Contents

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Items</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>03</td>
</tr>
<tr>
<td>2</td>
<td>Objectives</td>
<td>03</td>
</tr>
<tr>
<td>3</td>
<td>Admission Requirements</td>
<td>04</td>
</tr>
<tr>
<td>4</td>
<td>Phase-A Training</td>
<td>04</td>
</tr>
<tr>
<td>5</td>
<td>Domains of Learning</td>
<td>05</td>
</tr>
<tr>
<td>6</td>
<td>Teaching and Learning Methods</td>
<td>07</td>
</tr>
<tr>
<td>7</td>
<td>Record of Training</td>
<td>08</td>
</tr>
<tr>
<td>8</td>
<td>Assessments</td>
<td>09</td>
</tr>
<tr>
<td>9</td>
<td>Supervision and Training Monitoring</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>Curriculum Implementation, Review and Updating</td>
<td>11</td>
</tr>
<tr>
<td>11</td>
<td>Syllabus</td>
<td>11</td>
</tr>
</tbody>
</table>

1. Introduction
To improve the health and nutritional status of the people of the country, various specialties were developed. Physical Medicine and Rehabilitation (PM&R) covers clinical responsibility for rheumatic and other musculoskeletal disorders and responsibility for the organization of services of occupational therapy, physiotherapy, remedial gymnastics and medical rehabilitation. The ultimate aim of this specialty is medical rehabilitation of physical disability resulting from diseases and traumas. Recently the Bangabandhu Sheikh Mujib Medical University (BSMMU) has introduced competency-based Residency Program. The Phase-A training of the program, which lasts for two years, aims at a broad-based training in general PM&R and allied specialties.

2. Objectives
1) To provide a broad experience in Physical Medicine and Rehabilitation, including its interrelationship with other allied disciplines.
2) To enhance medical knowledge, clinical skill and competence in bedside diagnostic and therapeutic procedures for management of various diseases causing pain and disabilities.
3) To achieve the professional requirements for Phase-B training.
4) To cultivate the correct professional attitude and enhance communication skill towards patient, their families and other healthcare professionals.
5) To gather knowledge of the principal characteristics of the specific conditions causing disabilities.
6) To become competent in clinical assessment, interpretation, diagnosis and management of the conditions related to psychiatry.
7) To enhance sensitivity and responsiveness towards the community needs and economic health care delivery.
8) To enhance critical thinking, self-learning, and interest in
research and development of patient-care service.
9) To cultivate the practice of evidence-based medicine and critical appraisal skills.
10) To inculcate a commitment to continuous medical education and professional development.

3. Admission Requirements
This will be according to the general rules of the University. The University as per its admission rules will conduct the course entry examination.

4. Phase-A Training
The two-year training provides foundation training in PM&R which include components of educational (academic) and training program in PM&R and in relevant fields of PM&R. This training program will focus on developing core knowledge and skills in PM&R. The trainee will have to perform academic activities along with primary responsibilities to treat patients as well. Attendance should be 75% in all training schedule.

4.1 For the course the required training shall be as follows:
For the first three months of the course all the residents will be placed in the department. The first 3 months will include lecture classes in applied anatomy, physiology, pharmacology and physics and electronics in Physical Medicine and Rehabilitation. They will also attend lecture classes in related basic subjects in the basic science departments. These three months will be treated as one block. After completion of each structured block there will be formative assessment examination for this block. Subsequently the residents will be placed in related departments in rotation as per schedule mentioned below. During this period lecture classes and practical demonstration classes, arrangements of seminars, journal clubs, and other academic activities will be performed

along with treatment of patients in both in-patient and out-patient departments. This training should be consistent with the need of the subjects and will be in accordance with the guidelines provided by the respective department. They will appear a formative assessment in structured block in each department. They will work there full-time but they shall maintain contact with the department and attend any important class or academic activities with due permission from the unit heads.

4.2 Rotational training schedule of Phase- A (2 Years) residency program

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subject/ Department</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Physical Medicine and Rehabilitation</td>
<td>3 Months</td>
</tr>
<tr>
<td>2.</td>
<td>Internal medicine</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Rheumatology</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Neurology</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Orthopaedic</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Paediatric Neurology &amp; Paediatric Rheumatology</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Cardiology, ICU &amp; Respiratory Medicine</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Assessment</td>
<td></td>
</tr>
</tbody>
</table>

After completion of each block structured training end of block report from the department will be submitted to authority. After completion of Phase- A residency, the residents will have to appear in a summative examination as mentioned below.

5. Domains of Learning
5.1 Knowledge
1) Aetiology, clinical manifestation, disease course and prognosis, investigation and management of common diseases causing disabilities.
2) Scientific basis and recent advances in pathophysiology,
3) Spectrum of clinical manifestations and interaction of multiple medical diseases in the same patient.
4) Psychological and social aspects of medical illnesses causing disabilities.
5) Cost-effective use and interpretation of investigations and special diagnostic procedures.
7) Patient safety and risk management
8) Medical audit and quality assurance
9) Ethical principles and medicolegal issues related to medical illnesses.

5.2 Skills
1) Ability to take a detailed history, gather relevant data from patients, and assimilate the information to develop diagnostic and management plans.
2) Competence in eliciting abnormal physical signs and interpreting their significance.
3) Ability to relate clinical abnormalities with pathophysiologic states and diagnosis of diseases.
4) Ability to select appropriate investigation and diagnostic procedures for confirmation of diagnosis and patient management.
5) Skills in performing important bedside diagnostic and therapeutic procedures and understanding of their indications. Residents should acquire competence through supervised performance of the required number of procedures during the 2-year training period and should record them in the Logbook.
6) Ability to present clinical problems and literature review in grand rounds, journal club and seminars.
7) Good communication skills and interpersonal relationship

5.3 Attitudes
1) The well-being and restoration of health of patients must be of paramount consideration.
2) Empathy and good rapport with patient and relatives are essential attributes.
3) An aspiration to be the team-leader in total patient care involving nursing and allied healthcare professionals should be developed.
4) The cost-effectiveness of various investigations and treatments in patient care should be recognized.
5) The privacy and confidentiality of patients and the sanctity of life must be respected.

6. Teaching and Learning Methods
For trainees to maximize their learning opportunities it is important that they work in 'a good learning environment'. This includes encouragement for self-directed learning as well as recognizing the learning potential in all aspect of day to day work. The bulk of learning occurs as a result of clinical experiences (experiential learning, on-the-job learning) and self-directed study. The degree of self-directed learning will increase as trainees become more experienced. Teaching and learning occurs using several methods that range from formal didactic lectures to planned clinical experiences. Aspects covered will include knowledge, skills and practices relevant to PM&R in order to achieve specific learning outcomes and competencies. The
Residency Program

Theoretical part of the curriculum presents the current body of knowledge necessary for practice as an Internist. In this program this will be imparted using lectures, grand teaching rounds, clinico-pathological meetings, morbidity/mortality review meetings, literature reviews and presentations, journal clubs, self-directed learning, conferences and seminars.

7. Record of Training
The evidence require to confirm progress through training includes:
1. Details of the training rotations, weekly timetables and duty rosters; case-mixes and numbers of practical procedures and outcomes.
2. Confirmations of attendance at events in the educational program at departmental and inter-departmental meetings and other (optional) educational events.
3. Confirmation (certificates) of attendance at subject-based/skills-training/instructional courses.
4. Recorded attendance at conference and meetings.
5. A properly completed logbook with entries capable of testifying to the training objectives which have been attained and the level of performance achieved.
6. CME activity.
7. Supervisor’s reports on observed performance in the workplace.

7.1. Logbook
Residents are required to maintain a logbook in which entries of academic/professional work done during the period of training should be made on a daily basis, and signed by the supervisor. Completed and duly certified logbook will form a part of the application for appearing in Phase Final Examinations.

7.2. Portfolio
This is a collection of evidence documenting trainee’s learning and achievements during their training. The trainee takes responsibilities for the portfolio’s creation and maintenance. It will form the basis of assessment of progression.

8. Assessment
The assessment method is comprehensive, integrated and phase-centered attempting to identify attributes expected of specialists for independent practice and lifelong learning and covers cognitive, psychomotor and affective domains. It keeps strict reference to the components, the contents, the competencies and the criteria laid down in the curriculum. Assessment includes both Formative Assessment and Summative (Phase Final) Examinations.

8.1. Formative Assessment
Formative assessment will be conducted throughout the training phases. It will be carried out for tracking the progress of residents, providing feedback, and preparing them for final assessment (Phase completion exams).
There will be continuous (day-to-day) and periodic type of formative assessment.
- **Continuous (day-to-day) formative assessment** in classroom and workplace settings provides guide to a resident’s learning and a faculty’s teaching / learning strategies to ensure formative lesson / training outcomes.
- **Periodic formative assessment** is quasi-formal and is directed to assessing the outcome of a block placement or academic module completion. It is held at the end of Block Placement and Academic Module completion. The contents of such examinations include Block Units of the Training Curriculum and Academic Module Units of the Academic Curriculum.
- **End of Block Assessment (EBA): End of Block Assessment (EBA) is a Periodic Formative Assessment and is**
undertaken after completion of each training block, assessing knowledge, skills and attitude of the residents. Components of EBA are written examination, Structured Clinical Assessment (SCA), medical record review, logbook review and portfolio assessment. Incomplete block training must be satisfactorily completed by undergoing further training for the block to be eligible for appearing in the next phase completion examination.

8.2. Summative (Phase A Final) Examination:
Phase A Final examination will be common for Medicine and Allied and will have following components:
- Written examination (SAQ/SEQ)
- Clinical examination:
  - Long case (1)
  - Short cases (4)
  - Structured Clinical Assessment (SCA – 10)

9. Supervision and Training Monitoring
Residents will at all times have a Supervisor, responsible for overseeing their education and training.

Supervisors are responsible for supervision of learning throughout the program to ensure patient safety, service delivery as well as the progress of the resident with learning and performance. They set the lesson plans based on the curriculum, undertake appraisal, review progress against the curriculum, give feedback on both formative and summative assessments, and ensures proper recording of the and signing the logbook. The residents are made aware of their limitations and are encouraged to seek advice and receive help at all times.

The Course Coordinator will coordinates all training and academic activities of the program in collaboration with the Course Manager. The Course Director of each faculty directs, guides and manages curricular activities under his / her jurisdiction and is the person to be reported to for all events and performances of the residents and the supervisors.

10. Curriculum Implementation, Review and Updating
Both Supervisors and Residents are expected to have a good knowledge of the curriculum and should use it as a guide for their training program. The Curriculum is specifically designed to guide an educational process and will continue to be the subject of active redrafting, to reflect changes in Physiatry both educational theory and practice. Residents and Supervisors are encouraged to discuss the curriculum and to feedback on content and issue regarding implementation with the Course Director. Review will be time tabled to occur annually for any minor changes to the curriculum.

11. Syllabus
A: Module 1 (6 weeks)
a. ANATOMY
1) Cell and different types of tissues
2) Bones and joints of the upper and lower limbs
3) Anatomy of spinal joints
4) Musculo-skeletal system:
   I. Muscles of upper and lower limbs
   II. Muscles of head and neck
   III. Para vertebral muscles
   IV. Chest wall
   V. Blood and nerve supply of muscles
   VI. Muscles involving all types of joint movements
5) Nervous system:
   I. Central nervous System
      a) Cerebral cortex and cerebellum
      b) Brainstem and spinal cord
   II. Peripheral nervous system and cranial nerves of Importance in Physiatry
   III. Somatic sensory and motor system
   IV. Pain pathway
   V. Anatomy of basal ganglia
Residency Program

PM & R

6) Cardiovascular system:
   I. Heart and great vessels
   II. Cerebral circulation
   III. Blood supply of arms and legs

7) Genitourinary system
   I. Anatomy of urinary bladder
   II. Anatomy of female pelvic organs

8) Respiratory system
   I. Larynx
   II. Trachea
   III. Bronchi

9) Alimentary system:
   I. Anatomy of upper G.J. Tract
   II. Anatomy of stomach

b. PHYSIOLOGY

1) Functional organs of human body and internal environment including water and electrolyte balance.

2) Physiology of rest, activity and fatigue.

3) Biological effect of mechanical, electrical and radiant energy.

4) Nervous system;
   i. The basic concepts in the physiology of nervous system, synapses and receptors including uptake and release of transmitters. Basic knowledge of action potential, resting potentials, evoked potential etc.
   ii. Electrophysiology of nerves and muscles
      a. Mechanism of muscle contraction
      b. EEC
      c. NCV
   iii. Physiology of pain, thermal sensations, position senses tactile sensations.
   iv. Joint biology

5) Cardio-respiratory system
   i. Cardio-vascular regulatory mechanism
   ii. Pulmonary ventilation
      a. Pulmonary volumes and capacities
      b. Regulation of respiration

   iii. Cardiac out put
      a. Cardiac reserve
      b. Blood pressure
      c. Control of blood pressure
      d. Coronary circulation.

6) Urinary system:
   i. Physiologic anatomy and nervous connections of the bladder.
   ii. Mechanism of micturition.
   iii. Urodynamics

7) Sports Physiology:
   i. Muscle in exercise
   ii. Respiration in exercise
   iii. Cardiovascular system in exercise
   iv. Body heat in exercise
   v. Body fluid and salt in exercise
   vi. Effect of athletic training on muscle and muscle performance.

8) Digestive system:
   i. Physiology of swallowing
   ii. Physiology of gastric secretion
   iii. Physiology of defecation and other autonomic reflexes acting on bowel activity.

9) Nutrition and Metabolism
   i. Vitamins
   ii. Minerals.
   iii. Energetics and metabolic rates
   iv. Temperature regulation
   v. Lipid metabolism

C. PATHOLOGY

1) Inflammation and repair
2) Haemmorhage, thrombosis, embolism and infarction.
3) Auto-immune diseases
4) Degenerative joint diseases
5) Metabolic joint diseases
6) Pathology of soft tissue rheumatism and RSI
7) Pathology of bronchitis, bronchiectasis, lung abscess, and fibrosis of lung.
9) Pathology of muscle diseases.
10) Pathology of thrombophlebitis, thrombosis, atherosclerosis and IHD.
11) Pathology of pelvic inflammatory diseases.
12) Pathology of sinusitis, laryngitis, and paresis of vocal cord.
13) Immunology related to Physiatry.
14) Genetics related to Physiatry.

d. PHARMACOLOGY
1) General Pharmacology
   a. Mode of action of drugs
   b. Routes of drug administration
   c. Drug reaction
   d. Risk of prolonged continuation of drugs.
   e. Phonophoresis
   f. Iontophoresis.
2) NSAIDS
3) DMARDS (SAARDS).
4) Steroids.... Uses and complications
5) Cerebral and peripheral vaso dilators
6) Skeletal muscle relaxants
7) Drugs and athletes
8) Drug therapy in combination with physical therapy

B. Module II (6 weeks)
Group A
a. Physics and electronics in Physical Medicine
   Medical physics and elementary knowledge of electricity
   a. Direct current
   b. Alternate current
   c. Faradic current
   d. Galvanic current
2. Reaction of degeneration
   a. IT curve

b. Therapeutic heat
1. Physiological effects of therapeutic heat
   a. Local effect
   b. Distal effect
   c. Vigorous versus mild heating.
2. Superficial heating modalities
   a. Light:
      I. Infrared-rays and visible radiation
      II. Ultraviolet Rays, Their Sources, Uses, indication and contraindication
      III. Hydrotherapy
      IV. Wax-bath
      V. Contrast bath
3. Deep heating modalities
   a. Shortwave diathermy
   b. Microwave diathermy
   c. Ultrasonic diathermy

Their sources, methods of application, indication, and contraindications.

c. Therapeutic cold
1. Physiologic and therapeutic effects of cold
2. Indications and contraindications
3. Comparison of therapeutic heat and cold.

d. LASER therapy
1. Definition and biophysics
2. Clinical application

e. Electrotherapy
1. TENS
2. Iontophoresis
3. FES: Equipment, mode of action, indications and limitations.
4. Electrical stimulation of nerves and muscles
5. Biofeedback
6. Basic guide lines for the application of electrotherapy

GROUP-B
1. Therapeutic Exercise:
   a. Exercise as a therapeutic measure
   b. Definition and planning
   c. Objectives of exercise
   d. Principles of exercise
   e. Types of exercise
   f. Special exercise programs
      i. Breathing exercise
      ii. Scoliosis corrective exercise
      iii. Mat exercise
      iv. Parallel bar exercise
      v. Crutch muscles exercise
      vi. Relaxation exercise
      vii. Suspension exercise
      viii. PNF exercise
2. Occupational therapy:
   a. Evaluation of the patient
   b. Functional occupational therapy
   c. Prevocational exploration
   d. Supportive therapy
   e. Home making
   f. Home program
   g. Prescription of wheelchair
3. Muscle testing
   a. Manual
   b. Instrumental
4. Goniometry and Gait analysis
5. Gait disorders. Diagnosis and management
6. Speech and language disorders- Diagnosis and management
7. Traction: Types, techniques, mode of application, indications and limitations.
8. Manipulative procedures
   a. Technique
   b. Indication
   c. Contra-indications.
9. Exercise abuse
10. Therapeutic exercise to maintain mobility
11. Therapeutic exercise to develop strength
12. Therapeutic exercise to develop neuromuscular coordination.

c. Module III (12 weeks)
   Internal Medicine
1. Disease of alimentary tract and liver
   a. Major manifestations of GIT diseases and liver
   b. Dysphagia and diseases of oesophagus.
   c. Peptic ulcer diseases
   d. Inflammatory bowel diseases
   e. Irritable bowel syndrome.
   f. Constipation and disorders of defecation
   g. Acute and chronic hepatitis
   h. Drug induced hepatitis
   i. Cirrhosis of liver.
2. Diseases of kidney and urinary system
   a. Major manifestations of renal disease and investigations
   b. Urinary tract infections
   c. Glomerulonephritis
   d. Acute and chronic renal failure
3. Endocrinology
   a. Diabetes Mellitus
   b. Thyroid disease
   c. Hyper and hypoparathyroidism
   d. Acromegaly
4. Haematology
   a. Major manifestations of blood disease and investigations
   b. Anaemia
   c. Bleeding disorders
   d. Lymphoreticular malignancies
5. **Module IV (4 Weeks)**

Pulmonary diseases:
- a. Major manifestations of pulmonary diseases and Investigations
- b. Pulmonary tuberculosis
- c. Chronic obstructive airway disease
- d. Bronchial asthma
- e. Bronchiectasis
- f. Pulmonary fibrosis
- g. Respiratory failure

6. **Module V (4 weeks)**

Cardiovascular diseases
- a. Major manifestations of cardiovascular diseases and Investigations
- b. Hypertension
- c. Ischaemic heart disease
- d. Congestive cardiac failure
- e. Cardiac arrhythmia
- f. Peripheral vascular diseases
- g. Valvular diseases
- h. Congenital heart disease
- i. Rheumatic fever

**Module VI (12 weeks)**

Neuromedicine
- 1. Major manifestations of neurologic diseases
- 2. Investigations of neurological diseases
- 3. Stroke and other paralytic diseases
- 4. Motor neuron diseases
- 5. Degenerative disease of brain and spinal cord
- 6. Peripheral neuropathy.
- 7. Myopathy
- 8. Ataxias

**Group-C**

**Module VII (12 weeks)**

Rheumatology
- 1. Major manifestations of joint diseases
- 2. Investigations of rheumatologic and bone diseases.

**Residency Program**

3. Rheumatoid arthritis
4. Seronegative spondyloarthritis
5. Ankylosing spondylitis
6. Gout and other metabolic arthrites
7. Systemic sclerosis and mixed connective tissue diseases
8. Systemic lupus erythematosus
9. Degenerative joint diseases
10. Infective arthritis

**Group-D**

**Module VIII (12 weeks)**

Orthopaedic Medicine
- 1. Low back pain and its management
- 2. Neck pain and its management
- 3. Shoulder pain and its management
- 4. Soft tissue rheumatism
- 5. Post traumatic painful conditions
- 6. Post operative joint stiffness
- 7. Hip pain and its management
- 8. Knee pain and its management
- 9. Ankle pain and its management
- 10. Spinal traction and its manipulations
- 11. Intra-articular injection indications, drugs with doses and Technique with contra indications.
- 12. Spinal injury

7. **Module IX (12 weeks)**

Paediatric diseases
- a. Cerebral palsy
- b. Myopathy
- c. Autism
- d. Juvenile idiopathic arthritis
- e. Juvenile fibromyalgia syndrome
- f. Juvenile ankylosing spondylitis
- g. Arthrogryposis multiplex congenital
- h. Growing pain
- i. SLE and other pediatric rheumatological and other neurological conditions.
Module X (4 weeks)
ICU and HDU

Module XI
Neurosurgery
Traumatic brain injury
Other post neurosurgical conditions like PLID

Module XII
Geriatric medicine
Normal aging process
Anatomic changes with aging
Major diseases of elderly persons and their management
Fall and prevention
Drug treatment in geriatric patients
Management of major psychiatric problems in elderly persons.
Rehabilitation of frail olds.

Module XIII
Technologies in physical medicine and rehabilitation
Practical use and demonstration of therapeutic instruments,
orthoses, prosthesis, splints, walking aids, wheel chairs, steroid
injection techniques etc.