SYLLABUS

DIPLOMA IN PHYSICAL MEDICINE AND REHABILITATION

Preamble:

The **goal** of this programme is to standardize Physical Medicine and Rehabilitation (PM&R) teaching at the Post Graduate level throughout the country so that it will benefit in achieving uniformity in postgraduate as well as undergraduate medical teaching.

World Health Organization estimated that 10 percent of the population is differently abled. According to UN Development Program (UNDP) 80 percent of the differently abled people live in developing countries. The World Bank estimates that 20 percent of poorest people have some kind of disability. Population growth, increasing number of older people, increase in vehicular traffic, expansion of industry, mechanization of agriculture along with social-economic backwardness will magnify the problem in future.

Medical Council of India has recommended starting departments of rehabilitation at all Medical Colleges in India. The directive was circulated by the Central government vide letter No. V-11072/91 M.E. (Policy), dated 25th March, 1986.

Understanding the magnitude of problems faced by differently abled persons the Group of Ministers, under Government of India while drafting the plan for 12th five year plan decided to provide *"equal opportunities to differently abled persons"* and the recommendation was at least 50% of medical colleges should conduct MD PMR courses before the end of 11th five year plans i.e., before 2012. The MCI has also issued the necessary instructions to all medical colleges to take necessary steps to create the department and start post graduate Diploma and Degree courses in Physical Medicine and Rehabilitation in order to satisfy these norms vide reference MCI – 23 (1)/2009 – Med./ 56239 dated 11.12.09 circulated to all medical colleges in India..

Physical Medicine and Rehabilitation:

Physical Medicine and Rehabilitation, also called physiatry, (pronounced fizz ee at´ tree), or physical and rehabilitation medicine, is an important branch of medical sciences emphasizing the prevention, diagnosis and treatment of disorders, particularly those of the neuro-musculo-skeletal, cardiovascular, and pulmonary systems, that may produce temporary or permanent activity limitation, disability, or

participation restriction. Physical Medicine and Rehabilitation is an independent clinical discipline. It has a vast scope as it provides integrated comprehensive care in the diagnosis, treatment and rehabilitation management of neurological, musculo-skeletal, cardio-pulmonary disabilities from acquired or congenital conditions presenting at any stage in life from pediatric to geriatric phases. This specialty focuses on the restoration of function of people to the highest possible level, through a multi-disciplinary team approach, making use of diagnostic and therapeutic armamentarium including education and counseling, prescription of medicines, therapeutic exercises, equipments (mobility aids, orthotic-prosthetic appliances, assistive technology, physical agents and modalities, etc.), injections, surgical interventions for correction of deformities etc. in an institution-based (out-door and in-door/wards/ICUs/Nursing Homes/Old-Age Homes etc.), out-reach (Camps, Mobile Units), or community-based settings (CBR), based on the evaluation of the individual under consideration. It is also involved in disability prevention, evaluation and certification, besides development, monitoring and supervision of a rehabilitation plan and conducting research and development.

Community Based Rehabilitation Medicine: He should be able to practice rehabilitation medicine at the door step of community. He should be familiar with the common problems occurring in rural areas and deal with them effectively with the involvement local voluntary community leaders and available sources and also other voluntary social work agencies. Given and opportunity to participate in surveys and camps, the students should be able to:

i. Organise and conduct surveys in rural, urban and industrial communities and in specified groups of population.
ii. Organise and conduct camps for disability prevention and rehabilitation of disabled persons.
iii. Guide rehabilitation workers at the peripheral level for rehabilitation of disabled.

Programme Objectives:

The overall objective is to impart a thorough and comprehensive training to a medical graduate so that at the end of this training he/she becomes a knowledgeable, skilled, and competent Physical Medicine and Rehabilitation specialist, capable of discharging his/her duties as expected under different settings, in an ethical manner.

He/she should be able to suspect, investigate, diagnose, confirm, evaluate, prognosticate, certify, treat, and rehabilitate if and when a person is suffering from a temporary or permanent limitation in

function, disability, or restriction in participation as well as plan, prescribe, monitor, supervise and lead the execution of rehabilitation plan through an integrated, multi-disciplinary team involving various medical, nursing, paramedical or allied health professionals such as therapists (occupational therapists, physiotherapists etc.), counselors, technicians etc. He/she should be able to interpret reports and plan research, teach medical and paramedical personnel, educate the person with disability, family, rehab team members and community, and be well versed with recent advances, administrative, financial, ethical and legal aspects related to the specialty.

SCHEME OF TRAINING:

The course will be conducted at the Department of Physical Medicine & Rehabilitation of the Medical College. During their tenure the Post-Graduate would be posted in the Department of PMR and various departments related to department of Rehabilitation for their clinical training for the duration as indicated below. The actual time table for postings would be chalked out individually for a candidate.

FIRST YEAR:

1. Physical Medicine (Introduction)	6 months
2. Applied Basic Sciences (concurrent study)	
i. Anatomy-Basic Applied with Bio-Mechanics	50 hrs.
ii. Physiology	40 hrs
iii. Clinical Pharmacology	40 hrs
iv. Pathology & Microbiology	40 hrs
v. Community Medicine	40 hrs
vi. Clinical Epidemiology	50 hrs
vii. Biochemistry	20 hrs
viii. Basic computer Application	20 hrs
3. Neurology and neurosurgery	8 weeks
4. Orthopedics including sports medicine	6 weeks
5. Rheumatology	4 weeks
6. Cardiology and cardiothoracic surgery	4 weeks
7. Hand surgery and rehabilitation	2 weeks

During the 1st year will undergo training in Orthotics & Prosthetics, Electrodiagnosis, Occupational therapy, speech and hearing, assessment, social rehabilitation therapy.

SECOND YEAR:

1. Psychiatry	2 weeks
2. Obstetrics & gynaecology	2 weeks
3. Community Medicine	2 weeks
4. Leprosy & Dermatology	2 weeks
5. Diabetology and foot care	2 weeks

6. Speech and hearing rehabilitation .	2 weeks
7. Geriatrics	2 weeks
8. Urology	2 weeks
9. Physical Medicine and Rehab dept	8 months
Total:	12 Months

ASSESSMENT

FORMATIVE ASSESSMENT i.e., Assessment during the residency programme

Formative assessment would include:

Case presentation,

case work up,

case handling/management day to day basis by faculty members during each posting besides assessment of log book.

In addition to bedside teaching rounds, formal teaching is necessary.

Journal club	Once a week
Seminar/ lecture	Once a week
Case discussions	Once a week
Disabilities evaluation & prosthetic and orthotic check out clinic	Once a week

Attend accredited scientific meetings (CME, symposia, and conferences)

SCHEME OF EXAMINATION

Distribution of Marks:

Part I (At the end of First Year)

Theory	**Title**	**Duration of Hours**	**Maximum marks**
Paper I	Applied Basic sciences relating to Physical Medicine and Rehabilitation	3 hrs	100

PART II (FINAL) AT THE END OF SECOND YEAR

Theory	**Title**	**Duration in hours**	**Maximum Marks**
Paper I	PMR I Principles and Practice of Physical		

	Medicine and Rehabilitation Management of Musculoskeletal Conditions	3	100
Paper II	PMR II Principles and Practice of Rehabilitation Management of Neurological, Cardio-pulmonary and other Conditions , including Recent advances in PMR	3	100

B. Practicals:

A total of four examiners (two external examiners and two internal examiners) from the specialty of physical medicine and rehabilitation and involved in teaching-training at post-graduate level in the respective discipline.

Long Case - One

Short Cases - Three

Viva-Voce involving

X-Ray/CT Scan/MRI /Bone Scan Films

Rehabilitation Surgery Instruments

Pathology Specimens

Physical Medicine Instruments/Equipments/Modalities

Orthotic-Prosthetic Appliances

OSCE Based Examination Scheme for Diploma in Physical Medicine and Rehabilitation Examinations

1. Theory Examination

Pattern of the types of questions and their weightage suggested is as follows:

Types of question	**No. of questions**	**Maximum Marks**	**Total**
Pattern I			
Long Question	Two	30	60
Short Notes	Four	10 x 4	40
Pattern II			
Short Notes	Ten	10 x 10	100
Pattern III			
Long Question	One	30	30
Short Notes	Seven	10 x 7	70

2. Practical and Clinical Examination.

The emphasis whould be laid on the Objective Structured Clinical Examination (OSCE). All the four examiners conducting practical, clinical and viva voce shall have "equal assessment marks" at their disposal for evaluation of the examinees.

Clinical Examination shall consist of the following: -

a) Long Case
b) Short Cases

System of marking/evaluation and weightage given to each area shall be as follows: -

Long Case, One Case, Maximum Marks: 100.

	Item	**Maximum Marks**
i)	Written Work (including history, examination, summary & provisional diagnosis)	10
ii)	Presentation Style	10
iii)	Demonstration	
	Elicitation of signs or maneuvers (two)	20
iv)	Discussion	
	Differential Diagnosis	10
	Investigations	10
	Management	20
v)	Attitudes	10

Short Cases, Three Cases, 40 marks each case.

	Item	**Maximum Marks**
i)	Written Work (including General Physical Examination, Systemic/Regional Examination & diagnosis)	5
ii)	Diagnosis (including Differential Diagnosis)	5
iii)	Demonstration	
	Elicitation of signs (two signs)	10
iv)	Discussion (Differential Diagnosis & Management)	15
v)	Attitudes	5

Viva voce, comprising of 80 Marks, shall be in the following areas:

	Item	Maximum Marks
i.	Pathology specimens	10
ii.	X-rays, US Scan, CT Scan, MRI etc.	20
iii.	Surgical Instruments	15
iv.	Prosthetic and Orthotic devices	20
v.	Physical Medicine Instruments/Equipments	15

The **Qualifying marks** for Theory will be 50%. The qualifying marks for the Clinical Practical and Viva Voce combined would be 50%.

Maximum Number of candidates to be examined per day: 4

SPECIFIC LEARNING OBJECTIVES

Upon completion of the training and successfully qualifying in the MD (Physical Medicine and Rehabilitation) examinations he/she should be able to demonstrate:

1. **Theoretical knowledge:** He/she should be able to demonstrate possession of basic knowledge of (1) the basic medical sciences such as Anatomy, Physiology, Biochemistry, Pathology, Microbiology, Pharmacology, and Molecular Biology etc. as related to Physical Medicine and Rehabilitation; (2) factors which may disturb structure or function and result in disability; (3) bed-side procedures (diagnostic and therapeutic).

2. **Teaching-Training:** He/she should know about the basic methodology of teaching-training and develop competence in teaching medical/paramedical students, and persons with disabilities.

CURRICULUM

SUBJECT SPECIFIC THEORETICAL COMPETENCIES

The topics for MD (PMR) and Diploma (DPMR) would remain the same. However, the depth of teaching would be lesser in the Diploma course since the course contents would be covered in three papers only and the duration of the Diploma course is only two years.

Course Contents:

The course content for DPMR (Diploma in Physical Medicine and Rehabilitation) is divided into three broad sections, covering three Theory Papers. However, certain degree of overlapping may occur among different sections. The contents would include the following:-

Section A:

1) Basic Anatomy of the Musculoskeletal, Cardio-pulmonary and Nervous Systems, etc.

    1) Embryology – Development of Heart and Great Vessels
        (a) Foetal Circulations – Development of Brain and Spinal Cord.
    2) Anatomy of Brain and Spinal Cord with their blood supply and venous drainage.
    3) Cranial Nervous and Autonomic Nervous system.
    4) Anatomy of the Muscular Skeletal System.
    5) Nervous control of Bladder and Rectum.
    6) Anatomy including Histopathology of Kidneys, Spleen.
    7) Anatomy including Histopathology of Endocrine Glands
    8) Anatomy of Broncho – Pulmonary Segments. Pleura and Medlastium.

2) Basic physiology of Musculoskeletal, Cardio-pulmonary and Nervous Systems, etc. and Biochemical aspects of Calcium and Vit. D metabolism, osteoporosis, diabetes mellitus etc.

    1. Liver: Function – Laboratory test of liver function.
    2. Kidney: Laboratory tests of kidney function.
    3. Exocrine and Endocrine function of Pancreas.
    4. Harmones: Pituitary, Adrenal, Thyroido, Parathyroid – Chrmistry of Steroids – Various tests to study function of Endocrine Glands.
    5. Pulmonary functions tests.
    6. The mechanism of Deglutition.
    7. Heart: Basic Principles of condition system and electro – Cardiogram – Circulation – Measurement of cardiac output – Factors controlling arterial blood pressure – Mechanism of production of cardiac failure and syndrome of shock.
    8. Blood, Plasma, Proteins – Coagulation of blood RBC and WBC development – Platelets – Erythropoiesis and its regulation – Blood groups – Iron metabolism.
    9. Physiology of Micturation and Defaecation.
    10. Fluid and electrolyte balags.
    11. Calcium and phosphorous metabolism
    12. Inborn errors of metabolism.
    13. Jaundice-Types and Diagnosis.
    14. Immunoglobulin and the mechanism of Immunity.
    15. Physiology of consciousness
    16. Temperature regulation.

3) Basic Pathological processes causing diseases and disabilities, healing etc.

    1. Central nervous system: Brain and spinal cord meningitis and Encephalitis – Abscess tumours – Syphilis of nervous system – Nutritional and metabolic disorders epilepsy – Vascular diseases
    2. Heart: Rheumatic fever and carditis – coronary artery diseases – Hypertension – Artherosclerosis – Cardiomyopathy – Pericarditis – Specific and non-specific arteritis – Congenital heart diseases.
    3. Kidneys: Nephritis – Nephtosis – Kidney – Changes in Metabolic and collagen diseases – Acute and chronic renal failure.
    4. Lungs: Pulmonary tuberculosis – Atypical mycobacteria – Tumors of lung.
    5. Bone: Disorders of Mineral and bone matrix bone tumour.

6. Endocrine Glands: Myxoedema and Thyrotoxicosis – Hyper and Hypo-parathyroidism – Pituitary – Adrenal – Cortex and medulla.
7. Diabetes Mellitus and its complications – pathological changes in Viscera.
8. Gastro intestinal disorders: Peptic ulcer – Malabsorption sundrome – Ulcerative colitis – Amoebiasis (Intestinal and extra-intestinal).
9. Lymphomas, Leukemias and blood dyscrasiasis.

4) Basic principles of Pharmacology as applied to the conditions encountered in Physical Medicine and Rehabilitation

1. Chemotherapy: Antibiotics and atimicrobials.
2. Analgesics
3. Sedative
4. Tranquilizers
5. Drugs acting on Autonomic nervous system
6. Hormones
7. Insulin and oral anti-diabetic drugs
8. Drugs for Epilepsy
9. Coagulants and Anticoagulants
10. Histamine and Anti-histamine drugs
11. Alcohol
12. Vaccines and immune sera
13. Drug abuse – Drug tolerance – Drug addiction
14. Anti-Spastic
15. Antiparkinsonism
16. Bronchodilators
17. Antihypertensives

5) Biophysics and Biomechanics:

1. Principles of statics and dynamics as applied to human movement.
2. Kinesiology
3. Biophysics of Physical agents used in Physical Medicine, Heat, Light, Ultra-Violet rays, Electricity and Ultrasound.

Section B:

6) Basic principles of diagnostic modalities as applied to Physical Medicine and Rehabilitation.

7) Philosophy, history, scope and need of Physical Medicine and Rehabilitation.

8) Basic concepts in Physical Medicine and Rehabilitation - definitions, rehabilitation team, team members, scope, role and responsibilities of different members etc.

9) Principles of evaluation and rehabilitation management of social problems

10) Principles of evaluation and rehabilitation management of vocational problems

11) Organisation and Administration of Physical Medicine & Rehabilitation Services.

12) Disability process. Impairment, disability, International Classifications

13) Disability Prevention- levels and examples

14) Epidemiology of Disability, magnitude, causes, changing trends and Commnity based medicine etc.

15) Gait Analysis – Terminology, types, Clinical Applications

16) Electrodiagnostic Medicine - basic principles, clinical methods, interpretation etc.

17) Outcome Measures in Physical Medicine and Rehabilitation

18) Impairment Rating and Disability Evaluation

19) Therapeutic Exercises - principles, types, indications, contraindications

20) Physical Agents/Modalities - principles, types, indications, contra-indications, precautions.

21) Manipulation, Traction, Massage - principles, types, indications, contra-indications, precautions.

22) Electrical Stimulation - principles, types, indications, contra-indications, precautions.

23) Principles and scope of Occupational Therapy

24) Rationale of A.D.L. (Activities of Daily Living) in various conditions

25) Integrative Medicine and Physical Medicine and Rehabilitation

26) Assistive Technology related to Physical Medicine and Rehabilitation

27) Upper limb orthotic devices – principles, types, materials and indications

28) Lower limb orthotic devices – principles, types, materials and indications

29) Spinal orthoses – principles, types, materials and indications

30) Upper limb prosthetics and amputee rehabilitation

31) Lower limb prosthetics and amputee rehabilitation

32) Mobility aids, wheelchairs and seating systems

33) Low back pain and Physical Medicine and Rehabilitation

34) Musculoskeletal trauma and Physical Medicine and Rehabilitation

35) Rehabilitation of persons suffering from:

- Arthritis, including Rheumatoid Arthritis, Osteoarthritis, Ankylosing Spondylitis etc.
- Spinal deformity
- Neck Pain, Shoulder Pain etc.
- Osteoporosis
- Sports Injury
- Burns Injury
- Spinal Cord Injury

36) Rehabilitation of persons:

- with obesity, dyslipidemia etc.
- after Arthroplast
- after POP cast, Fracture treatment, Surgical intervention

37) Principles of Sports Medicine

38) Basic principles of rehabilitative surgeries such as deformity correction in poliomyelitis, cerebral palsy, clubfoot, contractures, revision of amputation stump, closure of pressure sore, tendon transfers etc.

Section C:

39) Rehabilitation of persons suffering from:

- Plexus or Nerve Injury
- Traumatic Brain Injury
- Stroke
- Parkinsonism, Multiple sclerosis, Ataxia, neurodegenerative disorders etc.
- Neuropathy, Bell's Palsy etc.
- Hansen's Disease
- diseases of Muscles e.g. myopathy, motor-neuron disease, myasthenia gravis etc.
- Cerebral Palsy
- Spasticity
- Poliomyelitis and its sequalae
- Cardiovascular Disease e.g. CAD, MI, CABG Surgery, Angioplasty, Cardiac transplantation etc.
- Pulmonary Disease e.g. COPD, Bronchiectesis, Cystic fibrosis etc.
- Cancer
- Swallowing disorder
- Bladder dysfunction
- Bowel dysfunction
- Vertigo
- HIV/AIDS
- Chronic Pain

40) Rehabilitation of persons:

- after Organ Transplantation

- in ICU setting

41) Pediatric Rehabilitation including children with Autism Spectrum Disorders, learning disabilities, multiple disabilities etc.

42) Geriatric Rehabilitation

43) Principles of evaluation and rehabilitation management of persons with:

- visual impairment
- mental retardation
- hearing /speech impairment
- psychological problems or mental illness

44) Medical Emergencies in Physical Medicine and Rehabilitation

45) Sexuality and Disability

46) Evidence-based Medicine and Physical Medicine and Rehabilitation

47) Legislation in relations to disability- National and International

48) Schemes and Benefits extended to persons with disabilities by the Govt.

49) Barrier-free Environment and access related issues

50) Computers in Physical Medicine and Rehabilitation

51) Recent Advances related to Physical Medicine and Rehabilitation

SUBJECT SPECIFIC PRACTICAL COMPETENCIES

1. **Clinical/Practical skills:** Understand and develop competence in executing common general procedures employed in diagnosis, investigations and management of conditions encountered in rehabilitation medicine. He/she should be able to practice and handle independently most of the day to day problems as encountered in Rehabilitation Medicine in a safe, effective and ethical manner. He/she should be able to plan a comprehensive rehabilitation service independently. He/she should be able to demonstrate understanding of the fabrication and competence in prescription and check out of orthoses and Prostheses, the principles, prescription and supervision of physiotherapy, occupational therapy, psycho-socio-vocational counselling. He should be able to practice rehabilitation medicine at the door step of community. He should be familiar with the common problems occurring in the urban, semi-urban, and rural areas and deal with them effectively, should be able to organize, conduct,

and supervise surveys in rural, urban and industrial communities and in specified groups of population; organise and conduct camps for disability prevention and rehabilitation of disabled persons, and guide rehabilitation workers at the peripheral level for rehabilitation of persons with disabilities.

2. **Research:** He/she should know the basic concepts of research methodology, plan a research project, and should know how to consult library. He/she should have basic knowledge of statistical methods and ethical aspects of research etc.

Section A:

1. Evaluation Process:
   - History taking in Physical Medicine and Rehabilitation
   - Clinical evaluation, Manual Muscle Strength Testing, Joint Range of Motion, Goniometry, Activities of Daily Living
   - Investigations – Laboratory and Radiological imaging studies
2. Gait Analysis – Terminology, types, Clinical Applications
3. Electrodiagnostic Medicine - basic principles, clinical methods, interpretation etc.
4. Outcome Measures in Physical Medicine and Rehabilitation
5. Impairment Rating and Disability Evaluation

Section B:

6. Therapeutic Exercises- settings, equipments, applications
7. Physical Agents/Modalities - precautions, prescription, application, follow-up etc.
8. Traction, Massage - principles, types, indications, contra-indications, precautions, prescription, application, follow-up etc.
9. Electrical Stimulation - precautions, prescription, application, follow-up etc.
10. Prescription of Occupational Therapy
11. Training of A.D.L. (Activities of Daily Living) in various conditions
12. Injection Techniques (e.g. intra-articular, peri-articular, trigger-point, epidural etc.) in Physical Medicine and Rehabilitation
13. Interventions in Physical Medicine and Rehabilitation e.g. Botulinum toxin injection, Phenol block, Alcohol blocks etc.

14. Upper limb orthotic devices - applications

15. Lower limb orthotic devices - applications

16. Spinal orthoses - applications

17. Upper limb prosthetics and amputee rehabilitation

18. Lower limb prosthetics and amputee rehabilitation

19. Mobility aids, wheelchairs and seating systems

20. Low back pain and Physical Medicine and Rehabilitation

21. Musculoskeletal trauma and Physical Medicine and Rehabilitation

22. Rehabilitation of persons suffering from:

    - Arthritis including Rheumatoid Arthritis, Osteoarthritis, Ankylosing Spondylitis etc.
    - Spinal deformity
    - Neck Pain, Shoulder Pain etc.
    - Osteoporosis
    - Sports Injury
    - burns Injury
    - Spinal Cord Injury

23. Rehabilitation of persons:

    - with obesity, dyslipidemia etc.
    - after Arthroplasty
    - after POP cast, Fracture treatment, Surgical intervention

24. Basic principles of rehabilitative surgeries such as deformity correction in poliomyelitis, cerebral palsy, clubfoot, contractures, revision of amputation stump, closure of pressure sore, tendon transfers etc.

Section C:

25. Rehabilitation of persons suffering from:

    - Plexus or Nerve Injury
    - Traumatic Brain Injury
    - Stroke
    - Parkinsonism, Multiple sclerosis, Ataxia, neurodegenerative disorders etc.
    - Neuropathy, Bell’s Palsy etc.
    - Hansen’s Disease
    - diseases of Muscles e.g. myopathy, motor-neuron disease, myasthenia gravis etc.
    - Cerebral Palsy
    - Spasticity

- Poliomyelitis and its sequalae
- Cardiovascular Disease e.g. CAD, MI, CABG Surgery, Angioplasty, Cardiac transplantation etc.
- Pulmonary Disease e.g. COPD, Bronchiectesis, Cystic fibrosis etc.
- Cancer
- ICU setting
- Swallowing disorder
- Bladder dysfunction
- Bowel dysfunction
- Vertigo
- HIV/AIDS
- Chronic Pain
- Organ Transplantation

26. Pediatric Rehabilitation including children with Autism Spectrum Disorders, learning disabilities, multiple disabilities etc.

27. Geriatric Rehabilitation

28. Principles of evaluation and rehabilitation management of persons with:

    - visual impairment
    - mental retardation
    - hearing /speech impairment
    - psychological problems or mental illness

29. Medical Emergencies in Physical Medicine and Rehabilitation

30. Sexuality and Disability

31. Evidence-based Medicine and Physical Medicine and Rehabilitation

32. Legislation in relations to disability- National and International

33. Schemes and Benefits extended to persons with disabilities by the Govt.

34. Barrier-free Environment and access related issues

35. Computers in Physical Medicine and Rehabilitation

36. Recent Advances related to Physical Medicine and Rehabilitation

TEACHING AND LEARNING METHODS

Post-Graduate Training:

A. Theoretical training:

The students pursuing post-graduation in Physical Medicine and Rehabilitation would be expected to engage in self-study. However, theoretical knowledge would be also imparted to the candidates through discussions during symposia and seminars etc.

Symposia/Seminars: The post-graduate student would be required to present topics to the combined group of teachers and students. A free discussion would be encouraged in these activities. Able to deliver lectures to undergraduates and held clinical demonstrations for them.

The topics of the symposia/seminars would be given to the residents with the dates for presentation.

The topics for Seminars could include any of the following, such as Gait Analysis, Spasticity, Pressure Sores, Spinal Orthoses, Hand Splints, Assistive Technology, Psycho-Social-Vocational Aspects, Cardiac Rehabilitation, Pulmonary Rehabilitation, Neuro-developmental Techniques, Post-Polio Syndrome, Cognitive Rehabilitation, Prosthetic Feet, PTB Prosthetic, Prosthetic Terminal Devices, CAD-CAM, FES, Spinal Deformities, Rehabilitation after Arthroplasty, Epidemiology of Disability, Barrier-free Environment, Ethical Aspects, Legislation related to Disability and Rehabilitation, Community-Based Rehabilitation, Leprosy Rehabilitation, Sexuality and Disability, Rehabilitation related to HIV/AIDS, Stem Cell Therapy in Rehabilitation, Geriatric Rehabilitation, Sports Injuries Rehabilitation, Rehabilitation after Organ Transplantation, Pain Management, Analgesics, NSAIDs, DMARDs, Disability Evaluation, Interventions in Physical Medicine and Rehabilitation etc.

Journal Club: This should be a regular/weekly activity. The candidate would be assigned /allowed to chose an article from amongst the recent publications from the list of recommended journals, present, summarise, and discuss the published article critically. The contributions made by the article in furtherance of the scientific knowledge as well as limitations (if any) should be highlighted.

B. Practical and Clinical Training:

Clinical: The student would be attached to a Faculty member to be able to pick up methods of history taking and examination in rehabilitation practice. During this period the student would also be

oriented to the common problems that present in the OPD or Wards/ICUs or are encountered in the community. The student would be supervised by Senior Residents and Faculty members.

Bedside: The student would work up cases; learn management of cases by discussion with the senior residents and faculty of the department. He/she would be trained in management of in-patients including performing certain procedures such as debridement, Plaster cast application, traction, catheterization, intubation etc.

Rehabilitative Surgery: The student would be provided with an opportunity, as far as possible, to observe, learn, assist and once proficient, perform rehabilitative surgical operations such as for correction of deformities in polio, cerebral palsy, amputation, clubfoot, pressure sore etc. including post-operative care with the assistance of the Senior Residents and/or under the direct supervision of a Faculty member.

The student would also be oriented to the various sections/units in a comprehensive rehabilitation set up (such as occupational therapy, orthotics-prosthetics, physiotherapy, social works, clinical psychology, vocational guidance/counseling, educational institution and Non-Governmental Organization in the disability sector etc.) and be well informed about and demonstrated the various equipments / materials / methods used there, and the scope, role and responsibilities of different members of a rehabilitation team.

C. Training in Research Methodology

The student would carry out the research project and write a thesis. Thesis topic would be finalized by the student in consultation with the Guide and Co-Guides, as per the norms duly approved by the Ethics Committee of the Institution. He would also be given exposure to partake in the research projects going on to learn their planning, methodology and execution to learn various aspects of research.

Recommended Reading: The list is indicative only, and not exhaustive.

Books:

1. Braddom RL *Physical Medicine & Rehabilitation,* Saunders (latest edition)
2. DeLisa JA. *Rehabilitation Medicine: Principles and Practice*. Lippincott (latest edition)
3. Rusk HA. *Rehabilitation Medicine*. CV Mosby (latest edition)
4. Helander E, Mendis P, Nelson G, Goerdt A, *Training in the Community for People with Disabilities* WHO, Geneva, 1989.

5. Helander E. *Prejudice and Dignity- An Introduction to Community-Based Rehabilitation.* UNDP, 1999.
6. Solomon L. *Apley's System of Orthopaedics and Fractures*. Arnold London (latest edition)
7. Fauci, Braunwald, Kasper, Hauser et al. *Harrison's Principles of Internal Medicine* McGraw-Hill Company (latest edition)
8. Vernon W Lin. *Spinal Cord Medicine- Principles and Practice*. Demos

Journals:

1. Archives of Physical Medicine & Rehabilitation
2. American Journal of Physical Medicine & Rehabilitation
3. Journal of Rehabilitation Research and Development
4. Scandinavian Journal of Rehabilitation Medicine
5. Physical Medicine & Rehabilitation Clinics of North America
6. Orthopaedics Clinics of North America
7. Stroke
8. Spinal Cord
9. Arthritis and Rheumatism
10. Journal of Prosthetics Orthotics International
11. Physical Therapy
12. Physiotherapy
13. American Journal of Occupational Therapy
14. Neurology India
15. Indian Pediatrics
16. Indian Journal of Orthopaedics (IJO)
17. Indian Journal of Physical Medicine & Rehabilitation (IJPMR)
18. National Medical Journal of India (NMJI)