Job Class Profile:

Biomedical Engineering Technologist II

Pay Level:

CG-36

Pay Band:

790-813

						Accountability		Development	Environmental	
		Interpersonal				& Decision		and	Working	Total
Factor	Knowledge	Skills	Physical Effort	Concentration	Complexity	Making	Impact	Leadership	Conditions	Points
Rating	5	4	3	5	5	4	4	5	4	
Points	233	67	19	24	150	87	83	107	43	813

JOB SUMMARY

The Biomedical Engineering Technologist II is responsible to function as the technical leader and supervise the workflow and activities of all routine and specialized biomedical services. Work is performed in health care institutions supporting a variety of clinical procedures such as Diagnostic Imaging, ICU, Operating Rooms, Dialysis, Respiratory Therapy, Defibrillation, Cardiac Monitoring, Anesthesia, Surgery, Rehabilitation, Laboratory and Radiation Therapy, etc.

Key and Periodic Activities

- Coordinates, directs and performs technical work in diagnosing, calibrating, maintaining, testing, repairing and/or replacing defective components in specialized medical equipment and systems.
- Supervises Biomedical Engineering Technologists and students; assigns daily tasks, provides technical direction and advice and evaluates work performance.
- Establishes and implements testing of new and existing equipment; develops and implements a preventative maintenance system to ensure regular maintenance is performed.
- Ensures adherence to biomedical engineering practices and general departmental policies and procedures to ensure quality assurance standards are met.
- Conducts research and writes reports, policies, maintenance and calibration procedures and other quality assurance documentation regarding equipment maintenance, calibration, performance and downtime.
- Coordinates new equipment installs and purchases; obtains quotes and makes recommendations for equipment purchases and standardization. May participate in the development of tender documents for the procurement of new technologies.
- Manages/utilizes data base system and records maintenance and repair activities, machine downtime and a parts and inventory list.
- Provides technical guidance, instruction and support to physicians, nurses and other clinical staff in the acquisition, operation, repair and maintenance of equipment.
- Operates various electronic and electrical tools such as oscilloscopes, digital multi-meters, patient simulators, etc. to test and calibrate equipment.
- Orders replacement parts and maintains proper inventory levels.
- Assists outside vendors with major installation projects of biomedical equipment to ensure work is complete on a timely basis and in accordance with the needs of the Corporation.

Key and Periodic Activities

- Liaises with medical equipment service suppliers to resolve problems with equipment operation; arranges for repair and parts replacement.
- Follows-up on equipment alerts and recalls by contacting suppliers and vendors for corrections or replacements. Coordinates warranty repairs.
- Attends committee meetings for infectious control, accreditation, product evaluation, dialysis, etc.
- Attends technical training courses on specialized equipment and professional development conferences as required.

SKILL

Knowledge

General and Specific Knowledge:

- Policies and Procedures
- Electronics and computers
- Industry Standards and Regulations
- Occupational Health and Safety Legislation
- CPR
- WHMIS
- Transportation of Dangerous Goods
- Public Tendering Act
- Best Practices
- Current trends and developments in biomedical technologies and equipment
- Basic anatomy and physiology as applied to the use of medical equipment

Formal Education and/or Certification(s):

 Minimum: 3 Year Diploma in Electronics Biomedical Engineering Technology. May also require additional training and/or license to work in specific areas such as Radiation Therapy.

Years of Experience:

— Minimum: 4 to 5 years

Competencies:

- Organize work, set objectives and establish priorities
- Supervise employees
- Solve problems and make decisions
- Conduct analysis or assessment
- Write text such as policies, reports, procedures, etc.
- Assemble electronic equipment from drawings to finished assembly
- Operate a computer
- Repair, calibrate and operate machinery
- Use power tools

Interpersonal Skills

- A range of interpersonal skills are used including listening to information from other people and asking questions to obtain sufficient information to assess and solve equipment problems; communicating both routine and complex information and direction to employees to enable them to perform assigned tasks; gaining the cooperation of others to complete work tasks and instructing or training physicians, nurses and other clinical staff in the operation, repair and maintenance of equipment.
- Communications occur with employees within the immediate work area, department, within
 and outside the organization and include co-workers, supervisor, outside vendors and
 representatives from medical equipment service suppliers.
- Most significant contacts are with employees in the assignment and completion of daily work tasks; supervisor for direction and advice/guidance to solve complex issues or problems; and customer support representatives regarding new equipment purchases, installations and technical support assistance.

EFFORT

Physical Effort

- The demands of the job occasionally results in considerable fatigue, requiring periods of rest.
- Lifting or moving objects less than 10 lbs such as a tool kit is a constant requirement. Lifting
 or moving tools and testing equipment weighing over 50 lbs is required occasionally.
- Work involves sitting, standing or walking depending on the task being performed. Climbing and driving would be performed on an occasional basis.
- Manual or physical activities includes fine finger or precision work when performing equipment repairs and installation, soldering and entering data into the electronic data base, etc; using hand tools (drill press, grinder, etc) and calibrating test equipment on a day-to-day basis that requires accurate control and steadiness; using gross motor skills to lift and move heavy objects such as lead shielding, covers, power supplies, etc; and working in awkward or cramped positions to access equipment such as a mounted x-ray unit.

Concentration

- Visual concentration or alertness is required on a regular basis when performing activities such as establishing exact calibration set points, when working in high voltage or radiation areas, performing intricate soldering work and when reading gauges and meters, displays, etc. Visual alertness is also required to identify ongoing issues such as battery operated equipment left unplugged or the incorrect storage of equipment, etc.
- Auditory concentration or strain includes listening to machines for unusual sounds to diagnose problems, listening for tones and beeps when performing preventative maintenance of equipment and listening to end users regarding medical equipment issues/problems.
- **Other sensory demands include smell** which is used to identify equipment component failure (burnt electronics) and to identify leaking gas or fluids from equipment.
- Alertness and concentration are required when performing repetitive testing or calibration procedures on the same type of equipment and when performing preventative maintenance inspections. Higher than normal levels of attentiveness or alertness for the health and safety of others is required when working in areas where there is potential exposure to

- radiation or when troubleshooting high voltage power supplies.
- Time pressures, interruptions, deadlines and lack of control over work pace are experienced when medical equipment malfunctions which requires immediate resolution to ensure ongoing operational requirements are met.
- Eye/hand coordination is required use hand tools to repair and/or calibrate equipment.
- **Exact results and precision** are required when performing tasks such as calibrating/adjusting medical devices such as a defibrillator to ensure patient safety.

Complexity

- Work involves performing supervisory and technical work in the installation, maintenance, calibration and repair of medical equipment which requires performing a series of tasks and activities that are different but allow for the use of similar skills and knowledge.
- Work involves specialized biomedical services including developing and implementing a
 preventative maintenance system to ensure regular maintenance is performed; ensuring
 quality assurance standards are met, conducts research and coordinates new equipment
 installs and purchases.
- Diagnosing and repairing a complex medical device or system requires problem solving, critical thinking and decision making skills to solve the problem.
- Reference material to assist in addressing problems, challenges and issues include policies and procedures, equipment service manuals, factory training course education, company technical support, CSA Standards, information from end users, and professional support from co-workers and supervisors.

RESPONSIBILITY

Accountability and Decision-Making

- Work independently and are responsible to ensure daily work and repairs are assigned and completed. Repairs and maintenance work are carried out in accordance with manufacturer's specifications and procedures. Quality control measures are in place to ensure the machine is functioning within acceptable safe limits to ensure patient safety is not compromised.
- Have authority to delegate work tasks to staff and prioritize needs assessment and equipment repairs. Under delegated authority, may be able to order replacement parts or order parts related to the critical operation of the machine in the absence of the Divisional Manager.
- Supervisory approval is required for such things as the purchasing of new equipment and the approval of service contracts on medical equipment.
- Discretion and independence of action is exercised when assessing medical equipment and determining if the equipment should be removed from service due to safety concerns and determining if the equipment is worth repairing.
- Provides technical advice and guidance to employees and students on how to solve a problem or address an issue and to the Manager on the renewal of service contracts on biomedical equipment.

Impact

 Work results can have a positive impact within the immediate work area, department, inside/outside the organization and on clients/patients/general public as well as on resources such as equipment, finances, health and safety and corporate image as properly maintained and repaired medical equipment minimizes equipment down time, decreases financial costs, reduces patient wait times and protects the health and safety of the patient and the equipment operator.

- Mistakes or errors in the repair or calibration of medical equipment can have direct consequences to the treatment and care of a patient resulting in patient injury and/or death. Medical equipment can also be damaged or destroyed. Equipment malfunctions can result in delays in patient care and system failures and also negatively impact the Corporate image.
- Errors are typically identified and resolved within hours of problem identification. Quality control checks are in place to minimize mistakes and downtime.

Development and Leadership of Others

- Typically responsible for direct and ongoing bargaining unit supervisory activities for a medium size work group of employees (5 to 10 employees).
- Plays a team leader role and may play a project leader role related to the purchase and installation of new equipment.

WORKING CONDITIONS

Environmental Working Conditions

- There is a requirement to wear safety equipment such as masks, gloves, gowns, face shields, safety glasses and respirator when working with chemicals. When working in diagnostic imaging, radiation badges, lead gowns, gloves and thyroid protections are required and daily activity requires steel toe boots, gloves and safety glasses.
- The likelihood of minor cuts, bruises, abrasions or minor illnesses resulting from hazards in the job is moderate. Fractures, partial or total disability is limited.
- Exposed to undesirable conditions in the workplace such as dirt and dust when working in the ceiling or underneath equipment; hazardous cleaning chemicals; bodily fluids such as blood on medical equipment; wet and slippery surfaces when working around dialysis equipment; electrical shocks when working on medical equipment; radiation when repairing x-ray equipment, sharp objects and work in awkward or confining workspaces when repairing equipment.