equipment required for the qualification pack.

Candidate's soft skills, communication, aptitude, safety consciousness, quality consciousness etc. is ascertained by observation and marked in observation checklist. The outcome is measured against the specified dimensions and standards to gauge the level of their skill achievements.

2. Viva/Structured Interview: This tool is used to assess the conceptual understanding and the behavioral aspects with regard to the job role and the specific task at hand. It also includes questions on safety, quality, environment and equipment etc.

3. On-Job Training: OJT would be evaluated based on standard log book capturing departments worked on, key observations of learner, feedback and remarks of supervisor or mentor.

4. Written Test: Question paper consisting of 100 MCQs (Hard:40, Medium:30 and Easy: 30) with questions from each element of each NOS. The written assessment paper is comprised of following types of questions:

i. True / False Statements
ii. Multiple Choice Questions
iii. Matching Type Questions.
iv. Fill in the blanks
v. Scenario based Questions
vi. Identification Questions

QA Regarding Assessors:

Assessors are selected as per the "eligibility criteria" laid down by HSSC for assessing each job role. The assessors selected by Assessment Agencies are scrutinized and made to undergo training and introduction to HSSC Assessment Framework, competency-based assessments, assessors guide etc. HSSC conducts "Training of Assessors" program from time to time for each job role and sensitize

assessors regarding assessment process and strategy which is outlined on following mandatory parameters:

1) Guidance regarding NSQF
2) Qualification Pack Structure
3) Guidance for the assessor to conduct theory, practical and viva assessments
4) Guidance for trainees to be given by assessor before the start of the assessments.
5) Guidance on assessments process, practical brief with steps of operations practical observation checklist and mark sheet
6) Viva guidance for uniformity and consistency across the batch.
7) Mock assessments
8) Sample question paper and practical demonstration

References

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do **upon the completion of the training**.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do **upon the completion of a module.** A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
CPR	Cardio-pulmonary Resuscitation
PPE	Personal Protective Equipment