Biomedical Engineering Department Management and Maintenance Training Course

20 - 24 Dec 2026

Manama

4400 € (Per Person)

Ref: #HOS2300_228138

Course Introduction / Overview:

This comprehensive training course provides a holistic framework for managing and optimizing a modern Bio-Medical Engineering department. In an era of rapidly advancing medical technology and stringent regulatory demands, effective healthcare technology management (HTM) is paramount for patient safety, operational efficiency, and financial sustainability. This program delves into the core principles of medical equipment lifecycle management, from strategic procurement and inventory control to the implementation of robust maintenance strategies. Participants will explore both corrective and preventive maintenance models, including advanced concepts like reliability-centered maintenance (RCM). The curriculum is designed to align with international standards and best practices, drawing on insights from leading academics in the field, such as Joseph F. Dyro, author of the seminal "Clinical Engineering Handbook". BIG BEN Training Center has developed this course to empower professionals with the skills to lead their departments effectively, ensuring regulatory compliance, managing budgets, and mitigating risks associated with complex medical devices. This is not just a technical course; it is a strategic management program designed to cultivate leaders who can drive excellence and innovation within their healthcare organizations, ensuring technology serves as a reliable pillar of patient care.

Target Audience / This training course is suitable for:

- Biomedical Engineers and Technicians.
- Clinical Engineering Managers and Supervisors.
- Healthcare Technology Management (HTM) Professionals.
- Hospital and Healthcare Facility Managers.
- Medical Equipment Planners and Procurement Officers.
- Quality Assurance and Regulatory Compliance Staff.
- Hospital Administrators and Operations Directors.
- Maintenance and Operations Department Heads.

Target Sectors and Industries:

- Hospitals and Medical Centers.
- Outpatient Clinics and Diagnostic Laboratories.
- Medical Device Manufacturing Companies.
- Healthcare Consulting Firms.
- Third-Party Medical Equipment Service Organizations.
- Governmental Health Ministries and Regulatory Bodies.
- Veterinary Hospitals and Clinics.
- Ambulatory Surgery Centers.

Target Organizations Departments:

- Biomedical Engineering Department.
- Clinical Engineering Department.
- Facilities Management and Maintenance.
- Procurement and Supply Chain Management.
- Hospital Administration and Operations.
- Information Technology (IT) Department.
- Quality Assurance and Patient Safety.
- Risk Management and Compliance.

Course Offerings:

By the end of this course, the participants will have able to:

- Develop and implement comprehensive maintenance strategies for diverse medical equipment.
- Master medical device lifecycle management from procurement to decommissioning.
- Utilize Computerized Maintenance Management Systems (CMMS) for enhanced tracking and efficiency.
- Conduct thorough risk assessments and implement patient safety protocols.
- Ensure departmental compliance with key regulatory standards like ISO 13485.
- Formulate capital budgets and strategic plans for medical equipment replacement.
- Manage service contracts and vendor relationships effectively.
- Lead and develop a high-performing biomedical engineering team.
- Analyze equipment failure data to improve reliability and performance.
- Integrate cybersecurity best practices for networked medical devices.
- Establish Key Performance Indicators (KPIs) to measure departmental success.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be immersive, interactive, and directly applicable to the professional environment. This course moves beyond traditional lecture-based learning by integrating a dynamic blend of expert-led presentations, in-depth case study analyses of real-world hospital scenarios, and collaborative group workshops. Participants will engage in practical exercises, such as developing a preventive maintenance schedule for an ICU or creating a risk matrix for a new diagnostic imaging system. Interactive sessions will encourage peer-to-peer learning and the sharing of diverse experiences, fostering a rich and collaborative atmosphere. We emphasize a problem-solving approach, where participants work in teams to tackle complex challenges related to budgeting, equipment failure, and regulatory audits. Continuous feedback from the instructor ensures that learning is reinforced and individual questions are addressed. The course structure is built to bridge the gap between theory and practice, equipping attendees with not just knowledge, but the confidence and skills to implement effective management and maintenance strategies immediately upon their return to the workplace.

Course Agenda (Course Units):

Unit One Foundations of Biomedical Engineering Management

- The Role and Structure of the Modern Biomedical Engineering Department.
- Core Principles of Healthcare Technology Management (HTM).
- Overview of International Regulatory Frameworks (FDA, CE, ISO 13485).
- Medical Device Classification and Nomenclature Systems.
- Ethical Considerations and Professional Responsibilities in Clinical Engineering.
- Fundamentals of Medical Device Safety and Patient Safety Goals.
- Introduction to the Medical Equipment Lifecycle.

Unit Two Strategic Maintenance Planning and Implementation

- Developing a Proactive Maintenance Program.
- Preventive vs. Predictive vs. Corrective Maintenance Strategies.
- Introduction to Reliability-Centered Maintenance (RCM) in Healthcare.
- Implementing a Total Productive Maintenance (TPM) Philosophy.
- Utilizing Computerized Maintenance Management Systems (CMMS).
- Scheduling, Work Order Management, and Documentation Best Practices.
- Performance Testing, Calibration, and Quality Control Procedures.

Unit Three Medical Equipment Asset and Technology Management

- Strategic Planning for Medical Technology Acquisition.
- Needs Assessment, Selection, and Procurement Processes.
- Effective Medical Equipment Inventory and Asset Management.
- Developing an Equipment Replacement and Decommissioning Plan.
- Capital Budgeting and Financial Planning for Technology Investments.
- Managing Service Contracts and Vendor Performance.
- Technology Assessment and Evaluating New Medical Innovations.

Unit Four Quality, Risk Management, and Regulatory Compliance

- Establishing a Quality Management System (QMS) for the Department.
- Risk Management Techniques (FMEA, Root Cause Analysis).
- Medical Device Incident Investigation and Reporting.
- Ensuring Electrical and Environmental Safety in Healthcare Facilities.
- Cybersecurity for Networked Medical Devices and Data Protection.
- Preparing for and Managing Regulatory Audits and Inspections.
- Staff Training and Competency Management Programs.

Unit Five Leadership, Strategy, and Future Trends

- Effective Leadership and Management of Technical Teams.
- Developing Departmental Policies, Procedures, and Protocols.
- Budget Management, Cost Control, and Financial Reporting.
- Measuring Departmental Performance with Key Performance Indicators (KPIs).
- Strategic Planning and Aligning Department Goals with Hospital Objectives.
- The Impact of AI, IoT, and Telehealth on Biomedical Engineering.
- Course Review, Final Project Presentations, and Action Planning.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

How can biomedical engineering departments strategically leverage data from CMMS and equipment performance to transition from a cost center to a value-generating partner in patient care and hospital finance?

What unique qualities does this course offer compared to other courses?

This training course distinguishes itself by offering a holistic, strategic-level perspective on biomedical engineering management, moving beyond the conventional focus on technical repair and maintenance protocols. While other programs may concentrate on the "how-to" of equipment servicing, this course emphasizes the "why" and "what's next" of departmental leadership. It provides a comprehensive framework that integrates technical expertise with critical management disciplines, including financial planning, risk management, regulatory compliance, and strategic leadership. The curriculum is uniquely designed to address the convergence of technology, patient safety, and business operations within a healthcare setting. By incorporating case studies on complex issues like medical device cybersecurity and capital budgeting for emerging technologies, the course prepares participants for the real-world challenges of modern healthcare. It fosters a mindset of continuous improvement and strategic alignment, empowering attendees not just as technicians or engineers, but as integral leaders who can drive operational excellence and contribute directly to the organization's strategic objectives and patient outcomes.