

**Master of Physiotherapy (M.P.T.)
(MPT in Musculoskeletal sciences
MPT in Neurological sciences
MPT in Cardio pulmonary sciences)
(For 2023-24 Admitted Batch)**

Course Structure and Syllabi



**THE APOLLO UNIVERSITY
MURUKAMBATTU - CHITTOOR (Dt) 517127
ANDHRA PRADESH**

PROGRAM OUTCOMES (PO)

PO 1: Ethical, evidence-based, efficient Physiotherapy treatment of adult as well as pediatric patients/clients with an array of condition (e.g. musculoskeletal, neuromuscular, cardiovascular/pulmonary, integumentary etc) across the lifespan and the continuum of care, to all people irrespective of gender, caste, nation, states and territories ,region, minority groups or other groups.

PO 2: Ability to prevent movement disorders or maintain/restore optimal function and quality of life in individuals with movement disorders.

PO 3: Ability to operate as independent practitioners, as well as members of health service provider teams, act as first contact practitioners, from whom patients/clients may seek direct services without referral from another health care professional.

PO 4: Ability to promote the health and wellbeing of individuals and the general public/society, emphasizing the importance of physical activity and exercise.

PO 5: Impart skill in teaching, management, research, guidance and counseling.

PO 6: Inculcate moral and ethical values

PO 7: Ability to carry out research projects

PO8: Promote Physiotherapy education.

PO 9: Apply scientific principles to the concepts of health , illness and disability.

PROGRAM EDUCATIONAL OBJECTIVES (PEO):

PEO 1: Gain adequate knowledge, skills and clinical hands-on experience leading to an ability to establish independent professional practice in the specialized areas of interest.

PEO 2:Gather and interpret information within a holistic frame work pertaining to health

PEO 3:The overall content of the curriculum focuses on learning experiences and clinical education experiences for each student

PROGRAM SPECIFIC OUTCOMES (PSOs)

PO1:Conduct independent, interdisciplinary, multi and trans disciplinary novel research in physiotherapy

PO2:Communicate effectively with use of different means to the professional colleagues, counterparts, patients and their caregivers

PO3: Apply evidence-based specialty physiotherapy practice with appropriate critical and clinical reasoning skills.

PO4:Review the clinical outcomes with new approaches in advanced physiotherapy practice based on current trends and document in appropriate area.

PO5:Comprehend the fundamentals of physiotherapy skills and undertake advanced level of knowledge to analyze and create techniques to solve real life problems.

THE APOLLO UNIVERSITY

ACADEMIC REGULATIONS

SCOPE:

This Academic regulation provide a framework for the regulatory guidelines of all programs offered by The Apollo University. It includes procedures and practices that are to be followed to ensure academic standards in the University. The regulations are approved by the Academic Council. These regulations may be amended from time to time with the approval of the Academic council for the benefit of students or some times to reflect the changes suggested by the statutory bodies.

Information regarding amendments (if any) to the regulations will be communicated to the students by publishing in the University website. Students must follow the amended regulations as they might impact the process for the award of degree. The decision of the Vice Chancellor shall be the final in case of any discrepancy. These regulations apply to all students, despite the program of study.

1. ADMISSION INTO THE PROGRAM

The University admits the students in two modes. One through the convenor quota as per the Andhra Pradesh Private Universities Act, for which the admissions will be carried out through the convener quota by the Govt of Andhra Pradesh. The other is through University quota for which the following procedure will be followed:

- A. The applicant shall satisfy the entrance requirements specified by The Apollo University and in accordance with guidelines of statutory councils for Under-graduation.
- B. The Applicant shall be qualified in the qualifying examination for a particular program.
- C. The Applicant secures a rank in national level entrance exam or suitable such test conducted by The Apollo University / professional body.
- D. The Applicant qualifies in the specified state or national level examinations prescribed by The Apollo University.

The Apollo University will widely notify the counselling schedule for admissions into the academic programs in the media. The provisional admission will be given to the eligible students during the counseling scheduled by The Apollo University. The selected candidates will be provisionally admitted into the program of his/her choice if the candidate meets the program specific requirements in addition to academic performance qualifying exam. Admission is purely based on merit and so merely meeting the requirements will not ensure admission. The University does not discriminate based on gender, race, region, religion, disability or nationality. The University reserves the right to make admissions based on various criteria which is specified in the admission brochure.

2. ELIGIBILITY CRITERIA

Undergraduate programs

The qualifying exam eligibility for each program is given Annexure 1. The student should have passed the qualifying exam either in the year the student is seeking admission or the previous year.

Convener Quota: The student seeking admission to any program under convener quota shall qualify in the relevant entrance exam conducted by the Government of Andhra Pradesh.

University Quota: For getting admission under University quota, percentage of marks obtained in the qualifying exam, the rank obtained in TAU entrance exam or any recognized national level examination in the year of admission will be considered.

Counselling

All the eligible students need to apply for admission and have to attend counselling conducted by TAU as per the schedule for the university quo

3. PROGRAMS

The Apollo University offers variety of programs which includes certificate, undergraduate, postgraduate, and Research. The list of programs on offer for the academic year 2022-23 are annexed in Annexure 2 and those of 2023-24 are annexed in Annexure 3.

Minimum duration of the program

The minimum duration of each program depends on the type of program, viz., undergraduate, postgraduate, integrated programs, etc., and the faculty which offers the program. The

maximum duration of the program is N+2 years, where N stands for the minimum duration of the program as mentioned in Annexure 2 and 3. If the student has not obtained the minimum number of credits within the stipulated time, the Vice-Chancellor may extend the maximum duration in extenuating circumstances upon receiving a request along with reasons from the student for not completing the program on time.

4. CHOICE BASED CREDIT SYSTEM

The choice-based credit system (CBCS) facilitates the education student-centric. It provides the opportunity for the learner to choose the courses from a basket of core, elective, and skill enhanced courses. All programs of study are designed to meet the specified number of credit requirements. The courses taken by the student in each semester as part of program are allotted some credit points based on the number of hours assigned. Upon successful completion of the course, the student secures the number of credits allotted for that course. Once the minimum number of credits of the program is achieved, the degree can be awarded, subject to fulfilment of all other relevant conditions.

5. STRUCTURE OF THE PROGRAM

The Program structure Consists of

- i) University Courses
 - A. University Core
 - B. University Electives
- ii) Faculty Courses
 - A. Faculty Core
 - B. Faculty Electives
- iii) Program Courses
 - A. Program Core
 - B. Program electives

Each course* is assigned a certain number of credits depending upon the number of contact hours (lectures/tutorials/practical) per week. (*one course means one subject)

Core Courses = 3 Credits /4 Credits Elective =3 Credits

In general, credits are assigned to the courses as detailed below:

- A classroom lecture/ tutorial of 60 min (1 hr) duration per week, spread over the entire semester, shall be considered as one credit.

- A laboratory session of minimum of 120 min (2 hr) per week shall be considered as one credit.
- A project work/ Internship session of 60 minutes (1 hr) carried out per week shall be considered as one credit.

6. MEDIUM OF INSTRUCTION

The medium of instruction (including examinations and project reports) shall be English.

7. REGISTRATION

Any of the following student must register for the courses opted in a particular semester during the scheduled registration period.

- i. a new student who enrolls into any program
- ii. an existing student who is continuing on rolls from the preceding regular semester
- iii. a former student, i.e., who has not enrolled in the preceding regular semester or who has availed academic break or detained and got readmission

Each newly admitted student shall attend an induction/ orientation program prior to commencement of the first semester. During this program academic advisors assist the students in choosing the courses. Existing student may register online by using their registration number and mail ID through the Apollo ERP portal. Class schedules are available approximately two weeks before the beginning of every semester for each program. The concerned head of the department must approve class schedule.

8. ATTENDANCE REQUIREMENTS

- Students should earn a minimum of 80% attendance in the current semester to become eligible to write the Semester End Examinations.
- The monthly statement of attendance will be displayed on the Department Notice Board/ Apollo ERP by the respective departments within the first five working days of the following month.
- Candidates who are falling short of 80% attendance will be detained on the recommendation of the HoD and are not eligible to appear for the current semester examinations. The students who are detained in the current semester will not be allowed to register for the next semester and they have to repeat the same semester by

paying the tuition fee prescribed. However, they can write arrear subjects, if any.

9. EVALUATION

The assessment of the student's performance in a Theory course shall be based on two components: Continuous Evaluation (40 marks) and Semester-end examination (60 marks). A student has to secure an aggregate of 40% in the course in the two components put together to be declared to have passed the course, subject to the condition that the candidate must have secured a minimum of 24 marks (i.e. 40%) in the theory component at the semester-end examination. Practical/ Project Work/ Industrial Training/ Viva voce/ Seminar etc. are completely assessed under Continuous Evaluation for a maximum of 100 marks, and a student has to obtain a minimum of 50% to secure Pass Grade. For courses having both theory and practical components, 60% of the weightage will be given for theory component and 40% weightage for practical component. The student must secure 40% (Theory + Practical) with 24 marks minimum in theory to attain pass grade.

Details of Assessment Procedure are furnished below in Table 1.

Table 1: Assessment Procedure

S. No.	Component of Assessment	Marks Allotted	Type of Assessment	Scheme of Evaluation
1	Theory	40	Continuous Evaluation	<ul style="list-style-type: none"> i) Twenty (20) marks for mid examinations. Three mid examinations shall be conducted for 20 marks each; average of the best two performances shall be taken into consideration. ii) Ten (10) marks for Quizzes, Assignments and Presentations. iii) Ten (10) marks for periodic evaluation, case studies and projects iv) Sixty (60) marks for Semester-end examinations

		60	Semester-end Examination	
	Total	100		
2	Laboratory	100	Continuous Evaluation	<p>1)80 marks with equal weightage to all experiments subject to conduct of minimum of 10 experiments</p> <p>2)20marks for the end exam (with one of our university teachers as external other than course teacher)</p>
3	Clinical training	100	Continuous Evaluation	<p>i) (80) marks for periodic evaluation of Internship report by the Project Supervisor.</p> <p>ii) Twenty (20) marks for final Report presentation and Viva-voce, by a panel of internal examiners.</p> <p>iii) Students shall undergo TWO internships during the course of time and the evaluation shall be done during final semester.</p>
4	Project work	100	Continuous Evaluation	<p>iv) (80) marks for periodic evaluation and technical report writing by the Project Supervisor.</p> <p>ii) Twenty (20) marks for final Report presentation and Viva-voce, by a panel of internal examiners</p>
5	Students Seminars	100	Continuous Evaluation	Each student has to give a seminar on any topic in consultation with the faculty member in charge A detailed report shall

				<p>be submitted to the in charge.</p> <p>60 marks for periodic evaluation including report preparation and 40 marks for viva voce by a panel of examiners.</p>
--	--	--	--	--

GRADING SYSTEM

Based on the student performance during a given semester, a final letter grade will be awarded at the end of the semester in each course. The letter grades and the corresponding grade points are as given in Table 2.

Table 2: Grades & Grade Points

Sl. No.	Grade	Grade Points	Absolute Marks
1	O(Outstanding)	10	90 and above
2	A+(Excellent)	9	80 to 89
3	A (Very Good)	8	70 to 79
4	B+(Good)	7	60 to 69
5	B (Above Average)	6	50 to 59
6	C(Average)	5	45 to 49
7	P(Pass)	4	40 to 44
8	F(Fail)	0	Less than 40
9	Ab. (Absent)	0	-

SEMESTER GRADE POINT AVERAGE (SGPA)

A Semester Grade Point Average (SGPA) for the semester will be calculated according to the formula:

$$SGPA = \frac{\sum [C \times G]}{\sum C}$$

Where

C=number of credits for the course,

G=grade points obtained by the student in the course.

A student who earns a minimum of 4 grade points (P grade) in a course is declared to have successfully completed the course, and is deemed to have earned the credits assigned to that course.

CUMULATIVE GRADE POINT AVERAGE (CGPA)

A similar formula is used to arrive at Cumulative Grade Point Average (CGPA), considering the student's performance in all the courses taken in all the semesters up to the particular point of time.

Table 3 shows the CGPA required for the award of class after the successful completion of the program.

Table3: CGPA required for award of Class

Class	CGPA Required
First Class with Distinction	$\geq 8.0^*$
First Class	≥ 6.5
Second Class	≥ 5.5
Pass Class	≥ 5.0

*In addition to the required CGPA of 8.0 or more, the student must have necessarily passed all the courses of every semester in first attempt.

11. REAPPEARANCE

- a. A student who has secured 'F' grade in a Theory course shall have to reappear at the subsequent Semester end examination held for that course.
- b. A student who has secured 'F' grade in a Practical course shall have to attend Special Instruction Classes scheduled by the Department for securing pass.
- c. A student who has secured 'F' Grade in Internship /Project work / Industrial

Training etc shall have to reappear for Viva – voce scheduled by the department.

- d. A student who is declared fail (F) in a course/s can apply for revaluation within one week from the date of publication of results with a fee prescribed by the university. The marks /grade awarded in the revaluation is final.

11.1 Procedure for revaluation

- The students who have not satisfied with the marks awarded by the examiner can apply for revaluation of his/her answer script/s
- The students have to apply through proper channel for revaluation and to pay the revaluation fee per paper to the university towards revaluation fee.
- Students have to apply for revaluation within 7 days from the date publication of result.
- The scripts will get valued by second examiner and if the difference is more than 15 marks, they will get valued by the third examiner. The average of the nearest two marks will be declared as the final marks.

11.2 ASSESSMENT MECHANISM

The Apollo University offers a student the benefits of Choice Based Credit System. Every paper is allotted a certain number of credits as per the UGC norms. A student is awarded the specified credits on obtaining a pass in the respective paper.

The Choice Based Credit System (CBCS) has been adopted for UG Course from the year 2021-22 onwards as per the recommendations of the A.P. State Council for Higher Education (APSCHE). The structure of undergraduate programmes provides a wide range of choice for students to opt for courses based on their eligibility, aptitude and career goals.

11.3 Semester End Examination

The End semester examination will be a comprehensive examination of 3 hours duration.

Two End Semester examinations are conducted in a year-

Odd semester examinations in November/ December and

Even semester examination in May/June

Practical examination / Project viva will be held 2 weeks prior to the theory semester end examinations.

Under-Graduation Programs

Course	Continuous Assessment	End semester	Aggregate in End semester Examinations
All UG Courses	No passing minimum	40%	40%

11.4 Post Evaluation Programme:

Under the Post Evaluation Programme there are three menus:

- Provision for improvement
- Re-totalling and Revaluation of answer scripts
- Restrictions to appear for the examinations

11.5 Provision for improvement

A student who passes a paper in the first attempt can reappear for the same paper in the succeeding End-of-Semester examination only, for improving his/her marks. Re-appearance for improvement is allowed for theory and practical subjects of all semesters, except for the final semester subjects. Revised mark statement will be issued after withdrawing the previous one, if the marks obtained in improvement are higher than the marks awarded earlier. When there is no improvement, there shall not be any change in the original marks already awarded. The improved marks shall be considered for classification but not for ranking.

Provision for Re-totalling and Revaluation of valued answer scripts

- UG candidates may apply for re-totaling / revaluation of valued answer scripts, to the Controller of Examinations through the Heads of Departments and Principal / Dean, in the prescribed forms, remitting the prescribed fee within 7 days from the date of publication of results. Revaluation of answer scripts is permissible only for the current semester papers and not for any arrear paper.
- Those wish to apply for revaluation of final semester papers can do so within five days from the date of publication of results. In re-valuation, the answer papers will be valued by an external examiner and if there is a difference of 15 marks between the two evaluations then the script will be sent for third valuation which is final and the mark awarded by the third examiner will be taken into the account.
- Revised mark statement will be issued after withdrawing the previous one, if the marks obtained in revaluation / retotalling are higher than the marks obtained earlier. In other cases, the original marks obtained earlier will be retained and the matter will be intimated to the student concerned as 'No change'.
- A candidate who applies for revaluation should not apply for retotalling.

Restrictions to appear for the examinations

Candidates who fail in any of the papers in the UG End semester examinations shall complete the paper concerned within N+2 years from the date of admission to the particular course. If they fail to do so, they shall re-register their names and take the examination in the texts/revised regulations/syllabus of the paper prescribed for the subsequent batch of candidates, in force at the time of their reappearance. In the event of removal of that paper consequent to change of regulation and/or curriculum after N+2 years period, the candidate shall have to take up an equivalent paper in the revised syllabus as suggested by the Chairman, Board of Studies concerned.

12. BETTERMENT OF GRADES

A student who has secured only a Pass or Second class and desire to improve his/her Class can appear for Betterment Examinations only in Theory courses of any Semester of his/her choice, conducted in Summer Vacational

along with the Special Examinations. Betterment of Grades is permitted 'only once' immediately after completion of the program of study.

13. DETENTION AND RE-ADMISSION

If a student fails to meet the minimum attendance requirement or minimum standards for academic progression, the concerned academic head will recommend for detention and it will be notified by the concerned Dean of the School. The students who are detained in the current semester will not be allowed to register for the next semester and they have to repeat the same semester.

The candidates who are detained or availed academic break or suspended in the previous semester/academic year and want to continue their study shall apply for re-admission to the university. The candidates shall request for re-admission to the respective Head of the Department, with details viz., Full Name, Registration Number, Department, School, Fee payment particulars with proofs and reasons for discontinuations. The concerned academic head will forward it to the Registrar with specific comments. The Registrar will notify the decision of re-admission which shall include the prescribed fee particulars, semester/ year into which readmission is granted and additional courses to be completed by the student (if any). The candidates should apply for re-admission in advance, that is before the commencement of the semester.

14. GROOMING AND ATTIRE FOR STUDENTS

Grooming and Etiquette is of great significance in the dynamic of shaping one's Personality. The Apollo University stands by a *Code of Grooming, Attire and Etiquette* that promotes a professional standard: Academic Day; Campus Placements and Non-Academic Hours on Campus.

The Dress Code to be in compliance on academic premises while attending: Formal Functions of the Institution / Lectures / Practicals / Dining Area / Library / Labs / Office Areas.

Students shall follow appropriate attire during Academic and Non-Academic hours on the campus. Students shall wear clean, neat, pressed and presentable clothing, and command respect by dressing in accordance with responsible personal norms. Students shall always wear The Apollo University ID Card with the Lanyard.

Grooming and Formal Wear - Boys:

Formal Shirts / T-Shirts with a Collar should preferably be tucked in with a Formal pair of Pants Shoes and Socks to complete the Formal Attire. Personal Hygiene should be followed and Hair should be well groomed.

Smart Casuals for Boys:

Long Kurtas / Formals / Semi-Formal Shirts with Jeans.

Grooming and Formal Wear - Girls: Sarees / Salwar Suits / Leggings or Jeggings with Long Kurtis / Long Frocks / Long Skirts / Palazzos. Complement the outfit with proper footwear. Personal Hygiene should be followed and Hair should be well groomed.

Smart Casuals for Girls:

Jeans with long Kurtis / Long Skirts / Long Frocks.

Attire for Non-Academic Hours On Campus:

The students should be neatly attired during Non-Academic Hours on Campus.

Dress Code for Boys:

Jeans / Track Suits / T-Shirts / Trousers / Shirts.

Dress Code for Girls:

Jeans / T-Shirts or Blouses / Salwar Suits / Palazzos / Leggings or Jeggings with Long Tops / Sarees / Long Skirts / Track Suits.

DO'S AND DO'NTS FOR BOYS AND GIRL STUDENTS OF THE UNIVERSITY:

- To wear modest clothing that reflects the essence of good personal grooming standards.
- To refrain from wearing Sleeveless Clothing; Shorts; Short Tops, etc.,

PLEASE NOTE: The decision as to what constitutes Appropriate Attire vests with the Authorities of The Apollo University.

15. ELIGIBILITY FOR AWARD OF THE DEGREE

The undergraduate degree will be of 4-years of duration. A student shall be declared as eligible for the award of the degree if the candidate has successfully secured the minimum number of required credits as specified in the curriculum corresponding to the branch of his/her study within the stipulated time.

After successful completion of the program, a provisional certificate cum memorandum of grades (PCMG) will be issued to the students. The PCMG includes the secured grades and class achieved in chosen program and specialization if any, along with grades and CGPA secured by the student. The original degree will be presented in the subsequent convocation.

16. DISCRETION POWER

Not with-standing anything contained in the above sections, the Vice Chancellor may review all exceptional cases, and give his decision, which will be final and binding.

ANNEXURE 1

ELIGIBILITY FOR QUALIFYING EXAM FOR UNDER GRADUATE PROGRAMS

Program Type	Program Name	Eligibility
Masters	Master of physiotherapy	Candidates must secure 50% in Bachelor of physiotherapy

ANNEXURE 2

PROGRAMS OFFERED BY SCHOOL OF PHYSIOTHERAPY

FROM ACADEMIC YEAR 2023-24

Sl. No.	Program	Expanded	Level	Minimum Duration in Years (N)
1.	MPT	Master of physiotherapy in Musculoskeletal sciences	Masters	2
2.	MPT	Master of physiotherapy in Neurological conditions	Masters	2
3.	MPT	Master of physiotherapy in Cardio Respiratory conditions	Masters	2

Master of Physiotherapy
IN MUSCULO SKELETAL SCIENCES

I - Semester

3 Week Induction Programme						
Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
MPTT6501	Physiotherapy Ethics and Practice	4	-	-	4	4
MPTT6502	Physiotherapy Research and Statistics	4	-	-	4	4
MPTT6503O	Specialty-I- Applied Basics of Physiotherapy in Orthopedics and Manual Therapy	4	-	-	4	4
MPTT6504	Specialty-I- Advanced Exercise Physiology and Exercise Therapy	4	-	-	4	4
MPTC6501	Clinical training-I	15	-	-	7.5	15
MPTL6504	Exercise Physiology Lab	-	-	4	2	4
PHYSIO-LIB 6501	Physio Library					1
TOTAL		31	-	4	25.5	36

II - Semester

3 Week Induction Programme						
Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
MPTT6505	Advanced Electro Physiology including Electro therapy (Physiotherapeutic-II)	4	-	-	4	4
MPTT6506	Applied kinesiology and corrective exercise prescription	4	-	-	4	4
MPTT6507O	Specialty-II- Physiotherapy assessment and Evaluation in Musculoskeletal Disorders	4	-	-	4	4
MPTT6508	Evidence based Physiotherapy and clinical reasoning	2	-	-	2	2
MPTP6501O	Research Dissertation (Selection, review and procedure approval) *	1	-	-	1	1
MPTC6502	Clinical training II(Specialty)	-	-	15	7.5	15
MPTL6507O	Specialty-II- Physiotherapy assessment and Evaluation in Musculoskeletal Disorders			4	2	4
MPTL6505	Electro Physiology Lab			2	1	2
TOTAL		15	-	21	25.5	36

III - Semester

3 Week Induction Programme						
Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
MPTT7501	Specialty- III Advances in Physiotherapy Diagnosis and Management of Musculoskeletal Disorders of Upper and Lower Extremities	6	-	-	6	6
MPTP7502	Research Dissertation (Research process) *	-	-	4	2	4
MPTT7601	Elective-I	3	-	-	3	3
MPTL7501O	Specialty- III Advances in Physiotherapy Diagnosis and Management of Musculoskeletal Disorders of Upper and Lower Extremities	-	-	6	3	6
MPTC7501	Clinical training–III	-	-	15	7.5	15
--	Seminars/ CBS	-	-	-	-	2
TOTAL		9	-	25	21.5	36

IV - Semester

3 Week Induction Programme						
Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
MPTJ7601O	Specialty-IV Advances in Physiotherapy Diagnosis and Management of Musculoskeletal Disorders of Vertebral Column	2	-	6	5	8
MPTT7602	Elective-II	3	-	-	3	3
MPJP7502O	Research Dissertation(Research Submission &Dissemination)*	2	-	4	4	6
MPTC7502	Clinical training IV (Specialty)	-	-	15	7.5	15
	Seminars/CBS	-	-	-	-	2
	Library	-	-	-	-	2
TOTAL		7	-	25	19.5	36

Master of Physiotherapy
IN NEUROLOGICAL SCIENCES

I - Semester

3 Week Induction Programme						
Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
MPTT6501	Physiotherapy Ethics and Practice	4	-	-	4	4
MPTT6502	Physiotherapy Research and Statistics	4	-	-	4	4
MPTT6503N	Specialty-I Applied Basics of Physiotherapy in Neurology	4	-	-	4	4
MPTT6504	Specialty-I- Advanced Exercise Physiology and Exercise Therapy	4	-	-	4	4
MPTC6501	Clinical training-I	15	-	-	7.5	15
MPTL6504	Exercise Physiology Lab	-	-	4	2	4
PHYSIO-LIB 6501	Physio Library					1
TOTAL		31	-	4	25.5	36

II - Semester

3 Week Induction Programme						
Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
MPTT6505	Advanced Electro Physiology including Electro therapy (Physiotherapeutic–II)	4	-	-	4	4
MPTT6506	Applied kinesiology and corrective exercise prescription	4	-	-	4	4
MPTT6507N	Specialty–II Physiotherapy assessment and Evaluation in paediatric Neurological Disorders	4	-	-	4	4
MPTT6508	Evidence based Physiotherapy and clinical reasoning	2	-	-	2	2
MPTP6501N	Research Dissertation (Selection, review and procedure approval)*	1	-	-	1	1
MPTC6502	Clinical training II(Specialty)	-	-	15	7.5	15
MPTL6507N	Specialty–II-Physiotherapy assessment and Evaluation in paediatric Neurological Disorders			4	2	4
MPTL6505	Electro Physiology Lab			2	1	2
TOTAL		15	-	21	25.5	36

III - Semester

3 Week Induction Programme						
Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
MPTT7501N	Specialty- III Advances in Physiotherapy Diagnosis and Management of CNS Disorders	6	-	-	6	6
MPTP7502N	Research Dissertation (Research process) *	-	-	4	2	4
MPTT7601	Elective-I	3	-	-	3	3
MPTL7501N	Specialty- III Advances in Physiotherapy Diagnosis and Management of CNS Disorders	-	-	6	3	6
MPTC7501	Clinical training–III	-	-	15	7.5	15
--	Seminars/ CBS	-	-	-	-	2
TOTAL		9	-	25	21.5	36

IV - Semester

3 Week Induction Programme						
Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
MPTJ7601N	Specialty-IV Advances in Physiotherapy Diagnosis and Management of PNS Disorders	6	-	6	9	12
MPTT7602	Elective-II	3	-	-	3	3
MPJP7502N	Research Dissertation (Research Submission & Dissemination) *	2	-	4	4	6
MPTC7502	Clinical training IV (Specialty)	-	-	15	7.5	15
TOTAL		11	-	25	23.5	36

**Master of Physiotherapy
Cardio Pulmonary Sciences**

I - Semester

3 Week Induction Programme						
Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
MPTT6501	Physiotherapy Ethics and Practice	4	-	-	4	4
MPTT6502	Physiotherapy Research and Statistics	4	-	-	4	4
MPTT6503C	Specialty-I Applied Basics of Physiotherapy in Cardio Vascular and Pulmonary Conditions	4	-	-	4	4
MPTT6504	Specialty-I- Advanced Exercise Physiology and Exercise Therapy	4	-	-	4	4
MPTC6501	Clinical training-I	15	-	-	7.5	15
MPTL6504	Exercise Physiology Lab	-	-	4	2	4
PHYSIO-LIB 6501	Physio Library					1
TOTAL		31	-	4	25.5	36

II - Semester

3 Week Induction Programme						
Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
MPTT6505	Advanced Electro Physiology including Electro therapy (Physiotherapeutic-II)	4	-	-	4	4
MPTT6506	Applied kinesiology and corrective exercise prescription	4	-	-	4	4
MPTT6507C	Specialty-II Physiotherapy assessment and Evaluation in Cardiovascular and Pulmonary conditions	4	-	-	4	4
MPTT6508	Evidence based Physiotherapy and clinical reasoning	2	-	-	2	2
MPTP6501N	Research Dissertation (Selection, review and procedure approval)*	1	-	-	1	1
MPTC6502	Clinical training II(Specialty)	-	-	15	7.5	15
MPTL6507C	Specialty-II-Physiotherapy assessment and Evaluation in Cardiovascular and Pulmonary conditions			4	2	4
MPTL6505	Electro Physiology Lab			2	1	2
TOTAL		15	-	21	25.5	36

III - Semester

3 Week Induction Programme						
Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
MPTT7501C	Specialty-III Advances in Physiotherapy Diagnosis and Management of Cardiac Conditions	6	-	-	6	6
MPTP7502N	Research Dissertation (Research process)*	-	-	4	2	4
MPTT7601	Elective-I	3	-	-	3	3
MPTL7501C	Specialty- III Advances in Physiotherapy Diagnosis and Management of Cardiac Conditions	-	-	6	3	6
MPTC7501	Clinical training–III	-	-	15	7.5	15
--	Seminars/ CBS	-	-	-	-	2
TOTAL		9	-	25	21.5	36

IV - Semester

3 Week Induction Programme						
Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
MPTJ7601C	Specialty-IV Advances in Physiotherapy Diagnosis and Management of Pulmonary Conditions	6	-	6	9	12
MPTT7602	Elective-II	3	-	-	3	3
MPJP7502N	Research Dissertation (Research Submission & Dissemination) *	2	-	4	4	6
MPTC7502	Clinical training IV (Specialty)	-	-	15	7.5	15
TOTAL		11	-	25	23.5	36

Program Elective -I	
Course Code	Course Name
MPTT7601a	Diabetic Education and Diabetic Neuropathy
MPTT7601b	Hand Physiotherapy
Program Elective -II	
Course Code	Course Name
MPTT7602a	WOMENS HEALTH
MPTT7602b	Advancement in Manual therapy

I SEMESTER

COURSE DESCRIPTION:

This course provides a detailed discussion on physiotherapy principles, legal issues, and evidence-based physiotherapy practice.

Course Objectives:

1. Differentiate formal and informal education with appropriate aims
2. Apply the Concepts of past, present and future educational philosophies in learning in line with the current issues and trends in education.
3. Develop learning objectives based on different domains of blooms taxonomy and lesson plan for the appropriate course content with necessary information's.
4. Demonstrate the different types of teaching methods with appropriate teaching aids and various types of measurement and evaluation used in clinical and academic research.
5. Plan for personnel and professional development activities to enhance the physiotherapy practice and services.

UNIT-I**10hours****Educational philosophies:**

Education, Educational aims, Formal and informal education Major philosophies of education (naturalism, idealism, pragmatism, realism) including Gandhi and Tagore. Modern and contemporary philosophies of education (Existentialism, Progressivism, Reconstructionism, Perennialism). Philosophies of education in India –past, present and future. Role of educational philosophy, Current issues and trends in education. Planning for teaching Bloom's taxonomy of instructional objectives.

UNIT-II**15 hours****Teaching objectives and lesson plan:**

Writing instructional objectives in behavioural terms, Concepts of teaching and learning a) Theories of teaching, b) Relationship between teaching and learning

UNIT-III**8 hours**

Standards and scope of Physiotherapy

- a) Scope of Physiotherapy in Hospital, Community & Industry.
- b) Planning, organization, budget, policy procedures and Quality assurance.
- c) Communication skills, leadership in Physiotherapy.
- d) Roles of the physiotherapist
- e) Standards for practice for physiotherapist and the criteria.

f) Standardized tests and scales used in various types of cases for Assessment and interpretation in Physiotherapy practice.

UNIT-IV

12hours

Principles of Guidance and counselling and Teaching methods

- a) Philosophy, principles and concepts of Guidance and counselling, Services of student and faculty.
- b) Writing lesson plan and Teaching methods,
- c) Teaching aids, Types of teaching aids, Principles of selection, preparation and use of audio-visual aids
- d) Faculty development and development of personnel for physiotherapy services
- e) Guidance to the common people about health and disease

UNIT-V

15hours

Physiotherapy Ethics and Legal issues

Morals and ethics, Ethical issues in Physiotherapy,

Moral problems, and ethical analysis of these problems

Physiotherapy and law:

Medico legal aspects of physiotherapy, liability, negligence, malpractice, Licensure, workman's compensation.

Course Outcomes:

1. Able to Differentiate formal and informal education with appropriate aims
2. Apply the Concepts of educational philosophies in learning in line with the current issues and trends in education.
3. Develop learning objectives based on different domains of blooms taxonomy and lesson plan for the appropriate course content with necessary information's.
4. Demonstrate the different types of teaching methods with appropriate teaching aids and various types of measurement and evaluation used in clinical and academic research.
5. Plan for personnel and professional development activities to enhance the physiotherapy practice and services.
6. Apply the principles and concepts of guidance & counselling in patient's education

Text books:

1. John L. Handbook of Technological pedagogical content knowledge (TPCK) for educators. 1st edition. Routledge; December 16, 2005.
2. Sankara narayanan B, Sindu B. Learning and teaching Nursing. 4th edition. JAY PEE; 2012.

3.Catherine: Hand book of teaching for physical therapists

Reference books:

1.Maria E B. Language, Culture and community in Teacher education. 1st edition. Routledge; October 2007.

2.Vetukuri P S. Education of the masses: A Quest for Pedagogy. Sipra Publications; January 2007.

3.Barbara Ethics in rehabilitation

4.Joy: Clinical reasoning in Health professions

5.John: The use of counselling skills

Course Description:

This course provides postgraduate students with recall of concepts of research methods and Biostatistics to enable them to perform advanced research project in the field of Physiotherapy. It involves selection of appropriate statistical techniques to address questions of Healthcare relevance. It explores current and anticipated developments in medical statistics as applied to physiotherapists. It is designed to teach postgraduate physiotherapy to develop and perform self, Trans and multidisciplinary research methods.

Course Objectives:

1. Recall basic concepts of Research methodology and Biostatistics relevant to Physiotherapists.
2. Integrate the concepts of Research methods and Biostatistics in planning and conducting professional and inter-professional research.
3. Demonstrate knowledge and understanding of the concept of variables, measures of central tendency, measures of dispersion and concepts of descriptive and inferential statistics.
4. Demonstrate the use of basic research methods in analyzing health care problems and biomedical data.
5. Perform statistical analysis of collected data using statistical tools & software and recommend solutions.

UNIT-I**15 hours**

Research in Physiotherapy

- Research methodology for physiotherapists
- Research in Physiotherapy
- Overview of research process
- Research question development
- Research objectives and hypothesis development

Study Designs

- Qualitative studies
- Quantitative studies
- Descriptive and analytical study designs
- Types of experimental study designs

Research Designs

- Experimental research

- Non experimental research

Qualitative research

Quantitative research

Research Ethics

Importance of Ethics in Research

Ethical issues in human & Animal research

Components of an ethically valid informed consent for research.

Research authorships

Plagiarism

Intellectual property rights

UNIT-II

8hours

Population, Sample and Sampling Methods

- Definition of the population
- Definition of the sample
- Sampling methods

Variables, Data and Representation

- Types of variables
- Type of data
- Collection of data
- Tabulation of data
- Different types of tables;
- Graphical presentations; and
- Graphs and charts

UNIT-III

8 hours

Measures of Central Tendency And Dispersion

- Formula and basic calculation of mean, median and mode
- Formula and basic calculation of standard deviation; and
- Coefficient of variation.

Correlation and Coefficient of Correlation

- Correlation definition

- Scientific presentations (Paper/Poster), Manuscript preparation- preparing and perform review & research dissemination.

COURSE OUTCOMES:

1. Apply basic concepts of Research methodology and Biostatistics relevant to Physiotherapists.
2. Utilize the concepts of Research methods and Biostatistics in planning and conducting professional and inter-professional research.
3. Gain knowledge and understanding of the concept of variables, measures of central tendency, measures of dispersion and concepts of descriptive and inferential statistics.
4. Demonstrate the use of basic research methods in analysing health care problems and biomedical data.
5. Ability to Perform statistical analysis of collected data using statistical tools & software and recommend solutions.

Text books:

1. Bratati Banerjee. Mahajan's Methods in Biostatistics for Medical Students and Research Workers, 2016 9th Ed. Jaypee Brothers ISBN-13: 9789352703104
2. C.R. Kothari Research Methodology: Methods and Techniques, 2019, 4th Ed. New Age International Publishers; ISBN-13: 9789386649225
3. Carolin Hicks research for physiotherapist

Reference books:

1. Suresh K Sharma Research Methodology and Biostatistics: A Comprehensive Guide for Health Care Professionals 1st ed. Elsevier India; 2016 ISBN- 13: 9788131246481.
2. Daniel, Wayne W. Biostatistics: A Foundation for Analysis in the Health Sciences, 10th edition
John Wiley & Sons; 2013. ISBN-13: 978-111-8302-798.
3. Indrayan A. Medical Biostatistics, 3rd Edition. Chapman and Hall/CRC Press; 2013. ISBN-13: 978-143-9884-140.
5. Barbara: Statistical methods for health care research
6. Darlene: documenting functional outcomes in physical therapy.

Applied Basics of Physiotherapy in Orthopedics and Manual Therapy

MPT T6503O L T P C

4 0 0 4

Course description:

This course includes a study of basic applied kinesiology and pathomechanics of the Musculo-skeletal conditions. It discusses relevant tests and measures for determining impairment and differentiating the differential diagnosis based on physical functional assessment and Clinical reasoning. The course offers patient-centered model of care with multi-system assessment, principles for physiotherapy treatment by various concepts of manual therapy based on current evidence to promote a healthy, active lifestyle and community-based living.

Course Objectives:

1. Apply and correlate the structure and function of skeletal and muscular system in functional anatomy of upper, lower extremity, spine and pelvis, Correlate the energy transfer and physical activity based on biology and chemistry of work physiology.
2. Clinical decision and plan for effective treatment by assess and plan strategies for management of various musculoskeletal disorders from neurological, cardio pulmonary problems vascular problems, and in gynaecological and obstetric conditions.
3. Understand Kinesiology and Patho mechanics of Upper and Lower Extremities, Head and Spine, Posture and Gait.
4. Demonstrate the Clinical skill in performing various kinds of joint evaluation and treatment specific to the concept and manual therapy in extremities and Spine.
5. Apply the knowledge of pharmacology and nutrition in various Musculoskeletal Disorders.

UNIT-I

8hours

Musculo Skeletal Anatomy:

- Embryology of Bones, Joints and Muscles
- Overview of Osteology, Arthrology, Myology,
- Applied and functional anatomy of Upper Extremities, Lower Extremities, Head, Neck, Spine and pelvis

Physiology and Energy system

- Overview of muscle tissue types, functions & properties, Morphology of skeletal muscles,
- Mechanism of contraction and relaxation of skeletal muscle, Neuromuscular transmission and Muscle metabolism
- Correlate the energy transfer and physical activity, exercise training and function .Subjects reference to weight control, age and health related aspects of exercise.

UNIT-II

20 hours

Fundamental concepts and Guideline for Physiotherapy Assessment and Documentation
Fundamental Concepts: Advanced Skills in Orthopaedic Physiotherapy evaluative procedures, Physical assessment including relevant investigations of musculoskeletal system and appropriate outcome measures. Clinical decision-making skills in assessment & management of musculoskeletal dysfunctions in neonates, paediatric, adult & geriatrics, Evidence based practice

Clinical Decision Making: Clinical reasoning and clinical decision making, Steps in patient and client management, Patient participation in planning, Clinical decision making: Expert verses novice

Influence of Values on Patient Care; Foundation for Clinical Decision-Making Process of decision making, Values and valuing. Code of ethics, The values of patient as a factor in care. The influence of the values on the primary goal of patient care, Value – Laden situation in rehabilitation

Physiotherapy Documentation:

Introduction of Documentation

Documenting the examination, Documenting the evaluation, Documenting the plan of care, Application of documentation skills

Physical Functional Diagnosis and Clinical Reasoning

Evaluation and Diagnosis:

Correlate history taking in terms of direct questions, social issues of patients, symptom analysis, analysis of pain, chronology, limitations in history taking, previous illness, special questions for women, occupational history genetic history and negative data in SOAP Format.

Process of Clinical Decision Making, expert versus Novice, Documentation, Psychosocial Concomitants to Disability and Rehabilitation, Environmental Assessment and Assessment of Vital Signs.

Introduction about Medical Imaging:

Principles of Diagnostic Imaging, includes Physics of conventional Radiography, Radiation safety and protection, Gastrointestinal contrast studies, Ultrasound, Computed tomography, Magnetic Resonance Imaging, Nuclear Imaging, Radiographic Contrast Media, Biopsy procedures

Introduction to Electro Diagnosis

UNIT-III

14 hours

Kinesiology and Pathomechanics

•Basic Biomechanical Principles of Human structure

Kinesiology and Patho mechanics of Upper and Lower Extremities

•Mechanics and Patho mechanics of Muscle Activity at the Shoulder Complex, Analysis of forces on the shoulder complex during activity

•Mechanics and Patho mechanics of Muscle Activity at the Elbow, Analysis of forces on the Elbow during activity

•Mechanics and Patho mechanics of Muscle Activity at the Forearm, Analysis of forces on the wrist during activity

•Mechanics and Pathomechanics of the special Connective tissues and in Intrinsic Muscles of

Hand

- Mechanics and Pathomechanics of pinch and Grasp
- Mechanics and Pathomechanics of Muscle Activity at the Hip Complex, Analysis of forces on the Hip complex during activity
- Mechanics and Pathomechanics of Muscle Activity at the Knee Complex, Analysis of forces on the Knee complex during activity
- Mechanics and Pathomechanics of Muscle Activity at the Ankle and Foot, Analysis of forces on Ankle and Foot during activity

Kinesiology and Patho mechanics Head and Spine

Head

- Mechanics and Pathomechanics of Muscles of face and Eyes
- Mechanics and Pathomechanics of vocalization and swallowing
- Mechanics and Pathomechanics of Muscles of Temporo mandibular Joint (TMJ), Analysis of forces on the TMJ during activity.

Spine

- Mechanics and Pathomechanics of Cervical Muscle Activity, Analysis of forces on the cervical spine during activity
- Mechanics and Pathomechanics of thoracic Muscle Activity, Analysis of forces on the thoracic spine during activity
- Mechanics and Pathomechanics of lumbar Muscle Activity, Analysis of forces on the lumbar spine during activity
- Mechanics and Pathomechanics of Pelvic Muscle
- Activity, Analysis of forces on the pelvis during activity

Posture and Gait

- Analyze normal posture and common postural abnormalities
- Analyze gait and common gait abnormalities.

UNIT-IV

12 hours

Recent Advances Soft Tissue Techniques and in Manual Therapy approaches (Soft tissue mobilization)

Foundational concepts in Manual therapy

History of Manual therapy

Biomechanical principles in Manual therapy

Concave-Convex rule, Close pack and Loose pack Positions, Resting positions, Joint status, Barrier concept, Fryette's Laws, Articular Neurology and Pain

Clinical reasoning in manual therapy

Physiological and accessory movements, biophysics of contractile and non-contractile tissues, response to mechanical loading.

Principles of articular neurophysiology and its clinical applications.

Clinical reasoning and differential clinical diagnosis based on various approaches such as Maitland, Kaltenborne, Cyriax, Mulligan, Meckenzie.

Joint manipulation – peripheral joints and vertebral joints.

Pilates-school of thought, Chiropractic school of thought, Osteopathic school of thought

Soft Tissue Techniques

Clinical application and reasoning of different soft tissue mobilizations like Myofascial Techniques, Neural Tissue Mobilization, and Muscle Energy Technique, Neuromuscular Taping techniques includes K tapping, Swiss ball therapy, PNF Techniques, Core strengthening, Proprioception and balance training, Plyometric training, Eccentric muscle training

Feldenkrais method, Alexander Technique, Aquatic physical therapy

Therapeutic exercise prescription as an adjunct to manual therapy

Electrotherapy Modalities application and treatment methods

UNIT-V

6 hours

Pharmacology

Definitions, Classification of Drugs, Routes of drug administration, Pharmacodynamics, Factors modifying drug response and adverse effects of drugs in general

Nutrition

Introduction to Nutrition: Role of nutrition in healthy body Food: Food groups, Role in nutrition & medicinal values

Elements of nutrition: Macro & micro nutrients, Calorie & Basal Metabolic Rate, Energy Requirement of different categories of people, Measurement of energy, Body Mass Index, Basal Metabolic Rate determination and factors affecting it, Nutrition during childhood, adulthood and special conditions.

COURSE OUTCOMES:

1. Gain knowledge about the structure and function of skeletal and muscular system in functional anatomy of upper, lower extremity, spine and pelvis, Correlate the energy transfer and physical activity based on biology and chemistry of work physiology.
2. Can make decision and plan for effective treatment by assess and plan strategies for management of various musculoskeletal disorders from neurological, cardio pulmonary problems vascular problems, and in gynaecological and obstetric conditions.
3. Understand Kinesiology and Patho mechanics of Upper and Lower Extremities, Head and Spine, Posture and Gait.
4. Able to perform various kinds of joint evaluation and treatment specific to the concept and manual therapy in extremities and Spine.
5. Apply the knowledge of pharmacology and nutrition in various Musculoskeletal Disorders.

Text books:

1. B.D Chaurasia's Human Anatomy – Regional and Applied; Volume I, Volume II & Volume III: 2013
2. William D. McArdle - Exercise Physiology – Energy, Nutrition and Human Performance: 1st Edition: 2013
3. Carol A Oatis - Kinesiology: The Mechanics and Pathomechanics of Human Movement: 3rd Edition 2016.

4. David J. Magee - Orthopaedic physical assessment: Edition 2014.
5. Maitland G.D. Boston, Butterworth & co. Boston - Vertebral manipulation: 2001
6. Maitland G.D. Boston, Butterworth & co. Boston - Peripheral manipulation: 2001
7. Susan B O Sullivan and Thomas J Schmitz - Physical rehabilitation 6th edition: 2013
8. John Ebenezar - Essentials of Orthopaedics for Physiotherapists Edition: 2013
9. John Elizabeth Cash & Patricia A Downie- Cash Text Book for Orthopaedics and rheumatology for physiotherapist Edition: 1992

Reference books:

1. Padmaja Udaykumar- Pharmacology for Physiotherapy: Edition 2014.
2. David Sutton, Churchill Livingstone - Text book of Radiology and Medical Imaging – Volume 1 & 2: Edition 2014.
3. Swaminathan M- Handbook of food and nutrition: Edition 2014.
4. Robin McKenzie - The Human Extremities: Mechanical Diagnosis & Therapy: Edition 2000.
5. Robin McKenzie - Cervical and Thoracic spine: Mechanical Diagnosis & Therapy: Edition 2000.
6. Robin McKenzie- The Lumbar Spine: Mechanical Diagnosis & Therapy: Edition 2000.
7. Lori Quinn, and James Gordon - Documentation for Rehabilitation: A Guide to Clinical Decision Making: Edition 2014.
8. Catherine C. Goodman, and Teresa Kelly Snyder - Differential Diagnosis for Physical Therapists: Edition 2000.
9. Rebecca Craik and Carol A Oatis- Gait Analysis: Theory and Application: Edition 1995.

Course description:

This course is implemented to provide in depth knowledge and skills in applied basics of neurological physiotherapy. On completion of this course the student will be able to understand, evaluate, synthesis and apply concepts of basic functional neurological assessment and overview of the management techniques adapted in neurological physiotherapy.

Course Objectives:

- 1.Synthesise Neuro anatomical concepts in functional diagnosis.
- 2.Apply Neuro physiological concepts in functional diagnosis.
- 3.Demonstrate nerve tension testing and basic nerve-tissue mobilization procedures.
- 4.Demonstrate neurological assessment by using scales and scores in practice and interpret appropriate investigatory procedure.
- 5.Apply clinical reasoning skills and critically appraise diagnostic procedures& demonstrate advanced physiotherapy interventions.

UNIT-I**5 hours**

Neuro Anatomy. Overview of Neuro anatomy related to brain and its functional areas, its. Clinical implications related to various levels of lesion in relevance to brain, spinal cord and lower motor neurons.

UNIT-II**10 hours**

Neuro Physiology

I. Physiology of pain, Peripheral and central pain mechanisms, theory of modulation of pain. Neurotransmitters, types and their clinical co-relation. Neurogenic pain- types, mechanism and its assessment

II.Tone and its regulation and abnormalities, Neurophysiology of special senses, Pyramidal Extra pyramidal system. Theories of motor control and theories of learning and its clinical implications. Neural development of posture and gait.

UNIT-III10 hours

Neuro Mechanics

Introduction: The mechanical interface, Nervous system adaptation to movement, The spinal canal, Neuraxis and meninges, Neuraxial and meningeal adaptive mechanism, SLR (straight leg raise),Upper limb adaptive mechanism, ANS adaptive mechanism, Tension points, Anatomy of tension points, Distribution of tension & movement, Amplitude of tension and movements distribution, Movement perpendicular to interface, Gravity & nervous system, Effects of sequence of additions and body positions, Altered neural biomechanics, Pathomechanics on various neurological disabilities.

UNIT-IV

20 hours

General Neurological Assessment:

Subjective Neurological Examination of the Patient Overview of Neurological history and neurological examination in the following: Mental functions, speech and language, Apraxia. Cranial Nerve Assessment, Assessment of motor system, Assessment of Sensory system, Assessment of Autonomic nervous system, signs of meningeal irritation and nerve root entrapment. Investigations related to Neurological conditions, reflex, movement, balance, posture, gait, ADL, bowel and bladder, Bed ridden complications.

- Overview of Scales and scores used in Neurological assessment- Evidence based approach on its validity and reliability

- Introduction to Investigations

- a) Principles of diagnostic imaging

- b) Interpretation of X-Ray, Ultrasound, CT, MRI, EEG, EMG, SD curve and FG testing.

UNIT-V

15 hours

CLINICAL DECISION MAKING IN PHYSIOTHERAPY

- a. Process of clinical decision making

- b. Clinical Decision Making – expert versus novice.

- c. Documentation

Physical Functional Diagnosis and Clinical Reasoning

- Introduction to Evaluation and Diagnosis:

- Communication with patients and accompanying persons, history taking in terms of direct questions, social issues of patients, symptom analysis, analysis of pain, chronology

- Limitations in history taking, previous illness, special questions for women, occupational history genetic history and negative data.

- Process of Clinical Decision Making, expert versus Novice, Documentation, Psychosocial Concomitants to Disability and Rehabilitation, Environmental Assessment and Assessment of Vital Signs.

Interventions

- Neurological approaches- Its Evidence based approach in relevance to clinical reasoning – strength, limitation and administration. Recent Gadgets and advancements in Neurological physiotherapy interventions.

COURSE OUTCOMES:

- 1.Gain knowledge on Neuro anatomical concepts in functional diagnosis.

- 2.Able to apply Neuro physiological concepts in functional diagnosis.

- 3.Demonstrate nerve tension testing and basic nerve-tissue mobilization procedures.

4. Demonstrate neurological assessment by using scales and scores in practice and interpret appropriate investigatory procedure.

5. Apply clinical reasoning skills and critically appraise diagnostic procedures & demonstrate advanced physiotherapy interventions

Text books:

1. Guyton. Textbook of Medical Physiology BSunders, 14 ed; 2020.

2. Berta Bobath, Abnormal Postural Reflex Activity Caused by Brain Lesions. 3rd ed. Aspen Publication; 1985

3. Vishram Singh. Textbook of Clinical Neuroanatomy. 3rd ed. Elsevier; 2017

4. Snell's Clinical Neuro anatomy by Ryan Splitt Gerber

Reference books:

1. Inderbir Singh. Text book of Human Neuroanatomy. 10th Ed. Jaypee; 2018

2. David Butler. Mobilization of Nervous system. 1st ed. Churchill Livingstone; 1991

3. Roger M. Enoka. Neuro mechanical Basis of Kinesiology; 1988

4. Lippincott Williams & Wilkins. Guidelines for Exercise Testing and Prescription, 8th ed. Philadelphia; 2009

5. Dunean & Badke. Determinants of Abnormal Motor Control, WBS.

6. G.K. Pal, Parvati Pal. Textbook of practical physiology. 2nd edition. Orient Longman; 2005

7. Ghai's textbook of practical physiology. 9th Ed. Jaypee brothers' medical publishers; 2018

8. Sujit K Chaudhuri. Concise medical physiology. 6th revised edition. New central agency; 2011

9. Susan O'Sullivan. Physical rehabilitation. 7th ed. Jaypee; 2019.

Applied Basics of Physiotherapy in Cardio Vascular and Pulmonary Conditions

MPT T6503C

L T P C

40 0 4

Course Description:

The course provides knowledge and understanding of common cardiovascular and pulmonary pathologies, the physical manifestations of such pathologies, clinical reasoning process in clinical assessment, diagnosis & therapeutic interventions, The students will develop communication and practical skills needed to competently assess and effectively treat patients with Cardiovascular and pulmonary disorders to predict and evaluate outcomes as well as develop programs for promotion of good Cardiovascular and pulmonary health for the prevention and recurrence of disease.

Course Objectives:

1. Acquire knowledge on the basic anatomy, physiology, biomechanics and pathomechanics of cardiovascular and respiratory system.
2. Correlate the knowledge of exercise physiology and respiratory system.
3. Describe the pharmacological and nutrition intervention used in cardiovascular and pulmonary conditions.
4. Assess the cardiovascular and respiratory status of the patient.
5. Demonstrate interpersonal and communication skills befitting a physiotherapist in order to discuss the illness and its outcome with patient; and family.

UNIT-I

24 hours

Applied Anatomy of Cardiovascular and respiratory system:

- Motion of rib cage – respiratory movements Primary & Accessory Muscles of ventilation Circulation and Ventilation in new born
- Lungs and its surface anatomy, Mediastinum, Pericardium
- Applied anatomy, Heart- location, layers of heart wall, and chambers of heart, vessels, valves, and its applied anatomy.
- Conducting system of heart.

Physiology - Cardio Vascular system.

- Introduction to Cardiovascular system
- Properties of Cardiac muscles
- Cardiac cycle, Heart sounds, Cardiac Murmurs.
- Control of cardiovascular system –Cardiac output in normal & stress conditions, venous return.

- Hemodynamic & Arterial blood pressure, Regulation of heart rate, Capillary pressure & venous pressure,

Physiology - Respiratory system

- Respiratory Tract, Pulmonary circulation
- Exchange & Transport of Respiratory Gases
- Regulation of Respiration, Artificial Respiration.
- Normal breathing patterns & abnormal breathing patterns,
- Lung defense mechanism,
- Respiration during sleep.

UNIT-II **12 hours**

Biomechanics & Patho mechanics of Respiration

Structure & function of Rib Cage Kinematics of Ribs & Manubrium sternum

Co-ordination & Integration of Ventilator Motion, Pathological changes of structure & function in COPD, Developmental aspects of structure & function - Neonates & Elderly.

Mechanism of coughing - the closure of the glottis, Cardiac mechanics. Vascular mechanics.

UNIT-III **10 hours**

Applied Exercise Physiology

- Energy Transfer in Body and exercise: Bio energetics, ATP-CP System, Glycolysis, Krebs's cycle Production, OBLA, O₂ debt, O₂ deficit & VO₂max
- Measurement of Energy expenditure: Energy expenditure at rest and physical activity Evaluation of energy system and physical fitness test: Exercise test for ATP-CP (Anaerobic)
- Enhancement of Energy Capacity: Anaerobic, Aerobic and Muscle Conditioning
- Environmental stress: Exercise at Medium, High Altitude and Thermal Stress

UNIT-IV **4 hours**

(A)Pharmacology

- Introduction, Definitions, Classification of drugs, Routes of drug administration, Pharmacokinetics, Pharmacodynamics, Factors modifying drug response, adverse effects.

(B)Nutrition

Introduction to Nutrition:

- Concepts & various aspects, Role of nutrition in healthy body Food: Macro & micro nutrients, Calorie & Basal Metabolic Rate, Food groups.

UNIT-V **10 hours**

Physical Functional Diagnosis and Clinical Reasoning

Introduction to Evaluation and Diagnosis:

- Communication with patients and accompanying persons, history taking in terms of direct questions, social issues of patients, symptom analysis, analysis of pain, chronology, limitations in history taking, previous illness, special questions for women, occupational history genetic history and negative data.
- Process of Clinical Decision Making, expert versus Novice, Documentation, Psychosocial Concomitants to Disability and Rehabilitation, Environmental Assessment and Assessment of Vital Signs

General Cardio Respiratory Assessment:

- Subjective Cardio Respiratory Examination of the Patient

Cardiac History: -

- Chest pain, dyspnoea, fatigue, palpitation, dizziness and syncope, cyanosis

Respiratory History: -

- Breathlessness, cough, sputum, haemoptysis, wheezing pain in chest
- Objective Cardio Respiratory Examination of the Patient in the following

General Cardiac Examination: -

- Inspection of the patient, arterial pulse,
- Measurement of B.P. Jugular venous pulse, palpitation of chest wall, auscultation of the heart, interpretation of E.C.G, Investigations related to Cardio vascular system.

General Respiratory Examination:

- Inspection of upper and Lower respiratory tract, Position of Trachea, position of apex beat, Symmetry of chest, chest deformities, spinal deformities movement of the chest.
- Palpation of tracheal tug, Inspiratory tracheal descent, confirmation of apical impulse, symmetry and measurement of chest expansion, Tenderness over the chest wall, Percussion, interpreting signs, Investigations related to Respiratory system.

Course Outcomes:

1. Gain knowledge on the basic anatomy, physiology, biomechanics and pathomechanics of cardiovascular and respiratory system.
2. Gain basic knowledge of exercise physiology and respiratory system.
3. Understand the pharmacological and nutrition intervention used in cardiovascular and pulmonary conditions.
4. Ability to assess the cardiovascular and respiratory status of the patient.
5. Learns interpersonal and communication skills befitting a physiotherapist in order to discuss the illness and its outcome with patient; and family.

Text books:

- 1.Frownfelter D, Dean E. Principles and Practice of Cardiopulmonary Physical Therapy – E-book: Evidence to practice, 5th Edition. Elsevier Health Sciences; 2014.ISBN: 9780323291170.
- 2.Irwin S, Tecklin JS. Cardiopulmonary Physical Therapy: A Guide to Practice, 4th Edition. USA: Mosby Inc.; 2004. ISBN: 9780323018401.
- 3.Eleanor M, Linda D. Cardiorespiratory Physiotherapy: Adults and Paediatrics. Elsevier; 2016. ISBN:9780702047312
- 4.Stuart Porter. Tidy's Physiotherapy. 15th edition. UK: Churchill Livingstone; 2013. ISBN-13: 978-070-2043-444.
- 5.Cardio Pulmonary rehabilitation, basic theory and application – Frances J. Brannon, Margaret Wiley
- 6.Cardiopulmonary Physiotherapy – Irwin, C.V.,Mosby
- 7.Essentials of Cardio-Pulmonary Physical Therapy by HillegassandSadowsky.

Reference books:

- 1.B.D Chaurasia's Human Anatomy – Regional and Applied; Volume I, Volume II and Volume III.
- 2.Exercise Physiology – Energy, Nutrition and Human Performance William McArdle
- 3.Exercise Physiology - Theory and application to fitness and performance Scott K.Powers
- 4.Clinical neurophysiology – EMG, Nerve conduction and evoked potentials – Colin. D. Binnie, Ray Cooper
- 5.Clinical electromyography – William F. Brown II Edition Charles F.Bolton
- 6.Kinesiology: The Mechanics and Pathomechanics of Human Movement(Recall Series) Hardcover – Import, 1 Apr 2008 carolA.oatis.
- 7.Concise Textbook of Pharmacologyby N. Murugesh
- 8.Pharmacology for Physiotherapy byPadmaja Uday kumar
- 9.Srilakshmi B Food science 4thedition
- 10.harma s wadhwaA nutrition in thecommunityMudambi S.R Rajagopal M.V Fundamentals of food nutrition and diettherapy.

Physiotherapeutic –I

Advanced Exercise Physiology including Exercise therapy

MPT T6504

L T P C

4 0 4 6

Course Description:

This course provides firm understanding of the basic physiological responses and adaptations of various human biological systems to resistance and aerobic exercise. The course will also highlight variations in responses and adaptations to exercises with age, gender and ethnicity. The practical component of the course will provide an opportunity to learn, hemodynamic, ventilator, metabolic responses to exercise, various lab-based exercise tests. Importance of psychological factors in human performance. The students will learn about psychological principles which can be used effectively to have a competitive edge in individual and team sport. This course will also cover how participation in sport, exercise and physical activity affects an individual's psychological development, health and well-being.

Course Objectives:

1. Illustrate the variations of responses and adaptations to exercise with age and gender.
2. Demonstrate estimation and measurement of resting metabolic rate and maximal aerobic capacity.
3. Demonstrate the effects of various ergogenic aids banned by WADA and NADA
4. Demonstrate the field and lab-based exercise tests and somatotyping.
5. Understand how psychological and social factors influence sport performance

UNIT-I

27 hours

GENERAL CONCEPTS OF THERAPEUTIC EXERCISES

Movements, Strength Training, Principles of Aerobic Exercises, Stretching, Hydrotherapy, Mobilizations and Proprioceptive Neuro Muscular Facilitation.

EXERCISE THERAPY EQUIPMENTS

i) Shoulder Wheel, ladder, Shoulder mobiliser, Shoulder pulleys, Elbow mobiliser, pronation –supination board, wrist mobiliser, Hand dynamometer, pinch dynamometer, wrist circumductor, hand gym board for finger and thumb.

ii) Multiple exerciser

iii) Cycle ergo meter

iv) treadmill-Motorized, manual

v) Stepper

- vi) Twister
- vii) Ramp for gait training, stair case training
- viii) Rowing machine
- ix) Thera bands
- x) Pedocycle
- xi) Tilting table
- xii) Peg board
- xiii) Re education board
- xiv) Quadriceps table
- xv) Multipurpose cervical chair

• EXERCISE PHYSIOLOGY

UNIT-II

14hours

NUTRITION:

- a) The bases for human performance
- b) Carbohydrates
- c) Lipids and proteins
- d) Vitamins
- e) Minerals & water
- f) Optimum nutrition for exercise

ENERGY FOR PHYSICAL ACTIVITY

- a) Energy value of food
- b) Introduction to energy transfer, energy transfer in the body –phosphate bond energy, energy released from food
- c) Energy transfer in exercise
- d) Measurement of human energy expenditure
- e) Human energy expenditure during rest and physical activity
- f) Energy expenditure during walking, jogging, running and swimming
- g) Individual differences and measurement of energy

SYSTEM OF ENERGY DELIVERY AND UTILIZATION:

The cardiovascular system, cardiovascular regulation and integration, functional capacity of cardiovascular system.

DYNAMICS OF PULMONARY VENTILATION:

Regulation of pulmonary ventilation, pulmonary ventilation during exercise, acid base regulation

UNIT-III

35hours

ENHANCEMENT OF ENERGY CAPACITY:

a) Training for anaerobic and aerobic power

b) Muscular strength: Training muscles to become stronger –strength measurement and resistance training, structural and functional adaptations to resistance training

c) Special aids to exercise training and performance

EXERCISE PERFORMANCE AND ENVIRONMENTAL STRESS

a) Exercise at medium and high altitude

b) Exercise and thermal stress- Mechanism of thermo regulation, Thermo regulation and environmental stress during exercise

c) Sport diving

d) Microgravity: the cost frontier

UNIT-IV

26hours

The Endocrine system; Organization, acute and chronic response to exercise

Body composition, Assessment, Weight control & Prescription of Exercises

Body composition, Energy balance and weight control

Body composition assessment, physique, performance and physical activity, overweight, obesity and weight control.

Exercise, successful ageing and disease prevention

Physical activity, health, ageing

a) Physical activity in the population

b) Ageing and physiologic function

c) physical activity, health and longevity

d) Coronary heart disease

Clinical Exercise physiology for cancer, cardio vascular and pulmonary rehabilitation.

UNIT-V

8 hours

EXERCISE PSYCHOLOGY

INTRODUCTION TO EXERCISE PSYCHOLOGY

Motivation, performance, Arousal stress and anxiety

Team dynamics, group cohesion, Psychology of athletic injuries, Arousal – performance relationship

Introduction to psychological skill training:

Arousal regulation

Imagery

Self-confidence

Concentration

Goal setting

Exercise behaviour, adherence, psychological wellbeing Addictive and unhealthy behaviours.

Course Outcomes:

- 1.Understand the acute physiological and training effects of exercise on cardiovascular, pulmonary, metabolic, renal, gastrointestinal systems and immune system.
- 2.Demonstrate the effects of extreme environment (heat, cold, high altitude, hyperbaric and space) on human body during exercise and interpretation of Abnormal heart electrophysiology.
- 3.Demonstrate the field and lab-based exercise tests and somatotyping.
- 4.Understand how psychological and social factors influence sport performance
- 5.Understand about health behaviours which can potentially influence exercise participation and adherence, in turn positive and negative health outcomes.

Text books:

- 1.. Axen:Illustrated principles of exercise physiology
- 2.Katch: Exercise physiology, energy nutrition and human performance
- 3.Frank:Exercise physiology for health care professionals
- 4.Kisner:therapeutic exercise foundation & technique
- 5.Dena gardener: exercise therapy

Reference books:

- 1.Basmajian:Therapeutic exercises
2. Kalten born: Mobilization of joints
- 3.Brunnstorm: movement therapy
- 4.Lamb: Physiology of exercises
- 5.Sharon A Plowman, Denise L Smith. Exercise Physiology for Health, Fitness and performance. 3rd edition

Course Description:

This course will enable the student to experience and develop an understanding of the clinical environment, to develop effective communication skills with patients, patient relative & other health care team members. Also, the students will be able to maintain the standards of professionalism in clinical setting when assessing, evaluating and treating patients with various systemic disorders. Further, this course will provide opportunity to the post graduate students to guide the undergraduate students in clinical setting.

Course Objectives:

1. Demonstrate advanced assessment procedures for patient with Musculoskeletal, Neurological and Cardiorespiratory conditions
2. Provide appropriate physiotherapy interventions that are consistent with currently established best practices to patients.
3. Document the patient information and clinical outcomes by using standard methods of assessment charts.
4. Respect the rights and dignity of the patient, family members and other health care team members as per the code of clinical ethics.

UNIT-I**120 hours**

Assessment, evaluation, planning and management of Musculoskeletal and sports conditions.

UNIT-II**120 hours**

Assessment, evaluation, planning and management of Neurological conditions

UNIT-III**120 hours**

Assessment, evaluation, planning and management of Cardiopulmonary and OBG conditions

II SEMESTER

Physiotherapeutic – II

Advanced Electro Physiology including Electro therapy

MPTT6505

L T P C

4 0 4 6

Course Description:

This course provides firm understanding and depth knowledge of Electrotherapy modalities their configurations, instrumentation and the principles on which the modalities work, the clinical implications, physiological effects and therapeutic effects and sound rationale for selecting the particular modality in a specific condition, justification of how the modality suitable for the particular condition and the various electrophysiological studies in the diagnosis of various diseases. The practical component of the course will provide an opportunity to learn, application of various therapeutic and diagnostic electrotherapy modalities.

Course Objectives:

1. Understand and illustrate the application of various electrotherapy modalities
2. Illustrate the recent advances in Electrotherapy
3. Demonstrate application and selection of suitable modality for particular condition.
4. Demonstrate various electrodiagnostic procedures used in neuromuscular junction disorders
5. Demonstrate various electrodiagnostic procedures used in various neurological diseases

UNIT-I

36 hours

ELECTROTHERAPY MODALITIES:

- i) Shortwave diathermy-pulsed and Continuous
- ii) Microwave diathermy- pulsed and Continuous
- iii) Ultrasonic therapy
- iv) Ultra violet therapy
- v) Infrared radiation
- vi) Laser therapy
- vii) Paraffin Wax bath
- viii) Cryotherapy
- ix) Moist heat therapy
- x) Contrasts bath
- xi) Electronic Traction

- xii) Iontophoresis
- xiii) Interferential therapy
- xiv) Transcutaneous Electrical nerve stimulation
- xv) Electrical stimulation – Faradic, Galvanic
- xvi) Dynamic currents
- xvii) Continuous Passive motion
- xviii) Fluid therapy
- xix) Electromyogram
- xx) Biofeedback

UNIT-II

20 hours

ELECTROPHYSIOLOGY

INTRODUCTION TO CLINICAL ELECTROPHYSIOLOGY

- a) History of Clinical Neurophysiology
- b) An introduction to electro diagnostic signals and their measurements

Excitable tissue-Nerve

- a) Excitation and conduction
- b) Measurement of electrical events
- c) Ionic basis of excitation and conduction
- d) Physiological basis of nerve
- e) conduction tests

Excitable tissue-Muscle

- a) Skeletal Muscle :Electrical phenomena and ionic fluxes, contractile responses, Physiological basis of EMG
- b) Cardiac muscle: Electrical properties, Electrocardiogram, and physiological basis of ECG
- c) Smooth muscle: Electrical properties

ELECTRICAL EVENTS

- a) Electrical events at synapse, chemical transmission of synaptic activity
- b) Electrical and ionic events in receptors
- c) Physiology of pain
- d) Electrical activity of the brain
- e) Electroencephalogram –physiological basis

UNIT-III

20 hours

CLINICAL NEUROPHYSIOLOGY

NERVE CONDUCTION STUDY

- 3.1) Principles of nerve conduction study
- 3.2) Median nerve
- 3.3) Ulnar nerve
- 3.4) Radial nerve
- 3.5) Brachial plexus
- 3.6) Cervical radiculopathy
- 3.7) Lumbar plexus and its terminal branches
- 3.8) Sacral plexus and its terminal branches
- 3.9) Lumbosacral radiculopathy
- 3.10) Anomalous innervations of extremities
- 3.11) Nerve conduction of non-limb nerves
- 3.12) Late responses
- 3.13) Autonomic nervous system testing

UNIT-IV

32 hours

ELECTROMYOGRAPHY & CLINICAL APPLICATION OF EMG AND NCV

- 4.1) Introduction to Electromyography
 - 4.2) Technique of Electromyography
- CLINICAL APPLICATION OF EMG AND NCV**
- a) Electromyographic findings in neurological disorders
 - b) Nerve conduction and EMG in Polyneuropathies
- Repetitive nerve stimulation
- c) Single fiber and macro electromyography

UNIT-V

20 hours

Evoked potentials Visual evoked potentials

Brainstem auditory evoked potentials

Somatosensory Evoked Potentials

Motor evoked Potentials

Course outcomes:

1. Gain knowledge of application of various electrotherapy modalities
2. Learn the clinical application of EMG AND NCV in neurological disorders.
3. Able to demonstrate application and selection of suitable modality for particular condition.
4. Demonstrate various electrodiagnostic procedures used in neuromuscular junction disorders
5. Demonstrate various electrodiagnostic procedures used in various neurological diseases

Text books:

1. Low and reed: Electrotherapy explained
2. U K Misra and J. Kalita: Clinical neurophysiology
3. Claytons: Electrotherapy

Reference books:

1. Kimura: Electrodiagnosis in disease of nerve and muscle
2. Nelson: clinical Electrotherapy
3. Kerb: Biofeedback
4. Josephkhan: Electrotherapy explained
5. Mel jack and Wall: Text book of pain
7. Prentice: Therapeutic modalities and sports medicine
8. Bernadette: Physical agents a comprehensive text for physical therapists

Applied Kinesiology and Corrective Exercise Prescription

MPTT6506

L T P C

4 0 0 4

Course Description:

Part one of human movement studies comprises fundamentals of physics and mathematics that are relevant to understand and analyze human movements in various sporting activities through theoretical and experimental methods. Second part of human movement studies encompass a review of musculoskeletal anatomy, biomechanics of the entire human body, problem-solving and three-dimensional analysis of human motion.

Course Objectives:

1. Explain Mechanics of Musculoskeletal System.
2. Explain Biomechanics of all major joints in human body.
3. To understand and apply Motor Learning & Performance in various human movements.
4. Data Collection & Analysis of Walking, Running, Jumps, Squats, Throwing, Postural Stability.
5. To understand and apply Corrective Exercise Prescription.

UNIT-I 15hours

Mechanics of Musculoskeletal System

- Tissue loads, response of tissues to forces- Stress, Strain, Stiffness and mechanical strength, visco elasticity
- Physical Properties of bone, cartilage, tendon and ligaments, functional adaptation under pathological conditions.
- Impaired neuromuscular control, muscular force regulation in Frame work and joints of the body: Influence of trauma and classification of the muscles, Relation of structure, functions, role of muscles, types of Muscle, contractions (Static, Concentric and Eccentric), Two joint Muscles, Angle of pull, Role of Gravity affecting muscular action.

UNIT-II 15hours

Biomechanics of

UPPER EXTREMITY JOINT COMPLEXES

- Biomechanics of shoulder and shoulder complex, elbow complex, wrist and hand complex

LOWER EXTREMITY JOINT COMPLEXES

- Biomechanics of pelvic, hip, knee, ankle & foot complex

UNIT-III 18hours

a) BIOMECHANICS OF SPINE

b) INTEGRATED FUNCTIONS OF POSTURE AND GAIT

UNIT-I V 10hours

Motor Learning & Performance:

- Individual differences and motor abilities
- Processing information and decision making
- Three memory system
- Sensory contributions to skilled performance
- Visual control of movement skill
- Movement production and motor programs
- Principles of Motor control
- Movement accuracy
- Movement learning
- Feedback during Movement learning
- Facilitation of Learning and Performance

UNIT-V10 hours Biomechanics and pathomechanics of posture, Lordotic posture - Kyphotic posture - Upper crossed syndrome - Lower crossed syndrome - Flat back or Posterior pelvic tilt posture - anterior pelvic tilt - forward head posture - winging of scapula - protracted shoulder girdle or “the rounded shoulder” - Scoliosis - Kinesiological analysis of Injury - Kinesiology in Injury Prevention

COURSE OUTCOMES:

1. Student can be able to explain Mechanics of Musculoskeletal System.
2. Explain Biomechanics of all major joints in human body.
3. Understand and apply Motor Learning & Performance in various human movements.
4. Data Collection & Analysis of Walking, Running, Jumps, Squats, Throwing, Postural Stability.
5. Understand and apply Corrective Exercise Prescription

Text Books:

1. Brunnstrom – Clinical Kinesiology, F.A. Davis.
2. Luttgens K., Hamilton N.: Kinesiology – Scientific Basis of Human Motion 9th Edi, 1997, Brown & Benchmark.
3. Rasch and Burk: Kinesiology and Applied Anatomy, Lee and Fabiger. 4. White and Punjabi – Biomechanics of Spine – Lippincott.
4. Kapandji: Physiology of Joints Vol. I, II & III, W.B. Saunders. Whittle, M. W. (2014).

5. Gait analysis: an introduction. Butterworth-Heinemann. 2. Perry, J., & Burnfield, J. M. (1992).

Reference Books:

1. Gait analysis: normal and pathological function. Slack. Inc., Thorofare, NJ Baker, R. (2013). Measuring walking: a handbook of clinical gait analysis. Mac Keith Richard A Schmidt &

2. Craig A Wrisberg,

3. Motor Learning and Performance, Human Kinetics, 2nd edition, 2000 Richard A. Magill,

4. Motor Learning and Control: Concepts and Applications, McGraw-Hill, 200

**Physiotherapy assessment and Evaluation in
Musculoskeletal Conditions**

MPT T65070

L T P C

4 0 4 6

Course description:

This course includes musculoskeletal assessment and Clinical reasoning to diagnose for various musculoskeletal disorders of Upper and lower Extremities. This course offers to identify patient problems and select and apply principle and specific concept of manual therapy and soft tissue techniques used in physiotherapy management based on current evidence in order to enhance healthy, active life style and community-based living.

COURSE OBJECTIVES:

1. Interpret assessment, selection of radiological investigations and interpretation to rule out injuries in Musculoskeletal disorders.
2. Principles and Concepts Patient history, Observation, Examination.
3. Principles, Scanning examination, Examination of specific joints, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, Diagnostic Imaging.
4. Understand Musculoskeletal disorders and identify patient problems and apply principle and specific concept of assessment.
5. Understand Musculoskeletal traumatic disorders and identify patient problems and apply principle and specific concept of assessment.

UNIT-I

6hours

Head and Face

Patient History, Observation,

Examination:

Examination of the Head,

Examination of the Face,

Examination of the Eye,

Examination of the Nose,

Examination of the Teeth,

Examination of the Ear,

Special Tests,

Reflexes and Cutaneous Distribution,

Joint play Movements,

Palpation,

Diagnostic Imaging.

Assessment & evaluation of pain.

Apart from the above student is expected to learn assessment and evaluation in the following clinical conditions (Pre operative & Post operative)

UNIT-II 12 hours

SHOULDER

Patient History, Observation

Examination: Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

ELBOW

Patient History, Observation

Examination: Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

FOREARM, WRIST AND HAND

Patient History

Observation: Common Hand and Finger Deformities

Other physical Findings

Examination: Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

UNIT-III

6 hours

CERVICAL SPINE

Patient History, Observation,

Examination: Active movements, Passive movements, Resisted Isometric Movements, Peripheral Joint Scanning Examination, Myotomes, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, Diagnostic Imaging

TEMPEROMANDIBULAR JOINT

Patient History, Observation

Examination: Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging

THORACIC (DORSAL) SPINE

Patient History, Observation:

Kyphosis, Scoliosis, Breathing, Chest Deformities.

Examination: Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play

Movements, Palpation, and Diagnostic Imaging

LUMBAR SPINE

Patient History, Observation

Examination: Active movements, Passive movements, Resisted Isometric Movements, Peripheral Joint Scanning Examination, Myotomes, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

PELVIS

Patient History, Observation,

Examination: Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

UNIT-IV

6hours

HIP

Patient History, Observation,

Examination: Active movements, Passive movements, Resisted Isometric Movements Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

KNEE

Patient History, Observation,

Examination: Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play

Movements, Palpation, and Diagnostic Imaging.

LOWER LEG, ANKLE AND FOOT

Patient History, Observation,

Examination: Active movements, Passive movements, Resisted Isometric Movements,

Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

UNIT-V10 hours

Assessment of Gait

-Normal Patterns of Gait: Stance Phase, Swing Phase, Joint motion during normal gait
Normal Parameters of Gait :Base width, Step length, Stride length, Lateral pelvic shift, Vertical pelvic shift, Pelvic rotation, Centre of gravity, Normal cadence,.

-Overview and patient History

-Observation: Foot Wear

-Examination: Locomotion score, Compensatory Mechanisms Abnormal Gait: Antalgic (painful) Gait, Arthrogenic (stiff Hip or Knee) Gait, Ataxic Gait, Contracture Gaits, Equinus Gait, Gluteus Maximus Gait, Gluteus Medius (Trendelenburg's) Gait, Hemiplegic or Hemiparetic Gait, Parkinsonian Gait, Plantar flexor Gait, Psoatic limp, Quadriceps Gait, Scissors Gait, Short Leg Gait, Steppage or Drop Foot Gait.

Assessment of Posture

Postural development: Factors affecting posture, Causes of poor posture

Common spinal Deformities: Lordosis, Kyphosis, Scoliosis

Patient History

Observation: Standing, Forward Flexion, Sitting, Supine Lying, Prone Lying

Examination

Assessment of the Amputee

Levels of amputation

Patient History, Observation,

Examination: Measurements related to Amputation, Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Sensation Testing, Psychological Testing, Palpation, and Diagnostic Imaging.

Course Outcomes:

1. Interpret assessment, selection of radiological investigations and interpretation to rule out injuries in Musculoskeletal disorders.

2. Principles and Concepts Patient history, Observation, Examination.

3. Understand the Principles, Scanning examination, Examination of specific joints, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, Diagnostic Imaging.

4. Understand Musculoskeletal disorders and identify patient problems and apply principle and specific concept of assessment.

5. Understand Musculoskeletal traumatic disorders and identify patient problems and apply principle and specific concept of assessment.

Text books:

- 1.Susan B O Sullivan and Thomas J Schmitz - Physical rehabilitation- 4& 5th edition 2006
- 2.International Classification of Functioning, disability and health: ShortVersion. (WHO Publication)
- 3.John Ebenezar- Essentials of Orthopaedics for Physiotherapists- 3rd edition 2016
- 4.S. Terry Canale, James H. Beaty - Campbell's operative Orthopaedics- 14th edition 2016
- 5.Cash Text Book for Orthopaedics and rheumatology for physiotherapist by John Elizabeth Cash & Patricia A Downie – Lippincott
- 6.Michelle M. Lusardi - Orthotics and Prosthetics in Rehabilitation, 2nd edition 2006
- 7.S Brent Brotzman- Clinical Orthopaedic Rehabilitation, 2nd edition 2003

Reference Books:

- 1.Mia Erickson, Ralph Utzman- Physical therapy Documentation: From examination to outcome, 1st Edition 2008
- 2.Ginge - Writing SOAP Notes with Patient / Client management, 3rd Edition 2003
- 3.Rob Herbert, GroJamtvedt, Judy Mead, KareBirger Hagen Elsevier Butterworth Heinemann - Practical Evidence-Based Physiotherapy; -2nd Edition 2011
- 4.Ronald McRae- Clinical Orthopaedic Examination – 6th edition 2010

Advances in Physiotherapy Diagnosis and Management of Pediatric Neurological Conditions

MPT T6507N

L T P C

4 046

Course Description:

This course enables the student to develop essential knowledge and skills to administer the assessment and advanced treatment techniques for various pediatric neurological disorders. Also, this course enables the students to evaluate high risk infants with appropriate use of assessment tools and transfers information on the evidences associated with PT management. Further, the candidate will also learn to select the required assessment procedure, appropriate treatment techniques and perform research in the field of pediatric physiotherapy.

Course Objectives:

1. Basic knowledge about the growth and development and developmental defects.
2. Apply the advanced assessment and investigatory procedures to evaluate the neurological signs and symptoms in various pediatric neurological disorders.
3. Evaluate the high-risk infants with appropriate neurological functional assessment tools to select suitable neurological interventions.
4. Describe the various theories of child development and demonstrate reflexes and reactions of new born.
5. Demonstrate the advanced neurological rehabilitation procedure to manage various paediatric neurological conditions.

UNIT-I

12 hours

GROWTH AND DEVELOPMENT

Foetal development

Somatic development of foetus

Neurological development of foetus

Behavioural development of foetus

Development after birth

Growth of the Nervous system includes

I. Myelination

ii. Synapses

iii. Blood brain barrier

iv. Cerebral blood flow

v. Motor development

- Motor development theories
- Developmental processes and principles
- Stages of motor development
- Gross Motor development, Fine Motor development, social behavior development

Reflexes and Reactions

- Survival and vestigial reflexes
- Attitudinal postural reflexes
- Righting reactions
- Balance reactions

UNIT-II

18 hours

PEDIATRIC NEUROLOGICAL CONDITIONS

PRINCIPLES OF EVALUATION AND CONDITION SPECIFIC INTERVENTIONS

CONGENITAL DISORDERS

A. Developmental defects of the spinal cord

i. Neural tube defects

ii. Diastematomyelia

iii. Klippel Feil Syndrome

A. Developmental defects of the Cranial - cervical junction (Developmental coordination disorders)

i. Arnold -Chiari malformation

ii. Platybasia

iii. Basilar impression.

B. Developmental defects of the Brain stem.

i. Mobius Syndrome

ii. Cerebellar dysgenesis

iii. Dandy walker syndrome

C. CEREBRAL PALSY

D. SPINAL CORD INJURY

E. GULLAIN BARRE SYNDROME

F. MUSCULAR DYSTROPHIES

- G. SPINAL MUSCULAR ATROPHY
- H. INFECTIOUS DISEASES OF BRAIN
- I. BRACHIAL PLEXUS INJURY
- J. BRAIN INJURIES
- K. POLIOMYELITIS
- L. ASD (autism spectrum disorders)

UNIT-III 6 hours

High-Risk Infants

- Neurological Development of the High- Risk Infants
- High risk factors, Preterm Infants
- Evaluation of High Risk Infants

Early Intervention and follow up Program for High Risk conditions

Neonatal Neurobehavioral Examination

- Neurological Assessment of Pre-Term and Full-Term Newborn Infant
- Faces Rating Scale
- Levels of Neonatal care
- Role of Physiotherapist in NICU & Techniques used in NICU
- Theories of Motor development
- The NIDCAP Approach

UNIT-IV

10 hours

Neuro-Assessments and Diagnostics:

- Developmental screening
- Preterm assessment
- Assessment of maturity
- Neonatal assessment of full term infant
- Overview of pediatric neurological, musculoskeletal and cardiopulmonary
- Milani-comparetti motor development screening test
- Denver II Developmental Screening Test
- Tests of Motor Function
- Movement Assessment of Infants

- Tests of Infant Motor Performance
- Alberta Infant Motor Scale
- Gross Motor Function Measure
- Peabody Developmental Motor Scales
- Bruininks-Oseretsky Test Of Motor Performance
- Comprehensive Developmental Scales
- Gesell Developmental Scales
- Bayley Scales of Infant Development
- Neurological Scale Traumatic Brain Injury
- Adelaide Pediatric Coma Scale
- Pediatric Rancho Scale
- Spinal Cord Injury
- ASIA Impairment Scale Brachial Plexus Injury
- Active Movement Scale
- Mallet's Classification of Function in Obstetric Brachial Plexus Palsy

Laboratory investigations and diagnostic tests

- Computerized Tomography Scan (CT)
- Magnetic Resonance Imaging(MRI)
- Electromyography(EMG)
- Nerve Conduction Study,

Evoked Potentials

UNIT-V

14 hours

1. Special approaches
 - Neuro developmental therapy(NDT)
 - Sensory motor approach
 - Sensory integration therapy
 - Roods Approach
 - Vojta Therapy
 - Proprioceptive neuromuscular facilitation

- Electro myography biofeedback
 - Constraint-induced movement therapy
2. Vestibular rehabilitation in Pediatric population

Course Outcomes:

1. Ability to apply the procedures of advanced assessment and investigations to evaluate the neurological signs and symptoms in various paediatric neurological disorders.
2. Evaluate the high-risk infants with appropriate neurological functional assessment tools to select suitable neurological interventions.
3. Gain knowledge of various theories of child development and demonstrate reflexes and reactions of new born.
4. Ability to evaluate primitive and pathological reflexes.
5. Demonstrate the advanced neurological rehabilitation procedure to manage various paediatric neurological conditions.

Text Books:

1. Treatment of Cerebral Palsy & Motor Delay, Sophie Levett, 4th edition, 2004 Blackwell Publishing.
2. Neurological Rehabilitation, Darcy A. Umphred, 4th & 5th edition, 2007, 2001, MOSBY Elsevier
3. Reflex and Vestibular Aspects of Motor Control, Motor Development and Motor Learning, R. Barnes, Carolyn A Crutchfield, 1990, Stokesville Publishing Company.

Reference books:

1. Pediatric Therapy, A Systems Approach, Susan Miller Porr, 1999, F.A. Davis
2. Pediatric Physical Examination, Karen G. Dunderstadt, 2006, MOSBY Elsevier.
3. Clinics in Physical Therapy Assessment in Early Infancy, Edited by Irmaj. Wilhelm, 1993, Churchill Livingstone.
4. Motor Assessment of the Developing Infant, Martha C. Piper, 1994, Saunders

Physiotherapy assessment and Evaluation in Cardio Vascular and Pulmonary Conditions

MPT T6507C

L T P C

4 0 4 6

Course Description:

This course enables the student to develop essential knowledge and skills to administer the diagnostic procedures and advanced treatment techniques for various paediatric musculoskeletal and cardio pulmonary disorders. Also, this course enables the students to evaluate paediatric oncology and burns conditions with appropriate use of assessment tools and transfers information on the evidences associated with PT management. Further, the candidate will also learn to select the required diagnostic procedure, appropriate treatment techniques and perform research in the field of paediatric physiotherapy

Course objectives:

- 1.Acquire knowledge on the goals of pediatric musculoskeletal disorders and related pulmonary diseases and their diagnosis and its management.
- 2.Acquire knowledge on the goals of pediatric cardio pulmonary diagnostics and its management.
- 3.Apply the pediatric physical therapy interventions for oncology and burns conditions.
- 4.Design and develop new intervention program and apply it as evidencebased practice in the field of pediatric physiotherapy.
- 5.To demonstrate interpersonal and communication skills and approach the patients, relatives, and caregivers with empathy.

UNIT-I

8 hours

Measurements & Documentation

1. Measurements

Types of measurements. Selecting measurements, Performing measurements. Interpreting measurements.

2. Documentation

Purpose of documentation, Types of documentation,

General guidelines for content and organization.

i) Subjective information,

ii) Objective information,

ii) Assessment,

iv) Plan,

v) Summary

HISTORY

History of Illness, past medical history, present medical history, occupational history, Social history, history of personal habits (smoking), family history, prior physiotherapy treatment history.

UNIT-II 10 hours

GENERAL RESPIRATORY EVALUATION & chest examination

History, chest examination.

Components of Chest Examination

1. Inspection

- a. Evaluation of general appearance, topographical anatomic land marks.
- b. Specific evaluation of head and neck.
- c. chest wall configuration, chest wall deformities
- d. Evaluation of unmoving chest.
- e. Evaluation of moving chest, breathing pattern.
- f. Evaluation of speech, breath, cough, and sputum and their guidelines.
- g. Anemia, Cyanosis, Clubbing, Respiratory Pattern.

2. Auscultation

- a. The stethoscope.
- b. Nomenclature & Interpretations of breath sounds.
- c. The examination technique.
- d. Interpretation of examination.

UNIT-III 14 hours

Diagnostics for Cardio pulmonary conditions

Electrocardiography (ECG) and Pulmonary Function Tests.

- Arterial Blood Gas Analysis and Exercise Testing
- Oucher Scale
- Dyspnea Index

- 6-Min Walk Test
- Berg Rate of Perceived Exertion Scale

UNIT-IV 14 hours

Management for Cardio pulmonary conditions

- Respiratory problems in neonates –

Respiratory failure in neonates, Conditions requiring mechanical ventilation Pulmonary conditions – Asthma, Cystic Fibrosis, Infant Respiratory Distress Syndrome, pneumonia, lung abscess, Bronchiectasis, bronchitis, Pertussis, chronic lung diseases, primary ciliary dyskinesia, fatigue, sleep apnea, hyperventilation syndrome, Broncho pulmonary Dysplasia

UNIT-V 14 hours

- Musculoskeletal System Impairments and Neuromuscular System Impairments Influencing pulmonary function.

- Role of Physical therapist in Neonatal and Pediatric Intensive care units
- Cardiopulmonary resuscitation in children
- Obesity in childhood
- Cardiac conditions - Cardiovascular structural deficits
- Rheumatic heart diseases Chest injuries in paediatrics.
- Cardiac and thoracic surgeries

Course Outcomes:

1. Acquire knowledge on the goals of paediatric musculoskeletal disorders causing pulmonary dysfunction and its management.
2. Acquire knowledge on the goals of paediatric cardio pulmonary diagnostics and its management.
3. Physical therapist Role in Neonatal and Paediatric Intensive care units
4. Ability to develop new intervention program and apply it as evidence-based practice in the field of paediatric physiotherapy.
5. Gain knowledge on role of physiotherapy in cardiac and thoracic surgeries.

Text books:

1. Cardiovascular & Pulmonary Physical Therapy evidence & practice, Elizabeth Dean & Donna Frownfelter, 3rd (1996) & 4th (2006) editions, MOSBY Elsevier.
2. Physiotherapy in Paediatrics, Roberta B. Shepherd, 3rd edition, 1995, Butterworth Heinemann.

Reference books:

1. Pediatric Physical Therapy, Jan Stephen Tecklin, 3rd (1999) and 4th (2008) editions, Lippincott Williams & Wilkins.
2. Physical Therapy for Children, Suzann K. Campbell, 3rd edition, 2006, Saunders Elsevier.

Evidence based physiotherapy and clinical reasoning

MPT T6508

L T P C

2 0 0 2

Course Description:

This course provides principles of Evidence based practice which integrates for Physiotherapy practice. Evidence based physiotherapy and clinical reasoning course provides a platform and enables students to analyse the rationale for choosing recent advancement in physiotherapy interventions to promote high quality practices.

Course Objectives:

1. Describe the concepts of EBP
2. Describe reliable sources for locating evidence reports and clinical practice guidelines
3. Determining the scope of evidence for best clinical practice
4. Identify evidence-based rationale when developing and/or modifying clinical questions
5. Identify the evidence reports related to clinical practice topics and guidelines

UNIT-I

5 hours

Evidence based practice

- Introduction to Evidence Based Practice:
- Definitions, Evidence Based Practice
- Evidence Based Physiotherapy Practice

Evidence based Physiotherapy

- Concepts of Evidence based Physiotherapy and its approach in various specialties

UNIT-II

5 hours

Inter professional practice

- Development of Evidence based knowledge,
- The Individual Professional, Professionals within the discipline, Professionals across disciplines

Evidence Based Practitioner

- The Reflective Practitioner, The E Model, Using the E Model
- Five E's: 1) evidence, 2) expectations, 3) environment, 4) ethics, and 5) experience.

UNIT-III 10hours

Clinical reasoning

Implementation of recent advancement in physiotherapy with relevant evidences

PICO format (Problem, Intervention, Comparison and Outcomes)

- PICO steps
- PICO statement for the given case scenario

Evidence

- Assessing the Evidence: Evaluating the evidence; Levels of evidence in research using quantitative methods
- Levels of evidence classification system, Outcome Measurements, critical review of research using qualitative methods

UNIT-IV

5 hours

Systematic review

- Systematically reviewing the evidence: Stages of systematic reviews,
- Meta-analysis,
- The Cochrane and other clinical databases

Tracking Original research:

- Research articles and how to find them
- Research methods used in research articles published

UNIT-V

5 hours

CAT and CPG

- CAT: Using the evidence: Building evidence in practice; Critically Appraised Topics (CATs), CAT format, Using CATs, Drawbacks of CATs
- Practice guidelines, algorithms, and clinical pathways: Recent trends in CPG: health care, Clinical Practice Guidelines (CPG) Algorithms, Clinical pathways, Legal implications in clinical pathways and CPG.

Course Outcomes:

1. Gain knowledge on Concepts of Evidence based Physiotherapy
2. Development of Evidence based knowledge
3. Systematically reviewing the evidence
4. Using Practice guidelines, algorithms, and clinical pathways
5. Knowing how to find Research articles .

Text Books

1. Law M, MacDermid J. Evidenced-Based Rehabilitation: A Guide to Practice. 3rd Edition. USA: SLACK Incorporated; 2013. ISBN-13: 978-161-7110-214.

2. Herbert R, Jamtvedt G, Mead J, Hagen KB. Practical Evidence-Based Physiotherapy. 1st Edition. USA:Butterworth-Heinemann; 2005. ISBN-13: 978-075-0688-208
3. Fettes L, Tilson J. Evidence Based Physical Therapy. 1st Edition. USA:F.A. Davis Company; 2012. ISBN-13: 978-080-3637-863.

Research Dissertation

MPT P7502O, MPT P7502N, MPT P7502C

L T P C

1 0 0 1

Course description:

The Research Dissertation course enables students to develop knowledge and understanding of a specialist area of research problem within the broad fields of physiotherapy associating within the specialty and transformative with multidisciplinary and interdisciplinary programs. The course is intended to be conducted through individual supervision and training, Student should carry out the procedure for identifying sources of evidence, designing and developing empirical methods to access the intended study procedure and obtain Institutional approvals.

Course Objectives:

1. Analyse innovative methods and techniques to solve research problem.
2. Review in a critical manner on evidences applicable for research design and study methods to proceed with research
3. Describe study procedures and prepare high quality research framework to obtain institutional approvals for conducting research process.
4. Apply research work in health science and process for dissemination
5. Analysing the feasibility and doing research

UNIT-I

5 hours

Introduction to research dissertation

- Initiation of research process
- Developing research question
- Analysing feasibility

Methods of writing research letter of intent

UNIT-II

10 hours

Critical Review of selected research title

- Compiling evidences
- Reviewing evidences
- Analysing various high level evidences

Drafting literature review by analysing systematically.

UNIT-III

10 hours

Research proposal development

- Analysing feasibility
- Writing research proposal

Internal Review of research proposal

UNIT-IV

5 hours

Procedural approval

- Research proposal Submission guidelines
- Application to ISRB-Institutional scientific review Board(Internal & external) for procedural and ethical considerations
- Carry out the suggestions of the board

Final submission of research proposal after approval

Course outcomes:

1. Analyse innovative methods and techniques to solve research problem.
2. Review in a critical manner on evidences applicable for research design and study methods to proceed with research
3. Describe study procedures and prepare high quality research framework to obtain institutional approvals for conducting research process.
4. Apply research work in health science and process for dissemination
5. Ability to Analyse the feasibility and doing research

References:

1. Bratati Banerjee. Mahajan's Methods In Biostatistics For Medical Students And Research Workers,2016 9th Ed. Jaypee Brothers ISBN-13: 9789352703104
2. C.R.Kothari Research Methodology:Methods And Techniques, 2019,4th Ed. New Age International Publishers; ISBN-13: 9789386649225
3. Suresh K Sharma Research Methodology and Biostatistics: A Comprehensive Guide for Health Care Professionals1st ed. Elsevier India; 2016 ISBN- 13:9788131246481.
4. Daniel, Wayne W. Biostatistics: A Foundation for Analysis in the Health Sciences, 10th edition. John Wiley & Sons; 2013. ISBN-13: 978-111-8302-798.
5. Indrayan A. Medical Biostatistics, 3rd Edition. Chapman and Hall/CRC Press; 2013. ISBN-13: 978-143-9884-140.
6. Scientific databases- PUBMED, SCOPUS, Google Scholar,

7. Institutional letter of Intent Guidelines

8.ISRB research proposal guidelines

Clinical Training-II (Specialty)

MPTL6503

L T P C

0 0 15 7.5

Course Description:

This course will enable the student to demonstrate appropriate therapeutic care by adhering ethical, moral and legal aspects of competencies. Also, this course aimed at the students to develop collaborative work with inter-professional teams to enhance patient safety and improve quality of care. Further, this course will provide opportunity to develop a self-directed plan for professional development and lifelong learning.

Course Objectives:

1. Develop appropriate treatment plan related to the patient's pathology, impairments, functional limitations and disabilities with justification
2. Perform physical therapy interventions in a safe, effective and competent manner based on relevant clinical evidence and guidelines
3. Show highest level of professional behaviour during physiotherapy practice and clinical research activities in health care settings.
4. Participate in self and professional development activities to enhance the physiotherapy practice.
5. Evidence based practice of physiotherapy protocols

UNIT-I 120 hours

Documentation, Application of physiotherapy services & Administration in respective specialty departments.

UNIT-II

120 hours

Conducting clinical research activities in respective specialty departments.

UNIT-III

120 hours

Clinical case presentation and case discussions

Course Outcomes:

1. Develop appropriate treatment plan related to the patient's pathology, impairments, functional limitations and disabilities with justification
2. Perform physical therapy interventions in a safe, effective and competent manner based on relevant clinical evidence and guidelines

3. Show highest level of professional behaviour during physiotherapy practice and clinical research activities in health care settings.
4. Participate in self and professional development activities to enhance the physiotherapy practice.
5. Evidence based practice of physiotherapy protocols

Text books

1. Magee, David J. Orthopedic Physical Assessment. 6th ed. Canada: Saunders Elsevier; 2014. ISBN-13: 978-1455709779
2. Susan B O'Sullivan, Physical Rehabilitation 6th Edition, 6 edition F A Davis; 2013. ISBN-13: 978-0803625792
3. Frownfelter D, Dean E. Principles and Practice of Cardiopulmonary Physical Therapy – E- book: Evidence to practice, 5th Edition. Elsevier Health Sciences; 2014. ISBN : 9780323291170.
4. Irwin S, Tecklin JS. Cardiopulmonary Physical Therapy: A Guide to Practice, 4th Edition. USA: Mosby Inc.; 2004. ISBN: 9780323018401.
5. Jan S. Tecklin Pediatric Physical Therapy, Fifth edition, LWW; 2014 ISBN-13: 978-1451173451 William H. Staples, Geriatric Physical Therapy. 1st Edition. McGraw-Hill Education / Medical; ISBN-13: 978-007182542

III SEMESTER

Advances in Physiotherapy Diagnosis and Management of Musculoskeletal Disorders of Upper and Lower Extremities

MPT T7501O

L T P C

6 0 6 9

Course description:

This course includes musculoskeletal assessment and Clinical reasoning to diagnose for various musculoskeletal disorders of Upper and lower Extremities. This course offers to identify patient problems and select and apply principle and specific concept of manual therapy and soft tissue techniques used in physiotherapy management based on current evidence in order to enhance healthy, active life style and community-based living.

Course Objectives:

1. Interpret assessment, selection of radiological investigations and interpretation to rule out injuries in upper and Lower Extremities
2. Application of ICF Coding in disability assessment and Modification prescription to architectural and workstation Environment
3. Understand Musculoskeletal disorders and identify patient problems and apply principle and specific concept for physiotherapy management based on current evidence
4. Understand Musculoskeletal traumatic disorders and identify patient problems and apply principle and specific concept for physiotherapy management based on current evidence
5. Enhance recent research in soft Tissue techniques and recent advances in manual therapy approaches in physiotherapy management

UNIT-I

16 hours

Introduction to Principles of Orthopaedic Physiotherapy Assessment:

History taking and subjective examination, vital signs, Psycho social assessment in physiotherapy management and disability, clinical classification of flag findings, observational findings, Palpation skills, anthropometric Characteristics, Range of Motion, accessory joint motions, Muscle performance, reflexes and cutaneous distribution, posture, gait, special tests for musculoskeletal system. Functional assessment and outcome measures, differential diagnosis, provisional diagnosis, Investigations and imaging considerations in orthopaedic physiotherapy

UNIT-II

18 hours

Introduction to Assessment of Disability :

Disablement and Enablement Concepts for Physiotherapy Research and

Practice by

- Traditional model
- Consequences of disease model

- NAGI model
- International Classification of Impairments Disability and Handicap model (ICIDH – 1)
- National Center for Medical Rehabilitation Research Model 1 & 2(NCMRR)
- Components of Health
- International Classification of Functioning, Disability and Health (ICF / ICIDH - 2)

ICF Coding

History and development of the ICF

The ICF and the WHO family of international classifications

Components of the ICF, ICF coding, Benefits of Using ICF

UNIT-III

24 hours

Advanced Physiotherapeutic Clinical reasoning and management in Musculoskeletal disorders of Upper and lower Extremities

Regional Conditions:

Definition, Predisposing factors, Biomechanics and Pathomechanical Assessment and Investigations, Differential Diagnosis, Physical Diagnosis and Clinical reasoning, Prognosis, identify patient problems and principles for physiotherapy treatment specific to the concept and manual therapy based on current evidence in extremities.

- Regional Orthopaedic Conditions of upper and Lower Extremities
- Soft Tissue injuries, Chronic inflammatory and over use syndromes of upper and Lower Extremities
- Degenerative joint Diseases of upper and Lower Extremities
- Infective joint Diseases of upper and Lower Extremities
- Inflammatory joint Diseases of upper and Lower Extremities
- Metabolic, Tumor and Hormonal Disorders of upper and Lower Extremities
- Congenital and Acquired Deformities of upper and Lower Extremities
- Nerve Injuries – Peripheral Nerve Injury and Lesions of Brachial Plexus

Hand conditions

Biomechanics and pathomechanics of the hand, sensory, scar, wound, muscle evaluation and treatment specific to the concept and recommendations, Prescription of orthotics and prosthetics for effective functional and vocational rehabilitation

UNIT-IV

16 hours

Advanced Physiotherapeutic Clinical reasoning and management in traumatic conditions of Upper and lower Extremities

Fractures and Dislocations

Definition, Types, Mechanism of injury Predisposing factors, Biomechanics and Pathomechanical assessment and investigations, Differential Diagnosis, Physical Diagnosis and Clinical reasoning, Prognosis, identify patient problems and principles for physiotherapy treatment specific to the concept and manual therapy based on current evidence in extremities.

- Introduction to General fractures of bone and joints and classification of fractures
- Fracture Healing and Repair
- Introduction to dislocation & recurrent dislocations of Joints
- Injuries and fractures and dislocations of upper and Lower Extremities and Hand Injuries
- Principles and physiotherapy management for Arthrodesis, Arthroplasty
- Osteology, Bone grafting
- Orthopaedic implants, Internal fixations, external fixations and Orthopedic implants
- Distraction and limb reconstruction
- Correction of bone deformities and Joint Contractures.
- Tendon transfers, Nerve suturing and grafting.
- Skin grafting, Wound debridement

Amputation

- Regional Classification of upper and Lower Extremities, Biomechanics and pathomechanics, sensory, scar, wound, muscle evaluation and treatment specific to the concept and recommendations, Prescription of orthotics and prosthetics for effective balance and gait rehabilitation

Burns

Classifications, grading, grafting and its complication

UNIT -V 16 hours

Assessment and Modification prescription of architectural Barriers

Assessment and recommendations in Architectural design and their accessibility in structural changes for Surgical conditions for physically challenged.

Assessment of work Environment and prescription

Ergonomics

- History of ergonomics, Worker care spectrum, Functional assessment, Weighted capabilities, Participation level, Work hardening programme
- Postural examination, Exit assessment

Pre-employment screening

- Job analysis, Job task analysis, Job site analysis
- Work capacity analysis

Role of Physiotherapy in industrial set up, Workers functional capacity assessment, Industrial therapy and educational programme for prevention of injury.

Course outcomes:

1. Selection of radiological investigations and interpretation to rule out injuries in upper and Lower Extremities
2. Application of ICF Coding in disability assessment and Modification prescription to architectural and work station Environment
3. Understand Musculoskeletal disorders and identify patient problems and apply principle and specific concept for physiotherapy management based on current evidence
4. Understand Musculoskeletal traumatic disorders and identify patient problems and apply principle and specific concept for physiotherapy management based on current evidence
5. Enhance recent research in soft Tissue techniques and recent advances in manual therapy approaches in physiotherapy management

Text books:

1. Susan B O Sullivan and Thomas J Schmitz - Physical rehabilitation- 4& 5th edition 2006
2. International Classification of Functioning, disability and health: ShortVersion. (WHO Publication)
3. John Ebenezar- Essentials of Orthopaedics for Physiotherapists- 3rd edition 2016
4. S. Terry Canale, James H. Beaty - Campbell's operative Orthopaedics- 14th edition 2016
5. Cash Text Book for Orthopaedics and rheumatology for physiotherapist by John Elizabeth Cash & Patricia A Downie – Lippincot
6. Michelle M. Lusardi - Orthotics and Prosthetics in Rehabilitation, 2nd edition 2006
7. S Brent Brotzman- Clinical Orthopaedic Rehabilitation , 2nd edition 2003

Reference books:

1. Mia Erickson, Ralph Utzman- Physical therapy Documentation: From examination to outcome, 1st Edition 2008
2. Ginge - Writing SOAP Notes with Patient / Client management, 3rd Edition 2003
3. Rob Herbert, GroJamtvedt, Judy Mead, KareBirger Hagen Elsevier Butterworth Heinemann - Practical Evidence-Based Physiotherapy; -2nd Edition 2011
4. Ronald McRae- Clinical Orthopaedic Examination – 6th edition 2010

Advances in Physiotherapy Diagnosis and Management of CNS Disorders

MPT T 7501N

L T P C

6 0 69

Course Description:

This course serves to integrate the knowledge gained by the students in clinical neurology with the skills gained in exercise therapy, electrotherapy and massage, thus enabling them to apply these in clinical situations of dysfunction due to pathology in the nervous system.

Course Objectives:

1. Interpret assessment, selection of radiological investigations and interpretation to rule out the Diseases of central nervous system.
2. Application of ICF Coding in disability assessment and Modification prescription to architectural and work station Environment
3. Understand central nervous system disorders and identify patient problems and apply principle and specific concept for physiotherapy management based on current evidence
4. Understand central nervous system traumatic disorders and identify patient problems and apply principle and specific concept for physiotherapy management based on current evidence
5. Enhance recent research in therapeutic strategies and approaches in physiotherapy management.

UNIT-I

10 hours

CNS-Cerebral Disorders

Clinical Decision making and clinical reasoning for various Cerebral disorders.

Etiology, Clinical Symptom, Pathophysiology Assessment, Investigations, overview of Medical, Surgical Management with special emphasis on Evidence based physiotherapy

Management of following cerebral disorders

- Traumatic brain injuries,
- Space occupying lesions in Cerebral Hemisphere
- Infections related to CNS

-Meningitis

- Encephalitis

UNIT-II

14 hours

A.C.V.A. (CEREBRO VASCULAR ACCIDENTS): - Define hemiplegia and - identify the following: Sensory disturbance, alteration in tone, loss of selective movement, loss of balance reactions and communication problems. -Treatment: Describe the unilateral and bilateral approaches to treatment. Describe positioning in the supine position, on the affected and on

the unaffected side. -Demonstrate activities in the recumbent position : arm mobilization, trunk elongation, scapular movement, arm elevation , activities for a recovering arm : activities for the lower limb i.e., hip and knee flexion over the side of the bed, knee extension with dorsiflexion, hip control, isolated knee extension. Mat activities: demonstrate rolling on to affected and unaffected sides, sitting and kneeling. -Describe the technique of making a patient sit passively and active assisted sitting. -Demonstrate transfer techniques. Describe activities in sitting : equal weight transference on both buttocks, shuffling on buttocks, weight transfer through arms balance, reactions of trunk — head. -Demonstrate activities in the standing position : standing from plinth, from chair (assisted and independent), weight bearing on affected leg, knee control in standing, weight transfers forwards, backward and side wards, gait training and stair climbing. –Describe tilt board activities in the lying and sitting positions. -Describe additional methods of stimulation using verbal cues, ice, pressure & tapping. - -Describe management of shoulder pain and shoulder hand syndrome. -Identify and describe a hemiplegic gait, identify synergy components and abnormal reflex activities. - Demonstrate re-education of gait: motor re- learning techniques, functional approach and use of orthoses

UNIT-III

12 hours

A. Principles of Neuro rehabilitation, Neural repair and Neural Plasticity

B. Therapeutic Strategies for MOTOR IMPAIRMENTS

C. COGNITIVE DYSFUNCTION AND THERAPEUTIC STRATEGIES FOR COGNITIVE AND BEHAVIOURAL IMPAIRMENT

Therapeutic approaches:

Brunnstrom movement therapy

Motor relearning programme

Neurokinetic therapy

Graded motor imagery

- Myofascial release
- Mobilization and manipulations
- Muscle energy technique
- Advanced airway clearance techniques

UNIT-IV

14 hours

NEURO – DEGENERATIVE DISORDERS:

PT Management in motor neuron diseases.

Dementia, Alzheimer’s disease, Huntington's disease, Parkinson’s disease

MOVEMENT AND CEREBELLAR DISORDERS

Assessment, Etiology, Clinical Symptom, Pathophysiology, Medical, Surgical Management along with Evidence based physiotherapy Management of following Movement and cerebellar disorders

- Cerebellar Ataxia
- Extra pyramidal Disorders
- Cranio-vertebral anomalies

UNIT-V

10 hours

A. DEMYELINATING DISEASES OF NERVOUS SYSTEM

B. Balance and Vestibular disorders

Vestibular rehabilitation

C. Community rehabilitation of individuals with Neurological conditions.

Course outcomes:

1. Interpret assessment, selection of radiological investigations and interpretation to rule out the Diseases of central nervous system.
2. Application of ICF Coding in disability assessment and Modification prescription to architectural and work station Environment
3. Understand central nervous system disorders and identify patient problems and apply principle and specific concept for physiotherapy management based on current evidence
4. Understand central nervous system traumatic disorders and identify patient problems and apply principle and specific concept for physiotherapy management based on current evidence
5. Enhance recent research in therapeutic strategies and approaches in physiotherapy management.

Text Books:

1. Brain WR, Bannister R. Brain and Bannister's Clinical Neurology, 7th Edition. UK: Oxford University Press; 2013. ISBN-13: 978-019-8707-677.
2. Lindsay KW, Bone I. Neurology and Neurosurgery Illustrated, 5th Edition. Churchill Livingstone; 2010. ISBN-13: 978-044-3069-574.
3. Stokes M, Stack E. Physical Management for Neurological conditions with PAGEBURST ACCESS. 3rd Edition. USA: Churchill Livingstone; 2011. ISBN-13: 978- 070-2054-693.
4. Campbell W. DeJong's THE Neurologic Examination. 7th Edition. USA: Lippincott Williams & Wilkins, a Wolters Kluwer; 2013. ISBN-13: 978-145-1109-207.
5. Latash M. Neurophysiological Basis of Movement, 2nd Edition. USA: F.A. Davis Company; 2008. ISBN-13: 978-073-6069-762.

6.O'Sullivan SB, Schmitz TJ. Physical Rehabilitation, 6th Edition. USA: FA Davis Company; 2013. ISBN- 13: 978-080-3625-792.

Reference Books:

1.Carr JH, Shepherd RB. Neurological Rehabilitation: Optimizing Motor Performance, 2nd Edition. USA: Churchill Livingstone; 2010. ISBN-13: 978-070-2040-511.

2. Edwards S. Neurological Physiotherapy: A Problem-Solving Approach, 2nd Edition. USA: 2002. ISBN-10: 044-3064-407

3. Darcy A Umphred. Neurological rehabilitation,6th Edition .USA : Elsevier Mosby;2013.ISBN :978-0-323-07586-2

Specialty Paper III

Advances in Physiotherapy Diagnosis and Management of Cardiac Conditions

MPT T7501C

L T P C

6 0 69

Course Description:

This course enables the candidate to develop the ability to effectively administer the assessment and treatment techniques for the cardiovascular conditions and also be capable of transferring information on the management of related conditions. Also, the student will learn to select the required assessment procedure, appropriate treatment techniques and analyse the outcomes of the same. Further, this course enable the student to practice in the community to provide cardio respiratory fitness training, disability evaluation and counselling for the patients.

Course Outcomes:

- 1.To identify the appropriate laboratory findings, investigative reports, MET values and energy consumption based on the specific cardiovascular disorders
- 2.To describe the cardiorespiratory emergencies, advanced methods of monitoring and patient management in ICU.
- 3.To analyze the response to various cardiorespiratory physiotherapy treatment procedures and its outcomes in various cardiovascular dysfunctions.
- 4.To develop confidence in applying the cardiorespiratory physiotherapy rehabilitation procedures for various cardiovascular dysfunctions.
- 5.To demonstrate the life saving measures during basic life support (BLS) and advanced life support (ALS) procedures during medical emergency.

UNIT-I

10 hours

Principles of pathological investigations and imaging techniques related to cardiovascular conditions with interpretation.

- Clinical assessment, rationale of laboratory investigations and differential diagnosis
- Electrocardiogram – Interpretation of normal and abnormal waves
- Anthropometric measurements-body fat percentage, lipid profile evaluation.
- Principles of pathological investigations and imaging techniques related to cardiovascular disorders with interpretation.
- CT, MRI, Echo, Doppler, Angiography + interpretations.
- Evaluation of stress electrocardiogram, stress echocardiography test, pharmacological stress testing.

UNIT-II**16 hours**

Medical & Surgical and Physiotherapy management of cardiovascular diseases

- i) Hypertension
- ii) Congenital
- iii) Acquired - I.H.D, Myocardial Infarction, Valvular Heart Disease
- iv) Cardiac tumors& cardiac transplantation.

Medical, surgical and physiotherapy management of peripheral vascular disorders.

- a. DVT,
- b. Venous insufficiency,
- c. Thrombosis, Phlebitis and Phlebothrombosis
- d. Varicose Veins and ulcers
- e. Other Arterial disorders
- f. Lymphedema & Congestion
- g. Arterial disorders, ABI Index & Claudication.

UNIT-III**12hours**

General Guidelines to be followed in Cardiac Rehabilitation. Cardiac rehabilitation – Conservative and post- operative management – definition, indications, contraindications & phases

UNIT-IV**14 hours**

ICU evaluation and management for neonate and adult:

- ICU evaluation of cardiac patient, bedside monitoring, ABG analysis, bed side lung function test, chart review, monitoring Devices, catheters , leads , tubes, IV line, central venous pressure, Intra-cranial pressure.
- Intensive care unit – Concept and set-up, equipment for advanced methods of monitoring and patient management.
- Principles of ICU Monitoring
- Mechanical Ventilator modes
- Cardiovascular emergencies and management principles – medication, critical care on infants, paediatrics and adults.
- Cardio-pulmonary resuscitation and application of defibrillators and artificial respirators
- Recognition and management of the High Risk new Born. Newborn resuscitation: initial management and post resuscitation care.

UNIT-V

10 hours

Exercise testing and Exercise Prescription

- Physiotherapy management in metabolic disorders.
- Patient evaluation, planning and prescription, aerobic and anaerobic exercise training. Low level exercise testing, maximal exercise testing.
- Effect of aerobic, anaerobic, isometric and isokinetic exercises on cardiac function.
- Energy consumption MET value of various exercises and Activity
- Fitness for special populations - DM, Obesity, IHD, COPD, HTN
- C.B.R in Cardio-vascular conditions.
- Physical disability evaluation and diagnosis in Cardio vascular disorders.
- Life style modification for cardiac patients – Diet, Yoga.

Course outcomes:

- 1.To analyze the response to various cardiorespiratory physiotherapy treatment procedures and its outcomes in various cardiovascular dysfunctions.
- 2.To demonstrate appropriate cardiovascular rehabilitation procedures based on specific guidelines and principles.
- 3.To develop confidence in applying the cardiorespiratory physiotherapy rehabilitation procedures for various cardiovascular dysfunctions.
- 4.To demonstrate the life saving measures during basic life support (BLS) and advanced life support (ALS) procedures during medical emergency.
- 5.To demonstrate interpersonal and communication skills and approach the patients, relatives, and caregivers with empathy.

Text books:

- 1.Frownfelter D, Dean E. Principles and Practice of Cardiopulmonary Physical Therapy – E-book: Evidence to practice, 5th Edition. Elsevier Health Sciences; 2014.ISBN : 9780323291170.
- 2.Irwin S, Tecklin JS. Cardiopulmonary Physical Therapy: A Guide to Practice, 4th Edition. USA: Mosby Inc.; 2004. ISBN: 9780323018401.
- 3.Eleanor M, Linda D. Cardiorespiratory Physiotherapy: Adults and Paediatrics. Elsevier; 2016. ISBN:9780702047312
- 4.Stuart Porter. Tidy's Physiotherapy. 15th edition. UK: Churchill Livingstone; 2013. ISBN-13: 978-070-2043-444.
- 5.Webber B and Pryor J (1993) Physiotherapy for respiratory and cardiac problems.Churchill Livingstone, London. ISBN0-443-04471-6

Programme Elective - I

Diabetic Education and Diabetic Neuropathy

MPTT7601

L T P C

3 0 0 3

Course Description:

This course enables the candidate to develop a in depth understanding of Diabetes Mellitus and to adapt, change or reorganize the assessment and treatment based on requirement of status of the diabetes and the complications that may have aroused. This will prepare the candidate to be capable enough to counsel a patient and educate the patient with regards to management and identifying the complications and the care for the same.

Course Objectives:

- 1.Acquire knowledge to recognize the signs and symptoms of diabetes on the human body and its complications
- 2.Summarizing the Diagnostic procedures used in Diabetes mellitus
- 3.List the various Microvascular and Macrovascular Complications in Diabetes Mellitus affecting the various systems of the Human Body
- 4.Assess and manage the conditions related to diabetes e.g., Diabetic Ulcers, Peripheral neuropathy
- 5.Design the Evidence based treatment requirement of the status of the diabetes and the complications that may have aroused

UNIT-I

6 hours

Diabetes in its Historical Context

Physiology and pathogenesis of DM

The Classification and Diagnosis of Diabetes

Types of DM

UNIT-II

5 hours

Diagnosis of Diabetes mellitus

- Oral Antidiabetic Agent
- Insulin and Insulin Treatment
- Laboratory of analytical methods used in DM
- Self-monitoring of blood glucose

UNIT-III

10 hours

Complications in Diabetes

- Microvascular Complications in Diabetes
- Macrovascular Complications in Diabetes
- Obesity and Diabetes
- Managing the Patient with Diabetes Peripheral neuropathies
- Emergencies in Diabetes mellitus

UNIT-IV

12 hours

Diabetic Neuropathy

- Clinical Relevance
- Pathology
- Risk factors
- Clinical presentation
- Diagnostic procedures
- Classification

UNIT-V

12hours

Treatment of Diabetes

- Clinical case recording and monitoring in DM
- Nutrition in DM
- Exercise in DM
- Management of Diabetic foot Ulcer
- Educating the Patient with Diabetes
- Recent Advances in DM

Course outcomes:

1. Acquire knowledge to recognize the signs and symptoms of diabetes on the human body and its complications
2. Summarizing the Diagnostic procedures used in Diabetes mellitus
3. List the various Microvascular and Macrovascular Complications in Diabetes Mellitus affecting the various systems of the Human Body
4. Assess and manage the conditions related to diabetes e.g., Diabetic Ulcers, Peripheral neuropathy
5. Design the Evidence based treatment requirement of the status of the diabetes and the complications that may have aroused

Text Books

1. Diabetes mellitus a practical guide department of endocrinology cmc Vellore, 5th edition, academia publication, Vellore
2. Textbook of Diabetes, Richard I.G. Holt, 4th Edition, wileyblackwel Publication
3. Diabetes and exercise prevention of management, A literature review, Palan Nihar, Lambert Academic Publications
4. Management of Diabetes Mellitus, A guide to the Pattern approach, Diana W. Guthrie, 6th edition, Springer publication
5. Nutrition Therapy for Diabetes, American Diabetes Association Guide

Programme Elective -I

Hand Physiotherapy

MPTT7601

L T P C

3 0 03

Course Description:

This course imparts clinical knowledge about physiotherapy practice in general and hand surgical conditions for various ailments with hands on training to apply various treatment techniques to hand injured patients.

Course Objectives:

1. Assess and treat soft tissue conditions of hand
2. Evaluate and treat tendon injuries of hand
3. Evaluate and treat fracture and mutilating injuries of hand
4. Evaluate and treat Nerve injuries of hand
5. Apply principles to fabricate hand splints

UNIT-I

6hours

Hand

Evaluation of Hand

General clinical and physiotherapy evaluation of hand oedema- Various methods of evaluation and its management.

Sensibility assessment.

UNIT-II

10hours

Soft tissue conditions of hand

Claw hand, Trigger finger, Mallet finger dequervain's Disease, Dupuytren's disease.

Tendon injuries

- 1) Flexor tendon injuries – post operative physiotherapy management
- 2) Extensor tendon injuries - post operative physiotherapy management
- 3) Tendon transfer – indications, selection of tendons for transfer, tendon excursion, post operative physiotherapy management
- 4) Tenolysis- post operative physiotherapy management

UNIT-III

6hours

Mutilating injuries of hand

- 1) Reid's classification

2) Physiotherapy management of mutilated hand

3) Prescription of hand prosthesis.

Post operative Physiotherapy management of Nerve injuries

1) Radial nerve injury

2) Ulnar nerve injury

3) Median nerve injury

4) Neurolysis

UNIT-IV

10 hours

Fractures of hand

Physiotherapy management of

Fracture and Dislocations of Hand, Kaplan's lesion

Fracture of carpal bones

Fractures of metacarpal bones

Fractures of bones of phalanx

Fabrication of hand splints

Indications, armamentarium required for hand splints,

UNIT-V

10 hours

Plastic surgery in hand

Burns – Types, clinical anatomy, clinical and therapeutic management and complications of Burns in hand

Skin Grafts – Indications, types, limitations, pre and post operative physiotherapeutic management

Course outcomes:

1. Assess and treat soft tissue conditions of hand

2. Evaluate and treat tendon injuries of hand

3. Evaluate and treat fracture and mutilating injuries of hand

4. Evaluate and treat Nerve injuries of hand

5. Apply principles to fabricate hand splints

Text books:

1. Rehabilitation of the hand. Surgery and therapy- Scheider James M Hunter.MD-3rd edition Mosby

2.Occupational Hand and Upper extremities injuries and disease- Mortan L-Kasdam. Mosby. Hanley &Belfi

3.Hand rehabilitation- A quick reference guide and review- Nancy Falkenstein.Mosby

4.Physical rehabilitatation- assessment and treatment- Susan B. O.Sullaivan-4th edition Jaypee

5.Thomas J Schmitz

6.Cash's Text book of general Medical &,surgical condition for physiotherapists- Patricia A. Downie

7.Examination of the hand and wrist- Raoul Tubiana. Mosby

Reference books:

1.Hand secrets- Peter J L Jebson and Mortan.LKasvan

2.Hand therapy- Principles and practice- Maureen Salter

3.Hand rehabilitation- Gaylord L.Clark, EF Shaw Wilgis-2nd edition Mosby

Research Dissertation

MPT P7502O, MPT P7502N, MPT P7502CL T P C

0 0 4 2

UNIT-I

10hours

Introduction to research dissertation

- Initiation of research process
- Developing research question
- Analyzing feasibility
- Methods of writing research letter of intent

UNIT-II

20hours

Critical Review of selected research title

- Compiling evidences
- Reviewing evidences
- Analyzing various high level evidences
- Drafting literature review by analyzing systematically.

UNIT-III

20hours

Research proposal development

- Analyzing feasibility
- Writing research proposal
- Internal Review of research proposal

UNIT-IV

10hours

Procedural approval

- Research proposal Submission guidelines
- Application to ISRB-Institutional scientific review Board(Internal & external) for procedural and ethical considerations
- Carry out the suggestions of the board
- Final submission of research proposal after approval

Text books:

1.Bratati Banerjee. Mahajan's Methods In Biostatistics For Medical Students And Research Workers,2016 9th Ed. Jaypee Brothers ISBN-13: 9789352703104

2.C.R.Kothari Research Methodology:Methods And Techniques, 2019,4th Ed. New Age International Publishers; ISBN-13: 9789386649225

3.Suresh K Sharma Research Methodology and Biostatistics: A Comprehensive Guide for Health Care Professionals 1st ed. Elsevier India; 2016 ISBN- 13:9788131246481.

4.Daniel, Wayne W. Biostatistics: A Foundation for Analysis in the Health Sciences, 10th edition. John Wiley & Sons; 2013. ISBN-13: 978-111-8302-798.

5.Indrayan A. Medical Biostatistics, 3rd Edition. Chapman and Hall/CRC Press; 2013. ISBN-13: 978-143-9884-140.

6.Scientific databases- PUBMED, SCOPUS, Google Scholar,

7.Institutional letter of Intent Guidelines

8.ISRB research proposal guidelines

IV SEMESTER

Physiotherapy Diagnosis and Management of Musculoskeletal Disorders of Vertebral Column

MPT J7601OL T P C

2 0 65

Course description:

This course enables the candidate to develop the ability to effectively administer the assessment and treatment techniques for various congenital and acquired spinal disorders. The candidate will learn to select and apply the required assessment procedure, appropriate treatment techniques and manual therapy approaches to treat Vertebral Column conditions.

Course Objectives:

1. Apply recent advances in physiotherapy management for the Vertebral Column soft tissue conditions
2. Apply recent Pre-operative and post-operative physiotherapy management for fractures in Vertebral Column
3. Hypothesis various differential diagnosis soft tissue conditions of Vertebral Column and Pelvis based on an clinical examination of the joint, muscle and diagnose the condition and plan its management
4. Apply the suitable manual therapy treatment plan like Kalten born, Maitland, Mulligan, McKenzie and Cyriax for various Vertebral Column conditions
5. Learn about the physiotherapy management for the orthopaedic conditions of pelvis and spine.

UNIT-I

10 hours

Advanced Physiotherapy Diagnostic & Management Procedures for Pelvis and Spine Conditions:

Regional Conditions:

(Definition, Predisposing factors, Assessment and Investigations, Differential Diagnosis, Physical Diagnosis, Prognosis, Conservative and Surgical management)

- Orthopedic Conditions of Pelvis
- Orthopedic Conditions of Spine
- Torticollis
- Thoracic outlet syndrome
- Cervicalrib
- Lumbar disc prolapse
- Lumbar canal stenosis
- Cervical Disc prolapse

- Spondylosis & Spondylolisthesis

UNIT-II

10 hours

Fractures and Dislocations

(Definition, Mechanism of injury, Clinical Features, Investigations, Differential Diagnosis, Physical Diagnosis, Prognosis, Conservative and Surgical management)

- Fractures and dislocations of Pelvis
- Fractures and dislocations of Spine
- Spinal Cord Injury

UNIT-III

16 hours

Deformity:

- Various Congenital and Acquired deformities of Pelvis and Vertebral column/Spine
- Infections of Bone & Joint in Pelvis and Spine - -Ankylosing Spondylitis
-TB Spine
- Metabolic Bone Disease and Tumours in in Pelvis and Spine

UNIT-IV

12 hours

Advanced Orthopaedic Therapeutic Approaches:

(Terminology, Principles, Indications, Contra indications, Assessment including Clinical reasoning and differential clinical diagnosis and method of application of the following techniques)

- Kalten born
- Maitland
- Mulligan
- McKenzie
- Cyriax
- Butler neural mobilization
- Pilates-school of thought, Chiropractic school of thought, Osteopathic school of thought
- High velocity thrust techniques

Soft Tissue Approaches:

- Cyriax's deep friction massage
- Trigger point therapy

- Connective tissue massage
- Myofascial release

UNIT-V

12 hours

Soft tissues Techniques for Vertebral column and Pelvis:

- Normal vertebral motions
- Concepts of vertebral dysfunctions
- Cervical spine - Principles of Subjective Examination, Clinical Reasoning and Physical Examination for Cervical Region, VBI Testings, Palpatory skills, Manipulative Techniques for Cervical Region
- Thoracic Spine - Principles of Subjective Examination, Clinical Reasoning and Physical Examination and Palpatory skills, Manipulative Techniques for Thoracic Region
- Lumbar spine - Examination of the Lumbo-Pelvic Complex with thorough Clinical Reasoning Process, Form closure and force closure concepts, Assessment and Treatment of Innominate dysfunctions, Sacral rotation dysfunctions and Pubic symphysis dysfunctions based on Clinical reasoning and evidence based practice

Course outcomes:

1. Apply recent advances in physiotherapy management for the Vertebral Column soft tissue conditions
2. Apply recent Pre-operative and post-operative physiotherapy management for fractures in Vertebral Column
3. Hypothesis various differential diagnosis soft tissue conditions of Vertebral Column and Pelvis based on an clinical examination of the joint, muscle and diagnose the condition and plan its management
4. Apply the suitable manual therapy treatment plan like Kalten born, Maitland, Mulligan, McKenzie and Cyriax for various Vertebral Column conditions.
5. Gain knowledge about the physiotherapy management for the orthopaedic conditions of pelvis and spine.

Text books:

1. Grieve's modern manual therapy: The vertebral column By Jeffrey Boyling and Grad Dip Man Ther (Churchill Livingstone)
2. Vertebral manipulation- Maitland G.D. Boston, Butterworth & co. Boston, 1997
3. Orthopedic Physical Assessment, By David J. Magee, PhD, BPT - Saunders
4. Illustrated Orthopedic Physical Assessment, 3e By Ronald C. Evans, - Mosby

5.Kinesiology: The mechanics and Pathomechanics of Human Movement By Carol A, Oatis - Lippincot

6.Cash Text Book for Orthopaedics and rheumatology for physiotherapist by John Elizabeth Cash & Patricia A Downie – Lippincot

Reference books:

1.Foundations of Chiropractic By Meridel I Gatterman – Mosby

2.Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation, By Donald A. Neumann, PhD, PT – Mosby

3.Maitland's Peripheral Manipulation, By Elly Hengeveld, and Kevin Banks, -Butterworth-Heinemann

4.Maitland's Vertebral Manipulation, By Geoff D. Maitland, - Butterworth-Heinemann

5.Cervical and Thoracic spine: Mechanical Diagnosis & Therapy Vol I & II By

Robin Mckenzie

6.The Lumbar Spine: Mechanical Diagnosis & Therapy Vol I & II By Robin

Mckenzie

Specialty Paper IV

Physiotherapy Diagnosis and Management of Spinal cord and PNS Disorders

MPT J 7601N

L T P C

2 0 6 5

Course description:

This course enables the candidate to develop the ability to effectively administer the assessment and advanced treatment techniques for the spinal cord and Peripheral nervous system disorders. The candidate will also learn to select the required assessment procedure, appropriate treatment techniques and perform research and also analyse the outcomes of the same.

Course Objectives:

1. Interpret advance assessment and investigatory procedures to rule out neurological problems in Spinal cord, Neuropathy and Myopathy disorders
2. Synthesize evidence-based approaches in selection and justification of interventions towards Spinal cord, Neuropathy and Myopathy disorders
3. Apply advanced physiotherapeutic assessment and management techniques for Spinal cord, Neuropathy and Myopathy disorders
4. Perform research in Spinal cord, Neuropathy and Myopathy disorders
5. Apply knowledge in diagnosis and early management of peripheral nerve injuries

UNIT-I

14hours

Clinical Assessment, Overview of medical, surgical and advanced physiotherapy management for following conditions

Spinal Cord Lesions:

TRAUMATIC SPINAL CORD LEISIONS

SPINAL CORD LESIONS: - Describe types of spinal cord lesions. – Describe signs of tract and root interruptions. - Describe positioning of the patient in acute spinal cord injury. - Describe assessment of the motor system: tone, power of specific muscles, range of motion and limb girth. - Describe the assessment of sensory system and reflexes. – Describe assessment of functional ability and balance reactions in appropriate cases. –Describe assessment of respiratory function: muscles of respiration, coughing ability and vital capacity. -Describe how the level of lesion is ascertained. Treatment: -Describe the stages of immobilization & stage when loading of the spine is allowed. -Describe spinal orthosis. Demonstrate motor re-education programs and a program for respiratory care in high level paraplegics and quadriplegics. - Demonstrate progressive ambulation, mat 10 107 exercises, various strengthening programmes, methods of decreasing spasticity and improving sitting balance. -Demonstrate various types of paraplegic gaits and re-education in functional activities; transfers and protective falling. -Describe common ambulatory aids used in

paraplegics and common splints used in tetraplegics. -Describe the use of hydrotherapy in paraplegics. -Describe the concept of team approach in rehabilitation of these patients.

UNIT-II

12hours

NON TRAUMATIC SPINAL CORD INJURIES:

Transverse Myelitis

- Syringomyelia
- Poliomyelitis

ANS disorders

UNIT-III

12hours

Neuropathic Diseases & Disorders

Mono neuropathy::

- Metabolic disorders affecting Nervous system,
- Entrapment Neuropathy
- Plexopathy
- Peripheral Nerve Injuries

Polyneuropathy:

- Guillain-Barré syndrome.
- Leprosy.
- Diabetic neuropathy.
- Lyme disease.
- Sarcoidosis.
- Systemic lupus erythematosus.
- AIDS.
- Neuro syphilis.
- Immune mediated neuropathies.
- Lambert-Eaton syndrome.
- Amyloid neuropathy.
- Hereditary Polyneuropathy- Charcot-Marie-Tooth.
- Sjogren syndrome.

UNIT-IV

12hours

PERIPHERAL NERVE INJURIES

UNIT-V

10 hours

Neuro-Muscular junction Anomalies

Myopathy Diseases & Disorders

- Inflammatory Myopathies
- Muscular Dystrophies
- Congenital Myopathies
- Metabolic myopathies
- Endocrine Myopathy
- Drug induced/Toxic myopathy

Course outcomes:

1. Gain knowledge on advanced techniques of assessment and investigatory procedures to rule out neurological problems in Spinal cord, Neuropathy and Myopathy disorders
2. Ability to utilize evidence-based approaches in selection and justification of interventions towards Spinal cord, Neuropathy and Myopathy disorders
3. Apply advanced physiotherapeutic assessment and management techniques for Spinal cord, Neuropathy and Myopathy disorders
4. Perform research in Spinal cord, Neuropathy and Myopathy disorders.
5. Physiotherapy role in non traumatic spinal cord lesions.

Text books:

1. Brain WR, Bannister R. Brain and Bannister's Clinical Neurology, 7th Edition. UK: Oxford University Press; 2013. ISBN-13: 978-019-8707-677.
2. Lindsay KW, Bone I. Neurology and Neurosurgery Illustrated, 5th Edition. Churchill Livingstone; 2010. ISBN-13: 978-044-3069-574.
3. Stokes M, Stack E. Physical Management for Neurological conditions with PAGEBURST ACCESS. 3rd Edition. USA: Churchill Livingstone; 2011. ISBN-13: 978- 070-2054-693.
4. Campbell W. DeJong's THE Neurologic Examination. 7th Edition. USA: Lippincott Williams & Wilkins, a Wolters Kluwer; 2013. ISBN-13: 978-145-1109-207.
5. Latash M. Neurophysiological Basis of Movement, 2nd Edition. USA: F.A. Davis Company; 2008. ISBN-13: 978-073-6069-762.
6. O'Sullivan SB, Schmitz TJ. Physical Rehabilitation, 6th Edition. USA: FA Davis Company; 2013. ISBN- 13: 978-080-3625-792.

Reference books:

1.Carr JH, Shepherd RB. Neurological Rehabilitation: Optimizing Motor Performance, 2nd Edition. USA: Churchill Livingstone; 2010. ISBN-13: 978-070-2040-511.

2.Edwards S. Neurological Physiotherapy: A Problem-Solving Approach, 2nd Edition. USA: 2002. ISBN-10: 044-3064-407

3.Darcy A Umphred. Neurological rehabilitation,6th Edition .USA : Elsevier Mosby;2013.ISBN :978-0-323-07586-2

Specialty – IV

Advances in Physiotherapy Diagnosis and Management of Pulmonary Conditions

MPT J7601C

LPTC

2065

Course Description:

This course enables the candidate to develop the ability to effectively communicate and transfer the information on the management of patients with various pulmonary conditions. Also, the candidate will be able to assess with appropriate techniques and analyze the outcomes for the patient with various pulmonary conditions. This course enables the student to practice in the community to evaluate disability and provide counselling for the patients.

Course Objectives:

- 1.To identify the pulmonary function status and exercise tolerance capacity for various pulmonary conditions.
- 2.To describe the neonatal respiratory disorders, and adult respiratory disorders.
- 3.To analyze the patient with artificial airway and provide physiotherapy management procedures in intensive care unit (ICU).
- 4.To demonstrate appropriate airway clearance techniques in different patient population and manual facilitation techniques for the respiratory muscles in different breathing patterns.
- 5.To demonstrate appropriate management to reduce work of breathing and improve lung volumes.

UNIT-I

12hours

Principles of pathological investigations and imaging techniques related to pulmonary disorders with interpretation.

- a. ABG,
- b. Pulmonary function testing,
- c. Chest radiography –Evaluation and interpretation.
- d. Exercise Tolerance testing – Incremental Shuttle walk test, Six minute walk test, 12 minute walk test.
- e. Physiological changes & adaptation of pulmonary system to exercise testing
- f. Principles – guidelines, interpretation of normal & abnormal chest radiographs,
- g. Evaluation Methods, using various Scales and questionnaires followed in pulmonary conditions.

UNIT-II

14 hours

Clinical manifestations, medical, surgical management for;

Neonatal Respiratory Disease

- Neonatal assessment
- Neonatal conditions -
 - a. Asthma,
 - b. Birth asphyxia,
 - c. Bronchopulmonary dysplasia.
 - d. Nicksy Wilson Syndrome,
 - e. Bronchial stenosis,

Children with respiratory dysfunction

- a. COPD,
- b. Childhood Asthma,
- c. Pneumonia
- d. Cystic Fibrosis,
- e. Immunological deficits,
- f. Pertusis.

UNIT-III

12 hours

Obstructive Lung Diseases

- a. COPD – Chronic Bronchitis and Emphysema
- b. Bronchial Asthma
- c. Cystic Fibrosis
- d. Bronchiectasis

Restrictive lung disorders

- a. Chest deformities
- b. Spinal deformities
- c. Interstitial lung diseases
- d. Tumors of lung
- e. Trauma of Chest
- i. Pneumothorax
- ii. Hydropneumothorax
- iii. Pleuritis

- iv. Pleural Effusion
- v. Empyema
- vi. Other Pleural Disorders

Infective lung diseases

- a. Pulmonary Tuberculosis
- b. Pneumonia
- c. Lung Abscess

Occupational lung diseases

UNIT-IV

12 hours

Advanced Respiratory Physiotherapy Management

- Artificial airway and PT management for the patient with an artificial airway.
- Mechanical ventilation and its weaning process, initiation.
- Physiotherapy management noninvasive positive pressure ventilation.
 - a. Continuous positive airway pressure
 - b. Intermittent positive pressure breathing
- Oxygen Therapy
- Adjuncts to chest PT
 - a. Humidifiers,
 - b. Nebulizers,
 - c. Aerosol therapy
 - d. Suctioning
- Techniques to improve lung volume,
 - a. Incentive spirometer
 - b. Thoracic Mobility exercises
 - c. Neurophysiological facilitation techniques
 - d. Breathing exercises
 - e. CPAP
- Techniques to reduce the work of breathing
 - a. General relaxation positions
 - b. Breathlessness relieving positions

- c. Controlled breathing
- d. Accessory muscle facilitation and inhibition techniques
- e. Ventilator movement strategies
 - Techniques and to clear secretions.
- a. Percussion
- b. Vibration
- c. Shaking
- d. Rib Springing
- e. Coughing techniques - Assisted
- f. Active cycle of breathing technique
- g. Autogenic drainage
- h. Forced expiratory technique
- i. High frequency chest wall oscillations
- j. Positive expiratory pressure techniques
- k. Body positioning techniques
 - Rehabilitation following lung transplantation
 - Respiratory rehabilitation for the patients with spinal cord injury
 - Pulmonary Rehabilitation

UNIT-V

10 hours

- Medical, surgical and physiotherapy management following Lung Surgeries –
 - a. Thoracoplasty,
 - b. Empyema,
 - c. Thrombosis,
 - d. Rib- resection,
 - e. Decortications,
 - f. Window operation,
 - g. Pneumonectomy,
 - h. Lobectomy,
 - i. Pleurodesis,
 - j. Thoracotomy,

- k. Tracheostomy.
- Recent advances Respiratory physiotherapy
- C.B.R in respiratory conditions.
- Life style modification for Respiratory disease patients – Diet, Yoga.

Course outcomes:

- 1.To analyze the patient with artificial airway and provide physiotherapy management procedures in intensive care unit (ICU).
- 2.To demonstrate appropriate airway clearance techniques in different patient population and manual facilitation techniques for the respiratory muscles in different breathing patterns.
- 3.To demonstrate appropriate management to reduce work of breathing and improve lung volumes.
- 4.To demonstrate the appropriate chest physiotherapy management techniques for various post operative pulmonary conditions.
- 5.To demonstrate interpersonal and communication skills and approach the patients, relatives, and caregivers with empathy.

Text books:

- 1.Frownfelter D, Dean E. Principles and Practice of Cardiopulmonary Physical Therapy – E-book: Evidence to practice, 5th Edition. Elsevier Health Sciences; 2014.ISBN : 9780323291170.
- 2.Irwin S, Tecklin JS. Cardiopulmonary Physical Therapy: A Guide to Practice, 4th Edition. USA: Mosby Inc.; 2004. ISBN: 9780323018401.

Reference Books:

- 1.Eleanor M, Linda D. Cardiorespiratory Physiotherapy: Adults and Paediatrics. Elsevier; 2016. ISBN:9780702047312
- 2.Stuart Porter. Tidy's Physiotherapy. 15th edition. UK: Churchill Livingstone; 2013. ISBN-13: 978-070-2043-444.
- 3.Webber B and Pryor J (1993) Physiotherapy for respiratory and cardiac problems.Churchill Livingstone, London. ISBN0-443-04471-6.

PROGRAMME ELECTIVE -II

MPTT7602

WOMENS HEALTH

L T P C

3 0 0 3

Course Description:

The purpose of the course is to analyse, interpret, and assess appropriate exercise regimens for women with unique needs, to raise awareness and conduct research in this field, and to recognise the importance and knowledge of women's health in the larger community. Examine natural physiological changes in women in order to cope with their overall fitness.

Course Objectives:

- 1: To learn about the importance of antenatal fitness .
- 2: Develop the exercise prescription knowledge to pregnancy women - past, present and future
- 3: Demonstrate advanced physiotherapy exercise program for Athletic pregnant women
- 4: Design the individualized exercise programme for antenatal women
5. Developing exercise programme for women undergone c-section

UNIT-I

10 hours

A. Introduction about Women's Health:

Health education and health promotion: The Physiotherapist's role in women's health.

Basic Review Of Anatomy & Physiology Of female body: Anatomy of pelvic floor muscles and the Reproductive organs of the body, Physiology of menstrual cycle – ovulation cycle, uterine cycle,

duration, Hormonal regulation of menstruation and menstrual disorders, Premenstrual disorder and Definition, Classification, Etiology, Pathogenesis, Clinical Features, Clinical

Investigation and Complications. Medical, Surgical And Physiotherapy

Management (Assessment And Treatment) including Rehabilitation

B. PHYSIOTHERAPY FOR MENSTRUAL DISORDERS

-PCOD

-Pre-Menstrual Syndrome

-Pelvic Inflammatory Diseases

C. PHYSIOTHERAPY AFTER MASTECTOMY

D. PHYSIOTHERAPY AFTER HISTERECTOMY

UNIT-II

10 hours

Antenatal PHYSIOTHERAPY:

- Diagnosis of Pregnancy,
- Physiological changes during Pregnancy,
- Complications during Pregnancy, Gestational diabetes,
- Normal labor, Physiotherapy during labor, Normal Puerperium,
- Antenatal Assessment
- Prenatal training
- The high-risk prenatal patient, pre-existing conditions.

Hospitals protocols (conception to birth)

- Physiotherapy In Antenatal Period And Labour:
- Antenatal EXERCISE FIRST TRIMESTER/relaxation /mobility
- Antenatal Exercise prescription – sedentary, active, athlete’s group indication & contradiction (modification as per condition)
- couple counselling& lifestyle modification to support early pregnancy

Pregnancy changes and effects on musculoskeletal and posture/each trimester (evaluation & exercise prescription

- Antenatal EXERCISE SECOND TRIMESTER/ fit pregnancy
- Antenatal EXERCISE third TRIMESTER/ Birth preparation

fitness for athletic pregnant women

UNIT- III

10 hours

Postnatal Assessment,

-Postnatal complications,

-Postnatal Exercise, Multiple childbirth and Maternal and child care, Early pediatric problems, Medical termination of pregnancy and its complications.

-
- EARLY postnatal DAY 1 TO 7
- Early postpartum, care
- ASSESSMENT SCALE
- Post-c-section Recovery plane after vaginal birth recovery plane & perineum care.
- Diastasis recti assessment & management.
- Discussion on Childbirth education classes setup.

- Postnatal exercise Pilates Based on mat & ball – Basic
- Late postnatal rehabilitation
- Postnatal exercise Pilates Based on mat & ball – Basic to modified
- Discussion the pattern of fat distribution its management
- Psychological counselling during antenatal & Couple therapy

UNIT-IV

10 hours

Urogenital Dysfunctions and Physiotherapy

Prolapse of uterus,

Incontinence,

low backache.

pelvic floor rehabilitation:-

Explain various mechanisms and therapeutic techniques and precautions used in pelvic floor rehabilitation.

1. Electrotherapy
2. Bio feedback
3. Mobilization & manipulation
4. Ergonomic advice

UNIT-V

10 hours

conditions in older women:

Significant changes during older age in the female body,

Anthropometric measurements,

Obesity during old age,

Complications of Ageing,

Menopause and Menopause related symptoms

and the Climacteric, Osteopenia and Osteoporosis

Course Outcomes:

- 1: Ability to teach the importance of antenatal fitness .
- 2: Exercise prescription for women undergone Hysterectomy
- 3: Demonstrate advanced physiotherapy exercise program for Athletic pregnant women
- 4: Design the individualized exercise programme for antenatal women
- 5: Developing exercise programme for women undergone c-section

Text Books:

1. De Dutta's Textbook Of Obstetrics By Hiralal Konar
2. Howkins & Bourne Shaw's Textbook Of Obstetrics By Padubidiri
3. Management Of Labour By Sabaratnam
4. Arias' Practical Guide To High Risk Pregnancy And Delivery By Amarnath Bhide, Sabaratnam Arulkumaran
5. Womens Health- Ruth Sapsford, Lippincott, 1998
6. Obstetric And Gynecologic Care In Physical Therapy By Rebecca Gourtey Stephenson, Linda J. O Connor, 2000

Reference books:

1. Physiotherapy In Obstetrics And Gynecology- Polden And Mantle, Jaypee Brothers
2. Womens Health And Fitness Guide- Michele Ketties, 2006
3. Journal Of Womens Health Physical Therapy
4. The Association Of Chartered Physiotherapist In Womens Health Journal.

PROGRAMME ELECTIVE -II

MPTT7602

Advancement in Manual therapy

L T P C

3 0 0 3

Course description:

This course enables the candidate to develop the ability to assess the somatic assessment and for various musculoskeletal conditions. This program provides knowledge in learning the principles, concepts and different school of thought of various manual therapy techniques which enhances better hands-on practices for various musculoskeletal disorders. This program also enhances more realistic, evidence based practice and multifactorial approach to the examination and treatment procedure in order to address the musculoskeletal pain.

Course objectives:

1. Understanding the anatomy, pathoanatomy and age related changes of the spinal column, pelvic complex, peripheral joints
2. Proficient in applying spinal column, pelvic complex, neural, muscle and peripheral joint examination procedures.
3. Determining a differential diagnosis based on an integrated examination of the joint, muscle and neural systems.
4. Proficient in applying an appropriate manual therapy treatment strategy incorporating manual treatment techniques and specific exercise
5. Specific exercise programmes to prevent contractures and deformities.

UNIT-I

8 hours

- History of Manual therapy and Biomechanical principles in manual therapy
- Components of Manual therapy , Indications, Contra-indications and Limitations
- Grades of Mobilization and its implications in articular system
- Concepts of neural control in manual therapy application
- Principles of Somatic diagnosis
- Barrier Concepts in Somatic diagnosis

UNIT-II

5 hours

Manual therapy school of thoughts:

(Terminology, Principles, Indications, Contra indications, Assessment including Clinical reasoning and differential clinical diagnosis and method of application of the following techniques)

- Kalten born
- Maitland

- Mulligan
- McKenzie
- Cyriax

UNIT-III

12 hours

Vertebral column:

- Normal vertebral motions
- Concepts of vertebral dysfunctions
- Cervical spine - Principles of Subjective Examination, Clinical Reasoning and Physical Examination for Cervical Region, VBI Testings, Palpatory skills, Manipulative Techniques for Cervical Region
- Thoracic Spine - Principles of Subjective Examination, Clinical Reasoning and Physical Examination and Palpatory skills, Manipulative Techniques for Thoracic Region
- Lumbar spine - Examination of the Lumbo-Pelvic Complex with thorough Clinical Reasoning Process, Form closure and force closure concepts, Assessment and Treatment of Innominate dysfunctions, Sacral rotation dysfunctions and Pubic symphysis dysfunctions based on Clinical reasoning and evidence based practice.

UNIT-IV 12 hours

Upper and Lower Extremity : Principles of Subjective Examination, Clinical Reasoning and Physical Examination (Passive Physiological Movements and Passive Accessory Movements) and advanced manual therapy approaches for Upper and Lower extremities.

UNIT-V

8 hours

Introduction to Muscle energy techniques and Myofascial release- Its principles, Indications and implications on Musculoskeletal dysfunctions

Course outcomes:

1. Understanding the anatomy, pathoanatomy and age related changes of the spinal column, pelvic complex, peripheral joints
2. Proficient in applying spinal column, pelvic complex, neural, muscle and peripheral joint examination procedures.
3. Determining a differential diagnosis based on an integrated examination of the joint, muscle and neural systems.
4. Proficient in applying an appropriate manual therapy treatment strategy incorporating manual treatment techniques and specific exercise
5. Specific exercise programmes to prevent contractures and deformities

Text Books:

1. Greenman's Principles of Manual medicine – 4th edition , 2011, ISBN 978-0-7817-8915-8

2. Vertebral manipulation- Maitland G.D. Boston, Butterworth & co. Boston, 1997
3. Peripheral manipulation - Maitland G.D. Boston, Butterworth & co. Boston, 1997
4. Illustrated Orthopedic Physical Assessment, 3e By Ronald C. Evans, - Mosby
5. Differential Diagnosis for Physical Therapists: Screening for Referral, By Catherine C. Goodman, and Teresa Kelly Snyder – Saunders
6. Kinesiology: The mechanics and Pathomechanics of Human Movement By Carol A, Oatis - Lippincot
7. Maitland's Peripheral Manipulation, By Elly Hengeveld, and Kevin Banks, - Butterworth-Heinemann
8. Maitland's Vertebral Manipulation, By Geoff D. Maitland, - Butterworth-Heinemann
9. Manual Therapy for the Peripheral Nerves By Jean-Pierre Barral, DO(UK) and Alain Croibier, Osteopathe DO, MRO(F) – Churchill Livingstone

Reference Books:

1. Manual Mobilization of the Joints – The Kaltenborn Method Volume I, II By Freddy kaltenborn
2. Treat your own Back by Robin Mckenzie
3. Cervical and Thoracic spine: Mechanical Diagnosis & Therapy Vol I & II By Robin Mckenzie
4. The Lumbar Spine: Mechanical Diagnosis & Therapy Vol I & II By Robin Mckenzie
5. The Human Extremities: Mechanical Diagnosis & Therapy By Robin Mckenzie
Manual Therapy by Brain R Mulligan
6. Textbook of orthopaedic medicine Vol I & II by James Cyriax – Bailliere

Clinical Training-IV (Specialty)

MPTL6503 L T P C

0 0 15 7.5

Course Description:

This course will enable the student to demonstrate appropriate therapeutic care by adhering ethical, moral and legal aspects of competencies. Also, this course aimed at the students to develop collaborative work with inter-professional teams to enhance patient safety and improve quality of care. Further, this course will provide opportunity to develop a self-directed plan for professional development and lifelong learning.

Course Objectives:

1. Develop appropriate treatment plan related to the patient's pathology, impairments, functional limitations and disabilities with justification.
2. Perform physical therapy interventions in a safe, effective and competent manner based on relevant clinical evidence and guidelines.
3. Show highest level of professional behaviour during physiotherapy practice and clinical research activities in health care settings.
4. Participate in self and professional development activities to enhance the physiotherapy practice.
5. Evidence based physiotherapy practice.

UNIT-I

120 hours

Documentation, Application of physiotherapy services & Administration in respective specialty departments.

UNIT-II

120 hours

Conducting clinical research activities in respective specialty departments.

UNIT-III

120 hours

Clinical case presentation and case discussions

Research Dissertation

MPT P7502O, MPT P7502N, MPT P7502C

L T P C

2 0 4 4

Course description:

The Research Dissertation course enables students to develop knowledge and understanding of a specialist area of research problem within the broad fields of physiotherapy associating within the specialty and transformative with multidisciplinary and interdisciplinary programs. This course is intended to be conducted through individual supervision and training, Student should carry out the procedure of Data collection and apply statistical procedures in analyzing and interpreting data under supervision of Guide.

Course Objectives:

1. Conduct clinical trials, design therapeutic and assistive devices relevant to intended research dissertation.
2. Collect data relevant to intended research dissertation
3. Apply relevant statistical procedures to analyze and conclude with results of the study.

UNIT-I

10 hours

Conduct of Research Procedure

- Sample selection & recruitment(Human/Animal)
- Randomization/Non randomization procedures
- Procedural adaptation.

UNIT-II

10 hours

Data collection

- Collecting data
- Compiling data
- Reviewing data

UNIT-III

10 hours

Scientific/ Statistical analysis

- Apply various statistical procedures
- Analyzing collected data
- Writing research dissertation draft

- Research dissertation draft submission to supervisor
- Research dissertation synopsis submission to Institution

Course Outcomes:

- 1.Ability to review the literature
- 2.Gain knowledge of research work
- 3.Ability to do statistical analysis.

Text books:

- 1.Bratati Banerjee. Mahajan's Methods In Biostatistics For Medical Students And Research Workers,2016 9th Ed. Jaypee Brothers ISBN-13: 9789352703104
- 2.C.R.Kothari Research Methodology:Methods And Techniques, 2019,4th Ed. New Age International Publishers; ISBN-13: 9789386649225
- 3.Suresh K Sharma Research Methodology and Biostatistics: A Comprehensive Guide for Health Care Professionals1st ed. Elsevier India; 2016 ISBN- 13:9788131246481.

Reference books:

- 1.Daniel, Wayne W. Biostatistics: A Foundation for Analysis in the Health Sciences, 10th edition. John Wiley & Sons; 2013. ISBN-13: 978-111-8302-798.
- 2.Indrayan A. Medical Biostatistics, 3rd Edition. Chapman and Hall/CRC Press; 2013. ISBN-13: 978-143-9884-140.
- 3.Scientific databases- PUBMED, SCOPUS, Google Scholar,
- 4.Institutional letter of Intent Guidelines
- 5.ISRB research proposal guidelines