

Regulations for the Master of Physiotherapy

In exercise of the powers conferred by rule 9 of Memorandum of Association and Sec 2 of chapter – V of Bye-laws of the Vinayaka Mission's Research Foundation, Deemed University, Salem, the Academic Council of the University hereby makes the following regulations: -

SHORT TITLE AND COMMENCEMENT

These regulations may be called “THE REGULATIONS FOR THE MASTER OF PHYSIOTHERAPY (SEMESTER) OF THE VINAYAKA MISSIONS RESEARCH FOUNDATION DEEMED UNIVERSITY, SALEM”.

These regulations shall come into force with effect from the academic year 2015-2016 and are subject to such modifications as may be approved by the Academic Council from time to time.

CURRICULUM FOR MASTER OF PHYSIOTHERAPY

OBJECTIVES:

The objectives of Master of Physiotherapy course is

- (i) To enable the students to master all the physiotherapy skills with special attention to the area of specialization.
- (ii) To acquaint the student with knowledge about Bio statistics & Research Methodology.
- (iii) To demonstrate efficiency in class room & clinical teaching
- (iv) To train the student, use advanced updated & evidence based physiotherapy evaluation, clinical reasoning, diagnosis, & treatment techniques.

ELIGIBILITY

Candidates belonging to all categories for admission into the Master in physiotherapy course should have passed the B.P.T. degree examination of this university or an examination of any other university accepted by the authority of this university as equivalent thereto.

PHYSICAL FITNESS CERTIFICATE

Every candidate before admission to the course shall submit to the Principal of the Institution a certificate of medical fitness from an authorized medical officer that the candidate is physically fit to undergo the academic course and does not suffer from any disability or contagious disease.

COMMENCEMENT AND DURATION OF THE COURSE

24th May of the academic year

Two academic years with 4 semesters

ACADEMIC TERMS

First semester M.P.T. – May 24th to October 31st

Second semester M.P.T.- December 1st to April 15th

Third semester M.P.T. - May 24th to October 31st

Fourth semester M.P.T.- December 1st to April 15th

ELECTIVE- OPTIONS

1. Orthopedic Physiotherapy
2. Neurological Physiotherapy
3. Cardio thoracic Physiotherapy
4. Sports Physiotherapy
5. Pediatric Physiotherapy
6. Obstetrics & Gynecological Physiotherapy
7. Community Physiotherapy
8. Hand Rehabilitation

CUT OF DATES

The candidates are admitted only up to 31st May and shall be registered to take up their 1st semester examination during November of the same year.

COMMENCEMENT OF THE EXAMINATIONS

November 1st & April 15th

Theory examinations not to be held on Saturdays and Sundays. If the dates of commencement of the examination falls on Saturdays, Sundays or declared public holidays, the examination shall begin on the next working day.

CURRICULUM

The curriculum and the syllabi for the course shall be as prescribed by the University from time to time.

MEDIUM OF INSTRUCTIONS

English shall be the medium of instruction for all the subjects of study and for examinations of Master of Physiotherapy course.

WORKING DAYS IN A SEMESTER

Each semester will consist of not less than 120 working days.

ELIGIBILITY CERTIFICATE

Candidates who have passed B.P.T. examinations from other than V.M.R.F. deemed university must apply for eligibility certificate issued from V.M.R.F. deemed university by paying the prescribed fee.

REGISTRATION

A candidate admitted to the course shall register with the university by remitting the prescribed fees along with the application for registration, duly filled in and forwarded to the controller of examinations of this university through the head of the institution within 90 days from date of admission.

ATTENDANCE REQUIREMENTS FOR ADMISSION TO EXAMINATIONS

- a. No candidate shall be permitted to appear for any one of the parts of Master of Physiotherapy Examination unless he / she has attended the course in the subject for the prescribed period in the institution of this University and produces the necessary certificate of study, attendance, satisfactory conduct and progress from the Head of the Institution.
- b. A candidate is required to put in minimum 75% of attendance in both theory and practical separately in each subject before admission to the examination.
- c. A candidate lacking in the prescribed attendance and progress in any one subject in theory and practical shall not be permitted for admission to the entire examination. The above candidate must redo the entire course of study putting 75% of attendance and internal assessment for the entire subject in that course of study before appearing for the university examination.

REGULATIONS FOR CONDONATION OF LACK OF ATTENDANCE.

There shall be no condonation of attendance in post-graduate courses.

PROCEDURE FOR REJOINING AFTER BREAK OF STUDY

a. The candidate having a break of study for more than three (3) months but less than double the course of study shall apply for rejoining the course in the prescribed form as in Annexure II by remitting the stipulated fee for condonation of Break of study to the Academic Department of this University through the concerned Dean / Principal of the college for issue of necessary permission to rejoin the course. The Dean / Principal of the college concerned shall not permit any candidate with a Break of study as stipulated above to rejoin the course without obtaining the prior permission from this University.

If any candidate is permitted by the Dean / Principal of the college concerned without the prior permission from this University, to rejoin the course after the break of study the period of such study shall not be considered as a recognized study and the candidate shall not be permitted to write the University examinations based on such study period.

b. (i) If the absence is more than three (3) months but less than 1/3rd of the course of study, the candidate may be permitted to rejoin at the beginning of the semester/year/trimester of study in which candidate discontinued the course and shall after fulfillment of the Regulations of this University to the course concerned be admitted to the examinations. The candidates shall be exempted from the subjects he/she has already passed.

(ii) If the absence is more than three (3) years but less than double the course of the study, the candidate shall be permitted to rejoin the course at the beginning of the semester/year/trimester of study in which the candidate discontinued the course and shall after fulfillment of the Regulations of this University to the course concerned be admitted to the examinations. The candidate shall not be exempted in the subjects already passed in the said year of discontinuance and will be permitted to appear for the examination as prescribed in the Regulations.

c. If any candidate completed the course of study, appeared for the final year examinations but failed in one or more subjects and does not consecutively appeared for two supplemental examinations, shall undergo a refresher course for a period of six months after obtaining the permission from the University for undergoing such refresher course in the college in which he/she last studies and obtained a certificate to that effect before appearing for the failed subjects of final year examination in the course. The examination application shall be forwarded through the Dean/Principal of the college concerned.

d. The period of break of study of the candidate for rejoining the course shall be calculated from the date of first discontinuance of the course.

e. All the post graduate students have to execute a declaration at the time of registration with this University in this regard in the prescribed form as in Annexure I & II.

CONDONATION OF THE BREAK

a. The Vice-Chancellor has the power to condone any break of study as defined in Regulation No.2 (a) of this Regulations and to issue orders for permitting the candidate to continue the course if such absence is more than three (3) months but below stipulated course of study. The Dean/Principal of the college shall not permit the candidates to rejoin the course till specific orders are issued by this University.

b. (i) If the absence is more than three (3) months but less than 1/3rd the period of study, the candidate may be permitted to rejoin at the beginning of the year of study in which the candidate discontinued the course and shall after fulfillment of the Regulations of this University to the course concerned be admitted to the examinations. The candidates shall be exempted in the subjects he/she has already passed.

(ii) If the absence is more than three (3) years but less than double the course of study, the candidates shall be permitted to rejoin the course at the beginning of the year of study in which the candidate discontinued the course and shall after fulfillment of the Regulations of this University to the course concerned be admitted to the examinations. The candidate shall not be exempted in the subjects already passed in the said year of discontinuance and will be permitted to appear for the examination as prescribed in the Regulations.

c. The details of all the cases of break of study of more than three (3) years but less than double the course of study may be permitted by the Vice-Chancellor and informed the Board of management then and there.

d. Only two spells of break of study will be allowed for the entire duration of the course.

e. Any break of study beyond double the period of study is considered as discontinuation of study. This is applicable for all the years of study of the Post Graduate degree course concerned. However, in exceptional cases if a candidate having a break of study beyond double the course of study and the number of break of study is more than two spells the Board of Management, may, on the recommendation of the Vice-Chancellor, shall permit the candidate to rejoin the course under the procedures/conditions stipulated in regulations.

Such candidate shall be permitted to rejoin at the beginning of the first year of the course (i.e.,) the candidate has to redo the course from the beginning and shall after fulfillment of the regulations of this university to the course concerned be admitted to the examinations. The candidate shall not be exempted in the subjects already passed.

ANNEXURE-I
DECLARATION

I _____ son of / Daughter of
_____ Residing at _____
_____ and admitted to in I year of
_____ (Name of the course/UG/PG) at _____
_____ (Name of the College) do hereby solemnly affirm and
sincerely state as follows:

I declare that I shall abide by the rules and regulations prescribed by the Vinayaka
Mission's Research Foundation – Deemed University, Salem for the _____
_____ (Course) including regulations for re-admission after the break
of study.

Date:

Signature of candidate

/Countersigned/

Dean/Principal/Director

(Office date seal)

ANNEXURE-II

PROFORMA FOR RE-ADMISSION

1. Name of the student _____ :
2. Name of the course and period of study _____
3. Name of the College _____
4. Date of joining the course _____
5. Duration of break of study _____ : From _____ To _____
6. Details of examinations appeared & subjects passed: _____
7. Reasons for the period of break of study of the course:
(Evidence should be produced)
8. The details of previous break of study (Enclose Xerox):
Copy of the condonation order of the University, if any
9. Whether his/her own vacancy is available for rejoining:
The course _____
10. Whether any disciplinary case is pending _____ :
(i.e) Production of false certificates/ragging etc.
11. Whether the candidate has registered with this _____ :
University, if so furnish the Regn. No. _____
12. Whether the candidate has paid the prescribed fee for:
for readmission sought for (Furnish the details)
(Processing fee: Rs.500
Condonation fee: Rs.1000/- per year or part there of:
(or) as revised by the University from time to time)
13. Previous Correspondence if any made _____ :
(Furnish copies of relevant records)
14. Recommendation of the Dean/Principal/Director concerned _____

Certified that the details furnished above in respect of the candidate are verified and found to be correct,

Signature of the Dean/Principal/Director
With seal

MIGRATION/ TRANSFER OF CANDIDATES:

- a) Migration/ Transfer of candidates from one recognized college to another recognized college of this university or from another University shall be granted as per the recommendations of UGC.
- b) The provision of combination of attendance shall be granted to a transferee for admission to the examinations of this university on satisfactory fulfillment of the regulations of this university.
- c) All Migration/Transfer are subject to the approval of the Vice-Chancellor

INTERNAL ASSESSMENT:

- a. A minimum of three written examinations shall be conducted in each subject during a year and the average marks of the best two performances shall be taken into consideration for the award of sessional marks.
- b. A minimum of three practical examinations shall be conducted in each subject during a year and an average of two best performances shall be taken into consideration for award of sessional marks.
- c. Failed candidates in any subject both theory & practical shall be provided an opportunity to improve his/her sessional marks during his/her additional period of study by applying in a prescribed form to the university at the beginning of the additional period of study. A minimum of three theory or practical examinations shall be conducted in each subject during the additional period and an average of two best performances shall be taken into consideration for award of internal assessment marks.
- d. The internal assessment marks (both in written and practical) should be submitted to the university endorsed by the Principal of the college 15days prior to the commencement of theory examinations.
- e. The candidate has to secure 35% out of marks prescribed for the sessional examinations in theory and practical separately for the final examination of the concerned academic year.

CRITERIA FOR AWARDING INTERNAL MARKS:-

The internal marks will be awarded for a maximum of 50 for all the subjects except the project work

Subjects with practical	Subjects without practical
1. Written exam – 20	1. Written exam – 20
2. Attendance – 5 marks	2. Attendance – 5 marks
3. Practical demonstration / Viva – 20	3. Viva – 20
4. Record work – 5	4. Assignment – 5

The internal marks will be awarded for a maximum of 25 for the project work

Project

Writing	-	10
Participation / Involvement	-	5
Viva	-	<u>10</u>
		25

CLASSIFICATION OF SUCCESSFUL CANDIDATES

- a. First class may be awarded to such candidates who have passed all the subjects in the stipulated period of study and obtained 60% of marks and above but less than 75% in the aggregate of all the subjects he/she had appeared in the entire MPT course
- b. First class with distinction may be awarded to such candidates who have passed all the subjects in the stipulated period of study and obtained 75 % of marks and above in all the subjects he/she had appeared in the entire MPT course
- c. All other successful candidates shall be declared to have passed in second class
- d. For the best outgoing/Gold medal/ranking students, one should have passed in all the subjects in the first attempt.

CARRY OVER OF FAILED SUBJECTS: -

A candidate is permitted to the carry over the failed subjects of any semester to the final semester.

EXEMPTION FROM RE-EXAMINATION IN A SUBJECT

Candidate who have failed in the examination but obtained pass marks in any subject shall be exempted from re-examination in that subject.

DISTRIBUTION OF MARKS IN THEORY EXAM:-

Short Answers -	10	x	2	=	20
Essay -	2	x	20	=	40
Short Notes -	8	x	5	=	40

CRITERIA FOR PRACTICALS / VIVA:-

50% by internal examiner and 50% by external examiner at the time of University exams.

MARKS QUALIFYING FOR PASS:-

50% of marks in theory and practical separately and an overall aggregate of 50% is required for passing.

REGULATIONS FOR REVALUATION/ RETOTALLING OF ANSWER PAPERS

The shall be no revaluation/ retotalling of answer papers in post graduate courses

VACATION:-

The heads of institutions shall declare 4 weeks vacation in an academic year to the students. The period(s) of vacation can be decided by the Head of the Institution.

RAGGING:-

Ragging in any form is offensive and punishable by law as per "Tamilnadu prohibition of ragging ordinance, 1996. All students found involved in ragging will be immediately suspended from the college until further orders and if found guilty by the Anti-ragging committee he/she will be dismissed from the institution.

MASTER OF PHYSIOTHERAPY

SCHEME OF EXAMINATIONS

	INTERNAL MARKS	THEORY	PRACTICAL	ORAL	TOTAL
I SEMESTER					
1.Physical modalities& PT practice	50	100	75	25	250
2.PT Education, Biostatistics & Research	50	100	-	-	150
II SEMESTER					
1. Bio Mechanics & kinesiology,	50	100	-	-	150
2. Exercise Physiology &, Electro physiology	50	100	-	-	150
III SEMESTER					
1.Physiotherapeutics	50	100	75	25	250
2.Advanced PT Management	50	100	75	25	250
IV SEMESTER					
1. Elective paper	50	100	75	25	250
PROJECT					
Internal Assessment:		25			
Presentation: Review of Literature		10			
Methodology		20			
Statistics		10			
Discussion		10			
Orals		25			

		Total			
		100			

RECOMMENDED HOURS OF STUDY IN MASTER OF PHYSIOTHERAPY

I SEMESTER

		Theory	Practical	Total
1.	Physical modalities & PT practice	70	50	120
2.	Bio Statistics	50	-	50
3.	Research Methodology	60	40	100
4.	PT Education	60	40	100
5.	Administration, Supervision & Ethics	20	20	40
6.	Clinical Practice			230
7.	Seminars / Case Presentation		20	20
8.	Dissertation / Project	20	20	40
9.	Visits & special lectures	20		20
	Total			720

II SEMESTER

		Theory	Practical	Total
1.	Bio mechanics & kinesiology	70	50	120
2.	Disability evaluation, compensation	30	30	60
3.	Community based rehabilitation	30	40	70
4.	Exercise physiology	60	40	100
5.	Electro physiology	40	40	80
6.	Evidence based Practice, & clinical reasoning in physiotherapy	20	20	40
	Clinical practice			210
	Seminar / Case presentation			20
	Visits & Special lectures			20

III SEMESTER

		Theory	Practical	Total
1.	Orthopedic physiotherapy	60	40	100
2.	Neurological physiotherapy	60	40	100
3.	Cardio respiratory physiotherapy	60	40	100
4.	Manual Therapy	60	40	100
5.	Seminar / Case presentation	20		20
6.	Therapeutic exercise	60	40	100
7.	Visit & special lectures	20		20
8.	Clinical practice			180

IV SEMESTER

		Theory	Practical	Total
1.	Elective Subject	120	80	200
2.	Seminar / Case presentation	-	20	20
3.	Dissertation / project	20	40	60
4.	Visits & special lectures	20	-	20
5.	Clinical practice			420

Elective Subjects:

1. Physiotherapy in Orthopaedics
2. Physiotherapy in Neurology
3. Physiotherapy in Cardiorespiratory diseases
4. Sports physiotherapy
5. Pediatric physiotherapy
6. Hand rehabilitation
7. Community physiotherapy
8. Obstetrics and gynecological physiotherapy

TOTAL COURSE HOURS : 2880

CLINICAL HOURS DURING STUDENTSHIP: 1040

I - SEMESTER

PHYSICAL MODALITIES & P.T. PRACTICE (120 HOURS)

COURSE OBJECTIVES

The objective of the course is to enable the student understand the construction, working and the therapeutic uses of different physical modalities used in physiotherapy set up and the principles involved in planning, developing and administration of a physiotherapy department

COURSE OUTLINE

1. PAIN

Definition, types, causes, pain perception, theories of pain, management of pain, recent advances in physiotherapy for the management of acute chronic pain.

2. FARADIC & GALVANIC

Physiological effects, indications, contra indications, therapeutic effects role of these currents in muscle re- education & pain management.

3. TRANSCUTANEOUS ELECTRICAL NERVE STIMULATIONS:

Principles, physiological effects, therapeutic effects, its benefits in obstetrics, cancer pain, postoperative pain and non healing fracture.

4. DYNAMIC CURRENTS:

Physiological effects, indications, contraindications, methods, of application dosage.

5. IONTOPHORESIS:

Direct current, strength of solution, common drugs in usage today, apparatus used, indications, contraindications, dosage methods- incontact, subaquatic, Iontophoresis techniques-Treatment of hyperhydrosis, calcific tendinitis, allergic vasomotor rhinitis- side effects, contraindications, technique.

6. INTERFERENTIAL THERAPY:

Interferential currents, principles of interferential therapy, physiological effects, Uses of Interferential therapy.

7. SHORT WAVE DIATHERMY:

Physics, biophysical and biochemical effects, therapeutic effects, indications, dangers, precautions, application of inductothermy.

Pulsed short wave diathermy-biological effects, indications, contraindications, techniques of application, advantages, disadvantages.

8. MICROWAVE DIATHERMY;

Physics of microwave diathermy, Biophysical, Biochemical, therapeutic effects, dosage, indications, contraindications, techniques, dangers, precautions, method of application, advantages, disadvantages, pulsed microwave diathermy.

9. ULTRASONIC THERAPY:

Medical frequencies of ultrasound, production of ultrasound, physical phenomena of ultrasound, coupling media, pulsed ultrasound, physiological effects of ultrasonic energy, indications, contraindications, dangers, dosage, methods of application, technique of application in contact methods, uses of sub aquatic method.

10. ULTRAVIOLET THERAPY:

Ultraviolet for medical use, physiological effects, therapeutic effects, dosage-calculation of dosage progression of dosage, indications, PUVA regime, contraindications, applications using Air-cooled lamps, kromayer lamp, dangers.

11. INFRARED RADIATION

Physics, apparatus for infrared heating, physiological effects, indications, contraindications, technique of application, advantages, disadvantages.

12. LASER THERAPY:

Cold laser production, physical characteristics, physiological effects, dosage, pain control, indications and contraindications

13. HOT PACKS:

Hydro collator packs, temperature maintenance, physiological effects, methods of application, uses, advantage and disadvantages.

14. PARAFFIN WAX BATH;

Methods of application – immersion, brushing, equipments required, physiological and therapeutic effects, uses and precautions

15. FLUIDOTHERAPY:

Equipment required methods of application, physiological effects, therapeutic uses, benefits of the therapy.

16. CONTRAST BATH:

Equipment use, method of application, indications, contraindications, physiological effects, therapeutic uses.

17. CRYOTHERAPY:

Cold packs, ice bags, ice massage, ice towels, compressive cryotherapy, vapocoolant sprays-therapeutic effects, uses in sports medicine, spasticity, management, therapeutic uses.

18. HYDROTHERAPY:

Physical laws of water, physiological effects of hydrotherapy, equipment, environment, hygiene, treatment time and temperatures, safety considerations, advantages and disadvantages.

19. TRACTION:

Types of spinal traction-continuous, intermittent, manual, auto traction, gravity lumbar traction, indications for spinal traction, contraindications, effects of traction, mechanical lumbar traction technique, cervical traction technique.

20. MECHANICAL EXTERNAL COMPRESSION

Causes of edema, pathophysiology of edema, types of edema, methods of external compression-taping, intermittent compression, elastic support bandaging, gradient support, massage, exercise – physiological effects, therapeutic uses, patient education.

21. P.T. PRACTICE

Physiotherapy department planning & management – policies and procedure- recruitment, interview, orientation probationary period, salary hours of work, leave facilities, retirement, referred policy, equipment maintenance records, statistics functioning, department planning design and construction, planning and innovation, growth and expansion, type and size of hospital, services and activities, space requirements, number of functional area elements, occupancy time, gymnasium, patient waiting areas, storage facilities, lighting and floor surfaces.

22. PHYSICAL THERAPY AND LAW:

Medico-legal aspects of physical therapy, liability, negligence, malpractice, licensure, workman's compensation.

23. P.T. ETHICS:

Morals and ethics, Ethical analysis of moral problems, Ethical issue in physical therapy, Rules and regulations of Indian Association of Physiotherapists, Ethical rules, Aims and objectives of Indian Association of physiotherapists.

PT EDUCATION, BIostatISTICS & RESEARCH

COURSE OBJECTIVES

The objective of the course is to enable the student understand the statistical methods and research methods and their application in carrying out research. This course also enables the student understand the various teaching methods, curriculum development and evaluation thereby improve his/her abilities to become a good teacher.

BIO-STATISTICS (50 HOURS)

COURSE OUTLINE

1. INTRODUCTION

Definition and scope of statistics-Data collection- Primary and secondary methods collection of experimental data. Classification of data- Tabulation and frequency distribution .Uses of classification of data- representation of data by diagram and graphs-Histogram-frequency polygon.

Uses of statistical methods in physiotherapy , Measurement, Measurement scales, variables and their measurement, symbolizing data and operations.

2. STATISTICAL METHODS

Statistical data, Tabulation, Calculation of central tendency and dispersion, Correlation and regression.

3. PROBABILITY AND SAMPLING

Probability as a mathematical system, Types of population and samples, Sampling distribution and sampling methods.

4. INFERENCE STATISTICS

Point and interval estimation, hypothesis testing, simple test of significance.

5. VITAL AND HEALTH STATISTICS

Use of vital and health statistics in the practice of Physiotherapy. Sources and methods of collection and recording, interpretation of commonly used vital and health statistics.

RESEARCH METHODOLOGY (100 HOURS)

COURSE OUTLINE

1. Meaning of research, objectives, motivation & types of research
2. Research process and criteria of good research.
3. Problems encountered by researchers in India
4. Defining the research problem
5. Formulation of hypothesis
6. Research design & sampling design
7. Measurement & scaling techniques. Methods of data collection.
8. Validity & reliability
9. Analysis of data.
10. Pilot study
11. Role of computer in research and ethical concepts.
12. Introduction: History of Physiotherapy research before 1900
1900-1950
1950—present
13. Practical application in research process

Selection and statement of problem and hypothesis, Review of literature, Selection of research design, Selection of data gathering and developing the data gathering instruments, Developing the data analysis plan, Selection of sample, Identifying the assumptions and limitations of the study, & Pilot study

PT EDUCATION (100 HOURS)

COURSE OUTLINE

1. EDUCATION & PHILOSOPHY

Aims, Philosophy and trends and issues in education including:
Educational aims, Agencies of education, Formal and informal education,
Major philosophies of education (naturalism, idealism, pragmatism, realism) including Gandhi and Tagore, Modern and contemporary philosophies of education (existentialism, progressivism, reconstructionism, perennialism)
Philosophies of education in India-past, present and future.
Role of educational philosophy.
Current issues and trends in education

2. CONCEPTS OF TEACHING AND LEARNING

Principles of learning, Theories of teaching, relationship between teaching and learning, psychology of education, Dynamics of behavior, motivational process in learning, perception, individual differences, intelligence and personality.

3. CURRICULUM:

Curriculum committee, Types of curriculum, formation of philosophy, course objectives, course placement, time allotment, Selection and organization of learning experience, Master plans of courses, Master rotational plan-individual rotational plan, correlation of theory and practice, current trends in curriculum planning

4. TEACHING METHODS

Principles and methods of teaching, Strategies of teaching, writing lesson plans, Audio-visual aids, and teaching methods- socialized teaching methods.

5. EVALUATION

Nature of measurement and evaluation, meaning, process, standardized & non-standardized tests- formative and summative evaluation.

Taxonomy of cognitive, affective and psycho motor domains.

Construction of achievement test - Essay type short answers Multiple Choice Questions

6. GUIDANCE AND COUNSELLING

Philosophy, principles and concepts,

Need for guidance-objectives of guidance-kinds of guidance-educational, vocational, personal and social.

Types of counseling- directive, non-directive, eclectic and group counseling.

Guidance and counseling services for students

7. FACULTY DEVELOPMENT

Faculty development and development of personnel for physiotherapy services.

8. PRACTICAL

1. Prepare a philosophy, overall and behavioral objectives for a basic physiotherapy program.
2. Design a curriculum for a basic physiotherapy program.
3. Plan a unit of instruction for a course in a selected specialty of physiotherapy. Prepare a lesson plan and conduct classes.
4. Construct a written objective type test for the lessons you have taken.
5. Prepare a plan for evaluating the students of physiotherapy
6. Internal Assessment tests in all topics
7. Methods of teaching - lectures, Seminars, Discussion

ADMINISTRATION, SUPERVISION, ETHICS (40 HOURS)

COURSE OBJECTIVES

This course is aimed to enable the candidate to acquire the knowledge of ethics of professional practice, as well as its moral & legal aspects. The student will also acquire the knowledge of the basics in managerial skills, & use of information technology in professional Practice

COURSE OUTLINE

SECTION-I-PROFESSIONAL ISSUES (INCLUDING ETHICS)

1. Concepts of morality, Ethics & Legality –Rules of professional conduct & their Medico-legal & moral implications – The need of council act for physiotherapy
2. Constitution & Functions of the Indian association of Physical therapists
3. Functioning of the World Confederation for Physical therapy (W.C.P.T.) & its various branches –special interest groups
4. Role of World Health Organization & World Confederation for Physical Therapy

SECTION-II-ADMINISTRATION/MANAGEMENT &MARKETING

1. Management: Studies related to local health care organization, management structure, planning, delivery with quality assurance & funding of service delivery, Information technology, Time management, Career development in physiotherapy
2. Administration: Principles based on the goal & functions at large hospital set up /domiciliary services/private clinic/academic
3. Methods of maintaining records
4. Equipment maintenance
5. Budget planning
6. Performance analysis, physical structure/reporting system

II - SEMESTER

BIOMECHANICS AND KINESIOLOGY (120 HOURS)

COURSE OBJECTIVES

The objective of the course is to enable the student understand the biomechanical principles of human movement and the pathomechanics during deviations in the same.

COURSE OUTLINE

1. PHYSICAL PROPERTIES OF BONE:

Elasticity of bone, stress resistance of bone, compression, shearing and bending stress, torsion, Application of the theory of beam and column, effect of muscular tension on Gravitational stress in bone.

2. FUNCTIONAL ADAPTATION OF BONE UNDER PATHOLOGICAL CONDITIONS:

Static conditions: Mortin's syndrome, Rachitic coxa vara, Tibia vara, Traumatic conditions, congenital deformities.

3. PHYSICAL PROPERTIES OF NORMAL CARTILAGE:

Stress and structure, elasticity, deformation and pressure, patho kinetics of cartilage

4. PHYSICAL PROPERTIES OF MUSCLES:

Elasticity and contractility of muscle, Electro Physiology of muscle, contraction length, Physical properties of ligaments and tendons.

5. MECHANICS OF JOINT:

General mechanical principles, shape of the articular surfaces, joint contact, type of joint movement, degrees of freedom of motion, kinetic chain.

6. MECHANICS OF MUSCLE ACTION:

Stabilizing and rotatory components, leverage and equilibrium, morphological adaptation of muscle, co-ordination of skeletal muscle action, bi-articular muscles.

7. BODY BALANCE AND BODY EQUILIBRIUM.

Translatory effect of the force of gravity, rotatory effect of gravity, center of gravity of human body, location of center of gravity.

8. SHOULDER COMPLEX:

Describe the following;

Physiology of shoulder, Codman's paradox, Instantaneous centers of rotation, capsule and ligaments of shoulder, sternoclavicular articulation- Articular surfaces movements, scapulo-thoracic articulation- movement of the shoulder girdle, gleno-humeral articulation- Anatomy, capsule and ligaments, circular polar movement of the shoulder joint. Dynamics of shoulder complex - Translatory movements of the shoulder blade, rotatory movement of the shoulder blade, physiology of adduction, scapulohumeral rotation.

Pathomechanics of paralytic shoulder:

Paralysis of the trapezius, paralysis of the serratus anterior, paralysis of Rhomboids, paralysis of deltoid, , paralysis of supraspinatus, paralysis of the subscapularis, paralysis of pectoralis major, paralysis of latissimus dorsi. Kinetic point of view – operations for paralysis of trapezius , serratus anterior, deltoid.

9. ELBOW JOINT:

Ligaments, articular surfaces, range of movements, pronation – supination, functional anatomy of inferior radio-ulnar joint, dynamics of superior radio-ulnar joint, position of function and compensatory movements.

Patho mechanics of paralytic elbow:

Paralysis of extensors of elbow, paralysis of flexors, transposition of forearm muscles, substitution by the triceps.

10. WRIST AND HAND:

Movements of the wrist, range of movements of the wrist, articular-surface of radiocarpal and midcarpal joints, ligaments of radio- carpal joint. Dynamics of the carpus, lunate pillar, scaphoid-lunate couple, Functional pattern of wrist motion,, paralysis of wrist extensors, paralysis of wrist flexors.

Topography of hand, Architecture of the hand, metacarpophalangeal joints, ligaments range of movements, interphalangeal joints,-ligaments, tunnels, synovial sheaths of the flexor tendons, geometry of the opposition of the thumb.

Modes of prehension-Terminal opposition, subterminal opposition, subterminal – lateral opposiion, tridigital grips, tetradigital grips, pentadigital grips, palmar grips, dynamic grips.

Pathokinetics of paralytic disabilities:

Paralysis of finger extensors and flexors, paralysis of interossei and lumbricals, tendon transplantation in flexors and extensors. Arthrodesis of the wrist combined with tendon transplantation-kinetic analysis. Analysis of movements under open kinetic chain conditions – Balk Throwing, Discus throwing, shot putting, movement of the upper extremity in a closed kinetic chain, weight lifting and boxing.

11. HIP JOINT:

Movements of the hip and their ranges, movements of the circumduction of the hip, capsule and ligaments of the hip, muscular and bony factors affecting stability of the hip. Inversion of muscle action. Architecture of femur, analysis of the static forces operating upon the femur, static pressure and shear effects produced by muscle action, muscle dynamics.

Pathomechanics:

Coxa valga- skeletal factors, mechanical muscle situation of coxa valga, pathomechanics of the dysplasia of hip joint, patho mechanics of fixed pelvic obliquity. Dynamics of pelvic obliquities in coxa vara. Paralysis of hip abductors, abductors, extensors and flexors, Internal and external rotators. Mechanics of reconstructive procedure of paralyzed hip joint – paralytic dislocation, Shelving operation, Legg’s operation, substitution of the abductors by external oblique, substitution of gluteus maximus by sacrospinalis..

12. KNEE:

Axes of the knee joint, movements of the knees and its range of motion, ligaments of the knee, lesions of the menisci, transverse stability of the knee- anterior, posterior stability of the knee, mechanical role of cruciate ligaments, rotational stability of the knee, stress analysis of the bones, mechanics of menisci, muscle dynamics of the knee joint.

Pathomechanics of static deformities

Genu valgum- static factor, dynamic factor, static genu varum, static genu recurvatum, mechanics of tibial torsion.

Pathomechanics of the paralytic knee:

Extensor paralysis, Flexor paralysis of the knee, methods of reconstruction of genu recurvatum. Fasciodesis, Tenodesis, Osteoplastic – Arthrodesis, Reconstruction of the paralytic Genu valgum, reconstruction of flexor contracture.

13. ANKLE AND FOOT:

Joint complex of the foot, articular surfaces of the ankle, ligaments of ankle, antero posterior stability of the ankle and factors limiting flexion and extension. Transverse stability of ankle tibiofibular joints, construction of the arches, Axes of the joint of the foot, internal architecture of the foot, ligamentous reinforcements of the articularis.

Describe the subtalar joint, articular surfaces, ligaments of subtalar joints, transverse tarsal joint, movements of subtalar joints, muscles deformities of the foot, cuneonavicular, tarsometatarsal joints, fibrous tunnels of the dorsal and plantar aspects of the foot, general architecture of the plantar vault, three arches of the plantar vault - medial arch, lateral arch, anterior arch, distribution of stresses and static distribution of the plantar vault, dynamic changes of the arches of the foot during working dynamic changes of the arches of the foot during working dynamic changes related to the medial and lateral rotation of the leg on the foot.

Pathomechanics or the static deformities of the foot and ankle:

Development factors, pathological equilibrium- pronated foot, instability of the subtalar joint, pathomechanics of the foot structures: pes cavus, pes planus.

Pathomechanics of the paralytic foot and ankle:

Talipes equino varus sub talar joint, midtarsal joint, arthrodesis of paralytic joints for the establishment of equilibrium, stabilization of the ankle, single arthrodesis, double joint arthrodesis and three joint arthrodesis.

14. ERGONOMICS:

Work capacity analysis, role of physiotherapy in industrial set up, job site paralysis, pre-employment screening, worker's functional capacity assessment, work hardening program, industrial therapy, postural examination, job task analysis, educational program for prevention of injury, adult education, documentation

EXERCISE PHYSIOLOGY & ELECTRO PHYSIOLOGY

COURSE OBJECTIVES

The objective of the course is to enable the student understand the physiological changes and physiological adaptations to exercise. This course also enables the students understand the electrophysiological principles involved in examination of muscle and nerve.

EXERCISE PHYSIOLOGY (100 HOURS)

COURSE OUTLINE

1. INTRODUCTION

Muscle & contraction-Architecture of skeletal muscles, sliding filament theory, types of muscle fibers, mechanical efficiency of muscle contraction, force-velocity relationship, motor unit, muscle fatigue-blood supply, prolonged exercise.

2. AEROBIC & ANAEROBIC EXERCISE

Aerobic processes intensity & duration of exercise, prolonged exercise, muscular stress involved in exercise.

Anaerobic processes: Power & capacity of high energy breakdown.
Lactate: Production- distribution & disappearance, effect of metabolism on tissue & blood Ph, Anaerobic threshold, Maximal aerobic power, maximal anaerobic power.

3. PHYSICAL FITNESS TESTS

Test of Maximal aerobic power – Measurement of oxygen uptake, Treadmill tests, Bicycle ergo meter test, step-test, maximal oxygen uptake in various sports. Evaluation of anaerobic power, Exercise electrocardiogram.

4. PHYSICAL TRAINING:

Training principles, continuous versus intermittent exercise training methods & biological long-term effects of training, isometric strength training, dynamic strength training. Training of aerobic power, training of anaerobic power. Peripheral adaptation to aerobic training. Endurance training, retraining, recovery after exercise, contraindications to physical training.

5. CARDIOVASCULAR & CIRCULATORY SYSTEM

Cardiac cycle – pressure during cardiac cycle, Hemodynamics mechanical work and pressure, hydrostatic pressure, flow and resistance, various-capillary structure and transport mechanism, filtration & osmosis, vascularisation of Skeletal muscles, regulation of circulation during exercise, cardiac output & O₂ uptakes –stroke volume, blood pressure.

6. RESPIRATORY SYSTEM:

Lung compliance, air way resistance, pulmonary ventilation at rest and during exercise, diffusion in lung tissues, gas pressure – ventilation & perfusion-regulation of breathing – exercise, high air pressures- Breath holding diving.

7. APPLIED WORK PHYSIOLOGY:

Factors affecting sustained physical work, assessment of work load in relation to work capacity, Assessment of maximal aerobic power measurement of oxygen uptake in a typical work situation, Assessment of load exerted on specific muscles, Classification of work, Daily rates of energy expenditure, energy expenditure during specific activities like sleeping, sedentary, work, house work, light industry, manual labor.

8. FATIGUE:

General Physical fatigue, local muscular fatigue, shift work, effect of menstruation.

9. NUTRITION & PHYSICAL PERFORMANCE:

Nutritional requirements, energy metabolism & factors governing the selection of fuel for muscular exercises, food for the athlete, Energy balance, regulation of food intake, ideal body weight obesity, slimming diets, optional supply of Nutrients.

10. FACTORS AFFECTING PERFORMANCE:

High altitude-limiting factors, oxygen transport adaptation of high altitude, high gas pressure, pressure effects, nitrogen, oxygen, carbon dioxide metabolism in sports, tobacco smoking- circulatory effects, respiratory effects, metabolic effects, smoking habits among athletes, alcohol & Exercise – Neuromuscular function, aerobic & anaerobic power, metabolic effects, caffeine, doping and “THE WILL TO WIN”

ELECTRO PHYSIOLOGY (80 HOURS)

COURSE OUTLINE

1. INTRODUCTION & INSTRUMENTATION

Normal motor unit, action potentials, Abnormal motor units, Instrumentation, Surface electrodes- Needle electrodes-Types, intracellular electrodes, amplifiers, stimulator, cathode-ray oscilloscope, digital processing & Electrical safety.

2. METHOD OF EXAMINATION

EMG Examination during

- Muscle at rest,
- Insertional activity,
- Minimum effort,
- Maximum effort.

Quantitative methods in EMG

Action potential measurements, motor unit population.

3. ABNORMAL MOTOR UNIT POTENTIALS:

Motor neuron disease, hereditary motor neuron diseases poliomyelitis, muscular dystrophies inflammatory myotonias, metabolic myopathies.

4. MOTOR AND SENSORY CONDUCTION STUDIES

Physiology of nerve conduction, General factors affecting nerve conduction, Nerve stimulation-Latency, Amplitude, nerve conduction velocity. Special conduction techniques- H wave and F wave in Proximal conduction studies, standard motor conduction techniques of long thoracic nerve, radial nerve, ulnar nerve, median nerve, femoral nerve sciatic nerve peroneal nerve, tibial nerve, standard sensory conduction techniques, radial nerve, ulnar nerve, median nerve, lateral cutaneous nerve of thigh, saphenous nerve, Peroneal nerve tibial nerve, sural nerve, Blink reflex.

5. CONDUCTION STUDIES IN PERIPHERAL NEUROPATHIES

Nerve conduction changes in peripheral neuropathy, Electromyographic changes in peripheral neuropathies, Hereditary neuropathies-Toxic neuropathies, idiopathies, neuropathies, (Gullian-Barre syndrome) Chronic polyneuropathy, electrical study of Axon reflexes, Blink reflex, jaw jerks, Tonics Vibration Reflex.

Nerve Trauma and Compression Syndromes

Nature, and effects of nerve injury, course and prognosis, Brachial plexus lesions, Entrapment neuropathies, Median nerve (Carpal Tunnel syndrome) Ulnar nerve (Cubital Tunnel Syndrome), radial nerve meralgia parasthetica, Tarsal Tunnel syndrome, EMG studies in Myasthenia gravis , Lambert – Eaton myasthenia syndrome, electro diagnosis in radiculopathy.

6. SOMATO SENSORY EVOKED POTENTIALS

General principles, Electrode placement, Polarity methodology for upper extremities studies, methodology for lower extremity studies, use of somato sensory evoked potentials in peripheral nerve problems, use of somato sensory evoked potentials in Brachial plexopathy, use of somato sensory evoked potentials for determining prognosis & Diagnosis.

DISABILITY EVALUATION AND COMPENSATION (40 HOURS)

COURSE OBJECTIVES

The objective of the course is to enable the student understand the concept of disability and its evaluation and get to know the eligible compensation of the disabled.

COURSE OUTLINE

- Definition of disability and the disability process
- Concepts of impairment, disability and handicap,
- Attitudes of person with disability, family and community
- Exercise of portrait of disabled person and experiencing disability.
- Needs of people in society
- Link between education, poverty and disability
- Status of persons with disability in India
- Background to social, political and economic issues in India and other low income countries. The effect on the poor who live in rural and urban areas.
- Disability and women
- Different approaches towards addressing the need of persons with disability
- The different models of working with persons with disability
- Introduction to disability issues, different acts, Government schemes and initiatives, legislation, and methods of accessing them.
- Environmental Barriers and promoting barrier free environment
- Simple methods to create a Barrier Free Environment in house, school, Roads,toilets, community levels.
- Methods of disability evaluation – Government of India’s notification, Government of Tamil Nadu notification, Mc Bride’s method, Phulhems profile, sensory impairment evaluation, Evaluation of respiratory function – Ability index – pulses profile, Kats index of Activities of daily living, Barthel Index, Modified Barthel Index, Kenny self care evaluation, functional classification of patients with diseases of the heart, vocational training.
- Compensation for different disabilities with regards to insurance and with regard to workman compensation act

COMMUNITY BASED REHABILITATION (70 HOURS)

COURSE OBJECTIVES

- To understand the need and importance for Community Based Rehabilitation;
- To understand the various components of CBR and to use all existing development programmes, for example, Primary Health Care (PHC) as a platform to build CBR services in a community.

COURSE OUTLINE

1. Meaning, scope, basic principles and strategies of Community Based Rehabilitation.
2. Difference between Community Based Rehabilitation and Institutional Based Rehabilitation.
3. Different team approaches in Community Based Rehabilitation.
4. Referral systems in Community Based Rehabilitation.
5. Building and use of existing resources of the community in sustaining Community Based Rehabilitation such as primary health, primary education, rural development and corporate sectors and development of referral and resource directory.
6. Screening for identifying disabilities and tools used in Community based rehabilitation.
7. Role of community in the prevention of disabilities.
8. Sensitization & mobilization towards community organization.
9. Organization and sustainability of Self Help Groups, bank loans to start self help groups, employment to set-up micro credit groups of persons with disabilities, and or to include persons with disabilities in the existing self help micro credit groups in the community.
10. Community health education and management.
11. Disaster management and response.
12. Record keeping & report writing.

**EVIDENCE BASED PRACTICE AND CLINICAL REASONING IN
PHYSIOTHERAPY (40 HOURS)**

COURSE OBJECTIVES

The objective of the course is to enable the student understand the principles and importance of evidence based practice and clinical reasoning in physiotherapy practice.

COURSE OUTLINE

1. EVIDENCE BASED PRACTICE

Importance and need of Evidence based practice, Principles of Evidence based practice and Research in the field of physiotherapy, Application of Evidence based practice in professional day to day practice, Sources to search for evidence, Legal issues in practice.

2. CLINICAL REASONING & DIAGNOSIS

Definition of clinical reasoning, Steps in clinical reasoning process, Need for clinical reasoning in physiotherapy, Special tests & their sensitivity & reliability, Principles of physiotherapy diagnosis, Correlating clinical findings with investigations & Differential diagnosis.

III- SEMESTER

ADVANCED PT MANAGEMENT

COURSE OBJECTIVES

The objective of the course is to enable the student understand different orthopedic, neurological and cardiothoracic conditions and their physiotherapy evaluation and management.

COURSE OUTLINE

ORTHOPAEDIC PHYSIOTHERAPY (100 HOURS)

1. FRACTURES AND DISLOCATIONS OF UPPER LIMB

Describe in detail the fracture humerus, forearm bones, colle's fracture, hand bones and their medical and physiotherapy management and their complications. Total shoulder replacement – their medical and physiotherapy management. Anterior dislocation of shoulder and reconstructive procedures – Putti platt, Bankart repair, Magnusan, Stalk Bristow and its physiotherapy management.

2. ORTHOPAEDIC CONDITIONS OF UPPER LIMB

Rotator Cuff injuries, Bicipital tendinitis , supraspinatus tendinitis, Tennis Elbow, Trigger Finger, Periarthritis shoulder , Thoracic – outlet Syndrome, shoulder hand syndrome, carpal tunnel syndrome – physiotherapy management. .

3. FRACTURES AND DISLOCATIONS OF LOWER LIMB

Describe in detail about the fracture neck of femur and their complication, fracture trochanter and their classifications, sub trochanteric fracture, shaft of femur, supracondylar fracture and intercondylar fracture of femur and its surgical and physiotherapy management.

Describe in detail the patellar fracture, patellectomy, intercondylar fracture of shaft of tibia, Pott's fracture, calcaneal fracture, metatarsal fracture and its surgical and physiotherapy management.

The following operative procedures and its physiotherapy management:
Total hip replacement, bipolar endoprosthesis, hemiarthroplasty, Richard's compression plate technique, Jewett Nail Fixation, Total knee replacement, Anterior Cruciate Ligament reconstruction, Meniscectomy.

4. ORTHOPAEDIC CONDITIONS OF LOWER LIMB:

Congenital dislocation of hip, slipped capital femoral epiphysis, Avascular necrosis of femoral head, Coxa vara, coxa valga, Anteversion, retroversion, posterior, & anterior dislocation of hip, Perthe's disease, chondromalasia patellae, Recurrent dislocation of patella, forefoot valgus, forefoot varus, Tarsal tunnel syndrome and its surgical management.

5. FRACTURES AND DISLOCATIONS OF SPINE

Clinical features following fracture of vertebrae and its Steffi plate fixation, Harrington's rod instrumentation, and conservative management. Describe the physiotherapy management following fracture spine.

6. ORTHOPAEDIC CONDITIONS OF SPINE:

Spondylolysis – Pathology, surgical and physiotherapy management.
Intervertebral disc prolapse – Pathology, Traction, Surgery, physiotherapy management, back care,
Lumbar spondylosis – Pathology, X - ray findings, physiotherapy management, Adolescent kyphosis,
Pott's Paraplegia – Taylor's brace, Steffi plating, decompression.
Scoliosis- type, measurement, braces, operative correction and its physiotherapy management.

7. ARTHRITIS:

Affections of cervical spine and its physiotherapy management,
Osteoarthritis – Articular neurology, Anatomy of articular cartilage, Tibial Osteotomy, Total knee replacement and its physiotherapy management.
Rheumatoid arthritis: Its clinical features and its physiotherapy management.

NEUROLOGICAL PHYSIOTHERAPY(100 HOURS)

COURSE OUTLINE

1. INTRODUCTION

Development and growth of central Nervous system, Anatomy of cerebrum, Cerebellum and spinal cord, disorders of motor system, Ageing of nervous system physiology of Cerebrospinal fluid its circulation and absorption,

2. INFECTIONS OF CENTRAL NERVOUS SYSTEM

Pyogenic infections: Bacterial meningitis, Brain abscess, Tuberculosis, Meningitis, Neurosyphilis - Clinical features, pathophysiology, medical, surgical & physiotherapy management,

Viral infections: Poliomyelitis Viral encephalitis, sub acute sclerosing encephalitis, Acquired Immuno Deficiency Syndrome - clinical features, pathophysiology, medical surgical & physiotherapy Management

3. CEREBRO-VASCULAR DISEASES:

Stroke syndrome, Ischaemic stroke infarction, thromboembolic stroke, Haemorrhagic stroke, transient ischaemic attacks, clinical features, pathophysiology, medical, surgical & physiotherapy management. Intra cranial haemorrhage, arterio-venous malformations of the brain - clinical features & physiotherapy management

4. INTRACRANIAL NEOPLASMS:

Gliomas, meningiomas, Neuroma Angiomas, craniopharyngiomas, Pituitary – Adenomas, surgical management & physiotherapy management

5. METABOLIC DISORDERS OF BRAIN:

Hypoxic encephalopathy, hypoglycemic encephalopathy, Hepatic encephalopathy - clinical features, pathophysiology, medical and physiotherapy management.

6. DEGENERATIVE DISEASES OF NERVOUS SYSTEM:

Clinical manifestations, pathophysiology, medical management surgical treatment, physiotherapy management of Parkinson's Disease, Motor neuron disease Amyotrophic lateral sclerosis, Progressive bulbar palsy, progressive muscular atrophy and Multiple sclerosis

7. PAEDIATRIC NEUROLOGY

Cerebral palsy: Causes, classification, types, reflex, activity at different levels, Assessment of developmental milestones from birth, Deformities. Management: Lifting, carrying, positioning, orthopaedic surgeries, Equipments used. Treatment Techniques: Neuro developmental approach (Bobath), Roods approach, Vojta techniques, Home programme.

Spinabifida: Incidence, Assessment of neonate with Spina bifida, type of lesion, deformity, bladder management.

8. POLYNEUROPATHY:

Post-Infective poly radiculo neuropathy: etiology, Pathology, Signs & symptoms, Prognosis, Medical management & physiotherapy management.

Diabetic – Polyneuropathy: etiology, Symptoms, signs, diagnosis, prognosis, physiotherapy management

9. DISORDERS OF SPINAL CORD:

Compression of the spinal cord: Neoplasm of the vertebral column, Intervertebral disc prolapse, extradural or epidural abscess – signs & symptoms, investigations, surgical treatment, physiotherapy management & rehabilitation.

Syringomyelia ; etiology, Pathology, clinical manifestation, surgical treatment-decompression laminectomy, venticulo-atrial shunt, physiotherapy management, spasticity management, orthoses, Pressure – sore management, patient education:

10. DISORDERS OF NEURO MUSCULAR JUNCTION:

Myasthenia gravis: Etiology, Classification, signs & symptom prognosis, Electromyographic picture - medical & surgical treatment, physiotherapy management.

Eaton-Lambert syndrome

11. DISORDERS OF MUSCLE:

Myotonia congenita, Dystrophia myotonia, Paramyotonia congenita – Clinical features, pathology, medical management & physiotherapy management.

Classification, Etiology, Clinical Presentation, Pathology enzymes level, muscle biopsy, Electromyographic picture, orthotic management physiotherapy management of

Progressive muscular dystrophy

Duchenne Muscular Dystrophy

Becker's Muscular Dystrophy

Limb-girdle muscular dystrophy

Facio - Scapulo humeral-muscular Dystrophy

CARDIO-RESPIRATORY PHYSIOTHERAPY (100 HOURS)

COURSE OUTLINE

1. INTRODUCTION

Anatomy of the Thorax, Respiratory tract, broncho-pulmonary segments, Mechanics of Breathing, lung compliance, neural control of airway resistance, Gas exchange & transport, pulmonary circulations. Vascular mechanics, matching of blood and gas, control of breathing.

Respiratory muscles: Respiratory muscle mechanics. Respiratory muscle blood flow, determinants of respiratory muscle fatigue, Respiratory muscle function in disease, effect of training program on pulmonary function.

2. CARDIO-RESPIRATORY ASSESSMENT

Inspection, Palpation, Percussion & Auscultation, chest movement, Chest expansion, Breathing pattern, Investigations: Chest X-rays, Pulmonary function tests, Electrocardiography, echocardiography, cardiac catheterization, stress testing, coronary angiography, lung scintigraphy, Acid base balance, lipid profile, exercise tolerance test, Computerized Tomography scan, Magnetic Resonance Imaging.

3. NEONATES WITH RESPIRATORY DISEASES:

Anatomical & Physiological differences in neonates, pulmonary problems, secondary to immaturity, Neonatal distress, asphyxia management, Broncho pulmonary dysplasia, Nikity Wilson syndrome, Bronchial stenosis, chest physical therapy, positioning, manual percussion & vibration, Airway suctioning, Bronchial Drainage at home, suctioning at home.

4. CHILDREN WITH RESPIRATORY DYSFUNCTION:

Developing lung, developmental delay, Chronic obstructive pulmonary disease, Asthma, Cystic fibrosis, immunological deficiencies, Bone marrow transplantation, Pediatric Acquired Immuno Deficiency Syndrome, pertussis, functional & developmental assessment, Bronchial drainage, Percussion, vibration and shaking, coughing techniques, Forced expiratory techniques, Autogenic Drainage techniques, expiratory pressure therapy, postural exercise, Home care, mechanical percussion & vibrator, Role of

physiotherapy in pediatric out patient clinic, exercise testing, exercise prescription.

5. PULMONARY DISEASES:

Describe medical & physiotherapy management of the following:

Emphysema, chronic bronchitis, Bronchiectasis, Asthma, Cystic fibrosis, Exercise testing, airway clearance, O₂ therapy, pursed lip breathing exercise
Bronchiectasis, lung abscess, Bronchopneumonia, Destroyed lung, carcinoma of the lung, pulmonary embolism, pneumoconiosis, Asbestosis & Interstitial lung disease, Pre-operative & Post-operative management.

Describe medical management of Empyema thoraces, Describe underwater seal intercostals drainage, Rib resection, Decortications, window operation, physiotherapy management.

6. ACUTE RESPIRATORY FAILURE

Respiratory failure and its types, Respiratory abnormalities and its management, Endotracheal Intubation, Tracheostomy, Mechanical ventilation, oxygen toxicity, Bronchial hygiene, Breathing exercises, oxygen therapy.

6. ADJUNCTS OF CHEST PHYSIOTHERAPY:

Humidification, installation, Nebulization, mechanical nebulizer. Ultrasonic Nebulizer, Intermittent Positive Pressure Breathing – Aerosol delivery, Bronchodilators, Mucolytic/Aerosols, Blow bottles, incentive spirometry. Suctioning: tracheal suctioning and its complications, lavage, bagging.

7. TRAUMA TO THE CHEST:

Pneumothorax, haemothorax, fracture ribs, lung contusion, injury to great vessels and its clinical presentation, management & physiotherapy management

8. PHYSIOTHERAPY FOLLOWING THORACIC SURGERIES

Describe physiotherapy management of lung segmental resection, lobectomy, pneumonectomy, open lung biopsy, bilobectomy & Tracheostomy.

9. ATHEROSCLEROSIS:

Coronary artery supply, Risk factors & development of coronary disease, hemodynamics of coronary artery flow in normal and diseased states.

10. MYOCARDIAL INFARCTION:

Exercise protocol, ambulation, training program, coronary artery bypass graft, metabolic equivalents, coronary angioplasty, percutaneous coronary angioplasty.

11. CONGENITAL HEART DISEASE:

Tetralogy of fallot, atrial septal defect, ventricular septal defect. Patent ductus arteriosus, total anomalous pulmonary venous connection. Partial anomalous pulmonary venous connection, single atrium, atric atresia, pulmonary atresia, tricuspid atresia, coarctation of aorta, double outlet right ventricle, transposition, of great vessels, transposition of heart – clinical features, x-ray findings, Electrocardiography, cardiac catheterization, surgical management, prosthetic cardiac values, Balloon mitral valvotomy, valve replacement, valvotomy, physiotherapy management.

12. CARDIO-PULMONARY RESUSCITATION:

Cardiac arrest, Ventricular fibrillation, resuscitation, closed & open cardiac management, artificial respiration, emergency medications.

13. ELECTROCARDIOGRAPHY:

Bipolar standard leads, Unipolar leads, normal anatomy & physiology of the cardiovascular system , normal Electrocardiography , right & left axis deviations, ventricular hypertrophy, QRS complex abnormality , normal & abnormal P wave, bundle branch block Electrocardiography in myocardial infarction, Localization of Myocardial Infarction, Q wave abnormality,

coronary insufficiency, ST segment abnormalities, T wave abnormality, stress testing Electrocardiography, classification of arrhythmias, sinus tachycardia, sinus – bradycardia, ectopic atrial rhythm. Atrial fibrillation, atrial flutter, atrial bradycardia, AtrioVentricular nodal rhythm, extra systoles, ventricular rhythms, ventricular bradycardia, ventricular fibrillation 1st degree AtrioVentricular block, II degree AtrioVentricular block, III degree AtrioVentricular block, ventricular premature beats – clinical significance , prognosis.

PHYSIOTHERAPEUTICS (200 HOURS)

COURSE OBJECTIVES

The objective of the course is to enable the student understand the different manual therapy procedures and their application in the rehabilitation of patients.

COURSE OUTLINE

1. INTRODUCTION TO EXERCISE THERAPY.

Physiological and therapeutic effects of exercise, Indications & contra indications, exercise prescription, Types of exercises & their effects - Isometric, Isotonic, Isokinetic , passive, active, active – assisted, active resisted.

Strengthening exercises & stretching procedures for all muscle groups, Muscle Re-education.

Mobilization of joints: Definition, Joint range-Outer range, Middle range, Inner range, Causes of joint range limitation, Effect of prolonged immobilization, Indication & Contraindication, Principles and methods of mobilization

Balance training, posture correction, co-ordination, gait training, Functional training – training for activities of daily living, Therapeutic bio feed back, Relaxation techniques

Massage – Physiological effects, principles and methods, indications and Contraindications

2. INTRODUCTION TO MANUAL THERAPY

Evolution of manual therapy, Types of mobilizations & manipulation, Principles of examination, Diagnosis & Management of mechanical dysfunction

3. EVIDENCE BASED PRACTICE

Need for evidence based practice, Research in the field of physiotherapy & manual therapy, Application of Evidence based practice in professional day to day practice, Sources to search for evidence, Legal issues in practice.

4. CLINICAL REASONING & DIAGNOSIS

Definition of clinical reasoning, Steps in clinical reasoning process, Need for clinical reasoning, Special tests & their sensitivity & reliability, Principles of diagnosis, Correlating clinical findings with investigations & Differential diagnosis

5. MANUAL THERAPY BASED ON MAITLAND CONCEPTS

Concept of Maitland, Grades, Movement diagram, Principles of assessment including flags, Principles of treatment, Different methods of treatment, Regional treatment techniques for peripheral & spinal joints

6. MANUAL THERAPY BASED ON MULLIGAN CONCEPT

Mulligan concept, Different methods of treatment, Regional techniques for peripheral & spinal joints, Rationale of mulligan concept

7. MCKENZIE APPROACH FOR NEURO MUSCULOSKELETAL DYSFUNCTION

a) Biomechanics and pathomechanics of cervical spine, Subgroups in non-specific spinal disorders, Quebec task force classification, Principles of history taking & Clinical examination & General treatment principles
Clinical picture, examination and treatment protocol for cervical postural syndrome, cervical dysfunction syndrome and cervical derangement syndrome including treatment progression

b) Biomechanics & pathomechanics of thoracic spine, Assessment of thoracic spine, Clinical picture, examination & dysfunction & derangement syndromes including treatment progression

c) Biomechanics & patho mechanics of lumbar spine, Principles of clinical examination, Clinical picture, examination and treatment for lumbar postural, dysfunction, & derangement syndromes including treatment progression

8. PILATES NEURO DYNAMICS

Clinical neuro biomechanics, Signs & symptoms following neural injury, Clinical reasoning, Tension testing of lower limb, trunk & upper limb, Principles of treatment in different presentations

IV – SEMESTER

ELECTIVE

PHYSIOTHERAPY IN ORTHOPEDICS (200 HOURS)

COURSE OBJECTIVES

The objective of the course is to enable the student understand and demonstrate physiotherapy interventions in orthopedic conditions and thereby gain expertise in the field.

COURSE OUTLINE

I. MUSCULO SKELETAL SYSTEM

1. Embryology & anatomy of musculoskeletal system
2. Arthrokinematics and osteokinematics of musculoskeletal system
3. Growth & maturation of musculoskeletal system
4. Applied anatomy of musculoskeletal system
5. Physiology of musculoskeletal system
6. Applied biomechanics and pathomechanics of bones, joints & soft tissues

II. ORTHOPAEDIC ASSESSMENT

1. General Orthopaedic Physiotherapy assessment procedures which includes demographic data collection, History, Observatory, Palpatory & examination which includes the assessment of pain, Motor examination, Joint laxity, Sensory examination, Posture and Gait evaluation and Other relevant system (e.g.) Cardiorespiratory / Neurological examination methods along with disease specific / joint specific/ soft tissue specific tests assigned according to its sensitivity & specificity, disability and disability evaluation

III. ORTHOPEDIC SURGERIES

1. Principles of Orthopaedic surgery & their PT management

- Arthrodesis
- Osteotomy
- Arthroplasty
- Bone grafting
- Internal and external fixations
- Distraction and limb reconstruction
- Correction of bone deformities and joint contractures.
- Tendon transfers
- Nerve suturing and grafting.
- Wound debridement
- Orthopaedic implants

IV. AMPUTATION:

1. Principles of Amputation, Physiotherapy aims and means of treatment, prosthetic training and Gait deviations check-outs.

V. ORTHOTICS

1. Principles of orthotics, materials used in orthotics, Types and classification, Shoes and shoe modifications. Effectiveness and limitations of orthoses.

VI. PROSTHETICS

1. Principles of prosthetics; upper and lower limb prosthesis. Types of upper extremity prosthesis, Mechanics and function, Types of Lower extremity prosthesis, mechanics and function.

VII. PHYSIOTHERAPY IN BURNS

1. Physiotherapy management in early phase, mobilization, splinting & positioning, Management of late phase, management of contractures, tightness and deformities.

VIII. ORTHOPEDIC MANUAL THERAPY

1. Physiological and accessory movements, biophysics of contractile and non contractile tissues, response to mechanical loading. .
2. History of manual therapy. Overview of various manual therapy approaches for all the skeletal joints.
3. Principles and application of different soft tissue mobilizations like Myofascial Techniques, Neural Tissue Mobilization, Muscle Energy Technique, trigger point release, positional release technique etc.
4. Principles and applications of joint mobilization and manipulation like Maitland, McKenzie & Mulligan technique
5. Therapeutic exercise as an adjunct to manual therapy.
6. Neuromuscular Taping techniques
7. Advances in the field of manual medicine

IX. ORTHOPEDIC DEFORMITIES

1. Conservative, surgical and physiotherapy management of the following deformities
 - Upper limb deformities: Sprengel's shoulder, madelung's deformities, cubitus valgus, cubitus varus, claw hand
 - Lower limb deformities: Coxa valga, coxa vara, genu varum, genu valgum, genu recurvatum, club foot, hallux valgus
 - Spinal deformities: Scoliosis, kyphosis, lordosis,

X. GERIATRICS:

1. Principles of Geriatric Rehabilitation, Diabetes & Geriatric patient, Rheumatoid Arthritis in the elderly, Arthritis in the elderly, pathological fractures, osteoporosis, vertebral fractures, Geriatric amputee, lumbar canal stenosis, fractures in the elderly, stress fractures, Paget's diseases, Aging of the musculo-skeletal system, stroke management, Role of Physical therapist in Geriatric rehabilitation, prevention of cardio pulmonary deconditioning & Geriatric patient physiological changes & age, Alzheimer's diseases, dementia.

XI. PHYSIOTHERAPY & COMMUNITY

1. Relevance of community physiotherapy for musculoskeletal disorders .
Role of aerobics, visiting community, planning physiotherapy in the community. Home programme, principles of rehabilitation, Rapport with other groups working in Community.

XII. SPECIAL TOPICS

1. Classification of sports specific injuries and its management
2. Splinting
3. Electromyography and biofeedback
4. Ergonomics in musculoskeletal dysfunctions with special emphasis to industrial safety.
5. Understanding of disability & its compensation strategies
6. Emergency care & musculoskeletal therapeutics
7. Role of Physiotherapist as a member in disaster management team.
8. Recent advances in pain evaluation & physiotherapy management.
9. Team Approach of Physiotherapy management in poly trauma
10. Home program & counseling of care givers

PHYSIOTHERAPY IN NEUROLOGY (200 HOURS)

COURSE OBJECTIVES

The objective of the course is to enable the student understand and demonstrate physiotherapy interventions in neurological conditions and thereby gain expertise in the field.

COURSE OUTLINE

I. NEURO PHYSIOLOGY

1. Limbic system
2. Development of locomotion
3. Neural control of locomotion
4. Alpha motor neuron and muscle spindle
5. Ballistic movement and ramp movement
6. Myelination of pyramidal tracts
7. Development of neuromuscular junction
8. Development of motor system in man
9. Motor control at the spinal cord level
10. Brainstem and motor control
11. Cortical motor systems
12. Cerebellar mechanisms
13. Basal ganglia and their connections
14. Special senses

II. NEUROPATHOPHYSIOLOGY

1. Neural control of bladder and its dysfunction
2. Long loop mechanism in human central nervous system and their disorders
3. Perceptual disorders in locomotion
4. Disorders of basal ganglia
5. Neuropathies
6. Pathophysiology of pain
7. Pathophysiology of deep tendon reflex, clonus, plantar response and abdominal reflex
8. Pathophysiology of unconscious patient, autonomic nervous system and neurotransmitters

III. NEUROLOGICAL CONDITIONS

1. Describe in detail the etiology, clinical features, assessment and management of the following:

- Cerebral palsy
- Cerebrovascular accidents
- Movement disorders
- Basal ganglia disorders
- Neuropathy
- Muscle diseases
- Cerebellar dysfunctions
- Traumatic head injury and spinal cord injury
- Demyelinating diseases of peripheral nervous system
- Demyelinating diseases of central nervous system
- Vestibular disorders
- Cognitive and perceptual dysfunctions

IV. SPASTICITY & RIGIDITY

1. Definitions, Types & classifications and significance, assessment, physiotherapy management, use of casts and splints, newer methods in physical therapy.

V. ORTHOTICS IN NEUROLOGICAL CONDITIONS

1. Different types of splints for the upper limb, uses of static and dynamic splints, Application and training with splints, lower extremity orthotics- uses and applications, training with orthoses in Lower motor neuron and Upper motor neuron conditions.

VI. COMPLICATIONS ASSOCIATED WITH NEUROLOGICAL DISEASES

1. Bedridden patients - problems, methods to manage them, Identification and management of respiratory complications in neurological conditions, Hand and foot problems in Diabetes & leprosy. Physiotherapy of the neurologically impaired hand, contractures and deformities.

VII. NEUROTHERAPEUTIC TECHNIQUES

1. Therapeutic approaches based on motor learning
2. Inhibition in central nervous system
3. Common facilitatory and inhibitory treatment techniques
4. Theories of learning
5. Sensory system in motor performance
6. Feed back mechanism and its application in treatment
7. Treatment approaches in neurological rehabilitation: Bobath, Neuro Developmental Therapy, Sensory Integration, Brunnstrom, Roods, Proprioceptive Neuro muscular Facilitation, Vojta therapy, Motor Relearning Programme, Myo facial release
8. Vestibular rehabilitation
9. Myofacial release technique
10. Swiss ball therapy
11. Alternative and complementary therapies

VIII. ELECTROMYOGRAPHY

1. Electromyography and nerve conduction study instrumentation, methodology of Electromyography/Nerve conduction studies including the common clinical finding and their interpretation.

IX. BRAINSTEM AUDITORY EVOKED POTENTIALS

1. Equipment required Methodology normal values uses in peripheral hearing disorders, clinical interpretation uses in acoustic multiple sclerosis, Use of Brainstem auditory evoked potentials in Pediatrics.

X. VISUAL EVOKED POTENTIALS

1. Equipments, Methodology, Normal results and interpretation, clinical uses in optic neuritis and multiple sclerosis, use in pediatrics, use of Visual evoked potentials in surgery.

XI. DISABILITY AND COMPENSATION

1. Concepts of impairment, disability and handicap, Methods of disability evaluation – Government of India's notification, Government of Tamil Nadu notification, Mc Bride's method, Phulhems profile, sensory impairment evaluation, Evaluation of respiratory function – Ability index – pulses profile, Kats index of Activities of daily living, Barthel Index, Modified Barthel Index, Kenny self care evaluation, functional classification of patients with diseases of the heart, vocational training.

XII. COMMUNITY RELATED PHYSIOTHERAPY

1. Needs of neurologically impaired persons in a community, planning home programs, community related physiotherapy, working with active groups in community, multidisciplinary approach, Rapport with other professionals.

PHYSIOTHERAPY IN CARDIO RESPIRATORY DISEASES **(200 HOURS)**

COURSE OBJECTIVES

The objective of the course is to enable the student understand and demonstrate physiotherapy interventions in cardio-respiratory diseases and thereby gain expertise in the field.

COURSE OUTLINE

I. CARDIO RESPIRATORY ANATOMY & PHYSIOLOGY

Mechanics of respiration, Breathing mechanism in normal and diseased states, respiratory muscle physiology and fatigue, age related changes in the cardiovascular and pulmonary system, physiology of myocardial contractibility and factor affecting the same, physiology of microcirculations and edema, lung volumes and capacities, body positioning and cardio respiratory function, normal and abnormal exercise responses (heart rate, blood pressure, O₂ consumption) , cardiac muscle blood flow and cardiac output during exercise , cardio vascular and respiratory factors limiting physical exercises.

II. CARDIO RESPIRATORY ASSESSMENT AND INVESTIGATIONS

Inspection, Palpation, Percussion & Auscultation, chest movement, Chest expansion, Breathing pattern, Investigations: Chest X-rays, Pulmonary function tests, Electrocardiography, echocardiography, cardiac catheterization, stress testing, coronary angiography, lung scintigraphy, Acid base balance, lipid profile, exercise tolerance test, Computerized Tomography scan, Magnetic Resonance Imaging.

III. CARDIO PULMONARY CONDITIONS

Describe the etiology, clinical features, assessment and management of the following:

Respiratory Conditions

- Obstructive lung diseases
- Restrictive lung diseases
- Infective lung diseases
- Occupational lung diseases
- Chest trauma
- Chest wall deformities
- Lung cancers
- Children with respiratory dysfunction
- Diaphragmatic diseases
- Hyperventilation syndrome

Cardio Vascular Conditions

- Congenital heart diseases
- Acquired heart diseases
- Myocardial infarction
- Hypertension
- Diseases of the myocardium
- Pericardial diseases
- Tumors of the heart
- Vascular diseases
- Peripheral vascular diseases

IV. CARDIO PULMONARY RESUSCITATION

Procedure & techniques, cardiac massage, defibrillation, artificial respiration.

V. INTENSIVE CARE UNIT

Intensive care unit - concept and set-up, equipment for advanced methods of resuscitation, monitoring and patient management: artificial airways, ventilators, pulse-oximetry. Force expiratory techniques, spirometry, inspiratory holds, Autogenic drainage. Humidifiers, Nebulizers,

Oxygen therapy, Role of a physiotherapist in Intensive care unit, cardiovascular and respiratory factors limiting physical exercises, Breathing exercises and respiratory dynamics, cardio-respiratory monitoring in physiotherapy stress testing and its relevance to exercise prescription.

VI. CARDIO PULMONARY REHABILITATION

Principles of cardiac & pulmonary rehabilitation, Activities of daily living analysis, modification of activity, energy saving adaptations, sexuality; community oriented approach to rehabilitation, nature of impairment, disability and handicap in cardio respiratory conditions.

VII. PEDIATRIC CHEST PHYSICAL THERAPY

Assessment & management, Modifications required, common conditions where physiotherapy is indicated

VIII. RELAXATION EXERCISES

Principles of Relaxation, Methods of Relaxation, Yoga, Transcendental Meditation and other forms of Relaxation; Anxiety/panic and Respiratory function, progressive muscle relaxation; Desensitization, Music & Imagery as Relaxation therapy, Biofeedback in Relaxation.

SPORTS PHYSIOTHERAPY (200 HOURS)

COURSE OBJECTIVES

The objective of the course is to enable the student understand and demonstrate physiotherapy interventions in sports medicine and thereby gain expertise in the field.

COURSE OUTLINE

1. HISTORY AND BACKGROUND

Origin of sports, Historical, Background, Qualities of an athlete, Relevance of sports in the modern time, Introduction to sports physiotherapy, occurrence of injury in sports.

2. ATHLETIC INJURIES AND THEIR PREVENTION

Types of injuries, in contact sports, non-contact sports, accidents, other health hazards, infections. Education of the athlete on injuries. Steps taken for prevention of injuries.

3. ATHLETIC PSYCHOLOGY

Psychological aspects of sport injury – Athletes reaction to injury-athletes response to injury – Psychological aspects of pain – Anxiety – stress – motivation – Psychological aspects of exercise.

4. ATHLETIC CONDITIONING PROGRAM

Skeletal muscle – Type I and Type II fibers, General conditioning principles – Strength, power, Muscular endurance, flexibility, anaerobic metabolism.

Warm-up schedule, stretching partner, stretching using the proprioceptive neuromuscular facilitation technique.

5. NUTRITION AND ATHLETE:

Well – balanced diet, pre-event nutrition, increasing weight, decreasing weight in wrestlers, carbohydrate – loading diet, sugar before and after competition.

6. PROTECTIVE AND SUPPORTIVE EQUIPMENT:

Protective equipments, supportive devices, motion limiting devices. Taping and wrapping techniques.

7. THERAPEUTIC MODALITIES:

General principles of therapeutic modalities, Hydrotherapy, shortwave Diathermy, Microwave Diathermy, Ultrasound, Iontophoresis, phonophoresis, Electrical muscle stimulation transcutaneous Electrical Nerve stimulation, cryotherapy, cold spray, Contrast bath, Paraffin wax bath. Ultraviolet & massage - indications, contraindications, therapeutic and physiologic effects, treatment techniques.

8. ON-FIELD MANAGEMENT OF ATHLETIC INJURY:-

Identifying on field injury, Assessment of injury and risks, major injuries and life threatening, trauma/illness, internal injury, spinal injury, fractures; Other bone, joint, muscle injury, shock, first aid in sports, immediate management, Definitive management, referral, return, to sport. On-field medical team, rapport with other professionals.

9. INJURY REHABILITATION:

Goals of rehabilitation, types of exercises – Isometric exercise, Isotonic exercise, Isometric exercise, special forms of exercise – manual resistance, proprioceptive neuromuscular facilitation, surgical tubing, circuit training, sport – specific skills.

10. EPIPHYSEAL INJURIES:

Prevention, classification, treatment, complications and prognosis of epiphyseal injuries, Osgood Sclatter disease, traction epiphysitis, tendonitis at the insertion of the patella., tendon, complete avulsion of the epiphysis of

the tibial tubercle shoulder – contributing risk factors – intrinsic factors, extrinsic factors.

11. SHOULDER GIRDLE INJURIES:

Injuries to the sternoclavicular joint - sprains dislocations acromioclavicular joint sprains, anterior dislocation of glenohumeral joint, recurrent anterior dislocation of the shoulder, posterior dislocation of shoulder – mechanism of injury, symptoms and signs, reduction, surgical treatment, thoracic outlet syndrome – pathomechanics, treatment.

Shoulder Rehabilitation following Puttiplatt or Bankart repair for an anterior shoulder dislocation, exercise for acromioclavicular separation, exercises for overuse and impingement syndrome.

12. ELBOW JOINT INJURIES:

Olecranon bursitis - prevention treatment, elbow problems resulting from throwing – medial lesions, lateral lesions, posterior lesions, treatment. Tennis Elbow: Incidence, pathology, mechanism of injury, treatment, muscle strengthening program for Tennis Elbow, Javelin throwing.

13. WRIST AND HAND INJURIES:

Colle's fracture, scaphoid fracture – mechanism of injury, symptoms and signs, treatment
Gamekeeper's Thumb Boutonniere deformity, Pseudo-boutonniere deformity – mechanism of injury, symptoms and signs, treatment, splinting, fractures of the metacarpals, symptoms and signs, treatment, Bennett's fracture – immediate and delayed treatment, acute, mallet finger, tenosynovitis of the thumb, symptoms and signs, treatment, Bowler's thumb, handler palsy.

14. THIGH INJURIES:

Contusion to the quadriceps – symptoms and signs, treatment, complications, prognosis, strain of the quadriceps musculature, mechanism of injury, symptoms and signs, treatment, acute strain of the hamstring group – signs and symptoms, treatment, complete rupture of the patellar tendon – symptoms and signs and treatment.

15. KNEE INJURIES:

Prevention of the injuries, mechanisms of knee ligament injuries, first – degree sprain, second-degree sprain, third – degree sprain, symptoms, and signs and treatment. Anterior and posterior cruciate tears, anteromedial, anterolateral instability symptoms, pathology, treatment, rehabilitation and exercise, meniscal lesions – types of tears, etiology, symptoms, signs, treatment.

16. INJURIES OF THE PATELLA;

Patella fracture – treatment, acute dislocation – symptoms, signs, treatment recurrent dislocation, subluxation and spontaneous reduction of dislocated patella, Osteochondritis dissecans – types, signs treatment, Jumper’s knee – etiology, symptoms, x-rays, treatment, rehabilitation of the knee and patellofemoral joint – stages of rehabilitation stage I, II, III, IV, V, post – menisectomy rehabilitation program.

17. INJURIES TO THE LOWER LEG, ANKLE AND FOOT- INJURIES:

Rupture of the gastrocnemius (Tennis leg), total rupture of the Achilles tendon and partial rupture of the Achilles tendon – mechanism of injury, symptoms and signs, treatment, rehabilitation.

18. INJURIES TO THE ANKLE;

Prevention of the ankle injuries – stretching exercises, Shoes, tapping mechanism of ankle sprains, inversion sprains, eversion sprains, dorsiflexion sprains, evaluation of injured ankle – history, observations, palpation, ligament stability test, x-rays arthrography ankle and foot rehabilitation – stage I, II, III, IV , V tarsal tunnel syndrome, stress fracture of the metatarsal, sesamoiditis, corns and calluses, blisters, ingrown toe nails.

19. INJURIES TO THE RUNNING ATHLETE:

Biomechanics of normal running, causes of overuse injuries, prevention of overuse injuries, biomechanical, examination of the running athlete’s – alignment, Common running induced injuries to the lower back-

examination, treatment, common running induced injuries to the hip – iliotibial tract pain, trochanteric bursitis, stress, fracture of femoral neck, slipped capital femoral epiphysis, vague hip pain.

Common Running related injuries to the knee: Medial patellar pains, pes anserine bursitis, patellar tendonitis, retropatellar pain, lateral patellar pain, lateral knee pain, biceps femoral tendonitis.

Common Running related injuries to the lower leg: Tibial stress reaction, stress fracture, medial tibial stress syndrome, compartment syndrome, anterior, posterior and lateral fibular stress reaction and stress fractures – etiology, symptoms and signs and management.

Retrolcalcaneal bursitis – symptoms and signs, treatment, Medial arch pain, Plantar fasciitis - etiology, symptoms and signs, treatment.

20. SWIMMING INJURIES:

“Swimmer’s Shoulder” anterior subluxation of the Glenohumeral joint – symptoms and signs, treatment, prevention of injury.

Breaststroker’s injuries-mechanism, symptoms and signs, treatment, prevention

21. SPORTS PHYSIOTHERAPY FOR THE DISABLED

Sports for the Disabled persons – need, opportunities and limitations. Special needs and protection, prevention and management of injuries

PAEDIATRIC PHYSIOTHERAPY (200 HOURS)

COURSE OBJECTIVES

The objective of the course is to enable the student understand and demonstrate physiotherapy interventions in pediatric conditions and thereby gain expertise in the field.

COURSE OUTLINE

I. GROWTH AND DEVELOPMENT

Patterns of normal growth, milestones, various indices of health. Mortality and morbidity statistics of infancy and childhood.

II. DEVELOPMENT DISORDERS

Factors related to developmental disorders, Early/Late detection of disorders. Various disorders related to development. Hereditary and genetic disorders, prematurity, genetic counseling.

III. PAEDIATRIC NUTRITION

Elements of Nutrition, Daily allowance/requirement of nutrients, Nutritional disorders and their relevance to physiotherapy.

IV. PAEDIATRIC ASSESSMENT

Evaluation of the pediatric patient, Eliciting history and information, securing co-operation of the sick child, sharing information with parents/caregivers. Various assessment of child with developmental delay, child on life support systems, child with spasticity ataxia, in co-ordination and other neurological conditions, child with congenital limb deficiency/abnormality.

V. MODALITIES AND TECHNIQUES

Choosing the modality, precautions, contraindications, and care of equipment in the paediatric setting. Correct use of techniques of exercise; techniques and movement patterns; emphasis on various Bio-feedback, Retraining, neuro developmental and Proprioceptive neuromuscular facilitation approaches, principles of motor control, motor learning, handing techniques, facilitation techniques, inhibition techniques, sensory integration, rood approach, vojta therapy, sensory motor approach, constraint – induced movement therapy, myofascial release, mobilization & manipulation , muscle energy techniques, advanced airway clearance technique monitoring and evaluation of patients on therapy.

VI. EARLY INTERVENTION SERVICES

Purpose , principles & elements of early intervention, interactions between infants & caregivers, meeting the intervention needs of infants, clinical assessment of infants, development meaningful intervention, planning & implementation of services.

VII. PHYSIOTHERAPY OF MUSCULOSKELETAL CONDITIONS

Musculoskeletal disorders/injuries with special reference to congenital limb disorders/deficiencies, arthropathy/polyarthropathy, Juvenile rheumatoid arthritis , muscular dystrophy, congenital muscle torticollis, arthrogryposis multiplex congenita, osteogenesis imperfecta, amputations. Primary muscle and skeletal diseases including scoliosis, systemic diseases with musculoskeletal manifestation eg. Hemophilia. Nature of impairment/deformity. Means of correction, prevention and management through physiotherapy. Aftercare of bone, joint and soft tissue injuries, Analysis of fitness & exercise prescription for special pediatric populations, components of physical performance and physiotherapy management of sports injuries in children, juvenile diabetes & obesity.

VIII. PHYSIOTHERAPY OF NEUROVASCULAR CONDITIONS

Neurological and vascular conditions with emphasis on spina bifida, cerebral palsy, poliomyelitis anterior horn cell diseases, sequelae of encephalopathy, meningitis & cerebro-vascular diseases, paralytic disorders including peripheral nervous system diseases. Traumatic Brain injury sequelae,

Spinal cord injury, Guillian barre syndrome, spinal muscular atrophy, disorders in co-ordination and movement. Identifying goals, planning, goal-oriented physiotherapy, monitoring evaluation.

IX. PHYSIOTHERAPY IN SURGICAL CONDITIONS:-

Pre-surgical physiotherapy, assisting to attain surgical goals, Post operative complications and their physiotherapy, emphasis on pulmonary, Cardiac and limb problems including prevention of Deep vein thrombosis and pressure sores. Post operative physiotherapy after bone, joint and tendon Surgery, contracture release, amputations, cardiac and pulmonary surgery, Burns and their management.

X. PHYSIOTHERAPY IN CARDIO PULMONARY CONDITIONS:-

Cardiac diseases of children including congenital heart diseases, their impact on the child's health. Role of exercises in these conditions. Pulmonary conditions like Bronchitis Asthma, Lung abscess, Bronchiectasis , cystic fibrosis , respiratory distress syndrome and broncho pulmonary dysplasia - their physiotherapy management including management after cardiac and lung surgery. Role of physical therapist in neonatal & pediatric intensive care units, cardiopulmonary resuscitation in children.

XI. PEDIATRIC ONCOLOGY

Physiotherapy intervention for different types of cancers, bone marrow transplantations & terminal disease

XII. AIDS, APPLIANCES, SUPPORT SYSTEMS

Use of orthosis /prothesis in childhood and training, Special care needed for orthotic and prosthetic use, Enhancing function/participation of a child using support systems, Crutches, Wheelchairs and mobility aids in childhood, Adaptive equipment for physically challenged children.

XIII. THERAPEUTIC RECREATION

Definitions, need for recreation in children, Recreation Activities as therapy/exercise, sports and fitness in pediatrics. Recent advances, Emerging issues; Schooling and physiotherapy, issues related to Acquired immuno deficiency syndrome and Tuberculosis in children.

IV. PEDIATRIC PHYSICAL THERAPY PRACTICE

Ethical & legal framework of pediatric physical therapy practice, models of team interaction & service delivery in pediatric physical therapy practice.

HAND REHABILITATION (200 HOURS)

COURSE OBJECTIVES

The objective of the course is to enable the student understand and demonstrate physiotherapy interventions in hand injuries and thereby gain expertise in the field.

COURSE OUTLINE

I. ANATOMY OF HAND

Anatomy of the bones, joints, muscles, ligaments, nerves of the hand

II. ASSESSMENT OF HAND

Subjective assessment, objective assessment on observation tactile, pain, range of motion, edema, sensation (light touch pressure, pain temperature, proprioception, two point discrimination stereognosis, tinnel's sign) manual muscle testing, grip strength , deformities, functional assessment & Psycho social assessment

III. BIO MECHANICS & PATHO MECHANICS OF HAND

1. Describe the structure of wrist complex including radio carpal joint, mid carpal joint, and the ligaments of the wrist complex.
2. Describe the function of the radio carpal joint and mid carpal joint including the movements and muscles involved
3. Describe the hand complex including structure of fingers – Carpo Meta carpal joint, Meta carpo phalangeal joint and inter phalangeal joints of fingers, Ligaments, range of motion
4. Describe the structure of the joints of thumb
5. Describe the extrinsic and intrinsic thumb muscles
6. Describe prehension, power, cylindrical, spherical and hook grip
7. Describe precision handling – pad to pad, tip to tip, pad to side
8. Functional position of the wrist
9. Role of interossei and lumbricals muscles at the Meta carpo phalangeal joint and inter phalangeal joints .
8. Pathomechanics due to the paralysis of extrinsic and intrinsic muscle of the hand

IV. PERIPHERAL NERVE INJURIES

Anatomy of nerve, types of injury clinical signs of nerve damage, nerve repair, nerve graft, conservative, pre operative and post operative physiotherapy management

V. TENDON INJURIES

Anatomy, nutrition, tendon healing, tendon repair, clinical presentation of injuries at the flexor and extensor zones and their conservative, pre and post operative management

VI. TENDON TRANSFERS

Definition, principles of tendon transfer, pre & post operative physiotherapy management following various tendon transfer surgeries.

VII. FLEXIBLE IMPLANT ARTHROPLASTY

Introduction, indications and pre requisites, surgical technique, principles of management, physiotherapy management following surgery.

VIII. AMPUTATION

Definition, causes, classification, surgical considerations for digital amputation, technique, complications, function and significance of respective digits. Reconstruction surgeries, psychological aspects, pre & post operative physiotherapy management amputation and reconstruction surgeries including prosthesis.

IX. HAND CONDITIONS

Describe the etiology, clinical features, assessment and management of : Dupuytren's contracture, Dequervains disease, Reflex sympathetic dystrophy , Rheumatoid hand, Osteoarthritis hand, Hand burns, Carpal tunnel syndrome, Spastic hand.

X. SPLINTS

Definition classification static, dynamic, patient education, principles of making forearm based splints, principles of making dynamic splints, indications and benefit of various hand splints

XI .OCCUPATIONAL HAND DISORDERS

Applied ergonomics, nature and prevalence of injuries in work atmosphere, specific solutions, preventive measures and physiotherapy, management.

XII. SPECIAL TECHNIQUES

Desensitization, motor re education, joint mobilization techniques, soft tissue techniques, scar mobilization, sensory re education, taping techniques, therapeutic exercises.

COMMUNITY PHYSIOTHERAPY (200 HOURS)

COURSE OBJECTIVES

The objective of the course is to enable the student understand and demonstrate physiotherapy interventions in community and thereby gain expertise in the field.

COURSE OUTLINE

I. FOUNDATIONAL CONCEPTS IN COMMUNITY PHYSIOTHERAPY

1. Historical development of community health and community Physiotherapy- World and India, various health and family welfare committees
2. Principles of community based rehabilitation
3. Population studies and epidemiological implications of impairment, disability and handicap
4. Basic concepts of community based rehabilitation
5. Physiotherapist as a master trainer in Community based Rehabilitation.
6. Bioethics ethico-moral codes of conduct physiotherapy ethics
7. Evidence based practice in community health.
8. Clinical decision-making skill in assessment & management of dysfunction related to community health.
9. Scope of Physiotherapy in community
10. Multicultural psychology and its influence on psychosocial rehabilitation

II. PHYSIOTHERAPY INTERVENTIONS IN COMMUNITY

1. Physical fitness
2. Principles of fitness training for health promotion in community
3. Stress management through yoga and psychosomatic approaches.
4. Home exercise pro grams for various classifications of disabilities.
5. Physiotherapy in maternal and child health care.
6. Exercise prescription for the elderly
7. Psychosocial and safety issues in elderly
8. Geriatric rehabilitation
9. Holistic physiotherapy for the aged.
10. Community mental health

III. PHYSIOTHERAPY IN OCCUPATIONAL AND INDUSTRIAL HEALTH

1. Industrial hygiene
2. Vulnerable workers group and labor law
3. Industrial Physiotherapy
4. Injury prevention and returning the worker to productivity
5. Ergonomics: principles, issues related to hand tools, posture and material handling and lifting
6. Prevention of work related injuries and redesigning workspace, designing auditory and visual displays for workers; occupational stress; environmental pollution – noise, vibration etc.
7. Assistive technology used for stability & mobility to enhance function
8. Appropriate technology, skill transfer, sustainability, disability evaluation, concessions available to persons with disability.
9. Application of & environmental modification techniques to improve quality of life, information, education and communication

IV. ROLE OF PHYSIOTHERAPIST IN NATIONAL HEALTH CARE DELIVERY SYSTEM

1. Health care delivery program in urban and rural areas
2. Disability survey
3. Epidemiological aspects and demands of Physiotherapy services
4. Concept of rural camps and integration of infrastructural service and voluntary agencies, extension services and mobile units.
5. Institute based rehabilitation services and multi-disciplinary approach.
6. Methodology of Community based Rehabilitation with reference to national health delivery system.
7. Role of national institutes, district rehabilitation centre and primary health centre (with appropriate exposure).
8. Public awareness to the various disabilities.
9. Communications.
10. Message generation and dissipation.
11. Persons with disability; Act – 1995 and related Government infrastructure.
12. Role of Government in Community based Rehabilitation
13. Implementation of the act, Role of non Governmental agencies in Community based Rehabilitation

V. SPECIAL CONSIDERATIONS IN COMMUNITY

1. Advances in disaster management.
2. Role of Physiotherapist as a member in disaster management team.
3. Health care in the community – Principles & delivery systems
4. Principles and strategies of communication skills, management, information and evaluation system, records and reports, information technology, tele-medicine and tele-physiotherapy, journalism and mass media
5. Regulatory agencies & legal issues
6. Legal issues: Legislation, labor unions, International Labor Organization and World Health Organization recommendations, Factories Act, Employees State Insurance act
7. Recent advances in community physiotherapy
8. Research in community physiotherapy

OBSTETRICS AND GYNAECOLOGICAL PHYSIOTHERAPY **(200 HOURS)**

COURSE OBJECTIVES

The objective of the course is to enable the student understand and demonstrate the physiotherapy interventions pertaining to Obstetrics and Gynecology and thereby gain expertise in the field.

COURSE OUTLINE

I. INTRODUCTION

1. Anatomy and physiology of pelvis, pelvic floor and muscles of pelvis, perineum, abdominal muscles, breast, reproductive tract, urinary tract, anorectal region, and endocrine physiology related to reproductive medicine
2. Puberty and menarche
3. Adolescence and the musculoskeletal system
4. Diet and exercise for adolescence

II. PHYSIOLOGY OF PREGNANCY

1. Menstruation, pregnancy and fetal development, endocrine system, reproductive system, cardiovascular system , breasts, skin, gastrointestinal system, nervous system, urinary system, musculoskeletal system.
2. Adaptation of mother following musculoskeletal changes during pregnancy.

III. ANTENATAL PERIOD

1. Pregnancy tests and investigations
2. Antenatal care, antenatal screening, antenatal education, diet and weight gain, planning and leading labor and parent craft classes, antenatal complications, high risk pregnancy, Urinary dysfunction during pregnancy and its management.
2. Musculoskeletal problems during pregnancy, its assessment & management

3. Use of physical modalities like Transcutaneous Electrical Nerve Stimulation, Interferential Therapy, Ultra sound Therapy, Electrical stimulation, Biofeedback & Short wave Diathermy.

4. Relaxation technique in prenatal education: Physiologic basis for relaxation training, various relaxation techniques, psycho analgesic methods of pain control

5. Exercise in pregnancy : Importance of prenatal exercise and benefits of exercise in pregnancy exercise class, structure, indication, contraindication and precautions, various exercises during pregnancy – flexibility , strengthening and conditioning exercise, exercise and common discomforts of pregnancy, pregnancy discomforts and its management , ergonomics

IV. LABOR

1. Physiology of labor, signs that indicate labor, stages of labor, mechanics of labor and its assessment

2. Induction of labor- Methods, indications, contraindications and other interventions in labor.

3. Pain during labor and various coping techniques: Relaxation, positioning, breathing during various stages of labor, electrical modalities for pain reduction, massage and other techniques

4. Complications of labor and its management

V. PUERPERIUM

1. Anatomical and physiological changes, care and management of complications.

VI. POST NATAL PERIOD

1. Post natal physical and mental conditions, post natal assessment and care, post natal exercises, ergonomics, immediate post natal complications and its management, late post natal complication and its management, psychological and emotional changes and coping with the demand of newborn, contraceptive methods.

VII. CLIMACTERIC PERIOD

1. Physiological and endocrine changes of the menopause, menopausal systemic changes and their management, physical, psychological and emotional symptoms, post menopausal problems and its management urinary dysfunction.

VIII. GYNECOLOGICAL CONDITIONS

1. Etiology, clinical features, assessment, medical and physiotherapy management of: Infective conditions, cysts and new growths, displacements and genital prolapse, disorders associated with menstruation, back ache and abdominal pain, polycystic ovarian syndrome, infertility, premature ovarian failure/ premature menopause, lymph edema, breast cancer and psychosexual problems.

IX. GYNECOLOGICAL SURGERY

1. Physiotherapy care of patients undergoing gynecological surgeries including preoperative physiotherapy assessment and treatment, post operative physiotherapy assessment and treatment, post operative complication and its management, discharge advice for

- Gynecological excision surgery including mastectomy
- Gynecological repair surgery
- Surgical treatment of stress incontinence,

X. URINARY FUNCTION AND DYSFUNCTION

Normal urinary tract function, lower urinary tract dysfunction, incontinence of urine – common types, voiding difficulties, Physiotherapy assessment methods, Urodynamics, radiological and electromyographical assessment and Physiotherapy management

XI. BOWEL AND ANORECTAL FUNCTION AND DYSFUNCTION

Normal bowel function, bowel and anorectal dysfunction, physiotherapy assessment and management of faecal incontinence and bowel dysfunction

PROJECT (60 HOURS)

COURSE OBJECTIVES:

The objective of the course is to make the student implement his knowledge of research methodology and biostatistics in doing a live research work to find the efficacy of a physiotherapy treatment procedure or compare various physiotherapy treatment procedures and present a written dissertation.

COURSE OUTLINE:

1. Introduction of a research project
2. Statement of the study
3. Aim and need for the study
4. Review of literature
5. Research design
6. Criteria for selection of subjects
7. Population of the study
8. Sample size and method of selection
9. Variables of the study
10. Validity and reliability of the tools used
11. Statistical analysis and presentation
12. Results, Discussion and recommendations
13. Conclusion
14. References
15. Appendices

GUIDANCE:

Each student will receive guidance from the physiotherapy teacher towards referring relevant literature / collect required data and discuss them with the project guide periodically and consolidate the findings and discuss them with the project guide before compiling into final shape.

After correction and edition of hand written manuscripts by the project guide, the student will compile his/her study/ work into a manual form for submission to the institution of study.

Two copies of the project work done by the student will be certified by the project guide as a bonafide record.

The student will be expected to submit the above project work two months before the commencement of final semester examinations of the two years M.P.T. degree course