

ANNEXURE - III

Model Curriculum - Job Code 2

Job Code: IBSC / BME / 02

Qualification Title: Certificate in Biomedical Maintenance

Occupation(s) to which the qualification give access: Senior Biomedical Engineer
/ Senior Biomedical Technician

Course Curriculum:

MT01: Healthcare Technology Problem Solving and Troubleshooting

MT02: Healthcare Safety & Standards

MT03: NABH & NABL Accreditation

MT04: Facilities / General Management

MT05: Radiation Safety

Module Overview:

MT01 Healthcare Technology Problem Solving & Troubleshooting

- Identify and resolve fault conditions of modules/subsystems including power supplies.
- Prioritize repairs of medical devices based on level of risk and/or urgency.
- Differentiate between a device error and a use error (User Training, Applications) to determine appropriate action.

Monitoring Equipment

- Differentiate between an issue with a localized monitoring device on a network and a system-wide problem.
- Identify the fault conditions and apply appropriate corrective action for monitoring systems (EtCO₂, ECG, EEG, non-invasive blood pressure, invasive blood pressure, pulse oximetry, fetal monitor, respiration).

Diagnostic Equipment

- Identify the fault conditions and apply appropriate corrective action for laboratory equipment (Centrifuges, Water Baths, Analyzers, cryostats, microtomes).
- Identify the fault conditions and apply appropriate corrective action for diagnostic equipment (otoscope, ophthalmoscope, audiometer, uroflow meter).

Therapeutic Equipment

- Identify the fault conditions and apply appropriate corrective action for infusion equipment (feeding pumps, infusion devices, syringe pumps, PCA pumps).
- Identify the fault conditions and apply appropriate corrective action for therapeutic equipment (infant warmers, ultrasound therapy, hypo/hyperthermia, aspirators, SCD, Bilirubin light, defibrillators, external pacemakers).
- Identify the fault conditions and apply appropriate corrective action for operating room equipment (electro surgical generators, video equipment, tourniquets, sterilizers, warmers).

Troubleshooting

- Electronic Component Level
- Situational (i.e. User error, user training, applications)

MT02 Healthcare Safety & Standards

- Electrical – Micro / Marco-shock, Electrical Safety Testing
- Chemical - Material Safety Data Sheet
- Biological - Universal Precautions
- Fire: Class, Fire Extinguishers
- Electromedical, Laser Safety, Low Pressure Connecting Assemblies (Medical Gases), Stability and Transport
- Biomedical Waste Management: Non-Hazardous, Hazardous (Radioactive waste, Discarded Glass, pressurized Containers, Chemical Waste, Cytotoxic Waste, Plastic Disposables, Liquid Wastes)

MT03 NABH & NABL Accreditation

- **NABH:** Access, Assessment & Continuity of Care (AAC), Care of Patients (COP), Management of Medication (MOM), Patient Rights & Education (PRE), Hospital Infection Control (HIC), Continual Quality Improvement (CQI), Responsibilities of Management (ROM), Facility management & Safety (FMS), Human Resource Management (HRM), Information Management System (IMS), Documentation Requirements & Implementation Guidelines, Accreditation Process, Final Assessment
- **NABL:** Accreditation and International dimensions, Accreditation criteria & their interpretations, Laboratory Accreditation, Process of Accreditation, NABL operations, Accreditation process & Assessment techniques

MT04 Facilities / General Management

- **Facilities:** Facility Emergency Preparedness Activates, Emergency Electrical Power, Hospital Building Plan Review, Hospital Building Design, Medical Gas System Testing, Other Facility Management Responsibilities, Facility / Utility Remediation Planning, Supervise / Manage / Direct Facilities Management
- **General:** Budget Develop / Execution, Personnel Management / Supervision, Staffing, Staff Skills / Competency Assessment, Policy / Procedure Management / Development, Performance Improvement, Business / Operation Plan Development / Management, Committee Management

MT05 Radiation Safety

- X-Ray Equipment and Production, Radiation Units for Measurement of Radioisotopes, Radiation Units for Measurement of Ionizing Radiation, Personal Maximum Permissible Doses, Proposed I.C.R.P. New Maximum Permissible Doses, Radiation Detection and Monitoring, Basic Principles of Radiation Protection, Leak Test and Storage of Radiographic Exposure Devices, Biological Effects of Ionizing Radiation, Nuclear Regulatory Commission Regulations, Documentation and Record Keeping, Transportation of Radioactive Material

Career Graph for Senior Biomedical Engineer / Senior Biomedical Technician

