

August 2020

DR. BASHIR UR REHMAN



**FACULTY OF HEALTH & MEDICAL
SCIENCES
INSTITUTE OF ALLIED HEALTH SCIENCES
CURRICULUM**

**BS ANESTHESIA TECHNOLOGY
JAN 2012 (Aug 2020 Revised)**



AZAD JAMMU & KASHMIR UNIVERSITY MUZAFFARABAD

**Associate Dean
Dr. Bashir ur Rehman**

DEAN'S WELCOME

Dear Prospective Students

I welcome you wholeheartedly to the Faculty of Health and Medical Sciences at the University of Azad Jammu and Kashmir. The anesthesia technologist is a highly trained medical professional and an essential member of the anesthesia care team. This team uses pharmaceutical agents to induce a reversible state of amnesia, analgesia, loss of responsiveness, loss of skeletal muscle reflexes or decreased stress response, or all simultaneously. This allows patients to undergo surgery and other procedures without the distress and pain they would otherwise experience.

Our four-year Bachelor of sciences program is tailored to equip you with knowledge, skills and attitudes that will make you a competent anesthesia technologist. You will learn how to check and prepare the anesthetic machine, intravenous drugs, intravenous therapy administration equipment, devices to maintain the patient's airway and equipment to assess and monitor the patient's condition whilst under anesthesia. You will also be trained to undertake complete preoperative patient assessment including physical examination and diagnostic tests.

Dr. Bashir Ur Rehman
Associate Dean Faculty of Health and Medical Sciences.

OBJECTIVES & CURRICULUM

The Anesthesia Technology program at the Faculty of Health and Medical Sciences degree program that offers the student an opportunity to develop the technical ability, knowledge and skills required for entry level employment in any surgical setting, hospital operating room or free standing healthcare facility, as a member of the anesthesia team.

The goal of the course is to prepare anesthesia technologist who are highly competent in the knowledge, skills and professional demeanor consistent with local employer expectations and professional standards. The specific objectives of the program is to produce anesthesia technologist with the capabilities to:

- Function safely, effectively and efficiently and exhibit ethical behavior in an anesthesia technologist role,
- Undertake efficiently preoperative anesthetic procedures, including:
 - Assessing patient health status,
 - Checking and setting up the anesthetic machine
 - Preparing intravenous drugs
 - Preparing intravenous therapy administration equipment
 - Preparing a range of devices to maintain the patient's airway (e.g. laryngeal masks, endotracheal tube)
 - Preparing anesthetic monitoring equipment.
- Undertake efficiently intraoperative anesthetics procedures, including:
 - Inducing and maintaining adequate anesthesia
 - Establishing and securing an airway
 - Making sure that patient are positioned in such a way not to cause discomfort during their procedure
 - Monitoring patients' vital signs and anesthesia depth
 - Temperature monitoring and regulation
 - Collection and analysis of patient (blood) samples
 - Acquiring transfusion fluids and equipment
- Undertake efficiently postoperative anesthetic procedures, including:
 - Post-operative examination
 - Transferring the patient to PACU
 - Removing airway devices
- Demonstrate ability to safely and effectively perform:
 - Basic life support
 - Advanced Cardiac Life Support
- Apply aseptic techniques in preparing equipment and supplies
- Clean, sterilize, disinfect, stock, order and maintain routine anesthesia equipment and supplies
- Demonstrate an understanding of pharmacology, local, regional and general anesthesia
- Demonstrate patient care skills, including transferring, positioning, monitoring and transporting patients

- Identify patient and occupational hazards, including electrical, radiation, chemical and biological
- Demonstrate critical thinking skills to prioritize, anticipate and analyze problems and evaluate solutions
- Demonstrate ability to use medical terminology, acronyms, symbols and abbreviations
- Practice within the professional and legal parameters of the occupation, including ethical issue concerning patient and employment relationships
- Demonstrate good communication skills using appropriate medical terminology with patients, peers and physicians
- Present a professional demeanor with patients, peers and physicians
- Display professionalism in their appearance, job performance, and ability to work as a team member
- Identify and access professional organizations and continuing education resources

The curriculum is designed to prepare students to work anywhere in Pakistan as highly qualified anesthetic technologist. In this regard, the curriculum meet international standards in anesthesia technology certification and ensures that students masters world class performance competencies.

Subjects are taught over eight semesters, the duration of each semester is 20 weeks. A maximum of 18 credits can be obtained in a single semester. The Bachelor of Science in anesthesia technology is awarded when the student accumulates a total of 124 credits.

Students who are granted the Bachelor of Science degree may choose to complete an additional year of studies to obtain a four-year honors Bachelor of Science degree in anesthesia technology. In this fourth year students are required to complete an eight weeks practicum of anesthesia technology in an accredited institution, attend particular honors seminars, undertake independent research and write an honors thesis in a major subject.

Title of Degree:	BS ANESTHESIA TECHNOLOGY
Minimum Duration:	08 semesters First four semesters on Campus Last four semesters in Teaching Hospitals
Total Duration:	08-12 semesters
Total Credit Hours:	124 credit hours

List of Affiliated Teaching/Training hospitals:

- **HH SKBZ CMH Muzaffarabad**
- **Abbas Institute of Medical sciences (AIMS) HOSPITAL Muzaffarabad**
- **Divisional Head Quarter Hospital Mirpur**
- **Rawalpindi Institute of Cardiology Rawalpindi**

GRADUATION COMPETENCIES

Competency refers to the group of skills and knowledge which are applied in order to carry out a task or function, in accordance with the course, requirements imposed by the job. For successful completion of the course, graduates have to prove that they master knowledge, skills and abilities required to work as Radiography technician.

The following are the competencies that constitute the goals of this educational program and that shall be used for evaluation of graduates at the end of the program.

- Asses a patient's clinical status to ascertain the need for medical intervention
- Develop respiratory care plan based on patient assessment.
- Recommend appropriate therapy based on the patient assessment.
- Evaluate patient outcome and recommend modification to respiratory care plan, as indicated.
- Delineate the basic safety consideration involved in patient care.
- Identify, describe, and recommend appropriate respiratory care procedures and equipment to be used in the support and treatment of cardiopulmonary disorders.
- Demonstrate laboratory and clinical proficiency in selection assembly, application monitoring, and troubleshooting various places of respiratory therapy equipment.
- Demonstrate basic patient assessment skills to include vital signs, breath sounds, palpation, percussion, and patient interview.
- Determine the clinical status based on the obtained patient assessment data.
- Explain and demonstrate appropriate techniques for CPT, incentive spirometry, and pulmonary breathing exercises.
- Assemble necessary equipment, explain and apply appropriate techniques for administering humidity therapy.
- Explain rationale, assemble require equipment, and apply high flow and/or low flow oxygen systems.
- Evaluate patient's inspiratory flow rates and calculate total delivered flows necessary to meet or exceed the patients demand.
- Explain the therapeutic use of oxygen.
- Discuss and apply the various delivery devices used in oxygen therapy.

Recommended modifications in prescribed therapy based on current patient status.

- Evaluate the clinical need for artificial airways.
- Compare and contrast the different techniques used to maintain patent airways in patients with airway obstruction.
- Describe the circumstances requiring airway suctioning.
- Evaluate patient outcome and recommended modification to respiratory care plan, as indicated.
- Implement various infection control methods used in respiratory care equipment.

- Demonstrate laboratory and clinical proficiency in selection, assembly, and application, monitoring, and troubleshooting various pieces of respiratory therapy equipment.
- Demonstrate clinical competency by successfully completing the following performance evaluations:

Adult Therapy Competencies:

- Nasal cannula
- Simple mask
- Partial Rebreathing
- Non-Rebreathing
- Air Entrainment
- Transport with Oxygen
- Aerosol Face Tent
- Aerosol Face Mask
- Ultrasonic Nebulizer
- Incentive Spirometry
- Chest Physiotherapy
- Coughing
- Breathing Exercises
- Mucous Clearing (Flutter, PEP)
- Adult Diagnostics
- Spirometry
- Diffusion study
- Arterial Blood Gas Sampling
- Arterial Blood Gas Analysis

Pediatric Therapy Competencies:

- Incentive Spirometry
- Chest Physiotherapy
- Mucous Clearances Adjunct (Flutter, PEP)
- Nasal Cannula
- Simple Mask
- Non-Rebreathing Mask
- Air Entrainment Mask
- Transport with Oxygen
- Aerosol Tent
- Aerosol Face Mask
- Ultrasonic Nebulizer
- Adult Generic Floor Competencies
- Oxygen Analyzer.

SCHEME OF STUDIES
BS ANAESTHESIA TECHNOLOGY

1st Semester

Code	Course Title	Credit Hour
BMT-3101	Anatomy– I	3 (2 + 1)
BMT-3102	Physiology – I	3 (2 + 1)
BMT-3103	Biochemistry – I	3 (2 + 1)
BMT-3104	Microbiology – I	3 (2 + 1)
BMT-3105	Pakistan Studies	3 (3 + 0)
BMT-3106	Introduction to Computer & IT	3 (3 + 0)
Total Credit Hours		18

2nd Semester

Code	Course Title	Credit Hour
BMT-3201	Pathology	3 (3 + 0)
BMT-3202	Anatomy– II	3 (2 + 1)
BMT-3203	Physiology – II	3 (2 + 1)
BMT-3204	Biochemistry – II	3 (2 + 1)
BMT-3205	Microbiology – II	3 (2 + 1)
BMT-3206	Islamic Studies	3 (3 + 0)
Total Credit Hours		18

3rd Semester

Code	Course Title	Credit Hour
BMT-4301	Pathology – II	3 (2 + 1)
BMT-4302	Pharmacology – I	3 (2 + 1)
BMT-4303	Emergency Medicine	3 (3 + 0)
BMT-4304	Critical Care – I	3 (2 + 1)
BMT-4305	Arabic	3 (3 + 0)
Total Credit Hours		15

4th Semester

Code	Course Title	Credit Hour
BMT-4401	Pharmacology – II	3 (2 + 1)
BMT-4402	Critical Care – II	3 (2 + 1)
BMT-4403	Emergency Medicine-II	3 (3 + 0)
BMT-4404	Applied Physics and Engineering Sciences	3 (2 + 1)
BMT-4405	Epidemiology and Biostatistics	2 (2 + 0)
BMT-4406	English Communication Skill	2 (2 + 0)
Total Credit Hours		16

5th Semester

Code	Course Title	Credit Hour
BMT-5521	Invasive Techniques and Cardiac Output Monitoring	3 (2 + 1)
BMT-5522	Introduction to Anesthesia	3 (2 + 1)
BMT-5523	Applied Pharmacology	3 (2 + 1)
BMT-5524	Anesthesia Apparatus	3 (2 + 1)
BMT-5525	Monitoring in ICU	3 (2 + 1)
Total Credit Hours		15

6th Semester

Code	Course Title	Credit Hour
BMT-5621	Metabolic and Endocrine disorders	3 (2 + 1)
BMT-5622	Hepatic and cardiovascular disorders	3 (2 + 1)
BMT-5623	Renal Failure and its Management	3 (2 + 1)
BMT-5624	Errors and complications in anesthesia and critical care	3 (2 + 1)
BMT-5625	Clinical nutrition & diet therapy	3 (2 + 1)
BMT-5626	Clinical practicum and Cardiopulmonary Resuscitation (CPR)	3 (2 + 1)
Total Credit Hours		15

7th Semester

Code	Course Title	Credit Hour
BMT-6721	Trauma and Burns	3 (2 + 1)
BMT-6722	Neuromuscular Disorders	3 (2 + 1)
BMT-6723	Respiratory Medicine, Oxygen Therapy and Airway Management	3 (2 + 1)
BMT-6724	Body Fluids and Transfusion of Blood Products	3 (2 + 1)
BMT-6725	Introduction to Biomedical Ethics	3 (3 + 0)
Total Credit Hours		15

8th Semester

Code	Course Title	Credit Hour
BMT-6821	Sedation, Pain Management & Muscle Relaxation in ICU	3 (2 + 1)
BMT-6822	Clinical Toxicology: Diagnosis and Management in ICU	3 (3 + 0)
BMT-6823	Organization and General Principles of ICU	3 (2 + 1)
BMT-6824	Research Project (Thesis)	3 (0 + 3)
BMT-6825	Research Methodology	4 (3 + 1)
Total Credit Hours		16