

MASTERS IN NEUROLOGY

The Master of Physiotherapy course is a 2-year fulltime program leading to the degree that equips the student with analytical, evidence based and Hands on learning skills. The program is generic in nature and has a component of additional learning of one area leading to an elective in that area.

ELIGIBILITY FOR ADMISSION

Candidates should have completed the bachelor degree course with a minimum of 55% of aggregate marks. The minimum duration of the course shall be three years of full time study and six months of compulsory rotatory internship. The maximum age of the candidate shall be limited to 40 years on the date of admission to the course.

DURATION OF THE COURSE The course of study and training for the degree of Master of Physiotherapy (M.P.T.) course shall be full-time and its duration shall be of two academic years; an academic year shall consist of not less than 240 working days.

MEDIUM OF INSTRUCTION The medium of instruction for all the subjects of study and for the examinations of the course shall be English.

REQUIREMENTS FOR ADMISSION TO EXAMINATIONS A candidate is required to put up a minimum of 80% of total attendance in each subject separately and in clinical before admission to the University examinations for the degree of Master of Physiotherapy. There shall be no condonation of attendance for this course.

MAINTENANCE OF LOG BOOK Every candidate shall maintain a log book, consisting of the details of skills acquired during the clinical training period, participation in seminars, workshops & conferences, undergraduate teaching practice, journal article reviews, group discussions, assignments and such other academic activities which will be evaluated periodically. At the end of the course the candidate should submit the log book, duly certified by the concerned Head of the Department, and countersigned by the Principal.

DISSERTATION Every candidate appearing for the examination in the first instance shall submit four copies of a dissertation, consisting of the candidates' study carried out under the guidance of a recognised post graduate teacher and duly certified by the guide & Principal of the College, three months before the end of the course/beginning of the examination.

In order to qualify for the degree, the dissertation has to be approved by the external evaluator. No marks will be allotted for reasons, by the concerned dissertation evaluator. A candidate whose dissertation is not approved will have to resubmit it after effecting the modifications suggested by the evaluator. This has to be done at least three months before the subsequent examination. A candidate whose dissertation has been accepted by the examiners will not be required to submit a fresh dissertation if he/she has to reappear for the examination in the same branch.

EXAMINATIONS The University examinations for the degree of Master of Physiotherapy shall be held as detailed in the scheme of examinations. The practical examinations will be conducted by one external examiner and one internal examiner.

PROCEDURE FOR PASSING A candidate must obtain minimum 50% of the maximum marks in internal assessment and in theory separately and in practical & viva-voce together. The dissertation has to be "Approved" by the internal and external evaluators. No grace marks shall be awarded for the post graduate course. The dissertation has to be "Approved" by the external evaluator.

The course will be referred to as a Master of Physiotherapy (MPT) with their specialities as:

Sr. No.	Course
A.	MPT: Orthopedics
B.	MPT: Neurosciences

ELIGIBILITY

1ST YEAR

1. BASIC SCIENCES & BIOMECHANICS
2. BASIC CLINICAL SCIENCES.
3. ADVANCED PHYSIOTHERAPEUTICS.
4. MANAGEMENT, ADMINISTRATION & ETHICAL ISSUES IN PHYSIOTHERAPY.
5. PRACTICAL
6. CLINICS.

2ND YEAR

1. RESEARCH METHODOLOGY & BIOSTATICS
2. ASSESSMENT & DIAGNOSIS OF NEUROLOGICAL CONDITIONS.
3. ASSESSMENT & DIAGNOSIS OF NEUROSURGICAL CONDITIONS.
4. PEDIATRIC NEUROLOGY
5. DISSERTATION
6. CLINICS

TABLE 1 : FIRST YEAR MASTERS

Sr. No.	Name of the subject	Marks				Total
		Subject code	Theory	Subject code	Practical	
1.	BASIC SCIENCES & BIOMECHANICS	MPT-101	100	MPT-101	100	200
2.	BASIC CLINICAL SCIENCES.	MPT-102	100	MPT-102	100	200
3.	ADVANCED PHYSIOTHERAPEUTICS	MPT-103	100	MPT-103	100	200
4.	MANAGEMENT, ADMINISTRATION & ETHICAL ISSUES IN PHYSIOTHERAPY.	MPT-104	100	MPT-104	100	200
5..	CLINICS.					
	TOTAL					800

TABLE 2 : SECOND YEAR MASTERS

Sr. No.	Name of the subject	Marks				Total
		Subject code	Theory	Subject code	Practical	
1.	RESEARCH METHODOLOGY & BIOSTATISTICS	MPN-101	100	MPN-101	100	200
2.	ASSESSMENT & DIAGNOSIS OF NEUROLOGICAL CONDITIONS.	MPN-102	100	MPN-102	100	200
3.	ASSESSMENT & DIAGNOSIS OF NEUROSURGICAL CONDITIONS.	MPN-103	100	MPN-103	100	200
4.	PEDIATRIC NEUROLOGY	MPN-104	100	MPN-104	100	200
5..	CLINICS.				200	200
6.	DISSERTATION					
	TOTAL				1000	

TABLE 3 : FIRST & SECOND YEAR MASTERS EXAMINATION

YEAR	PAPER	TITLE OF PAPER	THEORY		PRACTICAL		TOTAL	
			Max. marks	Passing Min.	Max. marks	Passing Min.	Max. marks	Passing Min.
<u>1.</u>	<u>1.</u>	BASIC SCIENCES & BIOMECHANICS	100	50	100	50	200	100
	<u>2.</u>	BASIC CLINICAL SCIENCES.	100	50	100	50	200	100
	<u>3.</u>	ADVANCED PHYSIOTHERAPEUTICS	100	50	100	50	200	100
	<u>4.</u>	MANAGEMENT, ADMINISTRATION & ETHICAL ISSUES IN PHYSIOTHERAPY	100	50	100	50	200	100
<u>2.</u>	<u>1.</u>	RESEARCH METHODOLOGY & BIOSTATISTICS	100	50	100	50	200	100
	<u>2.</u>	ASSESSMENT & DIAGNOSIS OF NEUROLOGICAL CONDITIONS.	100	50	100	50	200	100

<u>3.</u>	ASSESSMENT & DIAGNOSIS OF NEUROSURGICAL CONDITIONS.	100	50	100	50	200	100	
<u>4.</u>	PEDIATRIC NEUROLOGY	100	50	100	50	200	100	

FIRST YEAR MASTERS

1. BASIC SCIENCES & BIOMECHANICS

External Assessment-70

Total Marks-100

Time- 3 hrs

Internal Assessment- 30

Pass Marks-50% in each

COURSE DISCRIPTION:

SECTION-1 EXERCISE THERAPY

COURSE

OBJECTIVE:

The students will learn the principles and effects of exercise as a therapeutic modality & learn the technique in restoration of physical function.

COURSE OUTCOMES:

- The students must be able to apply the basic principles of physics to exercise therapy in human body.
 - The students must be able to incorporate biomechanical principles in to exercise therapy.
 - Students be aware of how to apply anatomy, physiology & biochemistry knowledge to plan execute exercise regimens.
 - The students must be clinically competent for independent decision making regarding the best therapeutic treatment.
- A. Introduction to exercise, principles, techniques & general areas of application, assessment & its importance.
 - B. Mechanics, positions (fundamental & derived), classification of movement
 - C. MMT, Goniometry, Soft tissue massage.
 - D. Therapeutic exercises
 - E. Posture, balance, gait
 - F. Hydrotherapy
 - G. Special techniques.

SECTION-2 ELECTROTHERAPY

COURSE

OBJECTIVE:

The students will learn the principles, techniques, effects, indications, contraindications & the dosage parameter for various indications of electrotherapeutic modalities in the restoration of physical function.

COURSE OUTCOMES:

- The student must be able to identify the best possible modalities for given condition.

- The students must be able to use the optimum method, dosage for the modality.
- Student must be able to read understand current recommendations.
- Students must be technically & clinically competent for independent decision making regarding the best modality for treatment.

COURSE DISCRIPTION:

- A. Low frequency currents
- B. Electrical reactions & electrodiagnostic tests.
- C. Superficial Heating modalities.
- D. Radiation therapy.
- E. High frequency currents.
- F. Medium frequency current
- G. High frequency sound waves
- H. Therapeutic light in physiotherapy
- I. Therapeutic mechanical pressure.
- J. Extracorporeal shock wave therapy.
- K. Electrodiagnosis

SECTION-3 BIOMECHANICS

COURSE

OBJECTIVE:

- a) To have a thorough understanding of kinematics and kinetics in motion.
- b) To have an understanding of structure and function of biological tissues involve in the human motion.
- c) To evaluate movement and estimate force on human structure during exercise.
- d) To understand the functioning operating physiological mechanism and uses of biomechanical instruments.

COURSE

OUTCOMES:

- a) Students will be able to understand and apply concepts and terminology with in the area of biomechanics.
- b) Students will be able to describe how biomechanical factors influence motion in exercise.
- c) Demonstrate and understanding of statics, kinematics and kinetics in human motion.
- d) Apply a broad and coherent knowledge of the underlying principles and concepts of biomechanics particularly in the field of kinematics and kinetics as applied to human and projectile motion.
- e) Safely and effectively use biomechanics instrumentation and equipment to record and asses human and object motion.
- f) Record, extract and analyze key information about human and object.

SECTION-4 BIOENGINEERING

Principles of Orthotics- types, indications, contra indications, assessment (check out), uses and fitting-region wise.

- Orthotics for the Upper Limb
- Orthotics for the Lower Limb
- Orthotics for the Spine

2. **Principles of prostheses-** types, indications, contra indications, assessment (check out), uses and fitting –region wise.

Physical Rehabilitation – assessment & treatment – Sullivan & Schmitz – F.A. Davis.
2. Occupational Therapy and Physical dysfunction: Principles, Skills & Practices – tumor, foster &

- Johnson – Churchill Livingstone.
 3. Hand Splitting – Wilson – W.B. Saunders.
 4. Orthotics in Rehabilitation: Splinting the hand and the body– Mckee& Morgan - F.A. Davis
 5. Atlas of Limb Prosthetics – American Academy of Orthopaedics Surgeon – Mosby
 6. Atlas of Orthotics – American Academy of Orthopaedics Surgeon – Mosby
 7. Krusen's Handbook of Physical Medicine & Rehabilitation–Kottke& Lehmann–W.B. Saunders
 8. Willard and Spacknam's occupational therapy – neistadt&Crepeau – Lippincott.

2. BASIC CLINICAL SCIENCES.

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks- 50

Time- 3 hrs

COURSE OBJECTIVE: On completion of the subject, students will have the opportunity to develop the skills of intellect decision making. It also provides an extension of their communication skills to articulate the evidence based acquaintance and clinical knowledge for assessment and diagnosis of patients. It is a prospect to the students for the application of the research and professional information to novel situations.

COURSE OUTCOME: On completion of this subject students should have the opportunity to:

- a) Strengthen the basic fundamental basis of assessment and diagnosis and postulate this knowledge in clinical practice.
- b) Analyses critical evaluate the patient conditions and formulation of accurate diagnosis.
- c) Acquire a thorough understanding of basic anatomy and physiology which can be applied in clinical practice.

COURSE DISCRIPTION:

SECTION A – Anatomy

1. Introduction of Upper Limb.
2. Introduction of Lower Limb
3. Introduction to Chest and Thorax.
4. introduction to vertebral column.
5. Introduction of Head & Neck
6. Neuroanatomy
7. Brief Outline of Lymphatic System.

SECTION B - Physiology & Applied Physiology

- a) Structure and function of Cardio vascular system.
- b) Structure and function of Respiratory system.
- c) Structure and function of Endocrinal system.
- d) Structure and Function of Nervous System.

SECTION C –Biochemistry and Pathology

Biochemistry

- a) Brief Outline of Cell Biology.
- b) Metabolism of Proteins, Vitamins, Enzymes, Carbohydrates, Fat.

Pathology

- a) Brief outline of general Pathology (cell injury, inflammation, cell death, cell repair, immune system).
- b) Cardiovascular and Respiratory System.
- c) Musculoskeletal system.
- d) Nervous system

Books Suggested

1. Gray's Anatomy - Williams & Warwick - Churchill Livingstone.
 2. Grants – Methods of Anatomy - Basmajian & Sloncker - Williams & Wilkins.
 3. Clinical Anatomy for Medical Students - Snells – Lippincott.
 4. Textbook of Medical Physiology - Guyton - Mosby.
 5. Pathologic Basis of Diseases - Robbins, Kotran and Kumar – W.B. Saunders.
 6. Text Book of Radiology - Sutton D. - Churchill Livingstone.
 7. The Pharmacological basis of Therapeutics - Goodman and Gilman - MacMillan.
 8. Pharmacology and Pharmacotherapeutics - Satoskar & Bhandarkar – Popular Publications Bombay
- Masters in Neurological Physiotherapy-

3. ADVANCED PHYSIOTHERAPEUTICS.

External Assessment-70
Total Marks-100
Time- 3 hrs

Internal Assessment- 30
Pass Marks-50% in each

COURSE OBJECTIVE: On completion of the subject, students will have the opportunity to develop the skills of intellect decision making. It also provides an extension of their communication skills to articulate the evidence based acquaintance and clinical knowledge for assessment and diagnosis of patients. It is a prospect to the students for the application of the research and professional information to novel situations.

COURSE OUTCOME: On completion of this subject students should have the opportunity to:

1. Strengthen the basic fundamental basis of assessment and diagnosis and postulate this knowledge in clinical practice.
2. Analyses critical evaluate the patient conditions and formulation of accurate diagnosis.
3. Acquire a thorough understanding of advance concepts of Physiotherapy including Manual therapy and electrotherapy which can be applied in clinical practice.

COURSE DISCRIPTION:

Section A

Practical application of various manual therapy concepts
a) Mulligan

- b) Kaltenborne
- c) Neural Mobilization (Buttler& Shacklock)
- d) Mckenzie
- e) Maitland
- f) James Cyriax
- g) Myofascial Release
- h) Muscle Energy Technique (MET)
- i) Combined Movement
- II Introduction to the concepts and techniques in PRT
- III Orientation to Proprioceptive Neuromuscular Facilitation concepts and technique.
- IV Brief introduction to the Musculoskeletal and neural concepts of Dry Needling.
- V Massage and Sports Massage.

Section B

- 1. Introduction to the Advanced Electrotherapeutic and Physiological Modalities:
 - a) Functional Electrical stimulation.
 - b) Class IV laser Therapy.
 - c) Ultraviolet Radiation.
 - d) Extracorporeal shock wave Therapy.
 - e) Hydrotherapy.

Section-C

- 1. Introduction to Electrodiagnosis
 - a) Electromyography
 - b) Nerve Conduction Study
 - c) Biofeedback.
 - d) ECG and Its relevance.
 - e) SD Curve

NDT, VOYTA TECHNIQUE, ROOD'S APPROACH, BURNSTORM MOVEMENT THERAPPY, MOTOR RELEARNING PROGRAMMING, SENSORY INTERGRATION THERAPY, KINESIOTAPING, CIMT, MIRROR THERAPY, virtual reality.

Books suggested

1. Sinha A.G.: Principle and Practices of Therapeutic Massage – Jaypee Brothers, New Delhi
 2. Gardiner M. Dena: The Principles of Exercise Therapy - CBS Publishers, Delhi.
 3. Kisner and Colby: Therapeutic Exercises – Foundations and Techniques, F.A Davis.
 4. Basmajian John V.: Therapeutic Exercise, Williams & Wilkins.
 5. Thomson et al - Tidy's Physiotherapy: Butterworth – Heinmann.
 6. Wood & Baker: Beard's Massage, W.B. Saunders.
 7. Kendall: Muscles – Testing and Function - Williams & Wilkins
 8. Daniels and Worthinghams: Muscle Testing – Techniques of Manual Examination, W.B. Saunders.
 9. First Aid to Injured: St. John's Ambulance Association.
 10. William E. Prentice: Rehabilitation Techniques - Mosby.
 11. Werner Kuprian: Physical Therapy for Sports, W.B. Saunders.
 12. Norkin& White: Measurement of Joint Motion – A Guide to Goniometry - F.A. Davis.
 13. Andrea Bates and Norm Hanson: Aquatic Exercise Therapy, W.B. Saunders.
 14. Dvir: Isokinetics: Muscle Testing, Interpretation and Clinical Applications, W.B Saunders.
 16. Kennedy: Mosby's Sports Therapy Taping Guide.
- 45
17. Malone: Orthopeadic and Sports Physical Therapy, C.V. Mosby.
 18. Albert: Eccentric Muscle Training in Sports and Orthopeadics, W.B. Saunders.
 11. Werner Kuprian: Physical Therapy for Sports, W.B. Saunders.
 12. Norkin& White: Measurement of Joint Motion – A Guide to Goniometry - F.A. Davis.

4. MANAGEMENT, ADMINISTRATION & ETHICAL ISSUES IN PHYSIOTHERAPY.

External Assessment-70

Internal Assessment- 30

Total Marks-100 Pass

Marks-50% in each Time- 3 hrs

COURSE OBJECTIVE: On completion of the subject, students will have the opportunity to develop the skills of intellect decision making. It also provides an extension of their communication skills to articulate

the evidence based acquaintance and clinical knowledge for assessment and diagnosis of patients. It is a prospect to the students for the application of the research and professional information to novel situations.

COURSE OUTCOME: On completion of this subject students should have the opportunity to:

a) Strengthen the basic fundamental basis of assessment and diagnosis and postulate this knowledge in

clinical practice.

b) Analyses critical evaluate the patient conditions and formulation of accurate diagnosis.

c) Acquire a thorough understanding of management and educational methodology in physiotherapy

which can be applied in clinical practice.

COURSE DESCRIPTION:

SECTION-A

A. Concept of Morality, Ethics and Legality

1. Ethical issues in physiotherapy practice:

- a) Professionalism
- b) Informed consent
- c) Confidentiality
- d) Sexual and Physical Abuse
- e) Social characteristics and Personal relationships
- f) Professional issues
- g) Client interest and satisfaction
- h) Confidence and communication
- i) Malpractice
- j) Negligence
- k) Rights of patients
- l) Status of physiotherapist in health care

2. Communication skills:

- a) Process of Communication
- b) Barriers to Communication
- c) Types of Communication
- d) Written vs. Oral Communication
- e) Elements of good communication

SECTION-B

A. Education:

1. Definition
2. Aims and objectives of education
3. Agencies of education
4. Formal and informal education
5. Brief introduction to the Philosophies of education
6. Taxonomy of educational objectives
7. Essentials of physiotherapy education

B. Concept of teaching – learning

1. Nature of learning, type and stages of learning
2. Factors affecting learning
3. Laws of learning
4. Learning style teaching learning process,
5. Role of teacher in teaching learning process,
6. Adult learning
7. Teaching skills
8. Teaching Methods in Classroom Setting
9. Clinical teaching methods
10. Planning of teaching: lesson planning and unit planning

SECTION-C

A. Teaching aids and educational technology

B. Curriculum:

1. Meaning and Concept of curriculum
2. Factors affecting curriculum
3. Types of curriculum
4. Basic principles of curriculum construction
5. Steps of curriculum development

C. Assessment and Evaluation:

1. Meaning and Concepts of assessment
2. Measurement Evaluation and examination
3. Purpose of Evaluation
4. Types of evaluation
5. Principles of evaluation
6. Techniques of evaluation
7. Methods and tools used in testing of knowledge, skill, clinical performance and attitude

D. Faculty development, continuing professional education

Recommended Books

1. Aggarwal JC. Principles, Methods and Techniques of Teaching. 2nd edition. Vikas Publishing 2014
2. Basavanthappa BT. Nursing Education, 2nd ed. New Delhi: Jypee Publishers
3. Aggarwal JC. Essentials of education technology. 3rd ed. Vikas Publishing 2014.
4. Aggarwal JC. Theory and Principles of Education. 13th ed. Vikas Publishing 2010
5. Ram CS. Pedagogy in physiotherapy education. 1st ed AITBS Publisher 2013.

B. Concept of Morality, Ethics and Legality

1. Ethical issues in physiotherapy practice:

- a) Professionalism
- b) Informed consent
- c) Confidentiality
- d) Sexual and Physical Abuse
- e) Social characteristics and Personal relationships
- f) Professional issues
- g) Client interest and satisfaction
- h) Confidence and communication
- i) Malpractice
- j) Negligence

- k) Rights of patients
- l) Status of physiotherapist in health care

22

2. Communication skills:

- a) Process of Communication
- b) Barriers to Communication
- c) Types of Communication
- d) Written vs. Oral Communication
- e) Elements of good communication

B. Management – principles and applications of Management and Administration to Physio

Therapy practice:

- 1. Planning, organizing, staffing, finance, marketing, controlling, directing.
- 2. Setting of a physiotherapy service unit

SECTION-B

A. Education:

- 1. Definition
- 2. Aims and objectives of education
- 3. Agencies of education
- 4. Formal and informal education
- 5. Brief introduction to the Philosophies of education
- 6. Taxonomy of educational objectives
- 7. Essentials of physiotherapy education

B. Concept of teaching – learning

- 1. Nature of learning, type and stages of learning
- 2. Factors affecting learning
- 3. Laws of learning
- 4. Learning style teaching learning process,
- 5. Role of teacher in teaching learning process,
- 6. Adult learning
- 7. Teaching skills
- 8. Teaching Methods in Classroom Setting
- 9. Clinical teaching methods
- 10. Planning of teaching: lesson planning and unit planning

SECTION-C

A. Teaching aids and educational technology

B. Curriculum:

- 1. Meaning and Concept of curriculum
- 2. Factors affecting curriculum

23

- 3. Types of curriculum
- 4. Basic principles of curriculum construction
- 5. Steps of curriculum development

C. Assessment and Evaluation:

- 1. Meaning and Concepts of assessment
- 2. Measurement Evaluation and examination
- 3. Purpose of Evaluation
- 4. Types of evaluation
- 5. Principles of evaluation
- 6. Techniques of evaluation
- 7. Methods and tools used in testing of knowledge, skill, clinical performance and attitude

D. Faculty development, continuing professional education

Recommended Books

- 1. Aggarwal JC. Principles, Methods and Techniques of Teaching. 2nd edition. Vikas Publishing 2014

2. Basavanthappa BT. Nursing Education, 2nd ed. New Delhi: Jypee Publishers
3. Aggarwal JC. Essentials of education technology. 3rd ed. Vikas Publishing 2014.
4. Aggarwal JC. Theory and Principles of Education. 13th ed. Vikas Publishing 2010
5. Ram CS. Pedagogy in physiotherapy education. 1st ed AITBS Publisher 2013.

SECOND YEAR

1. RESEARCH METHODOLOGY & BIOSTATISTICS

COURSE OBJECTIVE:

- a) To have a thorough understanding of presenting supporting evidences and how to conduct research.

- b) To have an understanding of model of research and biostatistics.
- c) To evaluate every procedure on the basis of evidences.
- d) To understand the data analysis procedure and their significance in research.

COURSE OUTCOMES:

- a) Students will be able to understand and apply concepts and terminology with in the area of Research.
- b) Students will be able to describe research design and application of different methods to analyse the data collected to conduct and complete the research.
- c) Record, extract and analyze key information about human and object.

RESEARCH METHODOLOGY

1. Introduction Terminology in research, Ethical issues in research, Research process
2. Review of literature. Importance, sources & steps in reviewing the literature.
3. Research design • Type of research – qualitative & quantitative. • Experimental & non experimental, survey – advantages & disadvantages
4. Research process • Research question, Aim & objectives, Assumptions, Limitations & Delimitations, Variables • Hypothesis – formation & testing.
5. Sampling • Sampling technique • Population, sample, • Sample size & determination • Sampling methods • Sampling error
6. Data collection and analysis • Data sources, technique of data collection, tools • Reliability & validity • Process of data collection • Pilot study-method, need
7. Interpretation & presentation of data • Quantitative & qualitative analysis • Graphical representation of data • Conclusion & discussion
8. Writing a dissertation, research paper
9. Critical appraisal of research
10. Presentation and Publication of research – Steps and process.
11. Autonomy and individual responsibility, Consent, (5hrs) • Autonomy and individual responsibility (2 hrs) o Different levels and notions of autonomy .

BIOSTATISTICS

1. Introduction • Frequency distribution • Tabulation & graphical presentation of data
2. Measures of central tendency (Mean, median, mode)
3. Measures of variability (range, percentage, SD)
4. Sample distribution & error
5. Correlation • Meaning • Rank order • Product Moment correlation (Pearson's product moment, Spearman's Regression analysis)
6. Statistical significance • Parametric tests-'t' tests, Tukeys following Oneway ANOVA • ANOVA (One way, two way – for parametric & nonparametric), ANCOVA, Multistage ANOVA • Nonparametric tests-Chi-square test, Mann Witney U test, 'Z' test • Wilcoxon's matched pairs test
7. Vital health statistics
8. Computer application for statistical analysis

Text Books Jyotikumar Biostatistics

2 Research Methodology- Kothari

3 Biostatistics -with Latest Mcqs - Negi, K.s

4 Methods Of Biostatistics- Rao T Bhaskara

Reference Book

1 Principles And Practice Of Biostatistics- Dixit J V

2. ASSESSMENT & DIAGNOSIS OF NEUROLOGICAL CONDITIONS:

COURSE OBJECTIVE: On completion of the subject, students will have the opportunity to develop the skills of intellect decision making. It also provides an extension of their communication skills to articulate the evidence based acquaintance and clinical knowledge for assessment and diagnosis of patients. It is a prospect to the students for the application of the research and professional information to novel situations.

COURSE OUTCOME: On completion of this subject students should have the opportunity to:

- a) Strengthen the basic fundamental basis of assessment and diagnosis and postulate this knowledge in clinical practice.
- b) Analyses critical evaluate the patient conditions and formulation of accurate diagnosis.
- c) Acquire a thorough understanding neurological disorders related to Central Nervous system can be applied in clinical practice situations.

COURSE DESCRIPTION:

1. Revision of Neuro-anatomy and neurophysiology.
2. Neurological assessment, evaluation and correlation of findings with neurological dysfunction.
3. Infectious Conditions.
 - Pyogenic infections of CNS (Bacterial & Tuberculosis meningitis, Brain Abscess)
 - Viral infections of CNS (Poliomyelitis encephalitis) Neuro syphilis, HIV, rabies
4. Metabolic Disorders of Brain - Hypokalemic encephalopathy, hypoglycemic encephalopathy, Hepatic encephalopathy.
5. Degeneration Diseases of Nervous system - Parkinson Diseases, Motor Neuron disease Amyotrophic lateral sclerosis, Progressive bulbar palsy, progressive muscular atrophy.
6. PERIPHERAL NERVE DISORDERS- entrapment neuropathies, polyneuritis, GBS
7. myasthenia gravis.
8. Disorders of muscle & Neuro muscular function - Myasthenia gravis, myotonic disorders, progressing muscular dystrophy, Duchenne muscular dystrophy Becker muscular dystrophy, Limb-girdle muscular dystrophy, LEMS, Spinal muscular atrophy.
9. Cerebellar lesions, basal ganglionic lesions.
10. Bladder & Bowel dysfunction.
11. Convulsive disorders.EPILEPSy
12. Autonomic disorders, automicdysrflexia, autonomic nervoussystem& pain.
13. Psychiatric illness – Anxiety, Neurosis, Depression, obsessive compulsive Neurosis psychosis, organic brain syndrome, dementia, post- traumatic stress disorder, dray dependence & alcoholism, Somato form & dissociate disorders.

GERIATRIC AGEING

PROLONGED IMMOBILITY COMPLICATION.

COMMON GERATRIC CONDITIONS.

GERIATRIC REHABILITATION

1. Books suggested

1. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
 2. Neurological Rehabilitation - Umphred - Mosby.
 3. Motor Assessment of Developing Infant - Piper & Darrah - W.E. Saunders.
 4. Paediatric Physical Therapy - Teckling - Lippincott
 5. Treatment of Cerebral Palsy and Motor Delay - Sophie Levitt
 6. Brain's Disease of the Nervous System - Nalton - ELBS.
 7. Guided to clinical Neurology - Mohn & Gaectier - Churchill Livingstone.
 8. Principles of Neurology - Victor - McGraw Hill International edition.
 9. Examination in Neurology examination - Dejong.
 10. Differential Diagnosis - John Pattern Neurology in Clinical Practice – Bradley & Daroff
 11. Neurological Assessment - Blicher staff.
 12. Clinical Evaluation of Muscle Function - Lacote - Churchill Living Stone
 13. Hutchinson's Clinical Methods – Swash – Bailliere Tindall.
2. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
 - 2 Neurological Rehabilitation - Umphred - Mosby.
 - 3 Motor Assessment of Developing Infant - Piper & Darrah - W.E. Saunders.
 - 4 Paediatric Physical Therapy - Teckling - Lippincott
 - 5 Treatment of Cerebral Palsy and Motor Delay - Sophie Levitt
 - 6 Brain's Disease of the Nervous System - Nalton - ELBS.
 - 7 Guided to clinical Neurology - Mohn & Gaectier - Churchill Livingstone.
 - 8 Principles of Neurology - Victor - McGraw Hill International edition.
 - 9 Examination in Neurology examination - Dejong.
 - 10 Differential Diagnosis - John Pattern Neurology in Clinical Practice – Bradley & Daroff
 - 11 Neurological Assessment - Blicher staff.
 - 12 Clinical Evaluation of Muscle Function - Lacote - Churchill Living Stone
 - 13 Hutchinson's Clinical Methods – Swash – Bailliere Tindall
3. Geriatric physical therapy – Gucciona – Mosby
 2. Aging the Health care Challenge – Levis - F.A. Davis.
 3. Basic Geriatric Nursing, Gloria Hoffman World, Edition 5, Illustrated Publisher Mosby 2011
 4. Principle and practice of geriatric Medicine, M. S. John Pathy, Alan J. Sinclair, John E. Morley
 5. Clinical Geriatrics by T.S. Dharmarajan, Dr. Robert A. Norman - CRC Press INC, 2003
 6. Principle and practice of geriatric Medicine, M. S. John Pathy, Alan J. Sinclair, John E. Morley
 7. Handbook of geriatric care management (3rd Ed): Cathy Joe Cress; AI Books
 8. Care of the geriatric patients: Tom J Wachtel, MD, Marsha D. Fretwell, M.D; AI Books
 9. Protocol in primary care geriatrics, John P. Sloan, Springer
 10. Practical geriatric assessment, Howard M Fillit, Gloria Picariello, Cambridge University

3. ASSESSMENT & DIAGNOSIS OF NEUROSURGICAL CONDITIONS:

COURSE OBJECTIVE

On completion of the subject, students will have the opportunity to develop the skills of intellect decision making. It also provides an extension of their communication skills to articulate the evidence based acquaintance and clinical knowledge for assessment and diagnosis of patients. It is a prospect to the students for the application of the research and professional information to novel situations.

COURSE OUTCOME

On completion of this subject students should have the opportunity to:

1. Strengthen the basic fundamental basis of assessment and diagnosis and postulate this knowledge in clinical practice.
2. Analyse critically evaluate the patient conditions and formulate an accurate diagnosis.
3. Acquire a thorough understanding of cardiopulmonary conditions which can be applied in clinical practice.

COURSE DESCRIPTION:

14. Revision of Neuro-anatomy and neurophysiology.
 15. Neurological assessment, evaluation and correlation of findings with neurological dysfunction.
 16. Functional Assessment scales: Barthel index, Katz Index of ADL, FIM Scale, Sickness Impact Profile, Outcome & Assessment Information Set (OASIS). IADL.
 17. Functional balance and coordination scales: functional reach test, Timed up and go test, Get up and go test, Berg balance Scale, CTSIB, Scales used in ataxia.
 18. Laboratory Examination related to Neurological Disorders: Lumbar puncture & CSF Analysis.
Radiograph and myelogram, CT scan and MRI of brain and spinal cord
-
1. Intra cranial tumours – Gliomas, meningioma, Neurinoma, Angioma, CranioPharyngioma, Pituitary adenoma.
 2. Traumatic spinal cord injury- complete, in-complete. Compressive myelopathies.
 - a) Classification
 - b) Surgical Management (Laminectomy)
 - a) Spinal Stability after surgery
 - b) Postoperative Rehabilitation regime
 3. Disorder of spinal cord- Compression of spinal cord, spinal cord tumors, neoplasm of vertebral column, IVDP, Extradural & Epidural Abscess, Syringomyelia, Syringobulbia,
 4. Head injury – Haemorrhage, Haematoma, Aneurysmal rupture.
 5. Medical, Surgical, and Physiotherapy Management in Disturbances of CSF and its circulation Raised Intra-cranial pressure.
 6. Cerebrovascular accident
 7. Guillain-Barre syndrome
 8. Neuropsychological Problems and Rehabilitation
 - a) Various aspects of Behavior- Confusion, Delirium, Amnesia, Schizophrenia.
 - b) Disturbances of Memory, Emotion, Mood and Social Behavior
 - c) General Intellectual functions, Memory Functions, Attention, Language, Visual Perception, Spatial Processing, Executive Functions, Emotional Distress and Behavioral Problems.
-
1. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
 2. Neurological Rehabilitation - Umphred - Mosby.
 3. Motor Assessment of Developing Infant - Piper & Darrah - W.E. Saunders.
 4. Paediatric Physical Therapy - Teckling - Lippincott
 5. Treatment of Cerebral Palsy and Motor Delay - Sophie Levitt
 6. Brain's Disease of the Nervous System - Nalton - ELBS.
 7. Guided to clinical Neurology - Mohn & Gaetner - Churchill Livingstone.

8. Principles of Neurology - Victor - McGraw Hill International edition.
9. Examination in Neurology examination- Dejong.
10. Differential Diagnosis-John Pattern Neurology in Clinical Practice – Bradley&Daroff
11. Neurological Assessment-Blicker staff.
12. Clinical Evaluation of Muscle Function-Lacote- Churchill Living Stone
13. Hutchinson's Clinical Methods – Swash – Bailliere Tindall

4. PEDIATRIC NEUROLOGY:

SECTION –A

1. Pre & post-natal Development sequence of normal child.
2. Developmental milestones, Neonatal reflexes, various periods of growth,
3. General assessment of child
4. Early identification and intervention Important Screening Tests.
 - A. Developmental Screening Tests.
 - B. Tests of motor function.
5. Nutrition and Immunization: Normal nutritional requirements of a child, Prevention of some nutritional disorders, Nutritional deficiency diseases, Immunization.
6. High risk infants, Risk factors, Neonatal Assessment, Developmental intervention, ICU, NICU Care.
7. Cerebral Palsy: Types, Aetiology, Clinical Features, Management and Rehabilitation of various types of Cerebral palsies various approaches used in C.P.
8. Physiotherapy in Neurological affection of childhood: poliomyelitis, spina bifida, hydrocephalus, meningitis, encephalitis, inflammatory disorders of brain and spinal cord, birth injuries of brachial plexus

SECTION B

1. Physiotherapy in Muscular Disorders
 - Myopathies of childhood.
 - Types of muscular dystrophies.
 - Floppy muscular dystrophy.
2. Role of Physiotherapy in Genetic Disorders
 - Down syndrome.
 - Spinal Muscular Atrophy.

SECTION –C

1. Diseases of the muscles.
 - Classifications, myopathies, muscle dystrophies and neuromuscular junction disorders.
2. Spasticity
 - Neuropathology
 - Assessment
 - Medical and surgical management
 - Rehabilitation measures.
3. Diseases of the peripheral nervous system
 - All type of level of Peripheral Neuropathy and Brachial Plexus.
 - Causalgia.
 - Reflex Sympathetic Dystrophy.

- Traumatic, Compressive and Ischemic Neuropathy..
- Hereditary Motor and Sensory Neuropathy (HMSN) (Type I,II,IV and V)
- Acute Idiopathic Polyneuritis
- Neuropathy due to infections.
- Vasculomotor Neuropathy.
- Neuropathy due to systemic medical disorders.
- Drug – induced neuropathy.
- Metal – poisoning chemical neuropathies
- GBS

1. **BOOKS RCOMONDED:**

1. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
2. Neurological Rehabilitation - Umpherd - Mosby.
3. Motor Assessment of Developing Infant - Piper & Darrah - W.E. Saunders.
4. Paediatric Physical Therapy - Teckling - Lippincott
5. Treatment of Cerebral Palsy and Motor Delay - Sophie Levitt
6. Brain's Disease of the Nervous System - Nalton - ELBS.
7. Guided to clinical Neurology - Mohn & Gaectier - Churchill Livingstone.
8. Principles of Neurology - Victor - McGraw Hill International edition.
9. Examination in Neurology examination - Dejong.
10. Differential Diagnosis - John Pattern Neurology in Clinical Practice – Bradley & Daroff
11. Neurological Assessment - Blicher staff.
12. Clinical Evaluation of Muscle Function - Lacote - Churchill Living Stone
13. Hutchinson's Clinical Methods – Swash – Bailliere Tindall
14. Neurological Physiotherapy - A problem solving approach - Susan Edwards - - Churchill Livingstone.
15. Neurological Rehabilitation - Umpherd - Mosby.
16. Motor Assessment of Developing Infant - Piper & Darrah - W.E. Saunders.
17. Paediatric Physical Therapy - Teckling - Lippincott
18. Treatment of Cerebral Palsy and Motor Delay - Sophie Levitt
19. Brain's Disease of the Nervous System - Nalton - ELBS.
20. Guided to clinical Neurology - Mohn & Gaectier - Churchill Livingstone.
21. Principles of Neurology - Victor - McGraw Hill International edition.
22. EXamination in Neurology examination - Dejong.
23. Differential Diagnosis - John Pattern Neurology in Clinical Practice – Bradley & Daroff
24. Neurological Assessment - Blicher staff.
25. Clinical Evaluation of Muscle Function - Lacote - Churchill Living Stone
26. Hutchinson's Clinical Methods – Swash – Bailliere Tindall