DAYANANDA SAGAR UNIVERSITY

Devarakaggalahalli (Village)
Kanakapura (Taluk)
Ramanagara (District) Karnataka-562112

SCHOOL OF HEALTH SCIENCES
COLLEGE OF PHYSIOTHERAPY

REGULATIONS FOR
MASTER OF PHYSIOTHERAPY (MPT)
(ANNUAL SCHEME)
(With Effect from 2024-25)

GOVERNING REGULATIONS FOR

MASTER OF PHYSIOTHERAPY PROGRAM (MPT) - 2024-25

PREAMBLE

The Postgraduate program in Physiotherapy (MPT) prepares the students to develop excellent skills in clinical areas. The Program will build confidence in the students to work in challenging environment and enable to work independently as specialists, consultants, educators, administrators and researchers in a wide variety of professional settings. Postgraduate physiotherapists will have developed an ability to act with professionalism and integrity, work within agreed professional, ethical and legal frameworks, processes to maintain and improve standards of healthcare. Postgraduate program in physiotherapy is a two year program consisting of classroom teaching (Including seminars, journal reviews, case presentations and case discussions) and clinical posting. It builds up on and extends competencies acquired at the graduate level. The program prepares physiotherapists for leadership position in physiotherapy and health care, education, administration and research in a wide variety of professional settings in meeting the Global and National priorities and the changing needs of the society. Further the program encourages accountability and commitment to lifelong learning which fosters improvement of quality care.

DEFINATIONSOFKEYWORDS

(i) **Academic Year:** Each academic year consists of Forty Eight weeks duration.

(ii) **Course:** Usually referred to as a subject. A course may consist of any of Lecture/Tutorials/Laboratory/Practical/Seminar/CasePresentations/ClinicalTeaching and Training/Project.

(iii) **Main Course:** A Course for which university examination is conducted.

(iv) **Subsidiary Course:** A course for which university exam is not conducted but the candidates' performance is assessed by continuous and internal evaluation.

(v) **First Attempt:** If a candidate has completed all formalities of academic requirement in a term and become eligible to attend the examinations and attend the entire end year examinations, such attempt shall be considered as first attempt.

(vi) **Programme:** An educational activity leading to award of a Degree or Certificate.

(vii) **Transcript:** Based on the marks secured, a marks sheet shall be issued after every year to the candidate registered. A transcript comprises of the consolidation of marks sheet of both the years along with relevant program details and any additional credentials the candidate might have earned during his/her tenure as a postgraduate student.

(viii) **Detention–**Withholding of candidates to take up the University year end Examinations for lack of attendance/internal assessment marks**.**

RULES & REGULATIONS

PG1 The MPT program offered by the DSU shall be governed by the MPT Rules and Regulations.

PG2 The MPT Rules and Regulations shall be applicable to any new discipline(s) that may be introduced in future.

PG3 A candidate becomes eligible for the award of the MPT degree after fulfilling all the academic requirements as prescribed by the MPT Rules and Regulations.

PG4 ELIGIBILITY FOR ADMISSION

PG4.1 Candidates who have passed BPT or B.Sc (PT) degree or equivalent on a full time basis from a recognized university and obtained an aggregate minimum of 50% are eligible for admission to MPT.

PG4.2 The Candidates shall be medically fit.

PG5 ACADEMIC SESSION

PG5.1 Each academic year consists of Forty Eight weeks duration. The program shall commence from the month of September or as per the academic calendar of that academic year.

PG5.2 The Board of Management approved schedule of academic activities for a year, inclusive of dates for registration, examinations, vacation breaks etc, shall be laid down in the Academic Calendar for the session.

PG6 COURSE STRUCTURE

PG6.1 Medium of instruction, examination and project reports will be in English except in case of any language as subsidiary courses/Value Added Course.

PG6.2 In order to qualify for a MPT degree of the DSU, a candidate is required to complete the requirements as prescribed in the scheme/curriculum for the MPT program.

PG6.3 The course work requirements may be broadly divided into following four main groups of subjects:

(i) Theory courses
(ii) Practical courses
(iii) Clinical Training
(iv) Dissertation

PG6.4 The MPT Program will have a curriculum and syllabi for the courses approved by the Board of Management. Board of Studies will discuss and recommend the syllabi of all

the postgraduate courses offered by the department/College from time to time before sending the same to the Academic Council. Academic Council will consider the proposals from the Board of Studies and make recommendations to the Board of Management for consideration and approval. For all approved courses, the copyright will be with DSU.

PG6.5 Faculty Advisor/Supervisor/ Mentor: To help the candidates in planning their courses of study, research work and getting general advice on the academic program, the concerned department will assign a Faculty Advisor/ Supervisor/ Mentor for each candidate.

PG 7 REGISTRATION

PG7.1 Every candidate is required to register for approved courses through the assigned Faculty Advisor/ Supervisor/ Mentor at the commencement of each year on the day fixed for such registration and notified in the Academic Calendar. The Dean/Principal may cancel the registration of one or more courses if they are found to violate any rules or if there are restrictions imposed due to disciplinary reasons.

PG7.2 Only those candidates shall be permitted to register who have:

(a) The academic eligibility to move to higher years
(b) Cleared all University, Hostel and Library dues and fines (if any) of the previous years
(c) Paid all required advance payments of University and Hostel dues for the current year
(d) Not been debarred from registering on any specific ground.

PG8 EXAMINATION: ASSESSMENT CRITERIA & ELIGIBILITY

Every student is assessed for eligibility to higher year through Continuous Internal Assessment (CIA), Internal Assessment Tests (IA), Viva Voce (VV) and Annual Examination (AE) as prescribed.

PG8.1 The Continuous Internal Assessment (CIA) and Internal Assessment Tests (IA) to be normally conducted all through the academic year in both Theory and Practical courses individually.

PG8.2 The Viva Voce (VV) for the Theory with associated Practical will be conducted during Practical examination, at the end of the year.

PG8.3 The Annual Examination (AE), to be conducted at the end of the academic year.

This shall include a written examination for theory courses and practical examination with built-in oral part for practical courses.

PG8.4 The weightage of marks for CIA, IA, VV and AE is as given in Table1.

Table1:Weightage of Marks

SL. No	Courses with Maximum Marks	CIA Maximum Marks	IA Maximum Marks	VV Maximum Marks	AE Maximum Marks
1	150	10	10	30	100
2	100	10	10	--	80

PG8.4.1 A student's performance in a course shall be judged by taking into account the results of CIA , IA, VV and AE together.

PG8.5. ATTENDANCE ELIGIBILITY

PG8.5.1 Candidates are required to attend all the classes (Lectures, Tutorials, Practical, Clinical, etc.) for which they have been registered.

PG8.5.2 The candidate shall not be allowed to appear for the Annual Examination if his/her attendance falls below 85% in each course and shall be considered as detained and will not be allowed to appear for Annual Examination for that course.

PG8.5.3 A provision for condonation of 10% of the attendance by the Vice- Chancellor on the specific recommendation of the Principal/Dean, showing reasonable cause such as:

(a) Any medical emergencies / illness where the candidate requires rest for the specified number of days certified by a Government Doctor only/ any death in the family (near and dear ones).
(b) If the student represents the University in Sports/ Cultural activities/Extra- curricular activities/Co-curricular activities.
(c) If a student presents a Paper in National/ International Conferences or attends any recognized Workshops/Seminars.

PG8.5.4. If the period of leave is for a short duration (less than two weeks), prior application for leave shall have to be submitted to the Principal of the college stating fully the reasons for the leave requested for along with supporting document(s). Such leave will be granted by the Principal/ Head of the Program of the college. However the student shall comply with 8.5.2 and 8.5.3. of regulations .

PG8.5.5 If the period of absence is likely to exceed two weeks, a prior application for grant of leave will have to be submitted through the Principal of the college to the Dean with supporting documents in each case. The decision to grant leave shall be taken by the Dean on the recommendation of the Principal of the college. However the student shall comply with 8.5.2 and 8.5.3. of regulations .

PG8.5.6. It shall be the responsibility of the candidate to intimate the concerned course instructor(s) regarding his/her absence before availing the leave.

PG8.5.7. In exceptional circumstances, on the recommendations of the Principal of the college and Dean with supporting documents, the Vice Chancellor may condone/relax any of the above requirements to an extent of 10%.

PG8.6 CONTINOUS INTERNAL ASSESSMENT (CIA), INTERNAL ASSESSMENT (IA) & VIVA VOCE (VV)

PG8.6.1 Candidate shall secure minimum of 50% of marks in aggregate in Continuous Internal Assessment (CIA) and Internal Assessment (IA) put together to be eligible to appear for the Annual examination or else considered as detained and should re register for the course to get eligibility.

PG8.6.2 There shall be a provision for improvement if the candidate wishes to improve his/her, aggregate in CIA and IA put together, in a particular course with necessary approval from the authorities concerned. This provision is subjected to satisfying the Promotional Criteria as stated in regulation clause PG10. By opting for improvement in a particular course, all his/her previous credentials pertaining to the particular course will become null and void.

PG8.6.3 The Continuous Internal Assessment (CIA) will be carried out through Self-study Presentation/survey reports/quiz/surprise test/assignments/practical training/case presentation/ presentation in seminar & Journal clubs, participating in workshops, participation in outreach activities, paper/poster presentation in conferences, research publications in recognized journals, publication of intellectual property rights, etc.

PG8.6.4 Internal Assessment (IA) will be carried out throughout the academic year for a particular course as prescribed in the Scheme of the MPT Program.

PG8.6.4.1 Three tests will be conducted both in Theory and Practical Courses.

PG 8.6.4.2 The average of best Two, out of three tests conducted for each course shall be the Internal Assessment marks in that course.

PG8.6.4.3 Theory and Practical of a particular course are considered as individual course for the purpose of Internal Assessment.

PG8.6.4.4 Candidates who have missed the Internal Assessment Test on valid reasons can take-up Internal Assessment Test with prior approval of the Principal.

PG8.6.4.5 Permission to take an Internal Assessment Test will be given under exceptional circumstances such as participating in the University activity, admission to a hospital due to illness or a calamity in the family at the time of Internal Assessment Test.

PG8.6.5 The Viva Voce (VV) for the Theory with associated Practical will be conducted during Practical examination, at the end of the year

PG9 EVALUATION OF PERFORMANCE

PG9.1 Theory and Practical of a particular course are considered as individual courses for the purpose of pass criteria.

PG9.2 If the candidate fails either in Theory or its Associated Practical, the candidate shall take the re-examination in both Theory and Practical.

PG9.3 A student's performance in a course shall be judged by taking into account the results of CIA , IA, VV and AE together

PG9.3.1 A student has to obtain and satisfy the following conditions to be declared as pass in Theory course:

(i) Minimum 50% of marks in CIA and IA put together
(ii) Minimum 40% of marks in AE
(iii) Minimum 50% of marks in aggregate considering CIA, IA, VV (if applicable) and AE put together

PG9.3.2 A student has to obtain and satisfy the following conditions to be declared as pass in Practical/Clinical Examination in a course:

(i) Minimum 50% of marks in CIA and IA put together
(ii) Minimum 40% of marks in AE
(iii) Minimum 50% of marks in aggregate considering CIA, IA and AE put together

PG9.3.3 A student has to obtain and satisfy the following conditions to be declared as pass in Dissertation :

(i) Minimum 50% of marks in CIA
(ii) Minimum 50% of marks in Oral Examination
(iii) Minimum 50%of marks in aggregate considering both CIA & Oral examination

PG9.4 The results of performance of the candidates in the end examination shall be announced by the Controller of Examinations.

PG9.5 DISSERTATION AND ITS EVALUATION

PG9.5.1 Every candidate pursuing MPT is required to carry out a selected research project in their specialty under the Guide/Supervisor.

PG9.5.2 The Guide/ Supervisor must be a teacher with MPT qualification with a minimum of 5 years of fulltime experience.

PG9.5.3 The synopsis of the Dissertation shall be submitted within six months from the date of joining to the first year of MPT.

PG9.5.4 Research committee shall clear the synopsis and approve to carry out the dissertation work upon the clearance from the ethical committee wherever applicable.

PG9.5.5 Research committee shall be comprised of internal and external members.

PG9.5.6 The procedure for submission of Dissertation and conduct of oral examination are as follows:

a. The guide(s) /Supervisor(s) shall be satisfied that the works has been completed and verify for plagiarism and issue a letter to that effect.
b. Each student shall submit three bound copies of the dissertation duly certified by the Guide/Supervisor, HOD and the Principal, to the Registrar (Evaluation)/ Controller of Examination through the Dean one month prior to the university examination.
c. The Dean/Principal shall forward the list of the examiners.
d. The COE shall send the Dissertation for evaluation to one of the examiners approved by the Dean/Principal.
e. If the external examiner recommends/suggests some correction the candidate shall incorporate the corrections/suggestions or substantiate for not doing so. The corrections or reasons for not doing so shall be verified at the time of oral examination.
f. If the examiner rejects the Dissertation for whatsoever reasons cited, it shall be sent to another examiner for evaluation.
g. If the second examiner also rejects the Dissertation then in such a case the candidate will have to re-register for the Dissertation and carry out the work.
h. On getting the satisfactory report in the prescribed format from the examiner, Controller of Examination shall inform the guide(s) to conduct oral examination.
i. The Dean/Principal shall fix the date of oral examination; after receiving the intimation from Controller of Examination and make an announcement (through notices and e-mail)
j. Oral examination shall be conducted by the internal examiner (Guide) & external examiner.

PG9.6 Declaration of Class

PG9.6.1 A candidate shall be awarded the class based upon his/her performance in the Final Year.

PG9.6.2 A candidate shall be awarded the class based on the marks obtained in the first attempt.

PG9.6.3 A candidate securing 75% of marks or more of grand total marks prescribed will be declared to have passed the examination in First Class with Distinction.

PG9.6.4 A candidate securing 65% of marks or more but less than 75% of grand total marks prescribed will be declared to have passed the examination in First Class.

PG9.6.5 A candidate securing 50% of marks or more but less than 65% of grand total marks prescribed will be declared to have passed the examination in Second Class.

PG10 PROMOTION CRITERIA AND ENROLLMENTS TO HIGHER YEARS

During registration for the Higher years, the following promotional criteria/conditions should be satisfied.

PG 10.1A student shall clear all the courses in the first year to be eligible to appear for the second year annual examination.

PG10.2 If a candidate fails in either theory or practical head he/she has to reappear both for the theory and associated practical.

PG10.3 Candidates who have either failed or detained in any of the first year courses shall appear for the make-up examination whenever it is offered (usually between 30 to 45 days following the announcement of the results of the previous examination) with prior approval of the Principal/ Head of the Program, after fulfilling the required criteria. However, Provisional admission shall be given to the second year program for that period.

PG10.4 If a candidate does not pass the First year courses even in the make-up examinations his/her provisional registration shall be cancelled. She/he shall reregister for the second year only once she/he clears first year courses and the duration of the second year will be one year from the time she/he clears the first year courses.

PG 10.5 If the candidate passes the first year in the make-up examinations his/her provisional registration shall be confirmed.

PG10.6 A candidate needs to appear only for the failed courses along with the associated practical heads in first year, however if a candidate fails in any one of the courses in the second year, she/he will have to appear for all the second year courses, including the practical heads.

PG11 DURATION OF THE PROGRAMME

PG 11.1. Normally a candidate should complete all the requirements for Postgraduate program in Two years. However, academically weaker candidates who do not fulfill some of the requirements in their first attempt and have to repeat them in subsequent semesters may be permitted up to Four consecutive years (from the first year of registration) to complete all the requirements of the degree.

PG12 TERMINATION FROM THE PROGRAMME

PG12.1 A candidate may also be compelled to leave the Program in the University on disciplinary grounds.

PG12.2 On having been found to have produced false documents or having made false declaration at the time of seeking admission.

PG12.3 On having been found to be pursuing regular studies and/or correspondence courses (leading to degree or diploma) in any other college, university or an educational institution simultaneously.

PG12.4 On having been found to be concurrently employed and performing duty or carrying out business in contravention to academic schedules of the University and without seeking approval from the University.

PG13 TEMPORARY WITHDRAWAL FROM THE UNIVERSITY

PG13.1 Candidate who has been admitted to MPT program of the University may be permitted to withdraw temporarily from the University on the grounds of prolonged illness or grave calamity in the family for a period of one academic year, provided:

PG13.1.1 He/she applies to the University within at least 6 weeks of the commencement of the Term or from the date he last attended his/her classes whichever is later, stating clearly the reasons for such withdrawal together with supporting documents and endorsement of his/her guardian.

PG13.1.2 The University is satisfied that, counting the period of withdrawal, the Candidate is likely to complete his/her requirements of the MPT Degree within the time limits specified in Clause PG11.1

PG13.1.3 There are no outstanding dues or demands in the University/Hostel/ Department/ Library.

PG13.1.4 Normally, a candidate will be permitted only one such temporary withdrawal during his/her tenure as a candidate of the postgraduate program.

PG14 TRANSFER OF CANDIDATES

PG14.1 Transfer of candidates from higher education institutions outside University shall be considered at the beginning of academic year but subject to confirmation of equivalence.

PG14.2 The candidates shall apply for equivalence with the No-objection for admission to DSU from the University where they are perusing their study.

PG14.3 The candidate must have passed in all courses in the earlier years prior to transfer.

PG15 ELIGIBILITY FOR THE AWARD OF MPT DEGREE

A candidate shall be declared to be eligible for the award of MPT degree if he/she has:

PG15.1 Completed all the requirements for the degree at the end of the program

PG15.2 Satisfactorily completed all the mandatory and subsidiary courses.

PG15.3 No dues to the University, Department or Hostels.

PG15.4 No disciplinary action pending against him/her.

PG 16 AWARD OF DEGREE

The award of MPT degree must be recommended by the Academic Council and approved by the Board of Management and Board of Governors of the DSU.

PG17CONDUCT AND DISCIPLINE

PG17.1 Candidates shall conduct themselves within and outside the precincts of the University in a manner befitting the candidates of an institution of national importance. The University has a separate ordinance Code and Conduct of Candidates which is applicable to all candidates of the University.

PG18 REPEALAND SAVINGS

Notwithstanding anything contained in these Regulations, the provisions of any guidelines, orders, rules or regulations in force at the University shall be inapplicable to the extent of their inconsistency with these Regulations. The Academic Council, Board of Management and Board of Governors of the DSU of University may revise, amend or change the regulations from time to time.

PG19INTERPRETATION

Any questions as to the interpretation of these Regulations shall be decided by the University, whose decision shall be final. The University shall have the powers to issue clarifications to remove any doubt, difficulty or anomaly which may arise during the implementation of the provisions of these Regulations.

YEAR: MPT I YEAR

COURSE CODE: 24MPT501

TITLE OF THE COURSE: RESEARCH, ETHICS AND ADMINISTRATION

COURSE OBJECTIVES:

THIS COURSE SERVES TO INTEGRATE THE KNOWLEDGE GAINED BY THE STUDENTS IN RESEARCH ANDADMINISTRATION WITH THE SKILLS GAINED IN RESEARCH METHODOLOGY, BIOSTATIATICS ANDETHICS THUS ENABLING THEM TO APPLY THESE IN CLINICAL SITUATIONS.

COURSE OUTCOMES:

THE EXPECTED OUTCOMES OF THIS COURSE FOLLOWING THE PRESCRIBED HOURS OF LECTURES,

1). THE STUDENT WILL BE ABLE TO COMPREHEND TOPICS IN THE FIELD OF RESEARCHMETHODOLOGY, BIOSTATISTICS, ETHIS AND ADMINISTRATION

2). THE STUDENT WILL BE ABLE TO APPLY THE KNOWLEDGE OF RESEARCH METHODOLOGY,BIOSTATISTICS, ETHIS AND ADMINISTRATION IN PROFESSIONAL PRACTICE, PATIENT CARE ANDRESEARCH.

3).THE STUDENTS WILL BE ABLE TO HAVE A COMPLETE OVERVIEW ON THE APPLICATION OFHOSPITAL ADMISTRATION AND INFRASRTCTURE NEED IN REAL LIFE.

4). THE STUDENT SWILL BE ABLE TO MENTAIN CLINICAL RECORDS AS PER THE INTERNATIONALCLASSIFICATION OF FUNCTONING DISABILITY AND HEALTH (ICF) GUIDELINES.

UNIT I

1) RESEARCH METHODOLOGY

- Introduction to research: Terminology in research

  [defining a research question, review of literature,research process]

- Types of research: Qualitative and quantitative
- Study design: Case study, case series, survey, Delphi process, pilot study, pre and post design, epidemiology study design (longitudinal, cohort, case control,prevalence etc.), repeated measure design, randomized controlled design.
- Sampling design: Sampling techniques (population,sample, sample size determination- based on the study design, sampling methods, sampling errors)

2) BIOSTATISTICS

- Introduction to biostatistics: Terminology, definition,application and uses of biostats, frequency distribution.
- Descriptive statistic, measure of central tendency,measure of dispersion and measure of asymmetry.

3) ETHICS

- Ethical issues in physiotherapy practice- clinical,research, academic.
- Scope of physiotherapy in hospital, community and industry

4) ADMINISTRATION

- Administration, legislation, rules and regulation governing physiotherapy practice n-national and international(IAP and WCPT)
- E- medical record system selection (EMR)

UNIT II

1) RESEARCH METHODOLOGY

- Outcome measures: Use of outcome measures in rehab measures, psychometric properties of measurement(reliability, validity, responsiveness, sensitivity,specificity, MCID etc.), Measurement errors.
- Data collection and analysis: Technique of data collection, tools, data processing, interpretation and presentation of data in graphical representation.

2) BIOSTATISTICS

- Hypothesis testing (test of significance, type1 and type 2error, confidence interval, power analysis.)
- Parametric and non-parametric:T-test, ANOVA, ANCOVA,chi-square, MannWhitney utest, Wilcoxon test, Kruskal-Wallis test, Friedman's test and z test.
- Sample size calculation

3) ETHICS

- Education- formal and non-formal, philosophy of health,education, circular planning.
- Teaching techniques-teaching-learning method to facilitate learning, method for facilitate learning, use of audio-visual aid, clinical teaching.

4) ADMINSTRATION

- History taking, assessment, tests, patient communication,documentation of findings, treatment organization and planning,execution of intervention.
- Models of health information system

UNIT III

1) RESEARCH METHODOLOGY

- Scientific writing: Definition, kind of scientificdocumentation (research paper, review paper, books,review and meta-analysis, thesis, conference and project reports)
- Presentation and publication of research: step and process, significance of report writing, step in report writing, precaution in writing a research report, oral andposter presentation of research paper in conference,preparation of abstract.
- Critical appraisal of a research.
- Manuscript writing
- Grant proposal writing

2) BIOSTATISTICS

- Correlation and regression.
- Epidemiological measure:Rate, ratio, proportion,incidence, prevalence, relative risk, ratio risk, odd's ratio, professional practice.

3) ETHICS

- Principal of management, planning, organization,budget, policy process and quality assurance.
- Exercise prescription for health and fitness.

4) ADMINSTRATION

- Documentation of rehabilitation, assessment and management… international classification of functioning,disability and health format (ICF).
- Current scenario of EMR

References:

1. Research Methodology .Methods and Techniques C.R. Kothari New Age International Publishers.2nd edition 2008

2. Research Methods for clinical therapists by Hicks Carolyne, Churchill

3. Research Methodology for health professionals by Goyal,Jaypee

4. Methods in Biostatistics By Mahajan,B.K Jaypee

5. Principles & practice of Biostatistics By Dixit ,J.V Bhanot

6. Ethics in Rehabilitation A Clinical Perspective By Barbara L. Kornblau, AnnBurkhardt · 2012

7. Physical Therapy Ethics By Donald L. Gabard, Mike W. Martin · 2011

8. Physical Therapy Administration and Management By Robert J. Hickok · 1982

9. Writing SOAP Notes With Patient/client Management Formats By GingeKettenbach · 2004

10. Physical Therapy Doccumentation: From Examination to Outcome By Mia Erickson, Ralph Ultzman 2008

11. Dutton's Introduction to Physical Therapy and Patient Skills, Second EditionBy Mark Dutton · 2020

Question Paper pattern for University Exams –

Long Essay Answers (Answer all 2 questions): 2 × 20 = 40 marks

Short Essay Answers (Answer all 4 questions): 4 × 10 = 40 marks

COURSE CODE : 24MPT502

TITLE OF THE COURSE : APPLIED PHYSIOLOGY & BIOMECHANICS

COURSE OBJECTIVES:

THIS COURSE SERVES TO INTEGRATE THE KNOWLEDGE GAINED BY THE STUDENTS IN CLINICAL KINESIOLOGY AND BIOMECHANICS, EXERCISE PHYSIOLOGY AND ELECTRO PHYSIOLOGY WITH THE SKILLS GAINED IN BASIC SUBJECTS SUCH AS EXERCISE THERAPY AND ELECTRO THERAPY AND BIOMECHANICS THUS ENABLING THEM TO APPLY THESE IN CLINICAL SITUATIONS.

COURSE OUTCOMES:

THE EXPECTED OUTCOMES OF THIS COURSE FOLLOWING THE PRESCRIBED HOURS OF LECTURES,

1). THE STUDENT WILL BE ABLE TO COMPREHEND TOPICS IN THE FIELD OF CLINICAL KINESIOLOGY AND BIOMECHANICS, EXERCISE PHYSIOLOGY AND ELECTRO PHYSIOLOGY.

2). THE STUDENT WILL BE ABLE TO CLINICALLY APPLY THE KNOWLEDGE OF KINESIOLOGY, EXERCISE THERAPY TECHNIQUES AND PROTOCOLS AND ELECTRO THERAPY MODALITIES.

3).THE STUDENTS WILL BE ABLE TO HAVE A COMPLETE OVERVIEW ON THE ASSESSMENT AND APLLICATION OF DIFFERENT TREATMENT APPROACHES IN VARIOUS CONDITIONS OF ALL ELECTIVES OF PHYSIOTHERAPY

4). THE STUDENTS WILL BE ABLE TO MENTAIN CLINICAL RECORDS AS PER THE INTERNATIONALCLASSIFICATION OF FUNCTONING DISABILITY AND HEALTH (ICF) GUIDELINES.

BIOMECHANICS AND CLINICAL KINESIOLOGY:

1. Normal & Applied Biomechanics & pathomechanics and clinical application, Arthokinematics , Osteokinematics degenerative changes in weight bearing joint & compensatory actions ; joint stability & mechanics

- Musculoskeletal structure
- Upper extremity
- Lower extremity
- Vertebral column
- Thorax & chest wall (ventilation & circulation)
- TMJ

2. Kinetic and kinematic analysis of body balance, equilibrium, integrated function

(Gait, posture and ADL).

GAIT:

- Gait parameters : Kinetic and kinematic , time space
- Pathological gait
- Running
- Stair climbing changes in gait following varies surgeries / diseases / disorders

3. Ergonomic approach to

- lifting and handling
- work space and environment
- patient position, body mechanics
- Job design
- In home (household related)
- Child care (paedatric conditions) and transfer techniques.

EXERCISE PHYSIOLOGY:

1. Energy sources, production, expenditure and transfer at rest and various physical activities.

2. Response and adaptation of various systems to exercise and training (aerobic, anaerobic and flexibility).

3. Aerobic and anaerobic exercises – principles of training, factors affecting aerobic and anaerobic training and response, types of training, overtraining, de-training, DOMS, specific aids to enhance performance and conditioning.

4. Environmental influence on exercise and performance – high and low altitude and hypoxia, hypobaric and hyperbaric, hot and cold environment, thermoregulation, dehydration and rehydration, acclimatization.

5. Fatigue – classification, physiology and assessment.

6. Consideration of age and gender in exercise and training.

7. Nutrition – recommended intake, role in exercise, supplementary nutrition and Deficiencies for MSK disorders, sports , cardio , neurological conditions.

8. Body composition and diet – assessment of body composition, obesity and weight control.

ELECTRO PHYSIOLOGY:

1. Anatomy and physiology of peripheral nerve, muscle, and NMJ.

2. Electrical properties of muscle and nerve.

3. Introduction for neuro muscular electrical stimulation.

4. Classification, components and electro physiological assessment.

5. Electrical stimulation and its effects on various systems & Muscle plasticity in response to electrical stimulation.

6. Clinical Electro Physiological Testing

7. Safety consideration in electro therapy

References:

1. Manual Therapy Master Classes: Vertebral Column: Beeton K.S

2. Manual Therapy Master Classes:The Peripheral Joints: Beeton K.S

3. Electrotherapy Explained Principles And Practice: John Low Ann Reed

4. Electrodiagnosis In Diseases Of Nerves And Muscles: Jan Kimura

5. Chronic Pain Management for Physical Therapists by Wittink, H/ Michel, T.H

6. Myofascial pain and Fibromyalgia Trigger point Management by Rachlin, E. S,/Rachlin, I. S.

7. Kinesiology : the mechanics and pathomechanics of human movement - Oatis, C.A

8.Gait analysis : theory and application - Rebecca Craik and Carol A Oatis

9. Clinical biomechanics of spine – White A.A and Panjabi – J.B. Lippincot, Philadelphia

10. Electromyography In Clinical Practice By Michael J. Aminoff, 3rd Edition (Churchill Livingstone)

11. Electrodiagnosis in Diseases of Nerve and Muscle: Principles and Practice by Jun Kimura

12. ACSM's guidelines for exercise testing and prescription – Whaley

13. ACSM's foundations of strength training and conditioning- Ratames Nicholos

14. Exercise physiology fitness and sports nutrition – B.Srilakshmi

15. Advancing Dietetics and clinical nutrition – Anne Payne

Question Paper pattern for University Exams –

Long Essay Answers (Answer all 2 questions): 2 × 20 = 40 marks

Short Essay Answers (Answer all 4 questions): 4 × 10 = 40 marks

COURSE CODE: 24MPT503

24MPT572

TITLE OF THE COURSE: FUNCTIONAL DIAGNOSIS AND THERAPEUTICS

FUNCTIONAL DIAGNOSIS AND THERAPEUTICS – PRACTICAL

COURSE OBJECTIVES:

THE "FUNCTIONAL DIAGNOSIS AND THERAPEUTICS" COURSE AIMS TO TEACH STUDENTS HOW TO USE FUNCTIONAL DIAGNOSIS TECHNIQUES FOR ACCURATE ASSESSMENT AND TREATMENT PLANNING, FOSTERING CRITICAL THINKING AND EVIDENCE-BASED PRACTICE. IT ENCOURAGES INNOVATIVE APPROACHES, COLLABORATION, AND A PATIENT-CENTERED APPROACH, EMPHASIZING ETHICAL CONSIDERATIONS AND INTEGRITY IN PATIENT CARE.

COURSE OUTCOMES:

THE EXPECTED OUTCOMES OF THIS COURSE FOLLOWING THE PRESCRIBED HOURS OF LECTURES,

1). STUDENTS WILL DEMONSTRATE PROFICIENCY IN UTILIZING FUNCTIONAL DIAGNOSIS TECHNIQUES TO ACCURATELY ASSESS PATIENT CONDITIONS AND DEVELOP COMPREHENSIVE TREATMENT PLANS.

2). STUDENTS WILL DEMONSTRATE PROFICIENCY IN UTILIZING FUNCTIONAL DIAGNOSIS TECHNIQUES TO ACCURATELY ASSESS PATIENT CONDITIONS AND DEVELOP COMPREHENSIVE TREATMENT PLANS.

3). STUDENTS WILL EFFECTIVELY COLLABORATE WITH PEERS FROM DIVERSE BACKGROUNDS IN DEVELOPING INTERDISCIPLINARY TREATMENT PLANS FOR COMPLEX PATIENT CASES.

4). STUDENTS WILL DEMONSTRATE A COMMITMENT TO SURPASSING PATIENT EXPECTATIONS BY PROVIDING TAILORED CARE THAT ADDRESSES INDIVIDUAL NEEDS AND PREFERENCES.

5). STUDENTS WILL ADHERE TO THE HIGHEST MORAL AND ETHICAL STANDARDS IN PATIENT CARE, DEMONSTRATING INTEGRITY, PROFESSIONALISM, AND COMPASSION THROUGHOUT THEIR INTERACTIONS IN FUNCTIONAL DIAGNOSIS AND THERAPY INTERVENTIONS.

1. Understanding Movement: Comprehensive Clinical Examination and Assessment movement

dysfunction including Gait.

a) Principles of Clinical Examination

b) Assessment of Gait

c) Clinical Tests for Movement Dysfunction

d) Specialized Assessments

e) Interpretation and Differential Diagnosis

2. Developmental screening, motor learning, motor control assessment.

a) Introduction to Motor Development.

b) Developmental Screening

c) Motor Learning in Children

d) Motor Control Assessment

e) Interdisciplinary Approach to Assessment

f) Intervention and Support

3. Principles of pathological investigations and imaging techniques related to neuromuscular skeletal and cardiopulmonary disorders with interpretation.

Interpretation of various investigations:

a) Radiological (X-rays, CT scan, MRI).

b) Routine Biochemical investigations (ABG, blood, CSF, etc).

c) Electro-diagnostic (EMG, NCV, SDC etc) findings.

d) PFT analysis.

4. Basic Concepts of Anthropometry:

a) Definition of Anthropometry

b) Tools for Measurement

c) Body Size

d) Determination of Body Shape

e) Tissues Composing the Body

f) Human Variation

g) Methods in Body composition analysis

5. Health related physical fitness assessment.

a) Introduction to Physical Fitness Assessment

b) Components of Health- Related Physical Fitness

c) Assessment Methods and Techniques

d) Interpretation of Results

e) Application in Exercise Prescription and Health Promotion

6. General assessment for orthopaedic, neurological and cardiopulmonary conditions.

Assessment of orthopaedic movement dysfunction:

a) General orthopaedic examination, Muscle strength, Power, Endurance, Flexibility, Limb-length discrepancy, Limb girth, Pelvic inclination, Goniometry, Trick movements, End-feel, Special Tests, Altered Posture & Gait –Functional analysis as per ICF norms.

b) Physical examination of joints in normal and patho – mechanical conditions.

Assessment of neuro-muscular dysfunction:

a) General neurological examination, Higher functions, Cranial nerves, Altered muscle strength, Power, Balance, Endurance, Tone, Spasticity, Inco-ordination, Abnormal deep & superficial reflexes, Myotomes, Dermatomes, Voluntary control testing, Abnormal movements, Neural control of bladder, Nerve entrapments, Gait and Functional evaluation as per ICF norms.

b) Posture and alignment: Biomechanical and neural factors.

Assessment of cardio-pulmonary dysfunction:

a) Chest expansion, Abnormal breath sounds, Quality of life questionnaires, Borg scale,

b) Principles of exercise tolerance test – Assessment of vital parameters in simple functional test, 6 minutes' walk test, 12-minute walk test, Shuttle walk test, Canadian step test, Treadmill test, Symptom limited test, Breath holding test, PFT, Spirometry, Peak flowmetry, Theoretical bases of Bruce's protocol, Astrand Protocol & Step test.

7. Pain (assessment, modulation and management of pain)

a) Assessment of Pain and Symptoms: Sources of Pain, Types of Pain, Comparison of Systemic Versus Musculoskeletal Pain, Patterns, Characteristics of Viscerogenic Pain,

b) Screening for Emotional and Psychologic Overlay,

c) Pain modulation using electrotherapy

8.Basics of electrophysiological testing and diagnosis FG test SD curve, NCV, EMG, ECG, Evoked potentials.

a) Introduction to Electrophysiological Testing

b) F-wave and H-reflex

c) Nerve Conduction Velocity (NCV) Testing

d) Electromyography (EMG)

e) Electrocardiography (ECG)

f) Evoked Potentials

g) Integration and Interpretation

9. Physical disability evaluation and diagnosis:

A) Definition and Types of Physical Disabilities

B) Evaluation Process

C) Common Causes of Physical Disabilities

D) Psychosocial Considerations

E) Diagnostic Challenges and Considerations

F) Multidisciplinary Approach to Diagnosis

10. Evaluation and theories of aging:

a) Introduction to Aging

b) Biological Evaluation of Aging

c) Theories of Aging

d) Psychosocial Evaluation of Aging

e) Functional Assessment in Aging

f) Interventions and Implications

References:

1. Evidence-Based Medicine:How to Practice and Teach EBM, 2nd Edition: By David L. Sackett, Sharon E. Straus, W. Scott Richardson, William Rosenberg, and R. Brian Haynes, Churchill Livingstone, 2000

2. Rob Herbert, Gro Jamtvedt, Kåre Birger Hagen, Judy Mead. Practical Evidence- Based Physiotherapy (Second Edition), Churchill Livingstone, 2011, ISBN 9780702042706

3. Exercise Physiology Nutrition, Energy, and Human Performance. 8th Edition. William D. McArdle PhD, Frank I. Katch , Victor L. Katch. Lippincott Williams & Wilkins. ISBN/ISSN: 9781451191554

4. Magee DJ. Orthopedic Physical Assessment. Elsevier Health Sciences; 2014.

5. Donatelli RA, Wooden MJ. Orthopaedic Physical Therapy. Elsevier health sciences; 2009.

6. Hislop H, Avers D, Brown M. Daniels and Worthingham & muscle Testing: Techniques of manual examination and performance testing. Elsevier Health Sciences; 2013

7. McKinnis LN. Fundamentals of musculoskeletal imaging. FA Davis; 2013.

8. Greenspan A, Beltran J. Orthopaedic Imaging: A practical approach. Lippincott Williams & Wilkins; 2020.

9. O'Sullivan SB, Schmitz TJ. Physical rehabilitation, vol. 5. Philadelphia: FA Davis Company. 2006.

10. McCarty DJ, Koopman WJ. Arthritis and allied conditions: a textbook of rheumatology. Philadelphia: Lea &Febiger; 1993.

11. American College of Sports Medicine. ACSM's resource manual for guidelines for exercise testing and prescription. Lippincott Williams & Wilkins; 2012.

Question Paper pattern for University Exams –

Long Essay Answers (Answer all 2 questions): 2 × 20 = 40 marks

Short Essay Answers (Answer all 6 questions): 6 × 10 = 60 marks

MPT YEAR – II

S L	COURSE CODE	COURSE TITLE	NO. OF TEACHING HOURS			SCHEME OF EVALUATION							TOTAL
						THEORY				PRACTICAL			
			D	CL	p	W	VV	CA	IA	P	CA	IA	
1	24MPTY601	SPECIALTY GENERAL	02	--		100	30	10	10				150
2	24MPTY62X	RECENT ADVANCES AND EVIDENCE BASED PRACTICE	01	--		80		10	10				100
3	24MPTY63X	SPECIALTY ELECTIVE	02	--		100	30	10	10				150
4	24MPT671	CLINICAL TRAINING	--	20									
5	24MPTY672	SPECIALTY GENERAL	--		02					80	10	10	100
6	24MPTY67X	SPECIALTY ELECTIVE	--		02					80	10	10	100
7	24MPT681	DISSERTATION	1	--			80	20					100
GRAND TOTAL			**06**	**20**	**04**	**280**	**140**	**50**	**30**	**160**	**20**	**20**	**700**

Note: CR – Credit Subject, AU – Audit Subject, D – Didactic, CL – Clinical, P – Practical, W – Written, VV – Viva Voce, CA – Continuous Assessment, IA – Internal Assessment

ELECTIVE / SPECIALIZATION GROUPS

1. ORTHOPAEDICS:

COURSE CODE	COURSE TITLE
24MPTO601	MUSCULO SKELETAL DISORDERS
24MPTO621	RECENT ADVANCES AND EVIDENCE BASED PRACTICE- MANUAL THERAPY
24MPTO622	RECENT ADVANCES AND EVIDENCE BASED PRACTICE- SPORTS REHABILITATION
24MPTO631	MANUAL THERAPY
24MPTO632	SPORTS REHABILITATION
24MPTO672	MUSCULO SKELETAL DISORDER- PRACTICAL
24MPTO673	MANUAL THERAPY-PRACTICAL
24MPTO674	SPORTS REHABILITATION-PRACTICAL

2. NEURO SCIENCES:

COURSE CODE	COURSE TITLE
24MPTN601	NEURO PSYCHOSOMATIC DISORDERS
24MPTN621	RECENT ADVANCES AND EVIDENCE BASED PRACTICE- ADULT NEUROLOGY & NEUROSURGERY
24MPTN622	RECENT ADVANCES AND EVIDENCE BASED PRACTICE- PEDIATRIC NEUROLOY
24MPTN631	ADULT NEUROLOGY & NEUROSURGERY
24MPTN632	PEDIATRIC NEUROLOGY
24MPTN672	NEURO PSYCHOSOMATIC DISORDERS- PRACTICAL
24MPTN673	ADULT NEUROLOGY & NEUROSURGERY -PRACTICAL
24MPTN674	PEDIATRIC NEUROLOGY- PRACTICAL

3. CARDIOPULMONARY SCIENCES:

COURSE CODE	COURSE TITLE
24MPTP601	CARDIOPULMONARY DISORDERS
24MPTP621	RECENT ADVANCES AND EVIDENCE BASED PRACTICE INTENSIVE CARE PHYSIOTHERAPY
24MPTP622	RECENT ADVANCES AND EVIDENCE BASED PRACTICE- CARDIOPULMONARY REHABILITATION AND FITNESS
24MPTP631	INTENSIVE CARE PHYSIOTHERAPY
24MPTP632	CARDIOPULMONARY REHABILITATION AND FITNESS

24MPTP672	CARDIOPULMONARY DISORDER-PRACTICAL
24MPTP673	INTENSIVE CARE PHYSIOTHERAPY -PRACTICAL
24MPTP674	CARDIOPULMONARY REHABILITATION AND FITNESS-PRACTICAL

4. COMMUNITY PHYSIOTHERAPY:

COURSE CODE	COURSE TITLE
24MPTC601	COMMUNITY REHABILITATION
24MPTC621	RECENT ADVANCES AND EVIDENCE BASED PRACTICE- GERIATRIC REHABILITATION
24MPTC622	RECENT ADVANCES AND EVIDENCE BASED PRACTICE- OCCUPATIONAL HEALTH
24MPTC631	GERIATRIC REHABILITATION
24MPTC632	OCCUPATIONAL HEALTH
24MPTC672	COMMUNITY REHABILITATION-PRACTICAL
24MPTC673	GERIATRIC REHABILITATION -PRACTICAL
24MPTC674	OCCUPATIONAL HEALTH-PRACTICAL

5. WOMEN HEALTH PHYSIOTHERAPY:

COURSE CODE	COURSE TITLE
24MPTW601	OBG AND NEONATAL CARE
24MPTW621	RECENT ADVANCES AND EVIDENCE BASED PRACTICE- OBSTRETIC PHYSIOTHERAPY
24MPTW622	RECENT ADVANCES AND EVIDENCE BASED PRACTICE- GYNAECOLOGICAL PHYSIOTHERAPY
24MPTW631	OBSTRETIC PHYSIOTHERAPY
24MPTW632	GYNAECOLOGICAL PHYSIOTHERAPY
24MPTW672	OBG AND NEONATAL CARE-PRACTICAL
24MPTW673	OBSTRETIC PHYSIOTHERAPY -PRACTICAL
24MPTW674	GYNAECOLOGICAL PHYSIOTHERAPY -PRACTICAL

COURSE CODE: 24MPTO601 & 24MPTO672

COURSE NAME: MUSCULO SKELETAL DISORDERS

1. Exercise Physiology, Fitness Testing and Exercise Prescription
2. Clinical assessment and Clinical Reasoning Musculoskeletal Disorders Rationale of laboratory investigations in Musculoskeletal Disorders Differential Diagnosis of various conditions in Musculoskeletal Disorders.
3. Clinical Symptomatology, Pathophysiology and Patho-mechanics of musculoskeletal conditions
4. Functional assessment
   Hand function
   Gait
   Posture
   ADL
   Occupational work
   Functional independence Assessment
5. Basic Knowledge of Radiology:

   Plain Radiographs
   Bone Scans Computed Tomography / Magnetic Resonance Imaging
6. Advanced Electrotherapeutics:
   Physiology of Pain
   Pain Management Modalities and Theory Rationale
   Electrodiagnosis: Theoretical knowledge of Electromyography& Nerve Conduction Velocity Testing
   Normal and in musculoskeletal Conditions
7. Basic Knowledge of common drugs used in Orthopedics: Effects, Interactions & Relevance to Therapeutic Modalities (anti-inflammatory, analgesics, antipyretics, antibiotics, antihypertensive, diabetic drug therapy)
8. Principles of Treatment of Common orthopedic & Sports Injuries, Protocols and their Rationale
9. Physiotherapy in post-operative management of metabolic, hormonal, neoplastic and infective conditions of bones and joints.Pre-& post-operative physiotherapy in tendon transfer. Electrical stimulation and biofeedback
   procedures
10. Perform physiotherapy management for locomotor disorders, pediatric musculoskeletal disorders and amputation
11. Principles of Different Schools of Manual Therapy:

- Cyriax
- Maitland
- David Butler &Shacklock
- McKenzie

- Kaltenborn
- Mulligan
- Neuromuscular Techniques

12. External aids, appliances, adaptive self-help devices; prescription, biomechanical compatibility, check-out and training.

COURSE CODE: 24MPTO621

TITLE OF THE COURSE: RECENT ADVANCES AND EVIDENCE BASED PRACTICE-MANUAL THERAPY

1. McKenzie's School of Thought
2. Neuro dynamics & Neural mobilization
3. Maitland's School of Thought
4. Combined Movements
5. Cyriax's School of Thought
6. Mulligan's School of Thought
7. Osteopathic and Chiropractic Schools of Thought
8. Positional Release Techniques
9. Neuromuscular Techniques
10. Neuro-Musculoskeletal Taping Techniques
11. Pilates
12. Myofascial Release Techniques
13. Muscle Energy Technique
14. Pain Sciences
15. Advanced care of back & neck

COURSE CODE: 24MPTO622

TITLE OF THE COURSE: RECENT ADVANCES AND EVIDENCE BASED PRACTICE- SPORTS REHABILITATION

1. **RecentAdvancesinAerobic Training Protocols**

- High-IntensityIntervalTraining (HIIT) for Endurance Athletes
- SprintIntervalTraining(SIT)vs. Traditional Endurance Training
- Altitude Training & Hypoxic ConditioningforPerformance Enhancement
- WearableTechnologyfor Aerobic Performance Monitoring

2. **RecentAdvancesinStrength&Conditioning**
    - Velocity-BasedTraining(VBT) for Strength Development
    - EccentricOverloadTraining&IsometricStrengthTechniques
    - BloodFlowRestriction(BFR) Training in Strength Rehabilitation
    - NeuromuscularElectrical Stimulation (NMES) for Strength Gains

3. **InnovationsinBiomechanics& Motion Analysis**

- 3DMotionCapturefor Performance & Injury Prevention
- ForcePlate&Pressure MappingforMovement Assessment
- AI-BasedMovementScreening & Biomechanical Optimization
- VirtualReality(VR)forMotor Control & Rehabilitation

4. **Emerging Trends in Injury Rehabilitation**

- Regenerative Medicine in Sports: PRP & Stem Cell Therapy
- Shockwave Therapy & Tissue Healing Advancements
- Cryotherapy & Hyperbaric Oxygen Therapy in Injury Recovery
- Cognitive Rehabilitation for Concussion & Head Injuries

5. **Recent Advances in Sports Recovery Strategies**

- Cold Water Immersion, Contrast Therapy & Compression Therapy
- Sleep Optimization & Circadian Rhythms for Recovery
- AI-Driven Load Management & Injury Prevention

6. **Advances in Neuromuscular Training**

- Neurofeedback & Brain-Muscle Connectivity Training
- Electromyostimulation (EMS) & Functional Electrical Stimulation (FES)
- Proprioceptive Training for Injury Prevention
- Cognitive-Motor Training for Reaction Time &
- Decision-Making

7. **Emerging Trends in Sports Technology & Innovation**
- AI & Machine Learning in Sports Injury Prediction
- Wearable Sensors & Real-Time Performance Monitoring
- Robotics & Exoskeletons in Athlete Rehabilitation
- Digital Twin Technology for Training & Recovery Analysis

8. **Future Directions in Sports Physiotherapy**
- Biohacking for Athletic Performance Enhancement
- Personalized Medicine & Genetic Testing for Athletes
- Tele-Rehabilitation & Remote Physiotherapy

COURSE CODE: 24MPTO631 & 24MPTO673

TITLE OF THE COURSE: MANUAL THERAPY

1	Introduction to manual therapy: concept of manual therapy, mobilization and manipulation, barriers and movement, movement science
2	Clinical Reasoning in Manual Therapy • Hypothesis Generation • Expert Reasoning Strategies • Clinical Reasoning Errors • Pattern Recognition • Role of Reassessment in Reasoning • Hypothesis Categories in Manual Therapy
3	McKenzie's School of Thought : • Elaborate the Classification of Spinal Pain as adopted by McKenzie – Postural, Dysfunction and Derangement. • Quebec task force classification of Spinal disorders • Assessment and Treatment procedures Neurodynamics (Shacklock) and Neural tissue Mobilization (Butler) • Basics of Anatomy, Physiology ,Biomechanics of Neural tissue • Clinical Reasoning, Principles of Subjective, Objective, Treatment and Reassessment in Spinal and Extremity Adverse Neural Tension Disorders • Clinical Presentation of Intraneural and Extra Neural Pathology • Indication, Contraindication and Precautions in Altered Neurodynamicsand Management of Upper and Lower Extremity and Spine
4	Maitland's School of Thought: Principles of Subjective Examination and Physical Examination, Treatment, Re-Assessment of Spinal and Peripheral Joints Problems • Movement Diagram its Application • The Manipulative VBI testing-Australian Protocol Approach,& its Application • High Velocity Thrust Techniques • Clinical Presentation and Management of a various Peripheral and Vertebral Neuro-musculoskeletal Conditions
5	Combined Movements (B.C.EDWARDS) • Regular &Irregular Patterns in Cervical Thoracic & Lumbar Regions • Spinal Dysfunction Diagnosis and Treatment using Combined Movements
6	Cyriax's School of Thought : • History, Physical Examination -Selective Tissue Tension Tests, Management Strategies in Spinal and Peripheral Joint & Soft Tissue Dysfunction. • Techniques: Deep Transverse Friction, Massage, Manipulation, Injection
7	Mulligan's School of Thought: • Principles of Assessment and Treatment Using Mulligan's Concept • Natural Apophyseal Glides (NAGS), Sustained Natural Apophyseal Glides (SNAGS) , Reverse Natural Apophyseal Glides (RNAGS), Mobilizations With Movement (MWM) • Application in Spinal and Peripheral Joint Dysfunction
8	Osteopathic and Chiropractic Schools of Thought : • Theoretical Principles of Assessment And Treatment
9	Positional Release Techniques: • Assessment and Treatment Procedures • Strain and Counter Strain Technique • Functional Technique
10	Neuromuscular Techniques: • Assessment and Treatment Procedures • Integrated Neuromuscular Inhibition Techniques
11	Neuro-Musculoskeletal Taping Techniques Peripheral Joint And Spinal Joint Dysfunctions
12	Pilates – School of Thought
13	Movement Impairment Syndromes- Shirley Sharman • Diagnosis and Treatment of Movement Impairment Syndromes
14	Myofascial Release Techniques: • Trigger Point Therapy • Principles of Assessment and Treatment
15	Muscle Energy Technique: • Theories of Spinal and Peripheral Dysfunction • Fryette's laws of Physiological Spinal Motion • Segmental Vertebral Dysfunction – Neutral Rotation and Side flexion (NRS), Extension Rotation and Side flexion (ERS), Flexion Rotation & Side Flexion(FRS) • Screening Examination, Scanning Examination, Skill Rolling, Segmental Definition (Diagnosis) • Treatment using Muscle Energy Techniques
16	Pain Sciences: • Models of Pain & Disability ¬ Biomedical and Biopsychosocial Model ¬ Mature Organism Model ¬ Main's, Orchestra ¬ Fear Avoidance Model ¬ Patient Centered Model • Basic Molecular Biology, Neurobiology, Stress Biology and Pain • Integration of Neurobiology into Clinical Reasoning Models • Pain Deconstruction into Pathobiological Mechanisms • Peripheral and Central Pain Mechanisms, Theory of Modulation of Pain • Identification of Risk Factors for Chronicity • Pain Measurement Tools & Management Strategies Via Physiotherapy •

	Merging Bio-psychosocial Approaches into Physiotherapy Management • Multidisciplinary Pain Management Strategies • Diagnostic Dilemmas and Common Pain States Drug Therapy, Cultural and Age Influences on Pain, Placebo &Nocebo
17	Motor Control: Peripheral and Spinal Pain • Theories of Motor Control and Motor Learning • Neuro-musculo-skeletal Systems; Movement Development • Causes and Mechanisms of Abnormal Movement • Injury and Recovery of Function • Application of Motor Control and Motor Learning Theory into Clinical Practice • Functional Stability Retraining: Principles and Strategies
18	Miscellaneous: • Medico-Legal Issues • Effective Documentation • Effective Communication
19	Manual therapy in occupational dysfunction: principles of assessment and diagnosis of dysfunction, selection and application of techniques

COURSECODE: 24MPTO632 & 24MPTO674

TITLEOFTHECOURSE : SPORTS REHABILITATION

1. Injury-proneprofiles & mental strategies for recovery.

2. Relaxation techniques, mindfulness,andresilience training.
- Nutritionalstrategiesforathletic performance.
- Hydration&electrolytebalance.
- Pre-competitionmealplanning& energy optimization.

- Gutmicrobiome&metabolic syndrome in athletes.
- Nutraceuticals&supplementation in performance enhancement.

3. SportsPhysiology&Performance Optimization
- Energy systems in exercise: Aerobic&anaerobicmetabolism.
- VO2max,oxygendebt,and blood lactate accumulation.
- Altitude training, thermoregulation, and underwaterphysiology.
- Recovery&adaptationstrategies in high-performance athletes.

4. **ErgogenicAids&Doping:**
- Anabolicsteroids,growth hormones, amphetamines, caffeine.
- Anti-doping policies & ethicalconsiderations.

5. Healthrelatedfitnesstesting

6. Skillrelatedfitnesstesting

7. NutraceuticalsandSupplements in Performance Enhancement

8. Pharmacokinetics in Sports Recovery&PainManagement

9. InjuryPrevention,Diagnosis&Rehabilitation
- Screening&InjuryEvaluation:
- Pre-participation screening&assessment.
- On-field injury classification&triage screening.
- Sideline injury classification&first-aid preparedness.
- Rehabilitation&Therapeutic Exercises:
- Phasesofrehabilitation& return-to-play criteria.
- Prehabilitation&injury prevention strategies.
- Modern rehabilitation techniques:Dryneedling, cupping, alternative therapies.

10. SportsInjuries&Management
- CommonSportsInjuries& Rehabilitation Protocols:
- UpperLimb:Head,neck, shoulder, elbow, wrist, hand injuries.
- LowerLimb&Spine:Hip, knee, ankle, foot, and spinal injuries.
- Acutevs.OveruseInjuries & Return-to-Sport Guidelines.
- SportingEmergencies&FirstAid:
- CPR,shockmanagement, bleeding control.
- Splinting,stretcheruse, transfer techniques.
- Cardiac arrest, asthma, epilepsy,drowning,burns.
- Heat-related illnesses & massparticipationevent safety.

11. SpecialPopulationsinSports

12. PaediatricAthletes:

- Growth-relatedconcerns, training guidelines, nutrition.
- Growthplateinjuries& long-term athlete development models.

13. GeriatricAthletes:

- Trainingadaptationsin older adults.
- Fallprevention&general exercise prescription.

14. Adaptive&ParalympicSports:
- Classificationofsportsfor athletes with disabilities.
- Prostheticadvancements, bionic implants, and exoskeletons.

15. SportsinChronicIllnesses:
- Rheumatoid arthritis, scoliosis, diabetes, hypertension, Exercise induced asthma, CongenitalHeartDisease.
- Cardiac rehabilitation & exercise-inducedasthma management.

16. Sports-SpecificInjuries(High-Impact, Contact, Endurance & Power Sports)

A. High-ImpactSports
- Basketball
- Volleyball
- TrackandField(Jumping Events)

B. ContactSports
- Hockey
- Soccer
- Kabaddi
- CombatSports
- MartialArts

C. EnduranceSports
- TrackandField(Long-Distance Events)
- SwimmingandDiving
- Cycling

D. PowerSports
- TrackandField(Sprinting, Throws)
- Weightlifting
- RacketSports

E. MartialArts

17. GenderDifferences&Womenin Sports

18. **PhysiologicalDifferences Between Male & Female Athletes:**
- Cardiovascular,strength, flexibility, and power variations.
- Body composition, hormonalfactors,and injury risk.
- Exerciseconsiderations during pregnancy and menopause.

19. **FemaleAthleteTriad&Relative Energy Deficiency in Sport (RED-S):**
- Temperature regulation, menstruation,andinjuries.
- Risk factors: Anorexia nervosa,bulimianervosa.
- Identification &prevention:Energyneeds, eating disorders.

20. PhysicalTraining&Conditioning
- **TrainingPrinciples&Motor Component Development**
- Strength, speed, endurance,mobility,and coordination.
- Warm-up&conditioning techniques.
- Periodization&neuromuscular adaptation.

21. Strength&SpeedDevelopment
- Strengthtypes:Maximum, elastic, endurance.
- Resistancetraining,circuit training, plyometrics.
- Sprintmechanics,stride efficiency, acceleration techniques.
- Speed&agilitytraining.

22. Endurance&Mobility Development
- Aerobic&anaerobic endurance.
- Trainingmethods:Fartlek, interval, high-altitude training.
- Mobility & coordination training:Balance,rhythm, reaction time.

COURSE CODE: 24MPTN601 & 24MPTN672

TITLE OF THE COURSE: NEUROPSYCHOSOMATIC DISORDERS

1. BASIC NEUROSCIENCES:

- Classification of Nervous System
- CNS
- PNS
- ANS
- Posture,
- Complex Movements and Locomotion
- Neurophysiology of sleep and consciousness.

2. Reorganization and recovery

- Neural Plasticity
- Principles and its application
- Effect of Neuropharmacology on exercise, recovery and reorganization

3. Normal Sequential Behavioural & Physiological Changes Throughout Developmental Arc
4. Motor Control and its Theories
5. Motor Development and Reflex Maturation – Neurophysiological Basis.
6. Motor Learning and its theories
7. Motor Behaviour of basic tasks (Postural Control and Balance, Locomotion and Objection Interaction with hands
8. Tonal abnormalities (Spasticity, Rigidity, Hypotonia, Dystonia etc)

- Pathophysiology
- Assessment methods
- Management

9. Classification of neurological involvement depending on level of lesion- UMN and LMN ,
10. Disorders Cerebellum and basal ganglia

11. Fundamental Neurological Assessment for Physiotherapy.

12. LABORATORY INVESTIGATIONS (in brief)
    - Blood and Cerebrospinal fluid (CSF) analysis, Biopsy, Genetic testing,
    - Non-invasive craniovascular studies: ultrasonography, Doppler.
    - Neuroimaging: Basic Principles of Computer Tomography (CT) and Magnetic Resonance Imaging (MRI, fMRI) of the Brain and Spinal Column, Electroencephalogram (EEG), PET, Myelogram, Angiogram.

13. Basics of Electrodiagnosis

- Properties of Nerve and Muscle
- Neuromuscular Junction.
- Generation and Propagation of Action Potential
- Historical Background, Methods and Goals of Electrodiagnosis.
    a. Instrumentation

14. Electrical stimulation:
- Principles Underlying Electrical Stimulation Test.
- Stimulation Specifications – Normal and Denervated.
- Faradic – Galvanic Test and Strength Duration (SD)Curve Test
    a. Chronaxie, Rheobase - Curve Assessments

15. ELECTRODIAGNOSIS:
- Instrumentation, Technique/Procedure, Indications, Contraindications and Uses, Quantitative & Qualitative Analysis of the Responses)
- EMG
- NCV
- Late responses (Hoffman's Reflex (H-Reflex), F- wave, Axon Reflex, Blink Reflex, Jaw Jerk,
- Evoked Potentials
- RNS

16. Approaches for neurorehabilitation:
Rood's Approach, Brunnstrom, Bobath and NDT and Proprioceptive Neurological Facilitation (PNF),Sensory Integration, Motor Relearning Programme (MRP), task-oriented approach, Constraint Induced Movement Therapy (CIMT), Mental/Motor imagery, Mirror Therapy, Virtual Reality. Neurodynamics
17. Oromotor Rehabilitation

18. Assessment and Management of Neurogenic Bladder and Bowel
19. Assistive devices (Orthotics/Prosthesis, Splinting/Wheel Chair etc)
20. Planning &Prescription) in Neurological Conditions

21. Pain Physiology
- Anatomy & Physiology
- Theories of Pain
- Assessment & Management

22. Fatigue
- Pathophysiology
- Assessment & Management

REFERENCES:

1. Adams RD, Victor M, Ropper AH. Principles of Neurology. 6th. Edition. Singapore, McGraw-Co. 1997:603-5.
2. Adler SS, Beckers D, Buck M. PNF in practice: an illustrated guide. Springer Science & Business Media;2007 Dec 22.
3. Basmajian JV. Biofeedback: Principles and practice for clinicians. Williams & Wilkins; 1979.
4. Bobath B. Adult hemiplegia: evaluation and treatment.Elsevier Health Sciences; 1990.
5. Bromley I. Tetraplegia and paraplegia: a guide for physiotherapists. Elsevier Health Sciences; 2006.
6. Butler DS, Jones MA. Mobilisation of the nervous system. Elsevier Health Sciences; 1991.

7. Campbell WW, DeJong RN. DeJong's the neurologic examination. Lippincott Williams & Wilkins; 2005.
8. Carr JH, Shepherd RB. A motor relearning programme for stroke. Aspen Pub; 1987.
9. Davies PM, Davies PM. Starting again. Springer-Verlag; 1994 May.
10. Fredericks CM. Pathophysiology of the motor systems: principles and clinical presentations. Fredericks CM, Saladin LK, editors. Philadelphia, PA: FA Davis; 1996 Jan.
11. Gjelsvik BE, Syre L. The Bobath concept in adult neurology. Thieme; 2016 Mar 16.
12. Lindsay KW, Bone I, Callander R. Neurology and neurosurgery illustrated. New York: Churchill Livingstone; 1997 Aug.
13. O'Sullivan SB, Schmitz TJ, Fulk G. Physical rehabilitation. FA Davis; 2013 Jul 23.
14. Patten J. Neurological differential diagnosis. Springer Science & Business Media; 1996.
15. Umphred DA, Lazaro RT, Roller M, Burton G, editors. Neurological Rehabilitation-E-Book. Elsevier Health Sciences; 2013 Aug 7.
16. Wade DT. Measurement in neurological rehabilitation.
17. Wyan Parry CB, Salter M. M. Knott and DE Voss, Proprioceptive Neuromuscular Facilitation.
18. Related scientific publications including position statements, guidelines, landmark trials, systematic reviews and meta-analysis, and recent trials.
19.**Basmajian, J. V.** (1979). *Biofeedback: Principles and Practice for Clinicians* (2nd ed.). Williams & Wilkins.

COURSE CODE: 24MPTN621

TITLE OF THE COURSE: RECENT ADVANCES AND EVIDENCE BASED PRACTICE- ADULT NEUROLOGY & NEUROSURGERY

1. Assessment and Management of Cerebrovascular Accidents
2. Assessment and Management of Polyneuropathies
3. Assessment and Management of Vestibular disorders
4. Assessment and Management of Inflammatory diseases of CNS and PNS
5. Spina Bifida
6. Assessment and Management of Traumatic and atraumatic Spinal Cord Disorders
7. Assessment and Management of Myopathies and NMJ Disorders
8. NMJ Disorders
9. Assessment and Management of Movement Disorders
10. Assessment and Management of Traumatic Brain Injury
11. Assessment and Management of Gait abnormalities in adult Neurological conditions
12. Assistive devices in Neuro rehabilitation
13. Assessment and Management of Hand functions in adult Neurological conditions
14. Assessment and Management of Balance in adult Neurological conditions
15. Assessment and Management of tonal abnormalities in adult Neurological conditions

COURSE CODE: 24MPTN622

TITLE OF THE COURSE: RECENT ADVANCES AND EVIDENCE-BASED PRACTICE - PEDIATRIC NEUROLOGY

1. **RECENT ADVANCES IN ASSESSMENT AND MANAGEMENT:**

- Cerebral palsy.
- Muscular dystrophy.
- Scoliosis.
- Downs syndrome
- Autism.
- Erbs palsy
- Movement disorders.

2. Recent advances in obstructive and restrictive pulmonary conditions, cardiopulmonary rehabilitation, and post-cardiothoracic surgical rehabilitation.
3. Recent advances in spinal cord disorders evaluation and rehabilitation.
4. Recent advances in improving gait and posture control.
5. Recent advances in the rehabilitation of muscle tone abnormalities

COURSE CODE: 24MPTN631 & 24MPTN673

TITLE OF THE COURSE: ADULT NEUROLOGY & NEUROSURGERY

1. Approach to Neurological Assessment
2. Subjective Examination
3. Objective Examination- Observation, Palpation, Higher Mental Function evaluation, Cranial Nerve testing, Motor Examination, Reflex Testing, Sensory Examination, Testing of Balance & Coordination, Gait evaluation, Special tests, Functional Evaluation, Assessment tools & Scales, Differential Diagnosis.
4. Cerebrovascular Accidents:

- Causes, Types & Pathophysiology
- Clinical features
- Stroke Syndromes
- Investigations
- Medical & Surgical Management
- Complications and their Management
- Physiotherapy Management
- Post- operative management.

5. Infections of Nervous System –
   Meningitis, Encephalitis, Parasitic Infections & Human Immunodeficiency Virus (HIV), tuberculomas, Neurosyphilis, Poliomyelitis and Post- Polio Syndrome
6. Demyelinating Diseases of Nervous System – Peripheral & Central Nervous system:

- Classification
- Clinical features
- Differential Diagnosis and Prognosis
- Medical Management
- Evaluation
- Rehabilitation

7. Degenerative and Metabolic Diseases of Nervous System
   - Alzheimer disease (AD)
     - Frontotemporal dementia
     - Parkinson disease (PD/PDD)
     - Dementia with Lewy bodies (DLB)
     - Multiple system atrophy (MSA)
     - Progressive supranuclear palsy (PSP)
     - Corticobasal degeneration (CBD)
     - Huntington disease (HD)
     - Spinocerebellar ataxias (SCAs)

- Classification
- Clinical features
- Differential Diagnosis and Prognosis
- Medical Management
- Evaluation
- Rehabilitation

8. Movement Disorders
   Parkinsonian Disorder, Dystonia, Tremor, Chorea, Myoclonus, Dyskinesias, Tourette Syndrome (Tics), Hemifacial Spasms

- Classification
- Clinical features
- Differential Diagnosis and Prognosis
- Medical Management
- Evaluation
- Rehabilitation

9. Diseases of Spinal Cord:
   Transverse Myelitis, Syringomyelia, Lathyrism, Poliomyelitis, Potts Spine, Post-polio Syndrome, Spinal Infarction
- Classification
- Clinical features
- Differential Diagnosis and Prognosis
- Medical Management
- Evaluation
- Rehabilitation

10. Traumatic Spinal cord Injury:
- Causes, Mechanism, Types of Injuries, Spinal cord syndromes, Pathophysiology, Clinical features, Principles of Medical and surgical management.
- Physiotherapy evaluation and management of patients according to the levels of spinal Injury
- Community Reintegration

11. Diseases of Peripheral Nerves- Guillain-Barre´ syndrome, Polyneuropathies
- Classification
- Differential Diagnosis and Prognosis Medical and Surgical Management
- Evaluation
- Rehabilitation

12. Peripheral Nerve Injuries:
    Causes, clinical features, types, medical, surgical and Physiotherapy management
13. Diseases of Cranial Nerves:
- Clinical features
- Differential Diagnosis and Prognosis
- Medical Management
- Evaluation and Rehabilitation

14. Cerebellar disorders:
- Classification
- Clinical features
- Differential Diagnosis and Prognosis
- Medical Management
- Evaluation
- Rehabilitation

15. Diseases of Muscles & Neuromuscular Junction:
    Myopathies, Myotonias, Dystrophies, Myasthenia Gravis, Lambert Eaton Myasthenic

Syndrome.

- Classification
- Clinical Features
- Differential Diagnosis
- Medical & Physiotherapy Management

16. Traumatic Brain injury:

- Mechanism, Types of Injuries, pathophysiology, Clinical Features, Principles of Medical and surgical management.
- Physiotherapy Management According to Levels of RLA
- Consciousness arousal programs
- Early mobilization following TBI
- Secondary complications- Its prevention and management
- Cognitive perceptual and behavioral issues in physical rehabilitation
- Community Reintegration

17. Diseases of spinal Nerves including Radiculopathy:

- Classification
- Clinical features
- Differential Diagnosis and Prognosis
- Medical Management
- Evaluation
- Rehabilitation

18. Space Occupying Lesions of Nervous System:

- Brain tumours and Spinal Tumours, non-traumatic SDH, tuberculomas, AVM, Aneurysms, Cystic Lesions (CNS & PNS)
- Classification
- Clinical features
- Differential Diagnosis and Prognosis
- Medical Management
- Evaluation
- Rehabilitation

19. Vestibular Disorders and Management:

- Role of Vestibular System in Postural Control
- Postural Abnormalities In Vestibular Disorders
- Vestibular Functions Tests and Clinical Examination
- Central and Peripheral Vestibular Disorders
- Bilateral Vestibular Dysfunctions
- □ Medical, surgical & Physiotherapy Management

20. Disorders of Speech and Language, Perception & Cognitive Impairments (Physiotherapy Implications)

- Aphasia, Dysarthria and Dysphonia
- Perceptual Problems
- Dyslexia

21. Approaches in Cognitive Rehabilitation
22. Developmental Diseases of Nervous System, Surgical Management and Rehabilitation.
23. Disturbances of Cerebro Spinal Fluid

- (CSF) and its Circulation
- Classification
- Clinical features
- Differential Diagnosis and Prognosis
- Medical Management
- Evaluation
- Rehabilitation

24. Compressive myelopathies:
- Types
- Clinical features,
- Surgeries and rehabilitation
- Post -operative management

25. Gait disorders in Neurological Conditions:
Assessment and Retraining

26. Common Neurosurgical procedures:

Craniotomy, Cranioplasty, Stereotactic surgery, Deep brain stimulation, Burr-hole, Shunting, Laminectomy, Hemilaminectomy, Rhizotomy, Spinal Cord stimulation, Microvascular decompression surgery, Endarterectomy, Embolization, Pituitary surgery, Ablative surgery, Thalamotomy and Pallidotomy, Coiling of aneurysm, Clipping of aneurysm, and Neural implantation.

- Structures involved
- Basic procedures
- Preoperative and post-operative physiotherapy management principles.
- Prevention and physiotherapy management of post-surgical complications

27. Applications of modern neuro-physiotherapy treatment techniques:
Functional Electrical Stimulation, Body Weight Support Treadmill Training, Constraint Induced Movement Therapy, Mirror therapy, Mental imagery and Virtual reality, Cueing, Biofeedback, Robotics, LSVT BIG, Task based training, Aquatic therapy, motor priming techniques, Action Observation Therapy, Neuromodulation and non- invasive brain stimulation (TMS, tDCS etc), Neurogenic Bladder and Bowel Stimulations, Hyperbaric Oxygen Therapy (HBOT)

28. ICF framework-based Outcome measures in neurological rehabilitation:
- Choosing and application of commonly used
- Impairment based OM
- Activity based OM
- Participation based OM

COURSE CODE: 24MPTN632 & 24MPTN674

TITLE OF THE COURSE: PEDIATRIC NEUROLOGY

1. **Growth and Development in overview: From Intrauterine Life to Adolescence**

- Neurophysiology and nervous system development
- Motor development from infancy to adolescence.
- Musculoskeletal and cardiorespiratory system growth.
- Normal and abnormal neurological development in childhood
- Neuromotor Development in Pediatrics: Reflexes, Reactions, and Growth Milestones.
- Comprehensive Paediatric Assessment
- High-Risk Infant Assessment and Intervention
- High Risk Clinical Signs
- Neonatal Neuropathology
- Neuromotor Assessment
- APGAR Score
- Clinical Assessment of Gestational Age
- Assessment of Intervention in Neonatal Intensive Care Unit (NICU)

2. **Follow-up Programs for High-Risk Conditions:**

- Asphyxia
- Lesions with Hypoxic Ischemic Encephalopathy (HIE)
- Intraventricular Hemorrhage (IVH)
- Acute Respiratory Distress Syndrome
- (ARDS),bronchopulmonary dysplasia(BPD), Muconeum Aspiration
- Metabolic Conditions - Metabolic Acidosis
- Hyperbilurubenia
- Hyperlipidemia
- Congenital Heart Diseases
- Valvular disease of the heart

3. **ICF framework-based Outcome measures in neurological rehabilitation:**

- Choosing and application of commonly used
- Impairment based OM
- Activity based OM
- Participation based OM

4. **Principles of Laboratory investigations and other tests:**

- Antenatal/Biochemical investigations commonly performed to detect abnormalities in the antenatal period:
- Dual Markers, Triple test, Glucose Challenge &amp, Tolerance Test, Biophysical Profile,

- Amniocentesis, Chronic Villi Sampling, fetal echocardiography.
- **Investigations during labour:** Partogram, Non-Stress Test.
- Diagnostic tests for Genetic disorders

5. Electro-diagnosis in

6. **Paediatrics:** Enumerate the common electrodiagnostic
- investigations related to Paediatric Neurological conditions

7. **Pediatric Approaches in Therapy and Management**

1. **Manual Therapy in Children**

- Myofascial Release

2. **Neurophysiological Approaches in Management**

- Bobath Approach
- Neurodevelopmental Treatment (NDT)
- Sensory Integration (SI)
- Vojta Therapy
- Rood's Approach

3. **Modern Treatment Approaches**

- Constraint-Induced Movement Therapy (CIMT).
- Hippotherapy

4. **Cardiopulmonary Approaches in Management**

8. **ICU Care and Management**

- Kangaroo Mother Care
- Positioning Techniques
- Suctioning
- Relaxation Techniques
- Forced Expiratory Technique (FET)
- Active Cycle of Breathing Techniques (ACBT)
- Positive Expiratory Pressure (PEP)
- Incentive Spirometry
- Manual Hyperinflation
- Postural Drainage (PD)
- Airway Clearance Techniques (AD)
- Proprioceptive Neuromuscular Facilitation (PNF) for Respiration

9. Assessing Motor Development in Children – Principles of Evaluation and Assessment

10. Screening

- Milani – Comparetti Motor Development Screening Test
- Denver II Development Screening Test.
- Neurological Examination of Full Term New Born Infant

- Brazelton Neonatal Behavioral Assessment Scale.
- Neurological Assessment of Preterm & Full Term Infant by Dubowitz&Dubowitz.
- Movement Assessment of Infants.
- Test of Infant Motor Performance and Development.
- Alberta Infant Motor Scale.
- Gross Motor Performance Measures.
- Peabody Developmental Motor Scales.
- Bruininks-Oseretsky Test of Motor Proficiency (BOTMP).
- Comprehensive Developmental Scales.
- Gessell Developmental schedules.
- Bayley scales of Infant Development.
- Neonatal Behavioral Assessment Scale.
- Early Intervention Developmental Project.
- Gross Motor Function Measure (GMFM).
- Assessment of Functional Capabilities.
- Paediatric Evaluation Of Disability Inventory.
- Functional Independence Measure for Children.
- Paediatric pain profile.
- Gillette functional assessment questionnaire

11. **CEREBRAL PALSY:** classification, physical therapy assessment, and management.
12. **BRACHIAL PLEXUS INJURY:** Classification, Prognostic Indicators, physical therapy assessment, and management.
13. **Hydrocephalus:** pathophysiology, medical and surgical management of children with congenital Hydrocephalus, physical therapy assessment, and management.
14. **Acute Brain Injury in Childhood and Physical Therapy:**

- Acute Care and Prognostic Outcome
- Cognitive Rehabilitation
- Restoration of Motor Control.
- Complications and their Management.
- Rehabilitation and Community Integration.

15. **Genetic Diseases with Emphasis on Down Syndrome and Spinal Dysraphism.**

- Neuropathology.
- Cardio Pulmonary Anomalies.
- Sensory Deficits.
- Musculoskeletal Deficits.

16. Physical Therapy Assessment and Interventions

- Neuromuscular Disorders in Childhood

- Classification.
- Assessment.
- Physiotherapy Management.
- Seizures in childhood.

17. Paediatric assessment and management:

- CTEV
- Perthes disease
- Congential muscular torticolis

18. Spinal deformities in children

19. Minimal Brain Dysfunction: Learning Disability, Attention Deficit, Autism, Developmental Coordination Disorder

20. Mental Retardation (MR)

- Classification.
- Etiology and Pathology of Mental Retardation.
- Physical Therapy Assessment
- Role of Physiotherapist in Paediatric Brain and Spinal Cord Tumors
- Management of cardiac thoracic surgeries (pre/post) in neonates and children.
- Burns in children and its management
- Assistive Devices in Paediatric population.
- Community Integration and other Social Aspects of a Disabled Child.
- Public health initiatives on child health.

REFERENCE TEXTBOOKS:

1. Kellicott W. E. A textbook of general embryology. Nabu Press, 2011. "
2. Biedermann H. Manual Therapy in children. Churchill Livingstone, 2004.
3. Ratliffe K. T. Clinical Paediatric Physical Therapy. Mosby, 1988.
4. Campbell S. K. Physical Therapy for Children. 3rd ed. Saunders, 2006.
5. Tecklin J. S. Paediatric Physical Therapy. 5th ed. LWW, 2015.
6. Campbell W. W. Dejong's The Neurologic examination. SA. ed. Wolters Kluwer India Pvt. Ltd., 2012.
7. Heuer A, Scanlan C. L. Wilkin's clinical assessment in respiratory care. 8th ed. Mosby, 2017.
8. Bundy A. C, Lane S. J. Sensory Integration: Theory and Practice. 3rd ed. F. A. Davis company, 2019.
9. Ayres J. Sensory Integration and the child. Western Psychological services, 2005."
10. Suzann K. Campbell Decision Making in Paediatric Neurologic Physical Therapy, 1e (Clinics in Physical Therapy) 1st Edition.
11. Developmental co-ordination Disorder-Cermak.

12. Roberta B Shepherd. Physiotherapy in Paediatrics;Heinemann Medical Books, 1980,3d Edition.
13. Jan Stephen Tecklin. Paediatric Physical Therapy; Lippincott Williams and Wilkins; 5th edition edition (1 April 2014).
14. Electro-diagnosis in diseases of nerve and muscle by Kimura J Oxford University Press 200.
15. Jughal Kishore. National Health Programs of India: National Policies & Legislations Related to Health Century Publications, 2005 Fifth Edition.

COURSE CODE: 24MPTP601 & 24MPTP672

COURSE NAME: CARDIOPULMONARY DISORDER

1. Applied Anatomy and Physiology of Cardiopulmonary System.
2. Pathological Changes in Unilateral and Bilateral Chest Deformities
3. Physiology and Evaluation of Respiratory and Cardiac Sounds.
4. Assessment of Cardiovascular and Pulmonary Systems.
5. Investigations in Cardio Pulmonary System and its Clinical Implication.

- Lipid Profile
- Chest X-ray
- Pulmonary Function Tests
- Arterial Blood Gas Analysis
- Computed Tomography Thorax
- Electrocardiogram
- Echocardiography
- Stress Test
- Angiogram
- Sputum Culture Tests
- Serum Enzymes and Markers of Inflammation
- Complete Blood Picture and Electrolytes
- Pleural Fluid Analysis
- Nuclear medicine
- Cardiopulmonary Exercise Testing:
- Physiology of Exercise Testing,
- Types of Tests,Modes of Testing,
- Protocols, Interpretation and Clinical Implication

6. Pharmacological Effects on the Cardiopulmonary System and Exercise Physiology.
7. Artificial Airways and Airway Accessories (in brief)

- Rationale for Choice
- Technique of Application
- Implications for Respiratory Care

8. Basic Life Support/ Advanced Cardiac Life Support
9. Physiological Changes of Cardiopulmonary Systems in Body Positioning and Basis of Early Mobilization
10. Humidification, Nebulisation and Aerosol Therapy
11. Bronchial Hygiene Therapy – Conventional and Advanced, Clinical Reasoning and Evidence Based Practice
12. Mechanical Ventilation-Physiology, Modes and Weaning Criteria
13. Non-Invasive Ventilation
14. Continuous Positive Airway Pressure Therapy
15. Bi-level Positive Airway Pressure Therapy
16. Dyspnea – Physiology, Assessment, Management.
17. VentilatoryMuscles – Testing and Training
18. Cancer Rehabilitation
19. Burns Rehabilitation
20. Renal Rehabilitation
21. Diabetic Foot, Wound Care, Physiotherapy Management

22. Outcome Measures in Cardiopulmonary Physiotherapy &Rehabilitation
23. Respiratory Care and Rehabilitation in Surgical Conditions
24. Abdominal Surgeries, Spinal Surgeries &Replacement Surgeries
25. Oxygen Therapy
26. Cardiac Assistive Devices and Implants
27. Intra-Aortic Balloon Pump, Cardiac Pacemakers & Ventricular Assistive Device
28. Inter-costal Drainage- Precautions during Chest Physiotherapy
29. Assessment and Investigations, Medical &Surgical Management, Physiotherapy Treatment for Cardiac Conditions with Emphasis on:

- Ischemic Heart Disease
- Valvular Heart Diseases
- Heart Failure
- Cardiomyopathies
- Arrhythmias and Conduction Defects
- Congenital Heart Diseases

30. Pre, Peri and Post Surgical Physiotherapy Management in Surgical Conditions (includes Knowledge about Surgical Procedures) with Emphasis on:

- Coronary Artery Bypass Grafting
- ValvularRepair Surgeries
- Correction of Congenital Heart Defects
- Percutaneous Transluminal Coronary Angioplasty
- MediastinalSurgeries
- Heart Transplantation and Cardiac Pacemakers

31. Etiopathogenesis, Types, Clinical Manifestations, Assessment and Investigations, Medical and Surgical Management, Physiotherapy Treatment for The Pulmonary Conditions with Emphasis on:

- Chronic Obstructive Pulmonary Diseases
- Bronchial Asthma
- Bronchiectasis
- COVID 19
- Cystic Fibrosis
- Pneumonia
- Lung Abscess
- Pulmonary Tuberculosis
- Lung Cancers
- Pleural Disorders
- Interstitial Lung Diseases & other conditions leading to Restrictive Lung Defects
- Chest trauma
- Diaphragm Palsy
- Herniations in to the Chest Wall

32. Pre, Periand Post-surgical Physiotherapy Management in all Pulmonary Surgeries, Pleural surgeries &Surgeries for Chest Wall Injuries(Including Knowledge about Surgical Procedures)
33. Pre, Peri and Post-surgical Physiotherapy Management in oncological condition (including complications of conventional management. Viz chemotherapy, radiotherapy, etc).
34. Delegation and Documentation in Cardio pulmonary Physiotherapy Practice & Research.

COURSE CODE: 24MPTP621

TITLE OF THE COURSE: RECENT ADVANCES AND EVIDENCE BASED PRACTICE - INTENSIVE CARE PHYSIOTHERAPY

1. Respiratory conditions such as obstructive, Restrictive and mixed lung conditions, etc.
2. Metabolic conditions like AKD, CKD, Liver cirrhosis, etc.
3. Cardiac conditions like Decompensated heart, cardiac failure, Cardiac stenosis, cardiac arrest, endocarditis, myocarditis, etc
4. Neurological conditions such as TBI, Stroke, Spinal cord injuries, GBS, degenerative neuropathies, etc.
5. Other conditions like MODS, Poisoning, Gynaecological conditions, shock etc.
6. ICU and its related syndromes like Intermediate syndrome, PICS, ICU- acquired weakness, critical illness polyneuropathy, etc.
7. Methods and techniques of physiotherapy management in ICU & Advanced Research in ICU Physiotherapy
8. Pain management in ICU.
9. Advanced equipment and tools in ICU
10. Mechanical Ventilation
11. Physiotherapy management – Paediatric Care.
12. Technological Advances in ICU Physiotherapy including Robotic-assisted rehabilitation devices, Virtual reality (VR) for ICU rehabilitation, Wearable technology for monitoring patient progress.
13. Multidisciplinary Collaboration in Critical Care & Interdisciplinary approaches in managing complex ICU patients.
14. Patient and Family Education in ICU

COURSE CODE: 24MPTP622

TITLE OF THE COURSE: RECENT ADVANCES AND EVIDENCE BASED - CARDIOPULMONARY REHABILITATION AND FITNESS

1. Telemedicine and Tele-rehabilitation in Cardiopulmonary Care
    - The shift towards virtual rehabilitation programs, including remote monitoring, virtual consultations, and exercise programs, making care more accessible for patients with cardiac and pulmonary diseases.

   - Key Focus: Technological integration, patient management, and long-term follow-up.
2. Wearable Technology in Fitness Monitoring and Rehabilitation
    - Use of wearable devices (e.g., smart watches, fitness trackers) to track real-time data on heart rate, oxygen saturation, activity levels, and recovery metrics during rehabilitation programs.

   - Key Focus: Data analytics, patient-centered care, and continuous monitoring.
3. Psychosocial and Behavioral Aspects of Cardiopulmonary Rehabilitation
    - Studying the psychological challenges faced by patients undergoing rehabilitation (e.g., depression, anxiety, motivation) and developing strategies for enhancing adherence and improving mental well-being.

   - Key Focus: Mental health, patient engagement, and behavioral therapy.
4. Virtual Reality (VR) and Augmented Reality (AR) in Cardiac and Pulmonary Rehab
    - The use of VR/AR to provide immersive environments for exercise and rehabilitation, improving patient engagement and motivation during rehabilitation.

   - Key Focus: Cutting-edge technology integration, patient experience, and immersive rehabilitation methods.
5. Nutritional Support and Diet in Cardiopulmonary Rehabilitation
    - Research into how dietary changes and nutritional support can enhance the rehabilitation process, especially for patients with heart disease, lung disease, or metabolic conditions.

   - Key Focus: Nutritional strategies, patient education, and supporting overall health.
6. Gamification in Cardiac Rehabilitation: The development of interactive games like MedBike to combine physical exercise with gaming elements, providing a safe and engaging environment for children with cardiac conditions.

   - Key Focus: to enhance rehabilitation outcomes through increased patient engagement.
7. Self-Management and Patient Empowerment Strategies in Rehab Programs
    - Empowering patients with the tools and education to manage their own rehabilitation programs at home or in community settings, fostering long-term adherence and health maintenance.

   - Key Focus: Patient autonomy, self-monitoring, and long-term lifestyle changes.
8. Community-Based Rehabilitation Programs: Community therapy initiatives aim to deliver education and therapy to patients remotely, either through group exercise sessions or telehealth platforms.

   - Key Focus: to improve accessibility and patient compliance by offering flexible rehabilitation options.
9. Standardization of Rehabilitation Practices: Developing standardized guidelines for cardiovascular and pulmonary rehabilitation to ensure that interventions align with current evidence-based practices.

   - Key Focus: leading to improved patient outcomes and consistency in care delivery.

COURSE CODE: 24MPTP631 & 24MPTP673

TITLE OF THE COURSE: INTENSIVECAREPHYSIOTHERAPY

1. Infrastructure and ICU setup (National and International Guidelines)
2. Levels of ICU.
3. Investigations in ICU (including non cardio-pulmonary conditions in acute phase of management) -
4. PFT
5. CT Scan (Thorax, Abdomen, Head)
6. MRI
7. USG
8. Blood Gas Analysis
9. X – Ray
10. Other procedures -
11. Haemodynamic monitoring
12. Suctioning
13. Intercoastal Drainage
14. Laryngoscopy, Bronchoscopy
15. CPR
16. External Aids in ICU
17. Central and Arterial lines
18. Catheters
19. Drainage pumps/bags
20. Infusion pumps/synringes
21. Tetralogy of Fallot
22. ASD, VSD
23. Atresia
24. Hypoplastic Left heart syndrome, etc
25. COVID 19, Zika Virus, etc
26. Consequences and complication following ICU conditions.
27. Prevention and Management of consequences and complication
28. Infection control
29. Degenerative neuropathies like Alzhiemer’s disease, Parkinson, etc
30. Auto immune disorders like Myasthenia Grevis etc.,

COURSE CODE: 24MPTP632 & 24MPTP674

TITLE OF THE COURSE: CARDIOPULMONARY REHABILITATION AND FITNESS

1. Cardiac Rehabilitation
    a. Goals
    b. Infrastructure and Ideal Setup
    c. Components and Team
    d. Rationale for Cardiac Rehabilitation
    e. Indications, Contraindications.
    f. Assessment - Risk Stratification
    g. Role of Physiotherapy
    h. Various Test Protocols
    i. Phases of Rehabilitation
    j. Exercise Testing in High Risk Groups – Changes seen in Cardiac Conditions and Implications for Training
    k. Exercise Prescription and Precautions.
    l. Outcome Measures
2. Primary and Secondary Prevention of Cardiovascular and Pulmonary Conditions.(Existing and Novel Risk Factor Evaluation, Physiotherapy Approach)
3. Peripheral Vascular Diseases and Physiotherapy Management and Rehabilitation
4. Pulmonary Rehabilitation
    a. Goals
    b. Pulmonary Rehabilitation team
    c. Components of Pulmonary Rehabilitation
    d. Rationale of Pulmonary Rehabilitation
    e. Role of Physiotherapy
5. Respiratory Assessment and Various Test Protocols
    a. Indications, Contraindications and Complications
    b. Exercise Testing in High Risk Groups – Changes seen in Pulmonary Conditions and Implications for Training
    c. Exercise Prescription and Precautions
    d. Management of Obstructive and Restrictive Conditions
    e. Management of Hyperventilation Syndrome
6. Outcome Measures
7. Respiratory Management following Neurological &Spinal Cord Injuries
8. Cardiovascular and Pulmonary Rehabilitation in Paediatrics
9. Fitness and Wellness – Concept / Components
10. Exercise Prescription in Special Population with Physiological Basis and Precautions:
    a. Diabetes Mellitus
    b. Hypertension
    c. Metabolic Syndrome
    d. Dyslipidemia
    e. Chronic Obstructive Pulmonary Disease
    f. Obesity
    g. Osteoporosis

h. Traumatic Brain Injury
i. Spinal Cord Injury
j. Stroke
k. Ischemic Heart Disease
l. Heart Failure
m. Polycystic Ovarian Syndrome
n. Depression
o. Sleep Disorders
p. Chronic Kidney Disease
q. Endocrinal Abnormalities
r. Immune Disorders
s. Children and Adolescents
t. Geriatrics
u. Differently abled population

11. Nutrition
    a. Measurement of Energy in Food and during Physical Activity
    b. Nutritional Ergogenic Aids
    c. Eating Disorders
12. Weight Management
13. Stress- Exercise as a Stress Management Technique
14. Fatigue: Causes and Management
15. Work site Health Promotion
16. Behavioral Principles Applied to Physical Activity and Exercise
    a. Theories and Models of Exercise Behavior
    b. Behavioral Strategies to Enhance Physical Activity Participation
    c. Factors Associated with Regular Exercise
    d. Exercise Adherence and Compliance
17. Health Counseling
18. Physical Activity – Methods of Evaluation (Objective and Subjective), Rationale for Promoting Health
19. Genetic Basis of Exercise and its Response
20. Immunity and Exercise

COURSE CODE: 24MPTC601 & 24MPTC672

TITLE OF THE COURSE: COMMUNITY BASED REHABILITATION

1. Community Health
- Definition and Scope of Community Health
- Consequences of Neglecting Community Health
- Relevance of Community Health to Sustainable Development Goals
- Principles of Community Health
- Strategies for Promoting Community Health
- Strategies for Developing Clinical Care Pathways

2. Disability & Health
- Models of Disability
- ICF Framework, Application of ICF with the use of ICF coresets.
- Prevalence and Burden of Disability
- Implications of Disability on Health and Wellbeing
- Disability and Sustainable Development Goals

3. Health Care Delivery System
- Evolution of Health Care Delivery Systems
- Healthcare Delivery Systems in low- and High-Income Economies
- Health Care Delivery System in India
- Healthcare Access Disparities
- Overview of Access to Physiotherapy Services

4. Disability Laws, Policies and Advocacy
- Disability Rights Movement
- Legislating for Disability Rights
- International Conventions and Laws on Disability
- National and State Laws, Rules and Regulations for Disability

5. Health Education
- Principles of and Rationale for Health Education
- Communication Skills and Strategies in Health Education
- Principles and Guidelines for Development of Health Information Education and Communication Strategies
- Health Literacy

6. Introduction to Behavioral Medicine
- Biopsychosocial approach to Health and Illness

- Behavioral Influence on Health
- Health Professional's Behavior and Healthcare Delivery
- Application of Behavioral Medicine in Health Promotion & Disease Prevention
- Role of Behavior Medicine in Healthcare Delivery for Chronic Neuromuscular, Musculoskeletal and Non-Communicable Diseases

7. International Classification of Functioning, Disability and Health (ICF)
- History of ICF (models of disability), Aims, Properties, Overview of Components and Uses of ICF Core Sets
- Definitions and Levels of Classification
- Implication in Physiotherapy (Physical and Psychosocial)

8. Community Based Rehabilitation Program (Physiotherapy)
- Principles of Community Based Rehabilitation
- CBR Matrix
- Process of Implementation of CBR
- Holistic Approach in CBR
- Evaluation of Impairment and Disability
- WHO Matrix and Physiotherapy Role in IEC (information, education and communication)

9. Community Physiotherapy
- Approaches in Rehabilitation
- Healthcare Delivery Models
- Therapy Interventions based on Quality of Life

10. Research on the Needs of Community Physiotherapy with Updated Science
11. Family's Role in Rehabilitation
- Principles, Concepts and Practical application of Community Physiotherapy, Changing Needs (personal, family and social) and Planning of Future for Disabilities in Various Conditions; i.e. Spinal Cord Injury; Traumatic Brain Injury; Stroke; Parkinson's Disease; Arthritis; Heart & Pulmonary diseases; Chronic Pain; Osteoporosis; Ageing with Disabilities etc

12. Practical application of Community Physiotherapy and Planning of Future for Disabilities in- Peripheral Vascular Diseases; Amputations
13. Early detection and Intervention for high-risk infants in the community.
- Childhood Disorders (Early detection and Management throughout Life Spans) Autisms; Cerebral Palsy
- Handling and Facilitation Techniques for Infants with Disability in Community

14. Barrier Free Environment
- Barrier free Design- Making the environment Accessible to the Disabled Individual (i.e. Accessibility and inclusiveness)
- Principles of Universal Design

15. Assistive Technology for Physical and Cognitive Rehabilitation (with respect to Planning, Evaluation, Design, Prescription, Acceptance, Economy and Psychosocial Aspects) of
- Basic and Instrumental Activities of Daily Living

- Ambulatory Aids and Wheel Chairs
- Orthotic and Prosthetic Aids

16. Psychological and Functional Aspects of Chronic Illness and Disability
- Physiotherapy in Schools
- Role of PT in Fitness of Normal School Children
- Physiotherapy for Students with Disability (Locomotor and Somato-sensory)
- Adapted Physical Activity

17. Environmental Issues in Child Health
18. Women's Heath
- Evaluation & Fitness in Pregnancy
- Role of Antenatal Education at Community Level in Prevention of Maternal Mortality and Infant Morbidity
- Pre & Post Natal Problems and Management in the community
- Role of PT in Gynaecological conditions.

19. Role of Physiotherapy in Geriatrics
20. Occupational Health
- Occupational Hazards
- Management of Work-Related Musculoskeletal Disorders
- Best practice guidelines in Industrial Health.
- Occupational Biomechanics of Spine, Upper and Lower Extremity (During Static Work, Repetitive Work and Loading Tasks
- Work Related Musculoskeletal Disorders (Overuse Injuries of the Musculoskeletal Systems)- Definition, Etiopathogenesis, Risk factors, Evaluation and Management

21. Oncology and Palliative care
- Evidence Summary of Benefits of Physiotherapy Interventions in Cancer care
- Integrating Physical Activity and Exercise as an Intervention Strategy across the Spectrum of Cancer Care
- Implementing Evidence-based Physiotherapy Interventions in Cancer Rehabilitation
- Physiotherapy Service Provisions in Palliative Care & Hospice (Health Education, Improving Self-efficacy, Pain management, Prescription of assistive technologies, Maintenance of ADL and Functional Independence, Training of Caregivers)

22. Research and Innovation in Community Health and Rehabilitation
- Principles of community participation research including action research methodologies
- Evidence summaries of Assessment and Intervention Strategies in Community Health and Rehabilitation
- Best Practice Guidelines in Community Health and Rehabilitation
- Opportunities for Innovation in Community Health and Rehabilitation
- Usage of Technology in the Community

COURSE CODE: 24MPTC621

TITLE OF THE COURSE: RECENT ADVANCES AND EVIDENCE BASED PRACTICE - GERIATRIC REHABILITATION

1. Introduction to Evidence-Based Practice in Geriatrics Rehabilitation

- Importance of EBP in geriatric rehabilitation
- Principles of EBP
- Strategies for implementing EBP in clinical settings

2. Geriatric Rehabilitation Guidelines and Protocols

- WHO & national guidelines for geriatric rehabilitation
- Recent advancements in functional training, strength training, mobility and fall prevention programs
- Nutritional interventions and their impact on rehabilitation outcomes
- Utilization of ICF in rehabilitation.

3. Evidence-Based Assessment Tools for Geriatric Patients

- Functional outcome measures
- Strength, endurance, and flexibility assessments in elderly populations
- Gait analysis and postural control assessments

4. Recent Advances in Geriatric Rehabilitation Interventions

- Recent trends in neuroplasticity and cognitive rehabilitation in the elderly
- Community-Based and Long-Term Care Rehabilitation Strategies
- Pharmacological vs. non-pharmacological interventions
- Iatrogenesis

5. Condition-Based Geriatric Rehabilitation

- Musculoskeletal (MSK) Rehabilitation in Elderly
- Neurological Rehabilitation in Elderly
- Cardiovascular & Pulmonary Rehabilitation
- Metabolic and Endocrine Disorders in Aging

6. Technological Advancements in Geriatric Rehabilitation

- Wearable Technology and telerehabilitation
- Role of virtual reality (VR)
- AI and Machine Learning in Geriatric Healthcare
- Robotics, assistive technologies and Exoskeletons for Mobility Assistance in elderly rehabilitation

References & Recommended Readings:

1. World Health Organization (WHO) guidelines on geriatric rehabilitation
2. American Physical Therapy Association (APTA) geriatric rehabilitation guidelines
3. Journal articles from *Age and Ageing, Archives of Physical Medicine and Rehabilitation, Journal of Geriatric Physical Therapy*
4. Books: *Geriatric Rehabilitation: A Textbook of Physical Therapy* by J. Webster and *Evidence-Based Geriatric Medicine* by R. Tallis

COURSE CODE: 24MPTC622

TITLE OF THE COURSE: RECENT ADVANCES AND EVIDENCE-BASED PRACTICE IN OCCUPATIONAL HEALTH

1. Introduction to Evidence-Based Practice (EBP) in Occupational Therapy
- Principles and importance of EBP in therapy.
- Integrating research evidence with clinical expertise and patient values.
2. Ergonomics and Workplace Rehabilitation
- Latest ergonomic tools and techniques for workplace environments.
- Assistive technology for reducing occupational risks and promoting inclusivity.
3. Evidence-Based Paediatric Occupational Therapy
- Early intervention techniques for children with developmental delays.
- Sensory integration therapy and its evidence base.
4. Innovations in Geriatric Occupational Therapy
- Managing age-related cognitive decline, frailty, and mobility issues.
5. Assistive Technology in Occupational Therapy
- Cutting-edge assistive devices and technology to support functional independence.
- Impact of smart home technologies and wearables in therapy.
6. Psychosocial Interventions in Occupational Therapy
- Methods for addressing mental health and social participation in individuals with disabilities.
- Cognitive-behavioral therapy (CBT) techniques in occupational practice.
7. Workplace Injury Prevention and Return-to-Work Programs
- Worksite assessments and prevention of musculoskeletal disorders.
- Designing return-to-work programs for workers with disabilities and injuries.
8. Occupational Therapy in Chronic Pain Management
- Therapeutic approaches for managing chronic pain and improving quality of life.
- Cognitive-behavioral interventions and mindfulness-based therapies.
9. Neurocognitive Rehabilitation in Mental Health
- Occupational therapy for individuals with psychiatric conditions like schizophrenia, depression, and anxiety.
- Cognitive rehabilitation in psychiatric recovery.
10. Functional Mobility and Balance in Rehabilitation
- Balance training techniques and devices (e.g., smart walking aids, exoskeletons).
- Effectiveness of gait training, virtual reality, and robotic-assisted therapy.
11. Cultural Sensitivity and Diversity in Occupational Therapy Practice
- Culturally responsive therapy models.
- Approaches to addressing the needs of diverse patient populations.
12. Clinical Reasoning and Decision-Making in Occupational Therapy
- Development of clinical reasoning skills.
- Use of standardized assessments and outcome measures in guiding therapy decisions.
13. The Role of Occupational Therapy in Multidisciplinary Teams
- Integration of occupational therapy within interdisciplinary teams for holistic patient care.
- Collaborative practice models and team-based interventions.
14. Universal Design and Access Audit: Recent Evidence and Best Practices

- Universal Design: Recent evidence on designing accessible, inclusive environments for all people, including those with disabilities.
- Access Audits: Conducting evidence-based access audits to identify barriers and provide recommendations for improvement.
- Evidence-Based Guidelines for Modifying Environments: Recommendations based on latest research for designing inclusive environments for people with cognitive, physical, and sensory disabilities.

COURSE CODE: 24MPTC631 & 24MPTC673

TITLE OF THE COURSE: GERIATRIC REHABILITATION

1. Aging and Population Health
    - Overview of global aging trends and life expectancy.
    - The impact of aging on healthcare systems.
    - The burden of chronic diseases in the elderly.
    - Strategies for promoting healthy aging and longevity.
2. Population Demographics with Aging
    - Changing age structure in populations worldwide.
    - Economic and social implications of an aging population.
    - Geriatric dependency ratio and its effects on healthcare.
    - Role of family, community, and healthcare systems in elderly care.
3. Aging and Disability
    - Prevalence and types of disabilities in older adults.
    - Causes and risk factors for functional decline.
    - Disability-adjusted life years (DALY) and quality of life in elderly populations.
    - Role of rehabilitation in maintaining independence.
4. Theories of Aging
5. Physiological, Functional, and Behavioral Changes with Aging
    - Changes Due to Aging in Various Systems

(Musculoskeletal System, Nervous System, Cardiovascular System, Respiratory System, Endocrine System, Immune System, Gastrointestinal System, Genito-Urinary System, Thermoregulatory System, etc.)

6. Nutrition in Older Adults
7. Geriatric Pharmacology
    - Polypharmacy
    - Drug Metabolism Changes with Aging
    - Common Drug Classes in Geriatrics
    - Physiotherapist's Role in Managing Drug Interactions
8. Gait in Older Adults
    - Types of Gait Abnormalities
    - Patho-mechanics of Gait Disorders in Elderly

- Assessment and Management Strategies

Geriatric Assessment and Diagnosis

1. Health Behaviour in the Elderly
    - Psychological and social determinants of health in aging.
    - Influence of lifestyle factors: Physical activity, nutrition, sleep, and mental health.
    - Common unhealthy behaviors: Sedentary lifestyle, smoking, alcohol use.
    - Strategies for health promotion and behavior modification in geriatrics.
2. Comprehensive Geriatric Assessment, Multisystem Assessment
3. Assessment of Chronic Pain and Disability in the Elderly
4. Assessment of Fall Risk and Frailty
5. Geriatric Giants

Geriatric Rehabilitation Strategies

1. Implementation of Healthy Aging Programs
2. Components of Geriatric Care and Rehabilitation
    - Physical Fitness Components
    - Designing Fitness Programs for Older adults
    - Monitoring and Progression
3. Developing a Multi-Component Geriatric Rehabilitation Program
    - Assessment and Goal Setting
    - Multi-Disciplinary Approach
    - Exercise-Based Rehabilitation
    - Patient and Caregiver Education
    - Monitoring and Outcome Evaluation
4. Improving Geriatric Rehabilitation Service Provisions in Healthcare Delivery
    - Challenges in Geriatric Rehabilitation Services
    - Integration of Geriatric Services into Primary Healthcare
    - Policy and Advocacy for Geriatric Care
5. Implementing Geriatric Rehabilitation Programs across Settings (In-Patient, Out-Patient, Specialized Institutions, Communities)

Age-Related Pelvic Floor Disorders

- Role of Physiotherapy in Pelvic Floor Dysfunction, Urinary and Faecal Incontinence in Older Adults (Causes, Types, Assessment, Management & Risk Factors)

COURSE CODE: 24MPTC632 & 24MPTC674

TITLE OF THE COURSE: OCCUPATIONAL HEALTH

1. Ergonomics

a) Introduction

- Definition and importance of ergonomics in the workplace

b) Principles

- Fundamental ergonomic principles

c) Workplace Integration

- Work hardening programs for injury prevention and rehabilitation
- Return-to-work strategies and ergonomic modifications

d) Scope

- Applications of ergonomics across various industries and Sports

e) Evaluation

- Methods to assess ergonomic risks and implement solutions

- Ergonomic Strategies for Office Workers, Healthcare Professionals, and Manual Laborers
- Ergonomics in Assistive Technology

2. Occupational Hazards: Biological, Chemical, Physical, Mechanical, and Psychosocial Risks with Prevention Strategies

Industrial Safety Laws and Workers' Compensation Policies

- Overview of industrial safety protocols
- Key labour laws affecting workers' health
- Compensation mechanisms for occupational injuries

Workplace Performance: Role of Cognition, Skills, and Decision-Making

- Cognitive functions in task performance
- Impact of workload and fatigue on efficiency
- Strategies to enhance human performance

Workplace Biomechanical Analysis: Effects of Static, Repetitive, and Lifting Tasks on the Spine and Limbs

- Analysis during static work, repetitive tasks, and loading activities
- Injury prevention and performance optimization

3. Ergonomic Assessment of Workplace Postures

a) Sitting

- Health risks associated with prolonged sitting
- Ergonomic interventions

b) Standing

- Impact of prolonged standing on health
- Preventive measures

c) Lifting

- Biomechanics of lifting tasks
- Risk reduction strategies

4. Occupational Musculoskeletal Disorders:

Definition, etiopathogenesis, risk factors, evaluation, and management

Evaluation and Management in Occupational Health and Ergonomics

a) Pre-placement Evaluation and Management

- Assessment of workers' core strength
- Models for injury prediction and prevention
- Muscle fatigue assessment

- Functional job analysis techniques

b) Post-Injury Evaluation (Functional Capacity)

- Assessing an individual's ability to return to work

c) Rehabilitation of Injured Worker

- Work conditioning and hardening programs
- Employee fitness initiatives
- Return-to-work evaluations
- Workplace administration strategies

d) Ergonomics at Workplace (Furniture, Tools)

- Design and selection of ergonomic furniture and tools
- Design and application of assistive devices

5. Inclusive Workplace Design and Accessibility Modifications

- Barrier-Free Workplace and Accessibility Enhancements
- Inclusive Design for Diverse Abilities: Physical, Cognitive, and Functional Accessibility
- Inclusive Workplace Strategies: Accessibility, Adaptations, and Equity, Considerations for ergonomic design in educational settings

References & Recommended Readings

1. Willard and Spackman's Occupational Therapy by Elizabeth Blesedell Crepeau, Ellen S. Cohn, and Barbara A. Boyt Schell.
2. Occupational Therapy: Practice Skills for Physical Dysfunction by Lorraine Williams Pedretti.
3. Occupational Therapy for Physical Dysfunction by Catherine A. Trombly and Mary Vining Radomski.
4. Occupational Therapy and Physical Dysfunction: Principles, Skills, and Practice by Annie Turner, Marg Foster, and Sybil E. Johnson.
5. Key GL. Industrial therapy. (No Title). 1995.

COURSE CODE: 24MPTW601 & 24MPTW672

TITLE OF THE COURSE: OBG AND NEONATAL CARE

1. Anatomy of female Genito urinary system

- Anatomy of the pelvic floor muscles and fascia
- Location, function and relationship of anatomical structures of female genitourinary system
- 1.3 Applied anatomy aspects of Genito urinary system

2. Normal Embryologic Development
    - Cardiopulmonary System, Musculoskeletal System and Neurological System
- Anatomy of Abdominal wall and Female breast
- Anatomy of abdominal muscles and applied aspects of musculature of abdominal wall
- Anatomy of development of the female breast and its applied anatomy

3. Anatomy and physiology of neuromusculoskeletal system in women

- Anatomy and physiology of neuromusculoskeletal system
- Gender differences in skeletal alignment and its effect on the physiological function in women

4. Anatomy and Function of Lumbo-pelvic Hip Complex in women

- Anatomy of lumbo-pelvic hip complex
- Biomechanics and Patho mechanics of lumbo-pelvic hip complex in women

5. Anatomy and Physiology of Endocrine system in women

- anatomy and functions of endocrine system
- influence of the endocrine system on women's health

6. Physiology of puberty

- Physiological changes during puberty/adolescence and menarche
- Stages of puberty
- Various structural deformities seen in the genitourinary system during the pubertal stage

7.Anatomical and Physiological Changes during Pregnancy and postpartum women

- Anatomical and physiological changes during pregnancy and postpartum and its Clinical Implications
- Effect of pregnancy on the surrounding structures and organs
- Influence of endocrine system during pregnancy on body systems

8. Anatomical, physiological and biomechanical changes during pre, peri and post menopause period in women

- STRAW Staging
- Anatomical, Physiological and biomechanical changes during the pre, peri and post menopause period

9. Normal Embryologic Development

- Cardiopulmonary System, Musculoskeletal System and Neurological System

10. Diet and nutrition in women's health

- dietary requirements during pregnancy, perinatal and postpartum period
- Infant nutrition in early stages of development

11. Theories of Motor Development, Motor control, Principles and Theories of Motor Learning and Skill Acquisition

- Normal Child Development
- Motor Development
- Somato-Sensory Development
- Speech / Language Development,
- Psychosocial Development,
- Oromotor Development
- Perceptive-Cognitive Development

12. Developmental Reflexes: Integration & Clinical Implications

- Early Intervention in High-Risk Infants
- Play in infancy, childhood and adolscence
- Therapeutic Approaches in Paediatric Rehabilitation (Principles and Practice): Neuro Developmental Technique, Roods, Vojta, Sensory Integration, Myofascial release & Recent Techniques
- Principles & Techniques of Chest Physiotherapy in Paediatrics Neonates
- Neonate handling
- Physical Modalities in Paediatrics Rehabilitation

13.Comprehensive obstetric and Gynaecological Physiotherapy assessment

- Primary Health Care in Obstetrics and Gynecology: Screening & Management
- Cancer screening in women- normal and high-risk population
- Physical agents' application in obstetric and gynaecological rehabilitation
- Prenatal diagnosis: dual markers, triple test, glucose challenge & tolerance test, biophysical profile, amniocentesis, chronic villi sampling, investigations during labour – partogram, non-stress test
- Investigations in paediatrics: blood parameters, radiographs, magnetic resonance imaging & computed tomography
- Genito urinary physiotherapy assessment

COURSE CODE: 24MPTW621

COURSE NAME : RECENT ADVANCES AND EVIDENCE-BASED PRACTICE - OBSTETRICS PHYSIOTHERAPY

1 Manual Therapy for Pelvic Girdle Pain

- Advanced manual therapy techniques (myofascial release, joint mobilization, visceral mobiliz
- Neuromuscular control and movement retraining strategies
- Case studies and evidence-based rehabilitation approaches

2 Physical agents' application in obstetric rehabilitation

- Applications of Electrotherapy in Prenatal, Labour, and Postnatal Periods

- Safety Considerations for Electrotherapy in Pregnancy
- Use of TENS for Labour and post operative Pain Management

3 Physiotherapy for Musculoskeletal Conditions in Pregnancy

- Evidence-Based Manual Therapy and Myofascial Release Techniques
- Exercise Prescription for Strength, Flexibility, and Mobility in Pregnancy
- Application of Kinesiotaping in Pregnancy and Postpartum Recovery

4 Role of Aquatic Therapy in Pregnancy

- Aquatic Exercises for Pain Relief, Postural Control, and Circulatory Improvement
- Clinical Evidence Supporting the Use of Aquatic Therapy
- Hypnobirthing

5 Pelvic Floor Muscle Training (PFMT) Across Different Phases

- Evidence-Based Approaches for Preventing and Managing Pelvic Floor Dysfunction
- Techniques for Strengthening and Relaxation for Pelvic Floor Muscles
- Biofeedback and Electrical Stimulation in PFMT

6 Digital health in Obstetric Physiotherapy

- Role of digital health,
- tele-rehabilitation in maternal healthcare

7 Core Stabilization and Progressive Functional Retraining

- Evidence-based core stabilization techniques for postnatal recovery
- Progressive functional retraining strategies for diastasis recti and pelvic floor dysfunction
- Role of neuromuscular re-education in postnatal rehabilitation
- Return-to-function and sports-specific rehabilitation post-pregnancy

COURSE CODE: 24MPTW622

TITLE OF THE COURSE: RECENT ADVANCES AND EVIDENCE-BASED PRACTICE - GYNECOLOGICAL PHYSIOTHERAPY

1. Urinary Incontinence (Stress, Urge and Mixed) and Physiotherapy
2. Effect of Exercise on Bone Mineral Density in Post-Menopausal Women
3. Disorders of Menstruation and PT Management
4. Strategies to preserve the integrity of the integumentary system and explore the role of physiotherapy in complete decongestive therapy for lymphedema.
5. Acute physiological responses and chronic systemic adaptations to exercise in women with various diseases
6. Physiotherapy management in Pelvic Organ Prolapse
7. Pelvic Floor Muscle Training in geriatrics
8. Physiotherapy in assistive reproductive technologies like IVF and IUI

COURSE CODE: 24MPTW631 & 24MPTW673

TITLE OF THE COURSE: OBSTETRIC PHYSIOTHERAPY

1 INTRODUCTION TO OBSTETRIC PHYSIOTHERAPY

- Hormonal Changes in Pregnancy
- Abdominal Muscles and Their Role in Pregnancy
- Common Psychological Changes During Pregnancy
- Coping Strategies and Counselling Approaches during pregancy

2 OBSTETRIC ASSESSMENT AND EVALUATION

- Prenatal diagnosis: dual markers, triple test, glucose challenge & tolerance test, biophysical profile, amniocentesis, chronic villi sampling, investigations during labour – partogram, non-stress test
- Common Postnatal Problems and Complications
- Assessment of Postpartum Recovery
- Breast Changes During Pregnancy and Lactation
- Mastitis, Engorgement, and Other Breast Disorders

3 HIGH-RISK OBSTETRICS AND COMPLICATIONS

- Shock in Obstetrics
- Acute Renal Failure in Obstetrics
- Blood Coagulation Disorders in Obstetrics
- Episiotomy: Indications, Healing, and Physiotherapy Interventions
- Forceps and Vacuum-Assisted Delivery: Biomechanical Implications
- Caesarean Section: Surgical Considerations, Recovery, and Physiotherapy Management
- Side Effects and Complications of Epidural Anesthesia.

4 PHYSIOTHERAPY MANAGEMENT DURING THE CHILDBEARING PHASE

- Exercise Guidelines for Pregnant Women
- Breathing Techniques and Relaxation Exercises
- Physiotherapy Techniques During Labour
- Management of Immediate and Late Postnatal Complications
- Postnatal Exercises for Core and Pelvic Floor Strengthening
- Concepts and Principles of Postnatal Classes

5 ERGONOMICS IN OBSTETRICS

- Ergonomics and Postural Care During Pregnancy
- Ergonomic Care for New Mothers

6 LACTATION

- Hormonal regulation of lactation (Prolactin, Oxytocin, Estrogen, Progesterone)
- Physiology of milk production, letdown reflex, and ejection reflex
- Breast changes during pregnancy, lactation, and weaning

7 ASSESSMENT OF LACTATION-RELATED CONDITIONS

- Comprehensive Breast Examination
- Clinical assessment of nipple pain, cracks, and trauma
- Musculoskeletal Issues Related to Lactation

- Physiotherapy Interventions for Lactation Support

8 NEONATAL AND INFANT CARE AFTER POSTPARTUM

- Thermoregulation and Skin-to-Skin Contact Benefits
- Immunological Adaptations and Neonatal Infections
- Parent Training for Infant Handling, Feeding, and Sleep Pattern
- Ergonomic Considerations for Parents During Infant Care
- Promoting Safe Sleep Practices to Prevent Sudden Infant Death Syndrome (SIDS)
- Educating Parents on Infant Growth, Immunization, and Developmental Monitoring
- Psychological Support for Parents of High-Risk Neonates

9 CONTRACEPTION AND FAMILY PLANNING

- Permanent Methods (Tubectomy, Vasectomy)
- Various contraceptive methods
- Educating Women on Safe and Effective Contraception
- Impact of Contraceptive Methods on Pelvic Health and Function
- Postpartum Rehabilitation and Return to Sexual Activity

10 ETHICAL, CULTURAL, AND MEDICO-LEGAL ASPECTS IN OBSTETRICS

- Principles of Ethics in Maternity Care
- Patient Autonomy and Informed Consent
- Ethical Challenges in Obstetric Physiotherapy
- Cultural Beliefs and Practices in Pregnancy and Childbirth
- Addressing Cultural Barriers in Physiotherapy
- Legal Framework for Maternal and Child Health
- Legal and Ethical Aspects of Assisted Reproductive Technologies

11 PERINATAL SEXUALITY AND INTIMACY

- Physical and Hormonal Changes Affecting Postpartum Sexuality
- Psychological Aspects of Postpartum Intimacy
- Counselling and Support for New Mothers and Couples
- Common Postpartum Sexual Dysfunctions (Dyspareunia, Low Libido, Vaginismus)
- Physiotherapy Approaches for Pelvic Floor Rehabilitation

12 SPECIAL POPULATIONS & CONDITIONS IN OBSTETRICS PHYSIOTHERAPY

- Pathophysiology of hypermobility disorders (e.g., Ehlers-Danlos Syndrome, Marfan Syndrome)
- Effects of hormonal changes on connective tissues during pregnancy
- Joint instability and risk of musculoskeletal injuries
- Physiotherapy Management
- Evidence-based progression of strength training postpartum
- Return-to-impact training (running, jumping, high-intensity sports)
- Load management and injury prevention strategies
- Psychological Considerations in Postpartum Return to Sports
- Common conditions: Cerebral Palsy, Multiple Sclerosis, Spinal Cord Injuries, Amputations
- Challenges in mobility, posture, and pain management during pregnancy
- Physiotherapy Interventions

- Physical and emotional challenges of teenage pregnancy

- Higher risk of musculoskeletal issues and nutritional deficiencies
- Psychosocial aspects: stress, stigma, and mental well-being
- Physiotherapy ManagementDifferences between natural and IVF-conceived pregnancies
- Risks associated with assisted reproductive technology (ART) pregnanciesPsychological stress and anxiety in IVF pregnancies
- Safe exercise prescription for IVF pregnancies
- Physiotherapy for multiple gestation pregnancies (twins, triplets)

COURSE CODE: 24MPTW632 and 24MPTW674

TITLE OF THE COURSE: GYNAECOLOGICAL PHYSIOTHERAPY

1 INTRODUCTION TO GYNECOLOGICAL PHYSIOTHERAPY

- Principal of exercise therapy in gynecology
- Specific outcome measures and questionnaires in gynecological conditions
- Role of Physiotherapy in Gynaecological Rehabilitation
- Physical agents in Gynaecological Rehabilitation
- Menstrual disorders
- Physiotherapy Assessment and management Techniques for menstrual disorders
- Female athlete Triad

2 Preconception Care and Physiotherapy

Importance of preconception care.

- Global guidelines and recommendations for preconception health.
- The Assessment and physiotherapy in optimizing preconception health.
- Nutritional and lifestyle management

3 Infertility and Physiotherapy Management

- Types of infertility
- Diagnostic testing for infertility
- Medical and surgical treatments for infertility
- Assisted Reproductive Technologies (ART) and Physiotherapy
- Assessment and Role of Physiotherapy in Infertility Management

4 Sexually Transmitted Infections (STIs) and Physiotherapy Implications

- Overview of Common STIs in Women
- Pelvic Inflammatory Disease (PID
- Cervical Dysplasia and Cancer:
- Physiotherapy Assessment and management Techniques for Patients with STIs

5 Menopause

Physiotherapy assessment and management

- Exercise considerations in elderly

6 Gynecological Cancer Rehabilitation

- Types of gynaecological cancer
- Cancer screening and staging
- Medical and surgical management of gynecological cancers
- Physiotherapy rehabilitation

7 Breast Cancer rehabilitation

- Screening of breast cancer
- Medical and surgical management of breast cancers
- Physiotherapy rehabilitation

8 Lymphedema Managemment

Anatomy and physiology of lymphatic and inteeguimentary system

Classification of lymphatic system

- Pathophysiology of lymphedema and its Physiotherapy management

9 Common Gynecological Conditions and its physiotherapy management

- Urinary Incontinence & Faecal Incontinence.
- Pelvic Floor Muscle Weakness and Hypertonicity.
- Chronic Pelvic Pain Syndrome (CPPS).
- Endometriosis.
- Interstitial Cystitis/Painful Bladder Syndrome.
- Pelvic Girdle Pain: Sacroiliac joint dysfunction, pubic symphysis pain.

10 Gynecological surgeries

- Common gynecological surgeries
- Physiotherapy assessment and its management