H.N.B. Garhwal University, Srinagar, Garhwal

Examination Scheme, Syllabus & Ordinances

FOR

Master of Physiotherapy

(TWO YEAR POST GRADUATE COURSE)

DOLPHIN INSTITUTE OF BIO-MEDICAL & NATURAL SCIENCES
Manduwala, Dehradun

AIMS OF THE PROGRAMME

1. To improve the quality of education of the therapist in order to enhance their previously existing knowledge & skill for a more qualitative treatment methodology.

2. To make them specialists in particular streams. They should be adept in their methodology in the specific field of their specialization. So as they do not have any difficulty in assessing, diagnosing & treating various disorders of the specific field.

3. To impact knowledge that will be helpful for carring out other associated jobs requirements of various natures, i.e. to have a systemic concept on a demonstration / Teaching methods, medicolegal bindings & statistical data management.

4. To develop the ability to understand, reason analysis & draft a systematic response for any nature of work.

ORDINANCE

These regulations and syllabus are for M.P.T. – Post Graduate Degree in following specializations :

1. Masters in Physiotherapy (Musculo Skeletal Disorders)
2. Masters in Physiotherapy (Neurological Disorders)
3. Masters in Physiotherapy (Sports Rehabilitation)

ELIGIBILITY

The candidate should be a graduate in Physiotherapy from any Recognized Board / University in India or Abroad (according to UGC rules / Association of Indian Universities) and the candidate must have minimum 50% in aggregate.

DURATION

The period of certified study for the M.P.T. course shall be two academic years in each specialization.

MEDIUM OF INSTRUCTIONS

Medium of instruction will be English.

ATTENDANCE

The students admitted to this course shall attend regular classes. In order to be eligible for appearing in the final examination at the end of an academic session, a candidate should have minimum of 75% attendance in each of the subjects (Theory & Practical separately) in an academic year. Failing to have this he / she will not be allowed to appear in the annual examination. However, the head of the Institution can relax up to 5% of attendance, a further relaxation of 5% can be done by the Vice-Chancellor on the recommendation of the Head of the Institution.

1.
2. Internal Marks 40% minimum
3. Each student should present atleast 5 seminar in one academic year
4. Essential Participation in - Journal Club
   Case Presentation

SCHEME OF EXAMINATION

- There shall be an examination at the end of final academic year.
- Each subject shall carry 100 marks out of which 30marks will be internal assessment and 70 marks for the annual examination.
- The marks of the internal assessment will be given by the teacher Incharge / HOD on the basis of the performance of the candidate through out the year and any other assessment like seminars.
- Eligibility for appearing in final examination : Candidates are supposed to take part and conduct seminars and group discussions regularly. Candidates should conduct a minimum of 5 seminars in one academic year each.
- First year examination will be Institutional based (Non University examination).
- In order to pass in a subject a candidate has to secure 40% marks in theory and practicals separately, aggregate of the year 50%.
- The successful candidates shall be classified as under on the basis of aggregate marks obtained in the final examinations.
- For a course of 2 years duration, maximum of 2 years is allowed from the commencement of the course.
    - Example : For MPT it will be 2 x 2 = 4 years. (Maximum duration for completion of M.P.T. Course).
- Practicals : The practical exams will be held preferably before / after immediate theory exams. Where a training / field study is included in the syllabus (which is to be evaluated at Institute / University level), the same should be completed before the close of the final year. All Institutes / Departments running the program will follow this strictly.
- In order to be declared as "Pass", a candidate shall be have to obtain a minimum of 40% of internal marks. If a candidate does not obtain the minimum marks in internal assessment, he / she will not be considered eligible for appearing in the respective subject examinations. It will be the sole responsibility of the Institute / Department to ensure this prior to Annual Examination and inform the University of the details of the candidates.
  Minimum qualifying marks for Pass in final year.
  Each Paper 40%. Aggregate 50%
- Divisions
  a) First division 60% and above in aggregate.
  b) Second division 50% and above but less than 60%
  c) Distinction is to be mentioned if a candidate obtains a total of 75% or more in aggregate in single attempt (without the award of grace marks to pass in any paper).

*

5% marks if he fails in only one theory paper but obtains the minimum aggregate marks required for passing without considering the grace marks. Grace marks will not be awarded for internal assessment. If the 5% marks work out to be fraction / decimal, it will be rounded off to the next higher number (eg. 1.25 to be rounded off as 2 marks).

* Candidates are allowed in the Back Paper. Candidates who have already passed the papers. But wishing to improve their performance are also allowed to appear.

Where a candidate secures marks less than those obtained in the first attempt (applicable in case of improvement, not failure candidates) the best of the two marks will be considered for the purpose of the final results. Theory or Practical shall be considered as a paper.

Where a student fails in a project (if included in course of study) or fails to submit in the specified time, he / she shall be allowed to resubmit the same in the next year (when the related examination falls due next) on payment of the required back paper fee.

Supplementary Exam : Any candidate who fails in two or less than two courses can appear in the supplementary examination conducted by the University with in six months of declaration of result. Practical for this purpose will be considered as a separate paper.
Any candidate failing in more than two papers would be considered as a failed shall have to reappear in the next annual examinations as Ex. – student

EXAMINATION PATTERN

* All the theory papers in each year will carry 100 marks out of which 30 marks will be for Internal assessment and 70 marks for final examination.
* The practical examination will be of 100 marks. The practical & viva-voce in each subject will carry 30 marks as internal & 70 marks in final examination.
* The final examination will be of 70 marks. There will be 5 descriptive questions of 15 marks each, out of which a candidate shall be required to attempt any 3 (3 x 15 = 45 marks) & 8 short questions out of which, a student will have to attempt 5 questions each carrying 5 marks (5 x 5 = 25 marks).
* Equal distribution of marks / questions for each unit of a single subject.
* The duration of final examination shall be 3 hrs.

DISSERTATION (PROJECT WORK)

Dissertation shall be of 200 marks there will be no Sessional in this subject. The dissertations shall be of 5000 words (Minimum). Consisting of result of his own study/ work based upon his / her clinical duties under the Guidance of a Teacher / Guide.

The degree of Master of Physiotherapy will be awarded to the candidate only after he / she has completed the following :-

1.
2. The Registrar shall publish the result of the examination, as soon as possible after the examination has been held.
3. He / she passed all the academic examination successfully (included dissertation).

SYLLABUS

This syllabus & ordinance shall come in to force immediately of the session 2002-2003 onwards.

Note : Masters in Physiotherapy noted – M.P.T.

COURSE STRUCTURE OF M.P.T.
PART / YEAR – I – M.P.T. (COMMON TO ALL DISCIPINES)
[Institutional Examination, Non University Examination]

S.No.	Subjects	Code	Theory / Practical		Total	Total Study / Hour
			M.M. Annual	M.M. Sessional		Total No. of Weeks x Hours
1.	Review of Human Sciences (Anatomy, Physiology, Pathology, Pharmacology & Biochemistry)	MP-101	70	30	100	30 x 3 = 90
2.	Review of Basic Therapeutics (Exercise Therapy, Electro Therapy, Biomechanics, & Bio. Engg.)	MP-102	70	30	100	30 x 3 = 90
3.	Advanced Therapeutics & Diagnosis (Manual Therapy, MET, Myofascial Release, LASERS, EMG, Micro Current, Radiology & Diagnostic Studies, Lab {Pathology})	MP-103	70	30	100	30 x 3 = 90
4.	Practicals	MP-104	70	30	100	30 x 3 = 90
5.	Clinicals		70	30	100	30 x 24 = 720
			Total		400	990

PART / YEAR – II (M.P.T. NEUROLOGY)

S.No.	Subjects	Code	Theory / Practical		Total	Total Study / Hour
			M.M. Annual	M.M. Sessional		Total No. of Weeks x Hours
1.	Physical Therapy in Neurological Disorders	MPN-201	70	30	100	30 x 4 = 120
2.	Neurosurgical Rehabilitation	MPN-202	70	30	100	30 x 4 = 120
3.	Physical Therapy in Paediatric Neurology	MPN-203	70	30	100	30 x 4 = 120
4.	Skill enhancing studies (Research & methodology Ethics, Educational Technology & Medicolegal aspects)	MPN-204	70	30	100	30 x 4 = 120
5.	Practical	MPN-205	70	30	100	
6.	Dissertation (Based on Project work)	MPN-206			200	
7.	Clinicals			Total	700	1200

PART / YEAR – II (M.P.T. IN MUSCULO SKELETAL)

S.No.	Subjects	Code	Theory / Practical		Total	Total Study / Hour
			M.M. Annual	M.M. Sessional		Total No. of Weeks x Hours
1.	Orthopaedics Physicals Therapy	MPO-201	70	30	100	30 x 4 = 120
2.	Vertebral disorders & Rehabilitation	MPO-202	70	30	100	30 x 4 = 120
3.	Hand Rehabilitation	MPO-203	70	30	100	30 x 4 = 120
4.	Skill enhancing studies (Research & Methodology Ethics, Educational Technology & Medicolegal aspects)	MPO-204	70	30	100	30 x 4 = 120
5.	Practicals	MPO-205	70	30	100	
6.	Dissertation (Based on Project work)	MPO-206			200	
7.	Clinicals					30 x 24 = 720
				Total = 700		1200

PART / YEAR II (M.P.T. SPORTS)

S.No.	Subjects	Code	Theory / Practical		Total	Total Study / Hour
			M.M. Annual	M.M. Sessional		Total No. of Weeks x Hours
1.	Traumatology (Orthopaedics & Community Medicine Physical Therapy)	MPS-201	70	30	100	30 x 4 = 120
2.	Fundamental in Sports	MPS-202	70	30	100	30 x 4 = 120
3.	Rehabilitation in Sports	MPS-203	70	30	100	30 x 4 = 120
4.	Skill enhancing studies (Research & methodology Ethics, Educational Technology & Medicolegal aspects)	MPS-204	70	30	100	30 x 4 = 120
5.	Practicals	MPS-205	70	30	100	30 x 4 = 120
6.	Dissertation (Based on Project work)	MPS-206			200	
7.	Clinicals					30 x 24 = 720
				Total = 700		1200

REVIEW OF HUMAN SCIENCES

MPT-Ist Year
Code M.P. – 101
Max. Marks = 100

Course objective

1. Applied anatomy for supportive specialization.
2. Normal functional anatomy for analysis between normal and abnormal
3. Subject support : Diagnosis & related mechanics.
4. Pharma : Medical Professional supportive purpose / action reaction of medical related to different specialization.
5. Pathology : Basic condition knowledge, their pathological changes & their relevant conditions to support the speiclization.
6. Biochemistry : For nutritional and diet chart of different conditions.

Unit –I: Human Anatomy

Out line of general anatomy
Introduction to upper limb & lower limb

a. Bones & joints
b. Muscles
c. Nerves, roots, plexus
d. Pectoral, Axilla, Scapular, Arm, Forearm, Cubital fossa, Hand
e. Vascular Structure
f. Thigh, Gluteal region, popliteal fossa
g. Leg, foot

Introduction of thoracic bones and joints
Introduction of vertebral column

a. Cervical, Thoracic, Lumbar, sacral spine
b. Anatomy of spinal cord

Introduction of head and neck

a. Neck : Side of neck
   Back of Neck
   Triangle of Neck
b. Temporomandibular joint

Introduction to brain

a. Meninges, CSF
b. Blood supply of brain & Spinal cord
c. Outline of ventricles
d. Outline of brain stem

Unit – II : Human Physiology
Cardiovascular System

a. Structure & Properties of heart
b. Cardiac Cycle
c. The regulation of heart's performance
d. Cardiac output
e. The arterial blood pressure
f. The Physiology of vascular system

g. Lymphatic circulation

Respiratory system

a. Functional Anatomy
b. Ventilation & Control of Ventilation
c. Alveolar air
d. Regulation of the breathing
e. Pulmonary function test

Nervous system

a. Elementary neuroanatomy
b. Neurons & Neuroglia
c. Properties of nerve fibres, synapse
d. Spinal Cord
e. Cerebral cortex
f. Pyramidal & Extrapyramidal system
g. The cerebellum
h. Autonomic nervous system
i. Cerebrospinal fluid
j. Cranial nerves

Unit : III Pharmacology

Discussion in details about the following groups of drug. Their effects, uses, side effects and dosage.

a. 1. Drugs used in pain
b. Local anesthetics
c. Steroids
d. Muscle relaxants
e. Drug acting upon central nervous systems & autonomic nervous system.
f. Tropically acting drugs

Unit – IV Pathology

1. General Pathology (Cell injury, Inflammation, repair, immune system)
2. Musculoskeletal System
    a. Bones
        - Hereditary & Metabolic Diseases
        - (Osteoporosis, Rickets, Osteomalacia, Osteitis fibrosa cystica, renal Osteodystrophy)
        - Infections :
          (Osteomyelitis, tuberculosis)
    b. Joints
        - degenerative joint diseases
        - Bursitis

    c. Skeletal muscles
       (muscle atrophy, myositis, muscular dystrophy, myasthenia gravis)

3. Nervous System
    a. Infection (Meningitis, encephalitis)
    b. Vascular diseases (ischemic encephalopathy, cerebral infarction, intracranial haemorrhage)

c. Degenerative disease
(Alzheimer's disease, Huntington's disease, Parkinsonism, Motor neuron disease)
d. Demyelinating diseases
(Multiple sclerosis)
e. The peripheral nervous system
(Peripheral neuropathy, acute idiopathic polyneuropathy, diabetic neuropathy)

Unit V : Biochemistry : Diet its nutritional and calorific value of various foods, balance diet, energy requirements of various individuals.

REVIEW OF BASIC THERAPEUTICS

MPT-Ist Year
Code M.P. – 102
Max. Marks = 100

Unit – I : **Exercise Therapy**

Review of the following techniques

- Assessment techniques like MMT & Goniometry
- Stretching and mobilization
- Re-education and strengthening
- Balance and co-ordination exercises
- Gait analysis and training (Both normal & Pathological gait)
- Relaxation and soft tissue manipulation
- Posture
- PNF
- Traction
- Hydrotherapy

Unit – II : Electrotherapy

- Gen. Review of low & medium frequency currents frequencies and their modifications like di-dynamic and Russian currents.
- Ultrasound
- UVR and IRR
- Cryotherapy
- Other thermal modalities

Unit – III : Biomechanics

- Evaluation and assessment of joint motion
- Evaluation and assessment of locomotion
- Evaluation and assessment of posture
-

Unit – IV : Bio-Engineering

- Various types of orthosis & its uses (limbs & Spines).
- Various types of prosthesis, patients preparation and application

ADVANCED THERAPEUTICS AND DIAGNOSIS

MPT-Ist Year

Code M.P. – 103
Max. Marks = 100

Unit – I : Manual Therapy : Introduction, History, Basic Classification, Assessment for manipulation, discussion in brief about the concepts of mobilization like
Cyriax,
Maitland &
Mulligun mobilization of joints and
Butler in Neural tissue mobilization,

Unit – II : Muscle Energy technique:
The basic concept and application of these techniques, indication and effects and uses.

Unit-III: Positional release:
The basic concept and application of these techniques, indication and effects and uses

Unit – IV : Myofascial Release :
Concept & brief discussion of its application techniques, indication and effects and uses.

Unit – V : Lasers : Production, types, effects, application, indications & contraindications.

Unit – VI : Nerve conduction studies and EMG :
Normal & abnormal action potentials, its recording protocols, analysis & apparatus.

Unit – VII : Microcurrents :
Concept, Indications, Contraindications & Application.

Unit – VIII : Biofeed back :
Principles, effects, uses and contraindications.

Following are only for practical knowledge ; not for theory exam)

Unit IX : Radiology & Diagnostic Studies : Reading and analysis of
1. X-Ray 2. C.T. Scan 3. M.R.I. Scan

Their clinical relation with various muscular skeletal disorders and nervous disorders.

Unit X : Lab (Pathology) Investigations : Methodology of routine examination of blood, urine only.

Analysis of various laboratory Examination reports and their clinical Co-relation with various muscular skeletal disorders and nervous disorders.

Practical in Therapeutics

MPT-1st Year
Code M.P. – 104
Max. Marks = 100

Course Objectives :
Knowledge of basic therapeutics & 90 hrs practical studies of advanced therapeutics applied to different conditions/ relieving of mechanical factors & assessment & Treatment purpose.

Unit – I
Exercise Therapy : Assessment of joint, muscle & nerves

a. All type of strengthening techniques
b. All type of mobilization techniques
c. Soft tissues stretching & mobilization
d. Gait analysis & Training
e. Postural assessment & re-education
f. Balance & coordination
g. Special technique of exercise therapy
h. Traction
i. Hydrotherapy

Unit – II
Electro Therapy

a. All types of low & medium frequency currents
    - Faradic
    - Galvanic
    - High Voltage Current
    - Di dynamic
    - Russian
    - Interferential Therapy
    - TENS
    - Microcurrents

b. All type of high frequency currents & modalities
    - Short wave diathermy
    - Microwave diathermy
    - Ultrasound

Unit – II : **Miscellaneous**

a. Cryotherapy
b. Biofeedback
c. UVR
d. IRR
e. LASER
f. Other Heat modalities

Unit – IV : Advanced Manual Therapy

a. Demonstration of any one of following manual therapy (according to their specialization field)
    - Cyriax
    - Maitland
    - Mulligun
    - Butler
    - Nerve mobilization

b. Outline of practical knowledge of Muscle Energy techniques & positional stretch & Myofascial release.

M.P.T. (Musculoskeletal Disorders) – II
PART / YEAR – II – (M.P.T.)

S. No.	Subject	Code No.	Theory (M.M.)		Total	Study Hrs.
			Annual	Sessional		
1	Orthopaedic Physical Therapy	MPT-201	70	30	100	30×4=120
2	Vertebral disorders & Rehabilitation	MPT-202	70	30	100	30×4=120
3	Hand Rehabilitation	MPT-203	70	30	100	30×4=120
4	Skill enhancing studies (Research & Methodology Ethics, Educational Technology & Medico-legal aspects)	MPT-204	70	30	100	30×4=120
5	Practicals	MPT-205	70	30	100	
6	Dissertation (Based on Project Work)	MPT-206			200	
7	Clinicals					30×24=720
				Total	700	1200

M.P.T. (Ortho.) – II

ORTHOPAEDICS IN PHYSICAL THERAPY

MPT-2nd Year
Code M.P. – 201
Max. Marks = 100
Internal – 30
External – 70

Detailed assessment & management in view of advanced and traditional methods considering both surgical and physical therapy aspects.

Unit – I : General Orthopaedics

1. Methods of diagnosis
2. Infections in bones and joints
3. Rheumatic disorders.
4. Generalized affections of bone and joints (metabolic & endocrinal)
5. Developmental disorders. (Cartilagenous dysplasias, bony dysplasias & chromosomal abnormalities etc.)
6. Congenital disorders.
7. Degenerative disorders.
8. Tumors of bones
9. Osteonecrosis and osteochondritis.
10. Neurological and muscular disorders & peripheral nerve injuries.

Unit – II : Regional Orthopaedics and Rehabilitation

Bony & soft tissue disorders of :

1. Shoulder and arm
2. Elbow and forearm
3. Wrist.
4. Hip and thigh
5. Knee and leg
6. Ankle and foot

Unit – III : Traumatology

a. Incidence, aetiology, clinical features, complications, assessment investigations and conservative reductions physiotherapy management of the following.
    1. Fractures and dislocations of upper limb.
    2. Fractures and dislocations of lower limb.
    3. Fractures and dislocations of pelvis
    4. Stress fractures
    5. Burns

b. Management and Rehabilitation of:
    1. Fractures and dislocations of upper limb.
    2. Fractures and dislocations of lower limb.
    3. Fractures and dislocations of pelvis
    4. Stress fractures

Unit IV: Some Common Orthopaedic surgeries : Methodology of different types of some surgeries and its rehabilitation. Menisectomy, laminectomy, patellectomy, total knee replacement, total hip replacement, triple arthrodesis, hip arthrodesis and arthroplasty, bone grafting, internal and external fixations, tendon transfers, nerve suturing and grafting etc.

Unit V : Amputation

5. Types, Levels & procedures
6. Pre and post operative rehabilitation.
7. Prosthesis and stump care.

Unit VI : Vascular and Neural injuries and disorders

1. Thoracic outlet/inlet syndrome
2. Volkman's ischaemic contractures
3. Compartment syndrome
4. Neuropathies
5. Peripheral nerve injuries

Unit VII : Miscellaneous : Leprosy, Cerebral Palsy, Poliomyelitis, principles of geriatric-rehabilitation and some common conditions of geriatric patients.

Unit VIII : Bioengineering : Orthosis and splints : Their types, applications, care & uses.

Practicals

Related to assessment, investigations and physiotherapy management of all the above conditions.

M.P.T. (Ortho)- II
VERTEBRAL DISORDERS AND REHABILITATION

M.P.T. 2nd year
Code- M.P.O.- 202
Max. Marks- 100
Internal -30
External-70

Classification, Pathophysiology, causes, clinical features, complication examinations, management, physiotherapy treatment of common vertebral disorders.

Advance techniques like Maitland, Cyriax, PNF etc. apply according to the necessary cases.

Unit- I Review of anatomy and biomechanics of vertebral column.

Unit-II Congenital disorders of vertebral column & vertebral deformities.

Unit-III Inflammatory disorders of vertebrae, vertebral joints, soft tissues.

Unit-IV Disease of the vertebral joints, segmental instability.

Unit-V Disorders of structural changes, changes of alignment of bone, joint of vertebral column.

Unit-VI Low Back pain, pain in vertebral column & stiffness disorders.

Regional :- Cervical,
Lumbar,
Thoracic,
Sacral, etc.

Unit-VII Traumatic injuries of vertebral column ;: General & regional injuries.

1. Soft tissue injuries, tightness, structural changes.
2. Bone injuries (fractures & dislocation of spine)
3. Pelvic injuries.

Unit- VIII

Spinal cord injuries

1. Types, classifications.
2. Pathology,
3. Level,
4. Examination,
5. Management & rehabilitation,
6. Orthopaedic surgeries,
7. Bio engineering appliances & support devices,
8. Pre & Post operative rehabilitation.

Practicals

Related to assessment, investigations and physiotherapy management of all the above conditions.

M.P.T. (Ortho.) – II
HAND REHABLITATION

M.P.T. –2nd Year
Code – M.P.O. 203
Max. Marks -100
Internal-30
External-70

Unit- I

Functions of hand as motor and sensory organ with advanced bio and pathomechanics of hand injuries. Classification of hand injuries and principles of hand Rehabilitation (Functional and Vocational Training).

Unit-II

a) Tendon injuries b) Nerve injuries c) Crush injuries

Incision and their effects on later rehabilitation, fractures, joint injuries and correction of Deformities.

Unit- III

a) Burns in hand b) Spastic hand
c) Rheumatoid hand d) Hand in hansen's disease
e) Reflex sympathetic dystrophy

Unit-IV

a) Phantom hand pain b) Prosthetic hand
c) Orthosis for hand and their uses

Practicals

Related to assessment, investigations and physiotherapy management of all the above conditions.

M.P.T. (Ortho.) – II
SKILL ENHANCING STUDIES

M.P.T. – 2nd year
Code – M.P.O. 204
Max. Marks -100
Internal-30
External-70

Course Objective

1. Biostatistics & Computer for collecting data & programme project work & for planning effective treatment.
2. Ethics & Medicolegal aspects for clinical purposes.
3. Educational Technology for Teaching & Learning purposes.

Unit- I Research Methodology

Introduction

1. Uses of statistical methods in physiotherapy.

Methods of collection classification, tabulation & presentation of data.

Central tendency –

Mean, Median, Mode & standard deviation

Correlation & Regression :-

Karl pearson's co relation method
Rank co relation method
Regression & coefficients
Sampling & hypothesis & testing
Data collection
Types of sampling
Random sampling
't' Test, 'Z' test, Chi square testing.

Unit-II Physiotherapy Ethics

1. Morals and ethics
2. Ethical issues in physical therapy
3. Rules and regulation of association/council.

Unit-III Physical Therapy & Law : Mediolegal aspect of physical therapy, liability, negligence and practice licensure workmen compensation. Maintaining the medical Register.

Unit- IV Physiotherapy Department Manageament.

1. Policies and prodedures.
2. Recruitment, interview, probation, salary, hours of working, leave facilities retirement, referred policy.
3. Maintenance of records equipments, statistics.
4. Planning, design construction, expansion plan.

Unit- V Physiotherapy Education Technology.

i) Aims, philosophy and trends and issues :-
   a) Educational aims.
   b) Agencies of education.
   c) Formal and informal education.
   d) Major philosophies of education.
      (naturalism, idealism, profemation, realism)
   e) Modern and contemperorary philosophies of educations.

Physiotherapy of education in India (past, present and future) current issues and trends in education.

ii) Concepts of teaching and learning
   i) Theories of teaching.
   ii) Relationship between teaching and learning.
   iii) Psychology of education.
   iv) Dynamics of behaviour, motivational process of learning perception, individual differences, intelligence personality.

iii) Curriculum
   i) Curriculum committee.
   ii) Development of a curriculum for physiotherapy.
   iii) Types of curriculum.
   iv) Placing, courses placement, time allotment.
   v) Correlation of theory and practice.
   vi) Hospital and community areas for clinical instructions.
   vii) Clinical assignments.

iv) Principles and methods of teaching.
   i) Strategies of teaching.
   ii) Planning of teaching.
   iii) Organisation, writing lesson plan.
   iv) A.V. aids.
   v) Teaching methods - socialised teaching methods.

v) Measurement and evaluation
   i) Nature of measurement of Educations, meaning, personnel, standardized, non standardized.
   ii) Standardised tools, important tests of intelligence, aptitude, instrument personality, achievements and status scale.
   iii) Programme evaluation.
   iv) Commulative evaluation.

vi) Guidance and couselling
   i) Philosophy, principles and concepts, guidance and counseling services.
   ii) Faculty development and development of personnel for physiotherapy services.

Unit- VI Computer (Non University Examination)

1. Introduction of software & hardware.

2. M.S. Office, Dos.
3. Application computer in medical sciences.

M.P.T. (Ortho.) – II

PRACTICAL

M.P.T. – 2nd year
Code – M.P.O. - 205
Max. Marks -100
Internal-30
External-70

Practical Examination

- Total Hours of Practical Examination will be 6 hours.
- Practical examination will be divided into two parts.
    1) Two Large Cases – 30 marks each (30×2 = 60 Marks)
    2) One Small Case – 10 marks (10 ×1 = 10 Marks)

Large cases for example:

PIVD, Spondylolisthesis, Back pain, cervical radiculopathy etc.

Small cases for example:

Ligament injuries, tendonitis, bursitis, etc.

- Following procedures will be included in the practical examination:

1. Assessment
    a) Physical
    b) Clinical
    c) Pathological
    d) Other Investigations
2. Differential diagnosis & its reason.
3. Treatment : Physiotherapy Management & advanced technique application.
4. Home programme.

Fracture Cases : Intensive care, Emergency care, Positioning, Reduction, Plaster application care in period of immobilization & post immobilization rehabilitation.

M.P.T. (Neuro) – II

PHYSICAL THERAPY IN NEUROLOGICAL DISORDERS

M.P.T. – 2nd year

Code – M.P.N. – 201

Max. Marks = 100

Unit I: Introduction

1. The history of the illness
2. Examination of the patient.
3. Investigation of the patient with neurological disease EMG., EEG., Nerve conduction test, Radiology X – Ray, CT., MRI., Laboratory test etc.
4. Physiotherapy assessment & rehabilitation.
   (Advanced therapeutic techniques like Bobath, Motor re learning, Rood, PNF, Mobilization etc.)

Unit II: Cranial Nerves

1. Testing of cranial nerves.
2. Disorders of cranial nerves, Cranial neuropathy.
3. Rehabilitation protocol.

Unit III: Stupor and Coma

1. The neural basis of consciousness.
2. Clinical terminology.
3. Lesions responsible for stupor and coma.
4. The assessment and investigation of the unconscious patient.
5. The diagnosis of brain death.
6. The management of the unconscious patient.
7. Total rehabilitation protocol.

Unit IV: Disorders of the Cerebral circulation

1. Epidemiology of the stroke
2. Causes, types, pathophysiology.
3. Clinical features and investigation.
4. Treatment of different type of stroke.

5. Recovery and rehabilitation.
6. Stroke prevention.

Unit V: Infectionus disorders

1.	Meningitis	2.	Encephalitis	3.	Brain abscess
4.	Syphilis	5.	Herpes Simplex	6.	Chorea
7.	Tuber Culosis	8.	Transverse myelitis	9.	Poliomyelitis

Classification, causes pathophysiology clinical features complication management & Rehabilitation.

Unit VI: Demyelinating disease of the Nervous system.

1. Classification of demyelinating diseases.
2. Multiple sclerosis.
3. Diffuse sclerosis.

Unit VII: Movement disorders

1. Akinetic – rigidity syndromes
2. Dyskinesias disorders

Unit VIII: Degenerative diseases of the spinal cord and cerebellum.

1. All type of ataxia
2. Motor neurone disease
3. Spinal muscular atrophies.

Unit IX: Disorders of the spinal cord & cauda equine

1. Acute traumatic injuries of the spinal cord.
2. Haematomyelia and acute central cervical cord injuries.
3. Slow progressive compression of the spinal cord.
4. Syringomyelia.
5. Ischaemia andinfarction of the spinal cord and cauda equine.
6. Spina bifida.

Unit X: Deficiency and Nutritional disorders.

1. Deficiency of vitamins & related disorders.
2. Other nutritional neuropathies.

Unit XI: Disorders of Peripheral Nerves.

1. Clinical diagnosis of peripheral neuropathy.
2. All type of level of peripheral neuropathy and brachial plexus.
3. Causalgia.
4. Reflex sympathetic dystrophy.
5. Peipharal nerve tumours and irradiation neuropathy.
6. Traumatic, compressive and ischaemic neuropathy.
7. Spinal radiculitis and radiculopathy.
8. Hereditary motor and sensony neuropathy (HMSN) (Type I, II and IV & V)
9. Acute idiopathic polyneuritis chronic.
10. Neuropathy due to infections.
11. Vasculomotor neuropathy.
12. Neuropathy due to systemic medical disorders.
13. Drug – induced neuropathy.
14. Olitline metal – poisoning chemical neuropathies.

Unit XII: Disorders of Muscle.

1. Classification of the muscular dystrophies.
2. The myotonic disorders.
3. Inflammatory disorders of muscle.
4. Myasthenia grevis.
5. Endocrine and metabolic myopathies.

Unit XIII: Autonomic Nervous Disorders

Unit XIV: Seizures.

1. Epidemilogy, classification, causes, factors precipitating, diagnosis.
2. Myoclonus.

Unit XV: Disorders of higher cereibral cortical function.

1. Disorders of different lobes.
    a) Frontal lobes.
    b) Temporal lobes.
    c) Parietal lobes.
    d) Occipital lobes.
    e) Sub cortical lesions.

PRACTICAL

Related to assessments, investigations and physiotherapy management of all the above conditions.

M.P.T. (Neuro) – II

NEUROSURGICAL REHABILITATION

M.P.T. – 2nd year

Code – M.P.N. – 202

Max. Marks = 100

Unit I

Techniques, Types of skull, brain, spine, surgery & its complication. Pre & post physiotherapy assessment, Treatment.

Unit II

Cranio cerebral injury (Head & Brain injury)

1. Closed skull fractures.
2. Haematomas, epidural, sub dural, intracerebral.
3. Open cranio cerebral injuries.
4. Re construction operation in head injuries.

Epidemiology, Pathophysiologies, Symptoms, Signs, Investigation, Management, Pre and post operative Physiotherapy, complication.

Unit III

Tumors

1. Tumors of cranial bones.
2. Menigiomas.
3. Tumors in spinal cord.
4. Intra Cranial Tumors.
5. Other condition related to raised intra cranial pressure.
    a) Hydrocephallus.
    b) Intracranial abscess.
    c) Central oedema.

Unit III: Tumors

Pahtophysiology, classification effects of Mass lesion, Symptoms and Sign, Examination Management Pre & Post Operative Rehabilitation protocol.

1. Tumors of cranial bones.
2. Menigiomas.
3. Tumors in spinal cord.
4. Intra Cranial Tumors.
5. Other condition related to raised intra cranial pressure.
    a. Hydrocephallus.
    b. Intracranial abscess.
    c. Central oedema.

6. Vascular disease of the Brain
    a) Aneurysms b) Thrombosis

7. Decompression Surgery of Spinal cord.
    a) Disc operation (Cervical, Lumbar)
    b) Stenosis.
    c) Oedema, Abscess,
    d) Lumbar Puncture.

8. Peripheral Nerves
    a) De – compression.
    b) Nerve Suture.
    c) Nerve Grafting

M.P.T. (Neuro) – II

PHYSICAL THERAPY IN PAEDIARTIC NEUROLOGY

M.P.T. – 2nd year
Code – M.P.N. – 203
Max. Marks = 100

Unit I: - General Developmental sequence of Normal Child: Weight, height and circumference measurements related to age in normal child development milestones, Neonatal reflexs. factors influenzing growth & development various periods of growths post natal growth paterns, types of body built, physical examination of a child.

Unit II: - Nutrition and Immunization: Normal nutritional requirement of a child infant feeding prevention of some nutritional disorders nutritional deficiency diseases. immunization (salk and sabin dpt and against some common viral diseases)

Unit III: - Cerebral Palsy: Types aetiology, clinical features, management and rehabilitation of various types of cerebral palsies.

Unit IV: - Neurological Affection of Childhood: Poliomyelitis, spina bifida hydrocephalus, encephalitis aetiology, clinical features & rehabilitation peripheral nerve injuries in early child hood.

Unit V: - Muscular Disorders: Types of muscular dystrophies and myopathies of childhood.

The floppy infant syndrome

Unit VI: - Seizures epilepsy of child hood.

Related to assessments, investigations and physiotherapy management of all the above conditions.

M.P.T. (Sports) – II

TRAUMATOLOGY: ORTHOPAEDICE AND COMMUNITY MEDICINE – PHYSICAL THERAPY

M.P.T. – 2nd year
Code – M.P.N. – 201
Max. Marks = 100
INTERNAL 30
EXTERNAL 70

Course Objective

1. ANALYSE AND INTERPRET VARIOUS SPORTS INJURIES / PATHO MECHANICS AND APPLY APPROPRIATE THERAPEUTIC TECHNIQUES ON AND OFF THE FIELD.

6. DEVISE / MODIFY VARIOUS EXERCISES FOR SPORTS PERSONNEL AND PREVENT INJURIES BY APPLING PROPER DYNAMICS DURING PLAY.

7. ANALYSE THE EFFECT OF THERAPEUTIC MODALITIES, INDICATIONS AND CONTRA INDICATIONS AND PRECAUTION TO ENSURE SAFETY.

8. DEMONSTRATE SKILLS OF ASSESSMENT AND MANAGEMENT IN BOTH ACUTE AND LONG STANDING INJURY CONDITIONS.

9. CARRY OUT RESEARCH IN A PARTICULAR ASPECT / SPECIFIC EVENT BASED ON BIO MECHANICAL / PHYSIOLOGICAL AND OTHER VARIABLES.

Unit I: Assessment Principles: Detailed physical assessments of spine, hip and thigh, knee and leg, foot and ankle, shoulder and arm, elbow and forearm, wrist and hand.

Unit II: Common Back Problems and Injuries: PIVD, Spondylosis, spondylolisthesis, spinal canal stenosis, postural strain, back injuries in sports, ankylosing spondylitis, scoliosis, whiplash injuries, cervical spine etc.

Unit III: Hip and Thigh Problems and Injuries: Perthes disease, coax vara, ligament and muscle injuries in sports, irritable hip, arthritis, congenital dislocation of hip etc.

Unit IV: Knee and leg Problems and Injuries: Arthritis, genu valgum and varum, meniscal injuries ligament and muscle injuries, loose bodies, bursitis etc.

Unit V: Ankle and foot problems and injuries: Pain in heel, pain behind heel, plantar fascitis, morton's neuralgia, pes planus and pes cavus, CTEV, muscle and ligament injuries.

Unit VI: Shoulder and arm Problems and Injuries: Rotator cuff injuries, periarthritis, bursitis, painful arc syndrome.

Unit VII: Elbow and forearm injuries and problems: Cubitus valgus and varus, arthritis, tennis and golfer elbow and other injuries.

VIII: Wrist and Hand: Claw hand, duptyrens contracture, trigger finger, Arthritis, dequevrains, disease base ball finger etc.

Unit IX: Common fractures and dislocations: Fractures and dislocations of Upper limb Lower limb, spine and stress fractures.

Unit X: Diagnosis and Management of Skin conditions of athletes: Fungal infections, boils, cellulites, sunburn etc.

Unit XI: Female specific Problems: Sports amenorrhoea, injury to female reproductive tract, menstrual problems, eating disorders, osteoporosis etc.

Unit XII: Common Diseases: Common cold, fever, diarrhoea, dysentery amoebiasis sore throat, stress ulcers, skin infection etc.

M.P.T. (Sports) – II

FUNDAMENTAL IN SPORTS

M.P.T. – 2nd year
Code – M.P.N. – 202
Max. Marks = 100
INTERNAL 30
EXTERNAL 70

Unit: Brief idea about some common sports: Terminology, methodology, rules, equipments and infrastructure.

Cricket, football, hockey, tennis, badminton, table tennis, wrestling, boxing, track and field, gymnastics volleyball, basketball and aquatic sports.

Unit II: Physics in sports: Type of motion, distance, speed, velocity, angular motion, acceleration, inertia, mass, newtons law of motion, force and its characteristics, classification of force system couple composition and resolution of force system, function, projectile motion, levers and fluid mechanics.

Unit III: Biomechanics:

Biomechanics of running.
Biomechanics of throwing.
Biomechanics of jumping.
Introduction to analysis equipment.

Unit IV: Misc

Psychological aspect in sports.
Spirit and moral values, dopping in sports and performance enhancing drugs.
Special aids in performance.
Body composition, its analysis and effects of sports.
Protective equipment used in sports.

M.P.T. (Sports) – II

FUNDAMENTAL IN SPORTS

M.P.T. – 2nd year
Code – M.P.N. – 203
Max. Marks = 100
INTERNAL 30
EXTERNAL 70

Unit I: Physiological Responses to Exercise: Exercise effect on metabolism, muscle fatigue, respiratory and cardiovascular changes, second wind, electrolyte regulation during sports etc.

Unit II: Response of Injury: Muscle trauma, contusions, strains and rupture, effects immobilization and detraining, bone trauma, ligament and tendon, injuries, structure, mechanical properties and injury to articular carlilage, relationship between injury and nervous tissues, DOMS.

Unit III: Prevention of Injuries:

Risk factors in sports (intrinsic and extrinisic)
Strategies of Injury prevention.

Unit IV: Injury evaluation and management: Sporting emergencies, onfield assessment, clinical assessments principles of management (acute management, remodeling and conditioning, maintainance of fitness and rehabilitation).

Fitness testing and its analysis, flexibility defects and its correction. Strength training for children and Adolescents, environmental effects on training, exercise testing and prescription.

Unit V: Nutrition in Sports: Requirements of atheletes, diet planning, needs for individual sports, pre game meal, carbohydrate loading.

Unit VI: Training In Sports: Various techniques like Plymortics etc. in sports training.

Unit VII: Some common injuries related to some common & popular sports and their management.

1.	Injuries in football and soccer.	2.	Track and field.
3.	Long distance running	4.	Aquatic sports
5.	Baseball and cricket	6.	Hockey
7.	Basketball & volleyball	8.	Table tennis
9.	Badminton and tennis	10.	Gymnastics

M.P.T. (Sports) – II

SKILL ENHANCING STUDIES

M.P.T. – 2nd year
Code – M.P.N. – 204
Max. Marks = 100
INTERNAL 30
EXTERNAL 70

Course Objective

1. BIOSTATISTICS & COMPUTERS FOR COLLECTING DATA & PROGRAMME FOR PROJECT WORK & FOR PLANNING EFFECTIVE TREATMENT.

2. ETHICS & MEDICOLEGAL ASPECTS FOR CLINICAL PURPOSES.

3. EDUCATIONAL TECHNOLOGY FOR TEACHING & LEARNING PURPOSES.

Unit I: Research Methodology

Introduction

1. Uses of statistical methods in physiotherapy.

Methods of collection classification, tabulation & presentation of data.

Central tendency-

Mean, Median, Mode & standard deviation

Correlation & Regression:-

a) Karl pearson's co relation method
b) Rank co relation method
c) Regression & coefficients.
d) Sampling & hypothesis & testing
e) Data collection
f) Types of sampling
g) Random sampling
h) T. Test, Z test, Chi square testing.

Unit II: Physiotherapy Ethics

1. Morals and ethics
2. Ethical issue in physical therapy
3. Rules and regulation of association / council.

Unit III: Physical Therapy & Law: Medicological aspect of physical therapy, liability, negligence and practice licensure workmen compensation, Maintaining the medical Register.

Unit IV: Physiotherapy Department Management.

1. Policies and procedures.
2. Recuritment, interview, probation, salary, hours of working, leave facilities, retirement, refered policy.
3. Maintenance of records equipments, statistics.
4. Planning, design construction, expansion plan.

Unit V: Physiotherapy Education Technology

1. Aims, philosophy and trends and issues:-

    a) Educational aims.
    b) Agencies of education.
    c) Formal and informal education.
    d) Major philosophies of education.
    (naturalism, idealism, profemation, realism.)
    e) Modern and contemperorary philosophies of educations.

Physiotherapy of education in India (past, present and future.) current issues and trends in educations.

2. Concepts of teaching and learning

    a) Theories of teaching
    b) Relationship between teaching and learning.
    c) Psychology of education.
    d) Dynamics of behaviour, motivational process of learning perception, individual differences, intelligence personality.

3. Curriculum

    a) Curriculum committee.
    b) Development of a curriculum for physiotherapy.
    c) Types of curriculum.
    d) Placing, courses placement, time allotment.
    e) Correlation of theory and practice.
    f) Hospital and community areas for clinical instructions.
    g) Clinical assignments.

4. Principles and methods of teaching

    a) Strategies of teaching
    b) Planning of teaching.
    c) Organisation, writing lesson plan.
    d) A.V. aids

e) Teaching methods – socialized teaching methods.

5. Measurement and evaluation
    a) Nature of measurement of Educations, meaning, process, personnel, standardized, non standardized.
    b) Standardized tools, important tests of intelligence, aptitude, instrument personality, achievements and status scale.
    c) Programme evaluation.
    d) Cumulative evaluation.

6. Guidance and counseling
    a) Philosophy, principles and concepts, guidance and counseling services.
    b) Faculty development and development of personnel for physiotherapy services.

Unit VI: Computer (Non University Examination)

1. Introduction of software & hardware.
2. M.S. Office, Dos.
3. Application computer in medical sciences.

M.P.T. (Sports) – II

Practical

M.P.T. – 2nd year
Code – M.P.N. – 205
Max. Marks = 100
INTERNAL 30
EXTERNAL 70

Practical Examination

Total Hours of Practical Examination will be 6 hours.

Practical examination will be divided into two parts.

1. Two Large Cases – 30 marks each (30x2 = 60 marks)
2. One Small Case – 10 marks (10x1 = 10 marks)

Large cases for example:

Massive trauma of soft tissues etc.

Small cases of example:

Tendinitis, Bursitis etc.

following procedures will be included in the practical examination:

1. Assessment
   a) Physical.
   b) Clinical.
   c) Pathological.
   d) Other Investigations.
2. Differential diagnosis & its reason.
3. Treatment: Physiotherapy Management & advanced technique application.
4. Home programme.