



DPU

Dr. D. Y. PATIL VIDYAPEETH
(Deemed to be University)

Faculty of Allied Medical Sciences

SYLLABUS FOR MASTER OF PHYSIOTHERAPY (MPT)
2019-2020

Dr.D.Y. PATIL COLLEGE OF PHYSIOTHERAPY

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Dr. D. Y. PATIL VIDYAPEETH
FACULTY OF ALLIED MEDICAL SCIENCES

Regulation for the Post Graduate Degree in Physiotherapy
Master of Physiotherapy (MPT)

PREAMBLE:

The Master of Physiotherapy course is a 2-year fulltime program with 4 semesters leading to the degree that equips the student with analytical, evidence based and Hands on learning skills. The program is generic in nature and has a component of additional learning of one area leading to an elective in that area. Psychosomatic aspects of training are a component through all the elective areas.

GRADUATE ATTRIBUTES:

No.	Attributes
1	Physiotherapy Expert
2	Communicator
3	Researcher
4	Facilitator of learning and Lifelong Learner
5	Leader and team member
6	Manager and Entrepreneur
7	Professionalism, Employability and Accountability
8	Social Responsibility

PROGRAM OUTCOMES:

No.	Programme Outcomes for MPT programme
PO 1	Knowledge and Skills
PO 2	Planning and Problem-Solving Abilities
PO 3	Communication
PO 4	Research Aptitude
PO 5	Professionalism and Ethics
PO 6	Leadership
PO 7	Societal Responsibilities
PO 8	Environment and Sustainability
PO 9	Lifelong Learner

NOMENCLATURE:

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

Sr. No.	Course
MPT- 1	MPT: Orthopaedics
MPT- 2	MPT: Neurosciences
MPT- 3	MPT: Cardio – Respiratory Sciences
MPT- 4	MPT: General & Community Based Rehabilitation
MPT- 5	MPT: Paediatrics
MPT- 6	MPT: Musculoskeletal Sciences & Sports
MPT- 7	MPT: Musculoskeletal Sciences & Manual Therapy
MPT- 8	MPT: Musculoskeletal Sciences & Hand Conditions

ELIGIBILITY

Candidates admitted into the Master of Physiotherapy course should have passed the BPT degree examination of this University or an examination of any other University (on campus full time course) accepted by the authorities of this University as equivalent thereto. Candidates who have passed BPT Examination other than Dr. D. Y. Patil Vidyapeeth, Pune, shall obtain migration certificate from the parent university & an eligibility certificate from this University by remitting the prescribed fees along with the application form, before seeking admission.

REGISTRATION

A candidate admitted to the course in Dr. D. Y. Patil Vidyapeeth, Pune, should register with the University by remitting the prescribed fees along with the application form for registration duly filled in and forwarded to the Controller of Examination of this University through the Head of the Institution within the stipulated date.

DURATION OF THE COURSE

The period of certified study for the Master of Physiotherapy is a full time course extending over a period of two academic years with 4 semesters for the award of the degree.

MEDIUM OF INSTRUCTION

Medium of instruction for the subject of study and for the examination of the MPT course will be English.

COURSE STRUCTURE:

Duration:

The duration of Master of Physiotherapy programme shall be of two academic years (4 semesters). It shall have 4 semesters each having a span of 20 weeks of working, of which the teaching and learning program shall not be less than 16 weeks of course duration (672 clock hours) excluding the time scheduled for examination and evaluation process of the university and college, leading to degree that equips the student with analytical and hands-on skills. Each academic year shall comprise of two semester viz. Odd and Even semesters. Odd semesters shall be from July/August to December and Even Semesters shall be from January to June.

***University examination will be conducted at the end of every semester.**

MPT - SEMESTER I																			
Course Code	Course	Teaching Learning Hrs				Teaching LearningHrs/Week				Credit				Exam Marks					
		Theory	Pract	Clinic	Total	Theory	Pract	Clinic	Total	Theory	Pract	Clinic	Total	Theory			Practical		
														Int	Ext	Tot	Int	Ext	Tot
MPT101	Physiotherapy Practice and Education Technology	32	64	-	96	2	4	-	6	2	2	-	4	10	40	50	-	-	-
MPT102	Research Methodology and Biostatistics	48	0	-	48	3	0	-	3	3	0	-	3	10	40	50	-	-	-
MPT103	Advanced Electro Therapy & Electro Diagnosis	48	96	-	144	3	6	-	9	3	3	-	6	20	80	100	-	-	-
MPT 104	Physiotherapeutics-I	-	-	192	192	-	-	12	12	-	-	4	4	-	-	-	20	80	100
Total		128	160	192	480	8	10	12	30	8	5	4	17	40	160	200	20	80	100
Research Dissertation		-	-	192	192	-	-	12	12	-	-	-	-	4 Credit accumulated in Semester 4					
Total Hours		-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-

MPT - SEMESTER II																			
Course Code	Course	Teaching Learning Hrs				Teaching LearningHrs/Week				Credit				Exam Marks					
		Theory	Pract	Clinic	Total	Theory	Pract	Clinic	Total	Theory	Pract	Clinic	Total	Theory			Practical		
														Int	Ext	Tot	Int	Ext	Tot
MPT 201	Advanced Functional Diagnosis & Manipulative skills	48	96	-	144	3	6	-	9	3	3	-	6	20	80	100	-	-	-
MPT 202	Applied Biomechanics & Kinesiology	64	-	-	64	4	-	-	4	4	-	-	4	20	80	100	-	-	-
MPT 203	Exercise Physiology , Health & Fitness	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 204	Physiotherapeutics-II	-	-	192	192	-	-	12	12	-	-	4	4	-	-	-	20	80	100
Total		176	160	192	528	11	10	12	33	11	5	4	20	60	240	300	20	80	100
Research Dissertation		-	-	144	144	-	-	9	9	-	-	-	-	3 Credit accumulated in Semester 4					
Total Hours		-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-

MPT - SEMESTER III																			
Course Code	Course	Teaching Learning Hrs				Teaching LearningHrs/Week				Credit				Exam Marks					
		Theory	Pract	Clinic	Total	Theory	Pract	Clinic	Total	Theory	Pract	Clinic	Total	Theory			Practical		
														Int	Ext	Tot	Int	Ext	Tot
MPT-(1-8) 301	Elective based Clinical Sciences-I	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT-(1-8) 302	Elective based Physiotherapeutics-I	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT-(1-8) 303	Elective based Recent advances - I	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT-(1-8) 304	Elective Based Advanced Physiotherapeutics-I	-	-	192	192	-	-	12	12	-	-	4	4	-	-	-	20	80	100
Total		176	160	192	528	11	10	12	33	11	5	4	20	50	200	250	20	80	100
Research Dissertation		-	-	144	144	-	-	9	9	-	-	-	-	3 Credit accumulated in Semester 4					
Total Hours		-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-

MPT - SEMESTER IV																			
Course Code	Course	Teaching Learning Hrs				Teaching LearningHrs/Week				Credit				Exam Marks					
		Theory	Pract	Clinic	Total	Theory	Pract	Clinic	Total	Theory	Pract	Clinic	Total	Theory			Practical		
														Int	Ext	Tot	Int	Ext	Tot
MPT-(1-8) 401	Elective based Clinical Sciences-II	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT-(1-8) 402	Elective based Physiotherapeutics-II	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT-(1-8) 403	Elective based Recent advances - II	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT-(1-8) 404	Elective Based Advanced Physiotherapeutics-II	-	-	288	288	-	-	18	18	-	-	6	6	-	-	-	20	80	100
Total		176	160	288	624	11	10	18	39	11	5	6	22	50	200	250	20	80	100
Research Dissertation		-	-	48	48	-	-	-	3	-	-	-	-	1 Credit accumulated in Semester 4					
Total Hours		-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-
MP-(1-8) 405	Research Dissertation-Sem 1-IV (11 Credit accumulated in Semester 4)	-	-	-	528	-	-	-	-	-	-	-	11	-	-	-	50	50	100

MODE OF TRAINING

The training for M P T degree will be on a full time pattern with graded responsibilities in the management and treatment of patients entrusted to his/her care. Training includes involvement in academic learning, practical learning, clinical patient handling, administrative and planning of department works, experimental work and research studies. The participation of students in all facets of educational process is essential. Every candidate should take part in seminars, group discussions, clinical rounds, case demonstrations, clinics, journal review meeting and other continuing education activities. Every candidate should be required to participate in the teaching and training programs of undergraduate students.

BIOETHICS IN THE CURRICULUM.

It is the study of the typically controversial ethical issues emerging from new situations and possibilities brought about by advances in biology and medicine. It is also moral discernment as it relates to medical policy and practice. Bioethicists are concerned with the ethical questions that arise in the relationships among life-sciences, biotechnology, medicine, politics, law, and philosophy. It also includes the study of the more commonplace questions of values ("the ethics of the ordinary") which arise in primary care and other branches of medicine. The curriculum does not have complete course, but is a source of inspiration. The course content should not be treated as a comprehensive curriculum in bioethics. It is recognized that the content of the core curriculum does not necessarily cover all aspects of bioethics. Traditional issues that have not been included could be incorporated as examples that are pertinent to one or several of the Declaration's principles within the curriculum's framework.

INTERNAL MONITORING OF STUDENTS PROGRESS

The learning progress of each candidate will be monitored continuously to help teachers to evaluate students & also for students to evaluate themselves. The monitoring will be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured, and assessment be done using checklists that assess various aspects and will be projected for discussion every six months.

Work diary: Candidates should record his /her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. in the work diary given. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any, conducted by the candidate. The work diary shall be scrutinized and certified by the Head of the Department and Head of the institution from time to time and shall be presented in the university examinations for calculation of university internal marks.

Periodic tests: The College will conduct one Internal Assessment (Preliminary Examination) in every semester at the end 4 months of every semester (Preliminary examination) (ie) four weeks before the University examination. Continuous clinical assessment shall be carried out through out the Semester/Year.

The test may include written theory papers, practical, viva voce and clinical in the pattern of university examination. Records and marks obtained in such tests will be maintained by the Department and sent to the university by the Principal for documentation proof of internal marks.

CONTINUOUS APPRAISAL FOR TEACHING & LEARNING EXPERIENCE:

Every candidate admitted shall attend a minimum of and record these learning procedures in the work diary for their progressive evaluation, every semester

- | | | |
|--|---|---|
| a) Journal Review meetings | : | Minimum 2 |
| b) Seminars Presented | : | Minimum 2 |
| c) Clinical presentation | : | Minimum 10 |
| d) Special clinics | : | Minimum 5 |
| e) Dept/Inter department meetings | : | Minimum 2 |
| f) Community work, camps/field visits | : | Minimum 1 |
| g) Conference /workshops/CME/
Seminar/symposia attended | : | Minimum 2 |
| h) Problem Based Learning | : | Minimum 2 |
| i) Special Clinical rounds | : | Minimum 50 Hrs. |
| j) Dissertation work | : | Minimum 140 Hrs. |
| k) Participation in conferences/
Presentation of papers | : | Minimum 2 in 4 semesters |
| l) Teaching Activities – UG Teaching | : | Minimum 10 in two years |
| m) Micro Teaching | : | Minimum 2 in first semester |
| n) Learning Activities | : | Self Learning, Use of computers & library |
| o) Any other – Specify (eg: CME) | : | |
- Rotation and posting in other department if any – minimum 2 months in 1 speciality

CLIENT CENTERED LEARNING-GRADED RESPONSIBILITY

Structured Training Schedule for clinical & elective subjects will be as follows. The candidate will learn 40 cases through observation, 50 cases by Assisting & Handling senior Physiotherapist, 160 procedures performed with supervision, 80 procedures to perform individually.

DISSERTATION

Every candidate shall submit to the Registrar of the university in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within 4 months from the date of commencement of the course on or before the dates notified by the university. The synopsis shall be sent through the proper channel (Duly approved by the guide, HOD, Principal and Ethical committee with in the first semester) such synopsis will be reviewed and the university will register the dissertation topic (in the second semester). The dissertation is aimed to train a postgraduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, and comparison of results and drawing conclusions. Every candidate pursuing MPT degree course is required to carry out work on a selected research project under the guidance of a recognized postgraduate teacher. The result of such a work shall be submitted in the form of dissertation (in the fourth semester). Any change in the dissertation topic or guide should be informed to the authorities of this university for its approval. No change in the dissertation topic or guide shall be made after the approval of the Research & Recognition Committee of the university.

The dissertation should be written under the following headings.

1. Introduction
2. Aims or objectives of study
3. Review of literature
4. Material and methods
5. Results
6. Discussion
7. Conclusion
8. Summary
9. References
10. Tables
11. Annexure.

The printed text of dissertation should not be less than 50 pages/2500 words and shall not exceed 75 pages excluding references, tables, questionnaires and other annexure. It should be neatly typed in double line spacing (Font 12, Times New Roman) on one side of paper (A4 Size, 8.27" X 11.69") and Hard bound properly (No Spiral binding). Four copies of dissertation thus prepared shall be submitted to the Registrar (Evaluation), three months before final examination on or before the dates notified by the university duly certified by the guide, head of the department and head of the institution. In the Dissertation the Candidate should not disclose his Identity or of the Guide or Institution in anyway.

The examiners appointed by the university shall value the dissertation. Approval of dissertation work is an essential precondition for a candidate to appear in the university examination. Three evaluators (examiners) apart from the guide shall value the dissertation from outside Dr. D. Y. Patil Vidyapeeth. Acceptance from any two evaluators is necessary for a candidate to be eligible to take up the examination.

A candidate who has submitted his/her dissertation once is not required to submit a fresh dissertation if he/she reappears for the examination in the same branch on the subsequent occasion, provided the dissertation has been accepted by the examiners.

If the student has submitted his/her examination form & also his/her dissertation previously, he/she will be permitted to give the examination within a period of 4 years anytime in future provided the dissertation has been accepted. The terms satisfactorily kept by him will be valid for a period of 4 years subsequent to submission of the dissertation after which he/she will have to undergo Post-graduate training again for terms to be eligible for appearing for theory & Practical examination.

POST-GRADUATE GUIDE:*

A PG guide must have a Post-Graduate Degree in Physiotherapy with at-least 5 years of full time teaching in the core subject area after post-graduation. To withstanding the above clause, in a case of acute shortage of qualified Post-Graduate guides, A PG teacher with 3 years full time teaching experience after Masters Degree can be considered. The age of teacher /guide shall not exceed 63 years and the guide student ratio shall be 1: 3.

Co- guide: may be included provided the work requires substantial contribution from a sister department or from another medical institution recognized for teaching /training by Dr. D. Y. Patil Vidyapeeth, Pune. The co- guide shall be a recognized postgraduate teacher of Dr. D. Y. Patil Vidyapeeth, Pune.

Change of Guide:

In the event of a recognized guide leaving the college for any reason or in the event of death of guide, another recognized guide may take over the duties of the guide with prior permission from the university subject to withstanding to the Guide Student ratio.

Practical Examination

1. Panel of Examiners

A PG guide as defined above is eligible to be appointed as an examiner*. There should be three examiners in each practical examination out of which, two of them shall be external examiners (one from the same state & one from other state) & the other shall be an internal from the same institution. The external examiners who fulfill the conditions should ordinarily be invited from another recognized University, preferably. Internal examiner shall be the Co-ordinator of the examination. All the examiners shall jointly plan the overall conduct of examination prior to its commencement & conduct the ENTIRE examination together.

*Note: These above qualifications are applicable to all future recruitments. In the case of teachers who are already recognized as PG guides/examiners status quo will be maintained.

2. Selection criteria of examiners.

For any Practical examination, Appointment of the Internal Examiner shall be done by the Controller of examination.

- Qualification of the examiner shall be same as the paper setter.
- In case of substitute examiner, refer procedures for appointment of substitute practical examiners enclosed.

3. Number of candidates to be evaluated per day –

➤ First Year Examination.

- There shall be **NOT MORE THAN EIGHTEEN** candidates evaluated per day in the first year exam for any practical evaluation. In persisting circumstances the maximum candidate evaluated per day shall not exceed **TWENTY**.

➤ Second Year Examination

- There shall be **NOT MORE THAN SIX** candidates evaluated per day per speciality for any practical evaluation. In persisting circumstances the maximum candidate evaluated per day shall not exceed **EIGHT**.

4. Pattern of Examination – The pattern shall be according to the need of the particular subject. The Coordinator shall take care that maximum syllabus shall be covered in the Practical Examination. It is recommended to include Viva & O.S.P.E., / O.S C. E. methods in the exam.

5. Scheme of Examination for MPT

- The University Examination will be at the end of every semester. **The candidate must obtain 50% marks in internal assessment & continuous appraisals separately, to be eligible for appearing the University examinations.**
- Marks obtained in internal examination, attendance and continues appraisal will be simplified for 20 as internal marks. In case of marks simplified are in decimals, will be rounded to the nearest round figure, (e.g.) 12.01 to 12.49 will be considered to the round sum as 12 and 12.50 to 12.99 as 13.

Conduct of Practical examination - Before the assessment of the candidate, all the examiners shall jointly prepare arbitrary questions & marks for each such question as per the total marks granted to each experiment & accordingly evaluate the candidate as per the regulations.

ATTENDANCE REQUIREMENTS FOR ADMISSION TO EXAMINATION.

No candidate shall be permitted to appear for the Examination (internal & university) unless he/she puts 80% of attendance during his/her period of study & training.

If a candidate is not permitted for examination due to lack of attendance, he/she has to fulfill the required attendance by compensation in the extension period to be eligible for the University examination.

CONDONATION OF ATTENDANCE

There shall be no condonation of attendance in postgraduate studies. (However 5% compensation shall be permitted with the discrete permission of the authorities in case of Epidemic illness only.)

DISTRIBUTION OF MARKS FOR THEORY EXAMINATION.

All the semesters shall have similar evaluation process of internal / final examination. The written exam pattern shall be the same for all semesters for the subjects. An 80 mark paper shall have Part A & B with 40 marks each and the 40 mark paper shall have only the Part A pattern of examination for written examination.

Internal examination: - 20 marks (based on internal examination & continuous appraisal)

External (University) examination:- 80 marks

Each paper shall have

Part A	Q.1 LAQ (1 X 15 Marks)	= 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks
Part B	Q.1 LAQ (1 X 15 Marks)	= 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks

DISTRIBUTION OF MARKS FOR PRACTICAL EXAMINATION.

Internal examination : - 20 marks
(based on internal examination & continuous appraisal)

External (University) examination : - 80 marks

Semester – I

Practical

- ❖ Micro teaching :- 20 Marks
- ❖ Clinical case :- 60 marks

Semester – II

Practical

- ❖ Spots :- 20 Marks
- ❖ Clinical case :- 60 marks

Semester – III

Practical

- ❖ Clinical case (1) elective Long Case :- 60 marks
- ❖ Clinical case (2) elective Short Case :- 20 marks

Semester – IV

Practical

- ❖ Clinical case (1) elective Long Case :- 60 marks
- ❖ Clinical case (2) elective Short Case :- 20 marks

Dissertation at the IV semester:

Internal evaluation as per the process & execution	: -	50 marks
Dissertation evaluation & Presentation	: -	50 marks (University Examination)

ELIGIBILITY CRITERIA FOR APPEARING IN THE UNIVERSITY EXAMINATION

A candidate shall be permitted for appearing the university examination only if he/she fulfills all the following criteria:

1. A candidate shall be permitted to appear for the University Examination only if he/she puts 80% of attendance during his/her period of study & training.
2. The candidate must obtain 50% marks in internal assessment & continuous appraisals separately, to be eligible for appearing the University examinations.
 - a. If the candidate is not getting 50% marks in internal assessment then he/she should reappear for college examinations in the extension period after the university examination scheduled for the batch.
3. Approval of dissertation work is essential for a candidate to appear for the university examination in the eighth semester.

EXAMINATIONS AND ASSESSMENT

1. The examination for the MPT degree will consist of both formative and summative pattern: Written assignment as required or stipulated by the teacher, Clinical, oral, and practical examinations as the case maybe.
2. For the course subjects, internal assessment shall be conducted by the faculty at specified intervals during the course of the semester will be carried out as a continuous assessment for 20% of the university marks.
3. There shall be one internal examination (prelims) before the final university examination, following the pattern of the final examination, including theory & practical evaluation. The marks obtained by the candidate along with the continuous appraisal and attendance % marks shall be calculated for the internal examination marks
4. For the Physiotherapeutics-I, Physiotherapeutics-II, Elective Based Advance Physiotherapeutics - I & II of the respective semester, practical examinations will be conducted based on the subjects included in the respective semester and will be scored accordingly.
5. Student should pass in the Internal Assessment exams with 50 % in the allotted marks to appear for the University examinations. Continuous clinical assessment will be carried out though out the semester.

CRITERIA FOR PASSING

To pass the Examination,

1. To pass the Theory Examination the Candidate must obtain 50 % of the total Marks in the respective paper.
2. To pass in practical exam, candidate must obtain 50% of total marks in the respective paper.
3. A candidate must pass in two heads of passing i.e. Theory and Practical separately.
4. If a candidate is unable to pass in the theory Paper, then he/she has to reappear for the theory paper only.
5. If a candidate is unable to pass in the practical, then he/she has to reappear for the practical examination only.

GRACE MARKS

The grace marks up to a maximum of five may be awarded to a student who has failed only in one subject but has passed in all other subjects. These five marks shall be distributed in different heads of passing of that subject. Provided that these grace marks shall be awarded

only if the student passes after awarding these marks. (Refer clause 59, Bye-laws of Dr.D.Y.Patil Vidyapeeth).

RULES FOR ATKT

The candidate shall be promoted to subsequent semester (from I semester to II semester, II semester to III semester, III semester to IV semester) even if he/she fails in one or two subjects in the current semester of study. However, he/she must pass in these subjects within six months. To appear for subsequent examinations he/she must pass in all subjects of the previous semester. (ie, a candidate shall be promoted from I semester to II semester even if he/she has failed in two subjects or less, the candidate shall be permitted to appear for both I & II semester during his/her term of second semester. However he/she shall not be permitted to appear for the III semester unless he/she completely clears the first semester, this continues for rest of the semester). It is mandatory for the candidate to pass in all subjects of the previous odd semester to be eligible for the next odd semester, and to pass in all subjects of the previous even semester to be eligible for the next even semester. The candidate shall be eligible for obtaining the degree only after successful completion of the all the IV semesters.

SCORING – THE CBCS SYSTEM

All Programmes mention shall run on Choice Based Credit System (CBCS). It is an instructional package developed to suit the needs of students to keep pace with the developments in higher education and the quality assurance expected of it in the light of liberalization and globalization in higher education.

COURSE

Each Course shall be designed variously under lectures / tutorials / laboratory or field work / seminar / practical training / Assignments / Term paper or Report writing etc., to meet effective teaching and learning needs.

RATIONALE FOR INTRODUCTION OF CBCS

The UGC while outlining the several unique features of the Choice-Based Credit System (CBCS) has, in fact, given in a nutshell, the rationale for its introduction. Among the features highlighted by the UGC are:

- ❖ Enhanced learning opportunities, ability to match learners' scholastic needs and aspirations, inter-institution transferability of learners(following the completion of a semester),
- ❖ improvement in educational quality and excellence,
- ❖ flexibility for working learners to complete the programme over an extended period of time,
- ❖ Standardization and comparability of educational programmes across the country, etc.
- ❖ Some of the specific advantages of using the Credit system as outlined in the available literature on the topic are as listed below:

Advantages of the Credit System

- ❖ Represents a much-required shift in focus from teacher-centric to learner-centric education since the workload estimated is based on the investment of time in learning, not in teaching.
- ❖ Helps to record course work and to document learner workload realistically since all activities are taken into account - not only the time learners spend in lectures or seminars but also the time they need for individual learning and the preparation of examinations etc.
- ❖ Segments learning experience into calibrated units, which can be accumulated in order to gain an academic award.
- ❖ Helps self-paced learning. Learners may undertake as many credits as they can cope with without having to repeat all the courses in a given semester if they fail in one or more courses.
- ❖ Alternatively, they can choose other courses and continue their studies.
- ❖ Affords more flexibility to the learners allowing them to choose inter-disciplinary courses, change majors, programmes, etc. Respects 'Learner Autonomy'.
- ❖ Allows learners to choose according to their own learning, needs, interests and aptitudes.
- ❖ Makes education more broad-based. One can take credits by combining unique combinations.
- ❖ Credits earned at one institution can be transferred to another.

- ❖ Helps in working out twinning programmes.
- ❖ Is beneficial for achieving more transparency and compatibility between different educational structures.
- ❖ A credit system can facilitate recognition procedures as well as access to higher education for non-traditional learners

GRADING:

The total of the internal evaluation marks and final University examination marks in each course will be converted to a letter grade on a ten-point scale as per the following scheme as recommended by UGC:

LETTER GRADES AND GRADE POINTS:

Letter Grades	Grade Points	% of marks
O (Outstanding)	10	80 and above
A+(Excellent)	9	75-79
A(Very Good)	8	70-74
B+(Good)	7	65-69
B(Above Average)	6	60-64
C(Average)	5	55-59
P(Pass)	4	50-54
F(Fail)	0	<50
Ab (Absent)	0	0

A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.

COMPUTATION OF SGPA AND CGPA

The UGC recommends the following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

- ❖ The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

$$SGPA (S_i) = \frac{\sum(C_i \times G_i)}{\sum C_i}$$

where C_i is the number of credits of the i th course and G_i is the grade point scored by the student in the i th course.

- ❖ The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$CGPA = \frac{\sum(C_i \times S_i)}{\sum C_i}$$

Where S_i is the SGPA of the i th semester and C_i is the total number of credits in that Semester.

- ❖ The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

Illustration of Computation of SGPA and CGPA and Format for Transcripts

i. Computation of SGPA and CGPA

Illustration for SGPA

Subject	Credit	Grade letter	% Marks	Grade Point	Credit Point (Credit x Grade)
Course 1	4	A	74	8	4x8=32
Course 2	3	B+	69	7	3x7=21
Course 3	6	B	62	6	6x6=36
Course 4	4	O	88	10	4x10=40
	17				129

Thus, $SGPA = 129/17 = 7.58$

Illustration for CGPA

Semester 1	Semester 2	Semester 3	Semester 4
Credit: 17	Credit:20	Credit:20	Credit:26
SGPA: 7.58	SGPA:7.8	SGPA:5.6	SGPA:6.0

$$\text{Thus, CGPA} = \frac{17 \times 7.8 + 20 \times 7.8 + 20 \times 5.6 + 26 \times 6.0}{83} = 553/83 = 6.66$$

TRANSFER OF CANDIDATES:-

Request for transfer from one specialty to another during the course of study will not be entertained under any circumstances.

AWARD OF DEGREE

Every student of the programme who fulfils the following criteria will be eligible for the award of the degree provided

- ❖ He/She should have earned at least minimum required credits as prescribed in course structure,
- ❖ He/She should have cleared all internal and external evaluation components in every course,
- ❖ He/She should have secured a minimum CGPA of 4.00 at the end of the programme.
- ❖ The student who fails to satisfy minimum requirement of CGPA will be allowed to improve the grades so as to secure a minimum CGPA for award of degree. Only latest grade will be considered.

Award of Class:

The class awarded to a student in the programme is decided by the final CGPA as per the following scheme:

Distinction: CGPA \geq 7.50

First class: CGPA of 6.50 to 7.49

Second Class: CGPA of 5.00 to 6.49

ATTENDANCE % AND INTERNAL MARKS

The attendance % of the candidate will be converted to marks and will be included in the concerned semester continuous appraisal internal marks.

% of Attendance	IA marks for Continuous appraisals
100	10
95-99	9
90-94	8
85-89	7
80-84	6
75-79	5

SEMESTER – I

MPT - SEMESTER I																			
Course Code	Course	Teaching Learning Hrs				Teaching Learning Hrs/ Week				Credit				Exam Marks					
		Th	Pr	Cl	Tot.	Th	Pr	Cl	Tot.	Th	Pr	Cl	Tot.	Theory			Practical		
														Int	Ext	Tot	Int	Ext	Tot
MPT 101	Physiotherapy Practice and Education Technology	32	64	-	96	2	4	-	6	2	2	-	4	10	40	50	-	-	-
MPT 102	Research Methodology and Biostatistics	48	0	-	48	3	0	-	3	3	0	-	3	10	40	50	-	-	-
MPT 103	Advanced Electro Therapy & Electro Diagnosis	48	96	-	144	3	6	-	9	3	3	-	6	20	80	100	-	-	-
MPT 104	Physiotherapeutics-I	-	-	192	192	-	-	12	12	-	-	4	4	-	-	-	20	80	100
Total		128	160	192	480	8	10	12	30	8	5	4	17	40	160	200	20	80	100
Research Dissertation		-	-	192	192	-	-	12	12	-	-	4	4 Credit accumulated in Semester 4						
Total Hours		-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-

Th: Theory, Pr: Practical, Tot: Total, Lec: Lecture Demonstration/Tutorial/Discussion, IA: Internal Assessment

Course Title :- Physiotherapy Practice and Education Technology														
Course Code:- MPT 101														
Course Credit for Physiotherapy Practice and Education Technology														
Hours			Hrs/Wk			Credits			Evaluation Pattern					
Th	Pr	Tot	Lec	Pr	Tot	Lec	Pr	Tot	Written		Total	Practical		Total
									IA	Final exam	Final exam	IA	Final exam	Final exam
32	64	96	2	4	6	2	2	4	10	40	50	--	--	
COURSES OUTCOMES:														
CO No.	At the end of the course, the learner should be able to:													Mapped Programme Outcomes
101.1	Be an ethical Physiotherapist, aware of legal rights and duties as per Indian Association of Physiotherapy, World Confederation of Physical Therapists and World Health Organization. Describe environment protection act.													PO1, PO5, PO7, PO8, PO9
101.2	Understand and apply principles of learning, and use different teaching - learning methods appropriately.													PO2, PO6, PO7, PO9
101.3	Describe the concepts of learning, evaluation and curriculum development.													PO1, PO9
101.4	Describe advantages and challenges of different assessment methods.													PO1, PO9
101.5	Apply management skills in planning, implementation & administration of clinical and academic activities													PO2, PO5, PO6, PO9
101.6	Document comprehensive and accurate health records													PO3, PO6
101.7	Be a Critical Thinker													PO1, PO4, PO4, PO5, PO6, PO7, PO9

Course Content			
Topic Serial No.	Title of content	Hours of teaching/learning	
		Theory	Practical
PHYSIOTHERAPY PRACTICE			
1	Concept of morality, Ethics & Legality, confidentiality and responsibility.	1	4
2	Introduction to ethics & bioethics (2hrs) <ul style="list-style-type: none"> • Meaning, nature of ethics, ethical statements • Meaning of bioethics • Health & disease as values and facts • Principles of bioethics • Medical ethics- goals, committees 	2	--
3	Laws – Constitution of India, & Rights of a citizen, responsibilities of the Therapist, & status in health care – Persons with Disability Act – Councils for regulation of professional practice – self-regulatory role of Professional Association – Consumer protection act.	2	4
4	Human dignity and human rights (2hrs) <ul style="list-style-type: none"> • Human dignity as an intrinsic value • Respect , care and Equality in dignity of all human beings • human dignity in different cultural and moral traditions • Ethical aspects of physiotherapists in patients relation in regard to human dignity in handling children, women, elderly, mental & physically challenged. 	2	
5	Benefit and harm of patient’s right & dignity in Health care settings by physiotherapy (2hrs) <ul style="list-style-type: none"> • The WHO definition of health as a possible solution of health problems • What is the health benefit by physiotherapy • Possible harm for a patient during physiotherapy • Dimensions of comparing harms and benefits in individual patients 	2	
6	Role of the Professional in Socio – economical context. Constitution & Functions of I.A.P. Role of W.C.P.T. and W.H.O.	2	4
7	Management – Theories and their application to physiotherapy practice, service quality at various levels of the health delivery system, teaching institution & self-employment and principles and concepts.	2	4
8	Administration & marketing – Personal policies – Communication & Contact- Administration principles based on Goal & Functions at large hospital / domiciliary set up / private clinical / academic institution. <ul style="list-style-type: none"> • Methods of maintaining records – Budget planning • Leadership and Teamwork. 	2	4
9	Quality control related to treatment procedure, audit and Programme evaluation	1	6

EDUCATION TECHNOLOGY

1	Aims, Philosophy and Trend and Issues in education including – Aims, agencies, formal and in-formal education, philosophies of education (past, present & future).	2	4
2	Role of education philosophy	1	4
3	Current issues and trends in education.	2	4
4	Concepts of teaching and learning – theories of teaching, relation between teaching and learning, dynamics of behavior, learning perception, individual differences.	2	4
5	Curriculum formation – committee framing, development & types of curriculum, formation of philosophy & course objectives, master plans of courses, co-relation of theory & practice.	2	4
6	Principles and methods of teaching – strategies and planning, organization and teaching methods - micro teaching.	2	4
7	Measurement and evaluation – nature of measurement, steps of constructing a test measurement, standard tools, program evaluation.	2	4
8	Guidance and counseling – Philosophy, principles and concepts, guidance and counseling services (mode of framing and execution).	2	4
9	Faculty development services.	1	6

TEXT BOOKS

Sr.No.	Title
1	Pedagogy Physiotherapy Education –C S Ram
2	Physical Therapy Ethics: Gabard Donald L.
3	Ethics,Injuries &The Law in Sports Medicine: Grayson Edward
4	Bioethics core curriculum-section-1., Ethics education program, Version 1.0

REFERENCE BOOKS

Sr.No.	Title
1	Ethical Issues: Raja Kavitha;davis Fiddy;sivakumar T
2	Professional Adjustments and Ethics for Nurses in India:Zwemer Annj

SCHEME OF EXAMINATION

Evaluation Pattern					
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
10	40	50	-	-	-

Preliminary Examination / University (Final) Examination**❖ Written Examination (40 marks)**

Q.1 LAQ (1 X 15 Marks)	= 15 marks
Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks

Course Title :- Research Methodology and Biostatistics														
Course Code:- MPT- 102														
Course Credit for Research Methodology and Biostatistics														
Hours			Hrs/Wk			Credits			Evaluation Pattern					
Th	Pr	Tot	Lec	Pr	Tot	Lec	Pr	Tot	Written		Total	Practical		Total
									IA	Final exam	Final exam	IA	Final exam	Final exam
48	-	48	3	0	3	3	0	3	10	40	50	--	--	--
COURSES OUTCOMES:														
CO No.	At the end of the course, the learner should be able to:										Mapped Programme Outcomes			
102.1	Describe how research is undertaken, and its benefits.										PO1, PO4, PO7, PO9			
102.2	Differentiate between quantitative research and qualitative research.										PO1, PO4			
102.3	Select an appropriate study design based on research question.										PO1, PO2, PO4			
102.4	Identify ethical issues in research.										PO2,PO4,PO5, PO6,PO7			
102.5	Design a research proposal										PO1, PO2, PO4,PO5,PO7			
Course Content														
Topic Serial No.	Title of content										Hours of teaching/learning			
											Theory		Practical	
RESEARCH METHODOLOGY														
1	Introduction Terminology in research, Ethical issues in research, Research process										2			
2	Review of literature. Importance, sources & steps in reviewing the literature.										2			
3	Research design <ul style="list-style-type: none"> Type of research – qualitative & quantitative. Experimental & non experimental, survey – advantages & disadvantages 										3			
4	Research process <ul style="list-style-type: none"> Research question, Aim & objectives, Assumptions, Limitations & Delimitations, Variables Hypothesis – formation & testing. 										3			
5	Sampling <ul style="list-style-type: none"> Sampling technique Population, sample, Sample size & determination Sampling methods Sampling error 										2			
6	Data collection and analysis <ul style="list-style-type: none"> Data sources, technique of data collection, tools Reliability & validity Process of data collection Pilot study-method, need 										2			

7	Interpretation & presentation of data <ul style="list-style-type: none"> • Quantitative & qualitative analysis • Graphical representation of data • Conclusion & discussion 	2	
8	Writing a dissertation, research paper	2	
9	Critical appraisal of research	2	
10	Presentation and Publication of research – Steps and process.	3	
11	Autonomy and individual responsibility, Consent, (5hrs) <ul style="list-style-type: none"> • Autonomy and individual responsibility (2 hrs) <ul style="list-style-type: none"> ○ Different levels and notions of autonomy ○ Responsibility: its different aspects and dual nature ○ Autonomy and patient’s right to self-determination in treatment ○ The patient’s right to refuse a health care provider’s recommendation ○ Special measures for protecting the rights and interests of socially and mentally disabled patients ○ patient responsibilities • consent (2 hrs) <ul style="list-style-type: none"> ○ Purpose of the principle of consent <ul style="list-style-type: none"> ▪ Prior , free & informed consent in patient treatment & handling ○ What is express consent? ○ Withdrawal of consent ○ The patient’s right to refuse ○ Consent of subjects of scientific research. ○ Compare the provisions for consent in scientific research with those for medical interventions ○ Consent by individual, group and community ○ Exceptional circumstances for the application of the principle of consent • Persons without the capacity to consent (1 hr) <ul style="list-style-type: none"> ○ Criteria for capacity to consent ○ Categories of persons without the capacity to consent <p>How to obtain consent in health care practice for these special categories?</p>	5	
BIOSTATISTICS			
1	Introduction <ul style="list-style-type: none"> • Frequency distribution • Tabulation & graphical presentation of data 	4	
2	Measures of central tendency (Mean, median, mode)	2	
3	Measures of variability (range, percentage, SD)	2	
4	Sample distribution & error	2	
5	Correlation <ul style="list-style-type: none"> • Meaning • Rank order • Product Moment correlation (Pearson’s product moment, Spearman’s Regression analysis) 	2	

6	Statistical significance <ul style="list-style-type: none"> • Parametric tests-'t' tests, Tukeys following Oneway ANOVA • ANOVA (One way, two way – for parametric & nonparametric), ANCOVA, Multistage ANOVA • Nonparametric tests-Chi-square test, Mann Witney U test, 'Z' test • Wilcoxon's matched pairs test 	4	
7	Vital health statistics	2	
8	Computer application for statistical analysis	2	

Text Books

Sr.No.	Title
1	Jyotikumar Biostatistics
2	Research Methodology- Kothari
3	Biostatistics -with Latest Mcqs - Negi, K.s
4	Methods Of Biostatistics- Rao T Bhaskara

Reference Books

Sr.No.	Title
1	Principles And Practice Of Biostatistics- Dixit J V

SCHEME OF EXAMINATION

Evaluation Pattern					
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

❖ Written Examination (40 marks)

Q.1 LAQ (1 X 15 Marks)	= 15 marks
Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks

Course Title :- Advanced Electro Therapy & Electro Diagnosis														
Course Code:- MPT- 103														
Course Credit for Advanced electro Therapy & electro diagnosis														
Hours			Hrs/Wk			Credits			Evaluation Pattern					
Th	Pr	Tot	Lec	Pr	Tot	Lec	Pr	Tot	Written		Total	Practical		Total
									IA	Final exam	Final exam	IA	Final exam	Final exam
48	96	144	3	6	9	3	3	6	20	80	100	--	--	--
COURSES OUTCOMES:														
CO No.	At the end of the course, the learner should be able to:													Mapped Programme Outcomes
103.1	Understand theoretical concepts and physiological effects of various electrical currents at cellular level.													PO1
103.2	Select appropriate modality for various conditions along with clinical reasoning.													PO1, PO2
103.3	Apply conceptual theories and principles to interpret EMG and NCV investigations.													PO1, PO2
103.4	Select appropriate therapeutic modality / combinations for electro-diagnostic and therapeutic purpose.													PO1, PO2, PO5
Course Content														
Topic Serial No.	Title of content										Hours of teaching/learning			
											Theory		Practical	
ELECTROTHERAPY														
1	Medical Physics of various therapeutic currents, ultrasound & Electro – magnetic energy, SWD.										2	4		
2	Cellular response & tissue response to environment & man-made Electro–magnetic field– risk factor of prolonged exposure–safety measures.										2	4		
3	Appropriate dose for the treatment of various disorders / disease conditions with various therapeutic modalities.										2	4		
4	Advanced Electro therapeutic in the management of Pain, and various other conditions.										2	4		
5	Principles of combination of Therapeutic currents & / ultrasound . with Pharmaco – Therapeutics with special reference to Musculo-skeletal, / neuropathic & psychosomatic pain and various other conditions.										2	4		
6	Advanced Electro, Therapeutics in Tissue healing, Wound Care, management of Scars, Keloids & De-pigmentation – skin conditions.										2	4		
7	Acupressure and Acupuncture Points										2	4		
8	Respect for human vulnerability & personal integrity (1 hr) <ul style="list-style-type: none"> Different aspects of vulnerability - biological , social , cultural Success and failures in physiotherapy treatments Problems with the basic assumption that vulnerability should be eliminated Care ethics- New approaches in bioethics, Solidarity, The duty to care Relation between vulnerability and personal integrity 										1	--		

ELECTRO DIAGNOSIS			
1	Bio electricity – (R.M.P. – action potential)	2	4
2	Neuro –transmitters	3	8
3	Classification – 1) Muscle fiber 2)Nerve fiber 3) Motor Unit Synapse & synaptic transmission	2	4
4	Physiology of muscle contraction	2	4
5	Propagation of nerve impulses & Physiology of muscle contraction	4	8
6	Reflex-classification and properties	2	4
7	Sensations – pathways and classification	2	4
8	Type of Nerve injury, Wallerian degeneration and regeneration.	2	4
9	Electro diagnosis with therapeutic currents, – S.D. curves for motor, sensory and Pain assessment	2	4
10	Applied Electrotherapy –1) instruments 2)electrodes used in EMG - 3) E.M.G. normal (at rest & Activity) and abnormal.	2	4
11	Application of nerve conduction studies 1) Sensory /Motor 2) “F” Wave, 3)“H” reflex, 4) Blink reflex, 5) SSEP	2	4
12	Application in Neuro-muscular junction disorders, repetitive nerve stimulation.	2	4
13	Motor unit potential diseases (Dystrophies, myopathy, myotonia)	2	4
14	Entrapment syndromes, Peripheral neuropathies, Nerve trauma & compression syndromes.	2	4
15	Evoked potentials SSEP	2	4

Text Books

Sr.No.	Title
1	Clinical Electrophysiology - Robinson
2	Electrotherapy Explain – Low & Read
3	Electrotherapy – Sheila Kitchen

Reference Books

Sr.No.	Title
1	Clinical Neurophysiology – U K Mishra
2	Electro Diagnosis in Diseases of Nerve and Muscle – Jun Kimura
3	Fundamental of Neurophysiology – R F Schmidt

SCHEME OF EXAMINATION

Evaluation Pattern- Theory					
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
20	80	100	--	--	--

Preliminary Examination / University (Final) Examination

❖ Written Examination (80 marks)

Part A	Q.1 LAQ (1 X 15 Marks)	= 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks
Part B	Q.1 LAQ (1 X 15 Marks)	= 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks

Course Title :- PHYSIOTHERAPEUTICS-I								
Course Code:- MPT 104								
Course Credit for Physiotherapeutics-I								
Hours	Hrs/Wk	Credits	Evaluation Pattern					
Clinical	Clinical	Clinical Credit	Theory			Practical – Physiotherapeutics-I		
			IA	Final	Total	IA	Final	Total
192	12	4	--	--	--	20	80	100
CO No.	At the end of the course, the learner should be able to:						Mapped Programme Outcomes	
104.1	Take appropriate patient history in the prescribed format.						PO1, PO2, PO3	
104.2	Select an appropriate outcome measure and correlate patient examination findings.						PO1, PO2, PO3, PO4	
104.3	Use appropriate Physiotherapeutic Technique / approaches to treat patients.						PO1, PO2, PO3, PO5	
104.4	Discuss the recent management approaches for common conditions and deliberate on best practice model for patient centered care						PO1, PO2, PO4, PO9	

SCHEME OF EXAMINATION FOR PHYSIOTHERAPEUTICS-I

Evaluation Pattern					
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ Practical Examination (80 marks)

Semester – I

Practical

- Micro teaching :- 20 Marks
- Clinical case :- 60 marks

SEMESTER – II

MPT - SEMESTER II																			
Course Code	Course	Teaching Learning Hrs				Teaching Learning Hrs/ Week				Credit				Exam Marks					
		Th	Pr	Cl	Tot.	Th	Pr	Cl	Tot.	Th	Pr	Cl	Tot.	Theory			Practical		
														Int	Ext	Tot	Int	Ext	Tot
MPT 201	Advanced Functional Diagnosis & Manipulative Skills	48	96	-	144	3	6	-	9	3	3	-	6	20	80	100	-	-	-
MPT 202	Applied Biomechanics & Kinesiology	64	-	-	64	4	-	-	4	4	-	-	4	20	80	100	-	-	-
MPT 203	Exercise Physiology, Health & Fitness	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 204	Physiotherapeutics-II	-	-	192	192	-	-	12	12	-	-	4	4	-	-	-	20	80	100
Total		176	160	192	528	11	10	12	33	11	5	4	20	60	240	300	20	80	100
Research Dissertation		-	-	144	144	-	-	9	9	-	-	3	3 Credit accumulated in Semester 4						
Total Hours		-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-

Th: Theory, Pr: Practical, Tot: Total, Lec: Lecture Demonstration/Tutorial/Discussion, IA: Internal Assessment

Course Title :- ADVANCED FUNCTIONAL DIAGNOSIS & MANIPULATIVE SKILLS															
Course Code:- MPT 201															
Course Credit for FUNCTIONAL DIAGNOSIS & MANIPULATIVE SKILLS															
Hours			Hrs/Wk			Credits			Evaluation Pattern						
Th	Pr	Tot	Lec	Pr	Tot	Lec	Pr	Tot	Written		Total	Practical		Total	
									IA	Final exam	Final exam	IA	Final exam	Final exam	
48	96	144	3	6	9	3	3	6	20	80	100	-	-	-	

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes	
201.1	Describe various Manual therapy approaches for all joints of upper limbs, lower limbs and spine and soft tissues.	PO1	
201.2	Integrate different manual therapy techniques for treatment of common neuro-musculoskeletal conditions.	PO1, PO2, PO3, PO9	
Course Content			
Topic Serial No.	Title of content	Hours of teaching/learning	
		Theory	Practical
1	Physiological movements	2	2
2	Articular Neuro Physiology and principles of applications.	4	2
3	History of manual therapy, overview of manual therapy approaches for all the joints.	4	
4	Terminology, Principles, indications, contraindications, assessment & methods of application of – Maitland, Karltenborn, Cyriax, Mulligan Mackenzie, Butler's Neural Mobilisation, Shacklok neural tissue mobilization.	16	48

5	Terminology, Principles, indications, contraindications, assessment & methods of application of Soft tissue approaches – Myofascial techniques, Neural tissue Mobilization, Muscle Energy Techniques, High velocity thrust techniques, Positional Release Techniques, Trigger point release, Lymphatic Manipulation.	16	44
4	<p>Solidarity and cooperation (2hrs)</p> <ul style="list-style-type: none"> • Solidarity in health care & Physiotherapy • Ethical perspective <ul style="list-style-type: none"> ○ Solidarity as instrumental value ○ Solidarity as moral value • Threats to solidarity in present-day societies <p>Social responsibility and health, Sharing of benefits (4 hrs)</p> <ul style="list-style-type: none"> • Highest attainable standard of health as a fundamental human right <ul style="list-style-type: none"> ○ Universal Declaration of Human Rights ○ WHO Constitution ○ Duty, obligation and responsibility physiotherapists for Highest attainable standard of health as a fundamental human right ○ Responsibilities for governments and various sectors of society ○ Health and contemporary challenges to global justice <ul style="list-style-type: none"> ▪ Access to essential health services ▪ The protection of vulnerable populations ▪ Providing health care services across national boundaries • Sharing of benefits <ul style="list-style-type: none"> ○ Models of benefit-sharing agreements <ul style="list-style-type: none"> ▪ Fair and equitable options for research subjects ▪ Biopiracy and fair sharing of benefits of genetic resources ▪ Patents and intellectual property ▪ Valid options for promoting fair and equitable access to new diagnostic and therapeutic modalities or to products stemming from them <p>Integration of capacity-building components to externally funded research and other initiative</p>	2	--
		4	

Text Books

Sr.No.	Title
1	Manusl Therapy Masterclass – Karem S Beeton
2	Clinical Manual Therapy & Practice – Leon Chaitow
3	Maitlands Peripheral Manipulation – Elly Hengeveled

Reference Books

Sr.No.	Title
1	Manual of Combined Movement - Edwards
2	Manual Therapy in Children - Heiner

SCHEME OF EXAMINATION

Evaluation Pattern					
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
20	80	100	--	--	--

Preliminary Examination / University (Final) Examination**❖ Written Examination (80 marks)**

Part A	Q.1 LAQ (1 X 15 Marks)	= 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks
Part B	Q.1 LAQ (1 X 15 Marks)	= 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks

Course Title :- APPLIED BIOMECHANICS & KINESIOLOGY															
Course Code:- MPT 202															
Course Credit for APPLIED BIOMECHANICS & KINESIOLOGY															
Hours			Hrs/Wk			Credits			Evaluation Pattern						
Th	Pr	Tot	Lec	Pr	Tot	Lec	Pr	Tot	Written		Total	Practical		Total	
									IA	Final exam	Final exam	IA	Final exam	Final exam	
64	--	64	4	--	4	4	--	4	20	80	100	--	--	--	
LEARNING OBJECTIVES:															
CO No.	At the end of the course, the learner should be able to:													Mapped Programme Outcomes	
202.1	Identify, discuss & analyze the musculoskeletal dysfunction in terms of Biomechanics													PO1, PO2, PO9	
202.2	Apply the knowledge of Biomechanics in exercise prescription with clinical reasoning													PO1, PO2, PO4, PO9	
202.3	Analyze kinetics and kinematics of all joints & its application in body movements													PO1, PO2	
202.4	Apply the principles of Biomechanics in prosthetics, orthotics & mobility aids.													PO1, PO2, PO3	
202.5	Prescribe ergonomic alterations at workplace using biomechanical principles.													PO1, PO2, PO5	
Course Content															
Topic Serial No	Title of content													Hours of teaching/learning	
														Theory	Practical
1	Forces, Equilibrium, levers – laws – mechanical advantage, Material properties of bones and soft tissues.													4	--
2	Applied mechanics in the evaluation procedures – movement & functional analysis. Gravity, balance & equilibrium.													6	--
3	Kinetics / Kinematics of extremity and spinal joints, (including T. m. joint) Posture gait jogging, running, climbing up/down, A.D.L & exercises.													6	--
4	Biophysics of connective tissue – ligament, Cartilage, tendon, muscle, neural tissues & vessels, – Response to mechanical loading.													6	--
5	Applied mechanics in physiological & pathological deviations (pathomechanics / Patho kinetics) of spinal & extremity disorders (functional & static)													6	--
6	Applied mechanics in exercise prescription with clinical reasoning.													8	--
7	Analysis of functional hazards related to Environment /Industry - & clinical reasoning for the appropriate Ergonomic advice.													6	--
8	Applied mechanics in the application of Prostheses, Orthoses, & mobility aids – materials, designs & biomechanical compatibility.													6	--
9	Biomechanics of respiration & circulation.													4	--
10	Biomechanics of the nervous system													6	--
11	Privacy and confidentiality, equality & Non discrimination. (6 hrs) <ul style="list-style-type: none"> • Privacy and confidentiality (2 hrs) <ul style="list-style-type: none"> ○ Definitions of ‘privacy’ and ‘confidentiality’ with reason in physiotherapy ○ Justified breaches of confidentiality- 													2	

	<ul style="list-style-type: none"> ▪ Sharing information for patient care ▪ Using interpreters ▪ Teaching medical students ▪ Mandatory reporting Serious danger to others ▪ Patient or guardian consent <ul style="list-style-type: none"> • Equality, justice and equity (2 hrs) <ul style="list-style-type: none"> ○ Definitions of ‘equality’, ‘justice’ and ‘equity’ ○ The right to health care & Physiotherapy ○ Disparities in health status <ul style="list-style-type: none"> ▪ Local disparities ▪ National disparities ▪ Global disparities ○ Roles of Physiotherapists in establishing health care priorities and allocating scarce health care resources as direct health care providers • Non-discrimination and non-stigmatization, (1hr) <ul style="list-style-type: none"> ○ What is discrimination and stigmatization? • Respect for cultural diversity and pluralism (1hrs) <ul style="list-style-type: none"> ○ Definition of culture and cultural diversity ○ Definition and value of pluralism <p>Limits to the consideration for cultural specificities Human dignity, human rights and fundamental freedoms</p>	2	
		1	
		1	

Text Books

Sr.No.	Title
1	Measurement of Joint motion - A guide to Goniometry - Cynthia C. Norkin
2	Joint Structure and Function- Levangie Pamela K
3	Fundamentals of Biomechanics- Knudson Duane

Reference Books

Sr.No.	Title
1	Basic Biomechanics of The Musculoskeletal System- Nordin Margareta

SCHEME OF EXAMINATION

Evaluation Pattern					
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
20	80	100	--	--	--

Preliminary Examination / University (Final) Examination

❖ Written Examination (80 marks)\

Part A	Q.1 LAQ (1 X 15 Marks)	= 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks
Part B	Q.1 LAQ (1 X 15 Marks)	= 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks

Course Title :- EXERCISE PHYSIOLOGY , HEALTH & FITNESS														
Course Code:- MPT 203														
Course Credit for Exercise Physiology , Health & Fitness														
Hours			Hrs/Wk			Credits			Evaluation Pattern					
Th	Pr	Tot	Lec	Pr	Tot	Lec	Pr	Tot	Written		Total	Practical		Total
									IA	Final exam	Final exam	IA	Final exam	Final exam
64	64	128	4	4	8	4	2	6	20	80	100	--	--	--
Learning Objectives:														
CO No.	At the end of the course, the learner should be able to:													Mapped Programme Outcomes
203.1	Describe various physiological/systemic changes that occur during exercise.													PO1, PO2
203.2	Describe various types, principles and application of different types of exercise training methods.													PO1, PO2
203.3	Apply the principles of diet and nutrition in exercise prescription.													PO1, PO2, PO3
203.4	Assess and prescribe exercise protocol in special populations like Geriatrics, athletes, obese, pregnancy and in various systemic conditions like hypertension and respiratory conditions.													PO1, PO2, PO3, PO4
203.5	Describe the process of body's acclimatization to various environmental conditions.													PO1, PO2
Course Content – (section A/B as applicable)														
Topic Serial No.	Title of content												Hours of teaching/learning	
													Theory	Practical
EXERCISE PHYSIOLOGY														
1	ENERGY PRODUCTION, EXPENDITURE, AND TRANSFER <ul style="list-style-type: none"> Energy transfer in cells during exercise. Oxygen metabolism and transfer during metabolism. Oxygen transport in blood Oxygen deficit, Oxygen debt. Oxygen measurement, Oxygen during exercise, Oxygen during recovery. Energy release from carbohydrate, lipids and proteins. BMR – during rest, at activity. Energy expenditure during activity. Short Term and Long term energy systems. 												6	6
2	EXERCISE PERFORMANCE <ul style="list-style-type: none"> Lung function and its role in exercise performance Regulation of ventilation & blood pressure during exercise. Cardiovascular adjustment during exercise. Muscle fiber, types and its role in exercise performance. Ventilation during steady and non-steady rate exercise. Energy cost and breathing. Blood pressure (BP) response to exercise. Cardiac output during exercise in – trained / untrained. Cardio vascular drift. 												6	6

3	AEROBIC AND ANAEROBIC EXERCISES <ul style="list-style-type: none"> Principles of Training Anaerobic system changes with training Aerobic system changes with training Factors affecting aerobic and anaerobic training response. System adaptation to aerobic and anaerobic training Overtraining Strength training –physiology in various age groups Methods of training, Circuit training & De-training DOMS. Aid in enhancing training and performance. 	6	6
4	EXERCISE AND ENVIRONMENT <ul style="list-style-type: none"> Acclimatization Exercising at high and low altitude and hypoxia. Exercise at hot climate, thermoregulations, dehydration and rehydration. Exercise at cold climate. 	6	6
5	FATIGUE <ul style="list-style-type: none"> Classification, physiology Assessment and management. 	6	6
HEALTH & FITNESS			
1	NUTRITION: <ul style="list-style-type: none"> Carbohydrates:- Nature, Source, Classification, Recommended intake, and role in exercise. Lipids: - Nature, Source, Classification, Recommended intake, and role in exercise. Proteins: - Nature, Source, Recommended intake, and role in body. Vitamins: - Kind, Source, Role of vitamins. Minerals :- Kind, Source, Role of minerals : Calcium, Phosphorus, magnesium, Iron, sodium, potassium, Chlorine. Nutritional deficiencies and management. 	6	6
2	DIET <ul style="list-style-type: none"> Recommended dietary intake, Pre-competition meal, Diet for endurance and strength training. 	6	6
3	FITNESS TESTING <ul style="list-style-type: none"> Predicting/ measurement of aerobic fitness <ul style="list-style-type: none"> Field tests Lab tests Sub-maximal test (cycle ergometer, treadmill tests) Maximal testing Predicting / measurement of anaerobic fitness, strength and power Predicting / measurement of flexibility. Predicting / measurement of agility Fitness testing for special population-Paediatrics, women, geriatrics 	6	6
4	BODY COMPOSITION <ul style="list-style-type: none"> Obesity and weight control. Measurement of body composition – BMI, WHR, indirect methods of measurement 	5	6

5	EXERCISE TESTING AND PRESCRIPTION FOR SPECIAL CONDITION <ul style="list-style-type: none"> • Diabetes mellitus • Hypertension • Cardio-vascular system • Respiratory impairment 	5	6
6	PAEDIATRIC EXERCISE SCIENCE- Exercise in testing in Paediatric- 1)Flexibility 2)Endurance 3) Fitness 4)Strength 5) Functional Testing	4	4
7	Protecting future generations, Protection of the environment (2hr) <ul style="list-style-type: none"> • Why care about the future? Contexts of concern • The scope and limits of future related responsibilities Intergenerational; distant generations, all unborn generations? • Obligations over health care providers to the possible people of the future? • Health care and future generations • The relation of bioethics and environmental issues • Basic principles of environmental ethics <ul style="list-style-type: none"> i. environmental justice ii. intergenerational justice iii. respect for nature 	2	--

Text Books

Sr.No	Title
1	Exercise for health fitness & performance - Smith
2	Energy , nutrition & Human Performance – William Macardel

Reference Books

Sr.No.	Title
1	Physiology of Sports & Exercise - Wilmore
2	Clinical Exercise Physiology – Ehrman Gordhan

SCHEME OF EXAMINATION

Evaluation Pattern					
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
20	80	100	--	--	--

Preliminary Examination / University (Final) Examination

❖ Written Examination (80 marks)

Part A	Q.1 LAQ (1 X 15 Marks)	= 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks
Part B	Q.1 LAQ (1 X 15 Marks)	= 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks

Course Title :- PHYSIOTHERAPEUTICS-II								
Course Code:- MPT 204								
Course Credit for Physiotherapeutics-II								
Hours	Hrs/Wk	Credits	Evaluation Pattern					
Clinical	Clinical	Clinical Credit	Theory			Practical (Physiotherapeutics-II)		
			IA	Final	Total	IA	Final	Total
192	12	4	--	--	--	20	80	100
CO No.	At the end of the course, the learner should be able to:					Mapped Programme Outcomes		
204.1	Take appropriate patient history in the prescribed format.					PO1, PO2, PO3		
204.2	Select an appropriate outcome measure and correlate patient examination findings.					PO1, PO2, PO3, PO4		
204.3	Use appropriate Physiotherapeutic Technique / approaches to treat patients.					PO1, PO2, PO3, PO5		
204.4	Discuss the recent management approaches for common conditions and deliberate on best practice model for patient centered care					PO1, PO2, PO4, PO9		

SCHEME OF EXAMINATION FOR PHYSIOTHERAPEUTICS-II

Evaluation Pattern					
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ Practical Examination (80 marks)

Semester – II

Practical

- ❖ Spots - 20 Marks (based on electro physiology, electro diagnosis, x ray-chest, limb, CT, MRI, Manual therapy, Exercise Physiology, Nutrition)
- ❖ Clinical case - 60 marks
Bed side evaluation & Therapeutic skills and Scenario based

MPT- SECOND YEAR
SYLLABUS FOR SEMESTER III
MPT 1: Orthopaedics

MPT- Semester III																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
		Theory		Practical		Theory		Practical		Theory		Practical		Theory		Practical			
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 1 - 301	Orthopedics: Clinical Sciences I	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 1 - 302	Orthopedics: Physiotherapeutics I	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 1 - 303	Orthopedics: Recent Advances I	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 1 - 304	Orthopedics: Advanced Physiotherapeutics I	-	-	192	192	-	-	12	12	-	-	4	4	-	-	-	20	80	100
	Total	176	160	192	528	11	10	12	33	11	5	4	20	50	200	250	20	80	100
	Research Dissertation	-	-	144	144	-	-	9	9	-	-	-	-	3 Credit Assessed & Accumulated in Semester 4					
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)
 Elective based advance Physiotherapeutics-I:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic – 176 hours, Clinical training -192 hours, Laboratory work (includes project / review of literature/seminars/case Presentation, journal clubs etc.)–160 hrs, Scientific enquiry/Research dissertation – 144 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –I** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-I** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-I** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-I** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOMES:**Orthopaedics: Clinical Sciences I (MPT 1-301)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
301.1	Be able to identify, discuss & analyse musculo skeletal dysfunction in terms of biomechanical, kinesiological and biophysical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of musculoskeletal physiotherapy.	PO1, PO2, PO9
301.2	Be able to correlate neuro-musculoskeletal system with clinical decision making	PO1, PO2, PO6, PO9
301.3	Document patients with scale, out come measures and asses the progression	PO1, PO2
301.4	Use Manual Therapy Technique/ approaches to treat patients with musculoskeletal disorders in different age groups and be able to transfer skill and knowledge for training undergraduate students.	PO1, PO2

Orthopaedics: Physiotherapeutics I(MPT 1-302)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
302.1	Be able to identify, discuss & analyse, the Musculo skeletal dysfunction in terms of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of musculoskeletal physiotherapy	PO1, PO2, PO9
302.2	Be able to correlate neuromusculo skeletal system with clinical decision making	PO1, PO2, PO6, PO9
302.3	Document patients with scale, out come measures and asses the progression	PO1, PO2
302.4	Use Manual Therapy Technique/ approaches to treat patients with musculoskeletal disorders in different age groups and be able to transfer skill and knowledge for training undergraduate students	PO1, PO2

Orthopaedics: Recent Advances I (MPT 1-303)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
303.1	Be able to identify, discuss and co-relate the same with the Provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of musculoskeletal physiotherapy.	PO1, PO2, PO9
303.2	Be able to correlate neuromuscular skeletal system with clinical decision making with Physiotherapy Management.	PO1, PO2
303.3	Document patients with scale, out come measures and asses the progression and Follow ups	PO1, PO2

Orthopaedics: Advanced Physiotherapeutics-I (MPT 1-304)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
304.1	Identify and discuss, the Musculo skeletal dysfunction in terms of Recent Advances in the field of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of musculoskeletal physiotherapy.	PO1, PO2
304.2	Correlate neuromusculoskeletal system with updated clinical decision making	PO1, PO2
304.3	Document patients with latest and new version of scale, out come measures and asses the progression	PO5, PO6
304.4	Use Recent Physiotherapeutic Technique/ approaches to treat patients with musculoskeletal disorders in different age groups.	PO1,PO2, PO5, PO6

COURSE CONTENTS:

- ❖ Introduction To Orthopaedics – Assessment & Evaluation in detail related to orthopedic patient history taking, clinical features, clinical examination and investigation.
- ❖ Musculoskeletal system:
 - Embryology of musculoskeletal system
 - a) Long bone.
 - b) Short & Flat bone.
 - c) Skull & Thumb.
 - Architecture of bone.
 - Gross anatomy of bone, joints, muscles and nerves.
 - Dermatomes & Myotomes.
 - Joint play movements.
 - Skeletal growth and development (normal & Pathological)
 - Types of muscle contraction, nerve – muscle pathology.
 - Calcium – phosphorus metabolism (normal & Pathological states).
- ❖ Fractures
 - General principles
 - Fracture treatment – Past, Present & Future.
 - Stress shearing / shielding devices.
 - Fracture healing (normal & Pathological)
 - Upper Quarter Fractures-Clavicle. Scapula. Humerus. Fore arm bones. Hand. Rib fracture. Vertebral fracture.
 - Lower Quarter fractures-Fracture Neck of femur. Fracture Acetabulum. Fracture Pelvis. Fracture trochanter. Shaft of femur. Patellar fracture. Intercondylar fracture of shaft of tibia. Pott’s fracture. Calcaneal fracture. Metatarsal fracture. Phalanges fracture.
- ❖ Dislocation
 - Acromioclavicular joint., sternoclavicular joint.
 - Recurrent dislocation of shoulder., elbow, wrist & phalanx.
 - Recurrent dislocation of patella.
 - Hip, ankle, dislocation.

- ❖ Soft Tissue Injuries [injury & repair, clinical presentation, evaluation & general principles of rehabilitation management]
 - Upper limb. -Sprains of shoulder. Bursitis. Tendonitis. Snapping & winged scapula. Tennis elbow. Tenosynovitis. Carpel tunnel syndrome. Dupuytren's contracture. VIC. Reflex Sympathetic Dystrophy. Periarthritis of shoulder. Thoracic outlet syndrome. Shoulder hand syndrome.
 - Lower Limb.- Fat pad inflammation. Baker's cyst. ACL, PCL. Meniscal injury. Chondromalacia patella.
 - Deltoid Fibrosis, Trigger Finger & Thumb, Quadriceps Fibrosis, Bursitis around the knee, Plantar Fasciitis, Calcaneal Spur, IT Syndrome, TMJ dysfunction, Gait.
- ❖ Home program and counselling for care givers
- ❖ Ergonomics in musculoskeletal dysfunction
- ❖ Pilates
- ❖ PNF techniques
- ❖ Swiss ball therapy

REFERENCE BOOKS

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2. Sullivan P.D. and Minor M.A. An Integrated Approach to Therapeutic Exercises Resten 1982.
3. Donatelli R. ed. Physical Therapy of the Shoulder, 2nd edn Churchill, Livingston 1991.
4. Donatelli R. and wooden M.J. Ed Orthopaedic Physical Therapy Churchill, Livingston 1989.
5. Grant, R. (ed) Physical Therapy of the Cervical and Thoracic Spine, Churchill, Livingstone, 1987.
6. Grieve G.P.(ed) Modern Manual Therapy of the Vertebral Column, Churchill, Livingstone, 1986.
7. Grieve G. P. Common Vertebral Joint Problems, 2nd edn Churchill, Livingstone, 1988.
8. Jayson M.I.V. (ed) The Lumber Spine and Back Pain, 3rd edn Churchill, Livingstone, 1987.
9. Kirkaldy- Willis W. H. (ed) Managing low back pain, 2nd edn Churchill, Livingstone, 1988.
10. Mangine, R.E. Physical Therapy of the Knee, Churchill, Livingstone, 1988.
11. Traveil J. G. and Simons, D.G. Myofascial pain and Dysfunction. The Trigger Point manual, Williams and Wilkins, 1983.
12. Cruess, R.L. ed. The Musculoskeletal System: Embryology, Bio- Chemistry and Physiology, Churchill, Livingstone, 1982.
13. Vander, A. J. Human Physiology: The mechanisms of body Function, 5th edn. Mc. Graw-Hill, 1990.
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15. Chaffin, D.B. and Anderson, G. Occupational Biomechanics, 2nd edn. Wiley, 1984.
16. Myofascial pain and dysfunction – Travell, Williams & Wilkins, Baltimore 1983.
17. Physical therapy of the low back- Twomwy, Churchill Livingstone, London 1995.
18. Sport injuries of the shoulder- Souza Thomas A. Churchill Livingstone, London 1994.
19. Orthopaedic physical therapy – Donatelli, London Churchill Livingstone 1994.
20. Scientific basis of human movement- Gowitzke, Williams and Wilkins, Baltimore, 1988 3rd edition.
21. Clinical biomechanics of spine – White A.A and Panjabi- J.B. Lippincot, Philadelphia 1978.

22. Kinesiology – Burnstrom Singe, F.A. Davis – Philadelphia- 1966.
 23. Vertebral manipulation- Matiland G.D. Boston, Butterworth & Co. Boston, 1997.
 24. Peripheral manipulation - Matiland G.D. Boston, Butterworth & Co. Boston, 1997.
 25. Benson, Fixsen and Macnicol (Ed) Children's orthopaedics and fractures. Churchill Livingstone.
 26. Bleck E (1987) Orthopaedic management in cerebral palsy. Mackeith Press.
 27. Gage J (1991) Gait Analysis in Cerebral Palsy. Mackeith Press, Oxford. ISBN 0-9012-6090-8
 28. Whittle M W (2002) 3 rd Edition Gait Analysis an Introduction. Butterworth and Heinemann
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Scheme of Examination for MPT III Semester

Evaluation Pattern					
MPT 1- 301			Orthopaedics : Clinical Sciences I		
MPT 1- 302			Orthopaedics : Physiotherapeutics I		
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
20	80	100	--	--	--

Evaluation Pattern					
MPT 1-303		Orthopaedics : Recent Advances I			
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks) = 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks
Part B	Q.1 LAQ (1 X 15 Marks) = 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks

Evaluation Pattern					
Course code : MPT 1- 304			Orthopaedics: Advanced Physiotherapeutics-I		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ Practical Examination (80 marks)

Semester – III

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

MPT- SECOND YEAR
SYLLABUS FOR SEMESTER III
MPT 2 : Neurosciences

MPT- Semester III																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
		Theory		Practical		Theory		Practical		Theory		Practical		Theory		Practical			
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 2 - 301	Neurosciences: Clinical Sciences I	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 2 - 302	Neurosciences: Physiotherapeutics I	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 2 - 303	Neurosciences: Recent Advances I	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 2 - 304	Neurosciences :Advanced Physiotherapeutics I	-	-	192	192	-	-	12	12	-	-	4	4	-	-	-	20	80	100
	Total	176	160	192	528	11	10	12	33	11	5	4	20	50	200	250	20	80	100
	Research Dissertation	-	-	144	144	-	-	9	9	-	-	-	3 Credit Assessed & Accumulated in Semester 4						
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)
 Elective based advance Physiotherapeutics-I:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic – 176 hours, Clinical training -192 hours, Laboratory work (includes project / review of literature/ seminars/case Presentation, journal clubs etc.) – 160 hrs, Scientific enquiry/Research dissertation – 144 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –I** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-I** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-I** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-I** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOMES:**Neurosciences: Clinical Sciences I (MPT 2-301)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
301.1	To gain knowledge about basic and applied neuro-anatomy, motor development, neurophysiology and embryology of the nervous system. Be acquainted in detail with major conditions that are covered in the field Neurosciences along with their epidemiology and etiological factors.	PO1, PO4, PO5, PO7, PO8, PO9
301.2	Be able to identify, discuss and analyze the neurological and developmental deficit in terms of pathophysiological, Anatomical, neural basis and come to a functional diagnosis by co-relating the same with routine radiological and electrophysiological investigations.	PO1, PO2, PO4, PO5, PO7, PO8, PO9
301.3	Recognize the implications of dysfunction of the neurological system and its correlation with students-clinical decision making.	PO1, PO2, PO4, PO5, PO6, PO7, PO8, PO9
301.4	Give rationale for clinical tests used for differential diagnosis in neurological assessments	PO1, PO3, PO4, PO5, PO9

Neurosciences: Physiotherapeutics I (MPT 2-302)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
302.1	Incorporate analytical skills with good hands-on to perform appropriate subjective and physical examinations and provide suitable treatment for the same.	PO1, PO2, PO4, PO5, PO7, PO9
302.2	Expertise the evaluation of patients, level of affection, pertaining to specific neurological conditions with clinical reasoning. Example: Stroke	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9
302.3	Use of Neuro-physiotherapy techniques to treat and train patients with neurological disorders through all age groups.(Paediatrics, Adults and Geriatrics) and execute professional practice through ethical code	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9
302.4	Develop good interpersonal relationship, expertise in soft skills with Patient and their care taker.	PO1, PO3, PO5, PO7, PO8, PO9

Neurosciences: Recent Advances I (MPT 2-303)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
303.1	Familiar with research methodology and its ethical use in studies and clinical setups	PO1, PO2, PO3, PO4, PO5, PO7, PO9
303.2	Follow evidence based practice with efficient clinical expertise giving reference to the line of treatment being followed along with patient's informed consent.	PO1, PO2, PO3, PO4, PO5, PO7, PO9
303.3	Increase awareness about recent trends in research and their use for assessment and management in clinical setups with reference to neurological rehabilitation.	PO1, PO2, PO4, PO5, PO7, PO8, PO9

Neurosciences: Advanced Physiotherapeutics I (MPT 2-304)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
304.1	Identify and discuss, the neurological dysfunction in terms of Recent Advances in the field of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of Neurophysiotherapy.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9
304.2	Correlate Neuromusculoskeletal system with updated clinical decision making	PO1, PO2, PO4, PO7, PO8, PO9,
304.3	Documentation of cases with latest and appropriate outcome measures and asses the progression	PO1, PO4, PO5, PO7, PO8, PO9
304.4	Use Physiotherapeutic Technique/ approaches to treat patients with Neurological disorders in different age groups incorporate with Recent advances	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9

COURSE CONTENTS:**NEUROSCIENCES**

- a) Embryology.
- b) Neuro muscular Conditions.
- c) Electro Diagnosis

All topics shall be discussed and learnt with clinical manifestations, pathology & pathophysiology, assessment & investigations, management procedures and recent advances.

- ❖ Growth & Development of central Nervous system.
- ❖ Reflex
- ❖ Aging of Nervous system
- ❖ Physiology & anatomy of Nervous system- Review
- ❖ Physiology of Motor Control
- ❖ Infections Conditions.
 - Pyogenic infections of CNS (Bacterial & Tuberculosis meningitis, Brain Abscess)
 - Viral infections of CNS (Poliomyelitis encephalitis) Neuro syphilis, HIV, rabies.
- ❖ Metabolic Disorders of Brain - Hypokalemic encephalopathy, hypoglycemic encephalopathy, Hepatic encephalopathy.
- ❖ Degeneration Diseases of Nervous system - Parkinson Diseases, Motor Neuron disease Amyotrophic lateral sclerosis, Progressive bulbar palsy, progressive muscular atrophy.
- ❖ Poly Neuropathy - Peripheral Neuropathy, Post infective polyradiculoneuropathy, Diabetic poly Neuropathy, Hereditary sensory motor Neuropathy, Infective polyneuropathy.
- ❖ Disorders of muscle & Neuro muscular function - Myasthenia gravis, myotonic disorders, progressing muscular dystrophy, Duchenne muscular dystrophy Becker muscular dystrophy, Limb-girdle muscular dystrophy, LEMS, Spinal muscular atrophy.
- ❖ Stroke- Focal, multiple focal, lacunar infects, gross infect, degradation of Brain,

- ❖ Movement dysfunction (Cerebellar lesions, basal ganglionic lesions).
- ❖ Bladder & Bowel dysfunction.
- ❖ Convulsive disorders.
- ❖ Vestibular Disorder.
- ❖ Pain pathway & management.
- ❖ Fatigue.
- ❖ Electro diagnosis – SD curve.
- ❖ Basic elements of Neuro diagnostic tests – CT, MRI, Myelography, NCV and EMG.
- ❖ Electro – physiological studies - Somato sensory evoked potentials, Motor evoked potentials, Brainstem & auditory evoked potentials, Visual evoked potentials, Differential diagnosis of E.M.G, Differential diagnosis of N.C.V with clinical reasoning, Diagnosis of the above mentioned topics

REFERENCE BOOKS

MPT: Neurosciences

1. Bloom B.G. Health Psychology: a psychosocial perspective Prentics Hall, 1988.
2. Brooks, V.B. The Neural Basis of Motor Control, Oxford University press 1986.Clinics in Physical Therapy series.
3. Knott M. and Voss D.E. Proprioceptive Neuromuscular Facilitation 3rd edn Harper and Row 1984.
4. Magill R.A. Motor Learning – Concepts and Applications, 3rd edn Brown 1989.
5. Bio- feedback – A practitioners guide- Kerb D, Guilford press.
6. The neural basis of motor control- Black I. Churchill Livingstone, London 1987.
7. Physical Therapy management of Parkinson’s disease- Tumbull Gerode I. Churchill Livingstone, London – 1994.
8. Abnormal postural reflex activity caused by Brain lesions – Bobath b. Aspen publications, Rockville. 1897.
9. Disorders of voluntary muscle – Eagel. Churchill Livingstone, Edinburgh 1988.
10. A Clinician’s view of neuro muscle disorder – Brook M.H. Williams and Wilkins, Baltimore .1986.
11. Proprioception, neuro muscular facilitation techniques Knot M. and Voss, Harper and Row, New York 1972 2nd edition.
12. Stroke rehabilitation – Laidler, Capman and Hakk, Lodon 1994.
13. Motor relearning programme for stroke – Carr Aspen publication, Rock ville, 1987.
14. Adult hemiplegia: evaluation and treatment- Bobath B. Heinmann, Lodon 1983.
15. Paraplegia and tetraplegia- Brcmbley, Churchill Livingstone, Edinburgh 1991.
16. Skinnerm A and Thomsan, A. (ed.) Duffield’s Exercise in water, Balliere Tindall, 1983.
17. Human neuroanatomy - Carpenter M.B. Williams & Wilkins, Baltimore, 1983.
18. Orthotics in neurological rehabilitation – Aisen, Demos Publication, New York 1992
19. Neuro- rehabilitation – Farber, W.B. Saunders, Philadelphia 1982.
20. Campion, M.R. ed. Adult Hydrotherapy. A practical Approach, butterworth Heinemann, 1990.
21. Aicardi J (1998) Disease of the nervous system in childhood 2 nd Edition Mackeith Press, distributed by Cambridge University Press
22. Bobath K (1984) A neurological basis for the treatment of cerebral palsy Clinics in Developmental Medicine. SIMP, Suffolk ISBN 0-4330-3335-5
23. Bobath B Development in the different types of cerebral palsy.
24. Bobath B (1985) 3 rd edition. Abnormal postural reflex activity. Heinemann

25. Campbell S (Ed) (1991) Paediatric neurological physical therapy. Churchill Livingstone, London.
26. Campbell S (2000) Physical Therapy for Children. W B Saunders Co.
27. Crombie S Home programmes for children with motor delay. Winslow Press.
28. Dubowitz V (1980) 2 nd edition. The Floppy Infant. Clinics in Developmental Medicine No. 76. Heinemann, London ISBN 0433-07902-9
29. Edwards S (Ed) (1997) "Neurological Physiotherapy" Churchill Livingstone
30. Finnie N (1997) 3 rd edition. Handling the young child with cerebral palsy at home. Butterworth and Heinemann, Oxford. ISBN 0-7506-0579-0
31. Griffiths M and Clegg M (Eds.) (1997) 2 nd edition. Cerebral Palsy problems and practice. Human Horizon Series/Souvenir Press.
32. Illingworth R (1991) 10 th edition. The normal child. Livingstone.
33. Levitt S (1984) Paediatric developmental therapy. Blackwell Scientific Publications.
34. Levitt S (1995) 3 rd edition. Treatment of cerebral palsy and motor delay. Blackwell Scientific Publications.
35. Scrutton D (Ed) (1990) Management of motor disorders with cerebral palsy. Clinics in Developmental Medicine. Cambridge University Press.
36. Shumway-Cook A & Woollacott M (1995) "Motor Control: Theory and Practical applications" Williams and Wilkins
37. Stokes M (Ed) (1998) Neurological Physiotherapy. Mosby.

Scheme of Examination for MPT III Semester

Evaluation Pattern					
MPT 2-301			Neurosciences: Clinical Sciences I		
MPT 2-302			Neurosciences: Physiotherapeutics I		
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
20	80	100	--	--	--

Evaluation Pattern					
MPT 2-303		Neurosciences: Recent Advances I			
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

)Part A	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks
Part B	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks

Evaluation Pattern					
Course code : MPT 2- 304			Neurosciences: Advanced Physiotherapeutics-I		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ **Practical Examination (80 marks)**

Semester – III

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

MPT- SECOND YEAR
SYLLABUS FOR SEMESTER III
MPT 3 : Cardio-Respiratory Sciences

MPT- Semester III																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
		Theory		Practical		Theory		Practical		Theory		Practical		Theory		Practical			
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 3 - 301	Cardio-Respiratory Sciences: Clinical Sciences I	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 3 - 302	Cardio-Respiratory Sciences: Physiotherapeutics I	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 3 - 303	Cardio-Respiratory Sciences: Recent Advances I	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 3 - 304	Cardio-Respiratory Sciences : Advanced Physiotherapeutics I	-	-	192	192	-	-	12	12	-	-	4	4	-	-	-	20	80	100
	Total	176	160	192	528	11	10	12	33	11	5	4	20	50	200	250	20	80	100
	Research Dissertation	-	-	144	144	-	-	9	9	-	-	-	-	3 Credit Assessed & Accumulated in Semester 4					
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)
 Elective based advance Physiotherapeutics-I:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic – 176 hours, Clinical training -192 hours, Laboratory work (includes project / review of literature/ seminars/case Presentation, journal clubs etc.) – 160 hrs, Scientific enquiry/Research dissertation – 144 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –I** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-I** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-I** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-I** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOMES:**Cardio-Respiratory Sciences: Clinical Sciences I (MPT 3-301)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
301.1	Recall Anatomy & Physiology of Cardio-Pulmonary system	PO 1
301.2	Describe the pathophysiology, etiology, clinical features and impairments of respiratory conditions.	PO1, PO2
301.3	Interpret the investigations like ABG, PFT, Chest X-ray etc.	PO1, PO2
301.4	Describe medical and surgical management for common respiratory conditions.	PO1, PO2, PO3
301.5	Formulate differential diagnosis with the help of the acquired knowledge.	PO1, PO2, PO4, PO9

Cardio-Respiratory Sciences: Physiotherapeutics I (MPT 3-302)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
302.1	Describe the biomechanics of lung, Respiratory tract, pulmonary circulation, Thoracic cage.	PO1
302.2	Describe about the patho-mechanics of respiratory conditions.	PO1
302.3	Interpret of investigations and to form ICF.	PO1, PO2
302.4	Perform physiotherapy assessment using reliable and valid outcome measures.	PO1,PO2, PO3,PO4,PO5
302.5	Plan and implement a management protocol.	PO1, PO2, PO3, PO4, PO5, PO6

Cardio-Respiratory Sciences: Recent Advances I (MPT 3-303)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
303.1	Perform detailed assessment for various respiratory conditions.	PO1
303.2	Search reliable and valid sources for recent advances.	PO2,PO4,PO9
303.3	Critically appraise scientific literature related to the respiratory conditions.	PO1,PO2,PO3, PO4, PO9
303.4	Create a physiotherapy management protocol based on recent advances	PO1,PO2,PO3, PO4, PO5, PO6, PO9

Cardio-Respiratory Sciences: Advanced Physiotherapeutics-I (MPT 3-304)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
304.1	Take appropriate patient history in the prescribed format.	PO1,PO2,PO3
304.2	Select an appropriate outcome measure and correlate patient examination findings.	PO1, PO2, PO3, PO4
304.3	Use appropriate Physiotherapeutic Technique / approaches to treat patients.	PO1, PO2, PO3, PO5
304.4	Discuss the recent management approaches for common conditions and deliberate on best practice model for patient centered care	PO1, PO2, PO4, PO9

COURSE CONTENTS: RESPIRATORY DISORDERS

- ❖ Development of Pulmonary system.
- ❖ Review of Anatomy & Physiology of lung, Respiratory tract, pulmonary circulation, Thoracic cage.
- ❖ Biomechanics of Thoracic cage, normal & diseased.
- ❖ Mechanics of breathing & lung compliance, Body positioning techniques.
- ❖ Assessment and Management of Respiratory muscles, respiratory muscle fatigue, respiratory muscle fatigue in disease.
- ❖ Cough reflex, Paediatric lung, Breathing techniques, IPPB, ACBT, PD, AD.
- ❖ Bronchial Hygiene – Humidification, nebulization, aerosol therapy, suctioning.
- ❖ Artificial Ventilation – Mechanical Ventilation, tracheostomy, manual hyperinflation.
- ❖ Neonatal Respiratory diseases.
 - Pulmonary disease in immature babies, neonates.
 - Asthma, Birth asphyxia, Bronchopulmonary dysplasia, Nicksy Wilson Syndrome, Bronchial stenosis.
- ❖ Children with respiratory dysfunction.
- ❖ COPD, Asthma, Cystic Fibrosis, Immunological deficits, Pertusis.
- ❖ Adult COPD- Causes, pathomechanics, presentation, evaluation, investigation, management, rehabilitation.
- ❖ Restrictive lung disorders- Causes, pathomechanics, presentation, evaluation, investigation, management, rehabilitation.
- ❖ Infective lung diseases- Causes, pathomechanics, presentation, evaluation, investigation, management, rehabilitation.
- ❖ Tumors of lung.
- ❖ Trauma of Chest.
- ❖ Pulmonary embolism, Interstitial lung diseases, Disorders of Pleura.
- ❖ Industrial lung disorders.
- ❖ Surgical conditions.
 - Thoracoplasty, Empyema, Thrombosis, Rib-resection, Decortications, Window operation, Pneumonectomy, Lobectomy, Pleurodesis, Thoracotomy, Tracheostomy.
- ❖ ICU- Management for respiratory disorder, Drainage indication, Mechanical Ventilation-(setting & weaning), Humidification, O₂ Therapy, Nebulization, Suctioning, Endotracheal Tube, Tracheostomy Tube, Neonate ICU.
- ❖ PFT- Evaluation and Interpretation.
- ❖ Pulmonary fitness testing- Adults/Paeds/Geriatric.
- ❖ Geriatric Lung.
- ❖ Evaluation & assessment procedures, Chest wall configuration, Deformities, Unmoving chest, Breathing pattern, Speedy breathing, Cough, Sputum, Cyanosis, Clubbing,
- ❖ Respiratory care in Neurological conditions.
- ❖ Evaluation of mediastinum, tracheal deviation, chest wall expansion, fremitus, percussion techniques.
- ❖ ABG. Pulse oxymetry.
- ❖ Chest radiography- Principles, guidelines, interpretation of normal & abnormal chest radiographs.
- ❖ Exercise testing in Pulmonary conditions- Low level/Sub-maximal/Maximal.
 - Physiological changes & adaptation of pulmonary system to exercise testing.

- ❖ Recent advances in Diagnosis, Differential diagnosis & physiotherapy management in pulmonary conditioning.
- ❖ Management of Dyspnea.
- ❖ Management of patients with acute exacerbations.
- ❖ Thoracic Manipulation – Rib cage and Spine, Thoracic Mobilization Techniques
- ❖ PNF for Thoracic Cage

REFERENCE BOOKS

1. Text book of work physiology – Guyton, pain Books Bangalore- 1991 8th edition.
2. Chest physiotherapy in Intensive care unit – Makezie, Williams & Wilkins, Baltimore.
3. Cardiopulmonary symptoms in physiotherapy – Cohen M. Churchill, Livingstone, London 1988.
4. Cardiopulmonary symptoms in physiotherapy practice- Cohen M. Churchill Livingstone, London 1988.
5. Clinical application of ventilatory support – Kinby , Churchill Livingstone, New York 1990.
6. Cardiopulmonary Physiotherapy – Irwin, C.V. Mosby, St. Louis 1990.
7. Pulmonary rehabilitation: guidelines to success- Hoidkins, Butterworth, Boston, 1984.
8. Cardiac rehabilitation – Amundsen L.R. Churchill Livingstone, London 1988.
9. Dinwiddie R (1990) The diagnosis and management of respiratory disease. Churchill Livingstone.
10. Greenough A, Robertson C and Milner A (Ed) (1996) Neonatal respiratory disorders. Arnold.
11. Prasad S A and Hussey J M (Ed) (1994) Paediatric respiratory care – a guide for physiotherapists and other health professionals. Chapman and Hall.
12. Webber B and Pryor J (1993) Physiotherapy for respiratory and cardiac problems. Churchill Livingstone, London. ISBN 0-443-04471-6

Scheme of Examination for MPT III Semester

Evaluation Pattern					
MPT 3- 301		Cardio-Respiratory Sciences: Clinical Sciences I			
MPT 3- 302		Cardio-Respiratory Sciences: Physiotherapeutics I			
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
20	80	100	--	--	--

Evaluation Pattern					
MPT 3-303		Cardio-Respiratory Sciences: Recent Advances I			
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks
Part B	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks

Evaluation Pattern					
Course code : MPT 3- 304			Cardio-Respiratory Sciences: Advanced Physiotherapeutics-I		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ **Practical Examination (80 marks)**

Semester – III

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

MPT- SECOND YEAR
SYLLABUS FOR SEMESTER III
MPT 4 : General & Community Based Rehabilitation

MPT- Semester III																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
		Theory		Practical		Theory		Practical		Theory		Practical		Theory		Practical			
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 4 - 301	General & Community Based Rehabilitation: Clinical Sciences I	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 4 - 302	General & Community Based Rehabilitation:Physiotherapeutics I	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 4 - 303	General & Community Based Rehabilitation: Recent Advances I	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 4 - 304	General & Community Based Rehabilitation:Advanced Physiotherapeutics I	-	-	192	192	-	-	12	12	-	-	4	4	-	-	-	20	80	100
	Total	176	160	192	528	11	10	12	33	11	5	4	20	50	200	250	20	80	100
	Research Dissertation	-	-	144	144	-	-	9	9	-	-	-	-	3 Credit Assessed & Accumulated in Semester 4					
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)
 Elective based advance Physiotherapeutics-I:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic – 176 hours, Clinical training -192 hours, Laboratory work (includes project / review of literature/seminars/case Presentation, journal clubs etc.) –160 hrs, Scientific enquiry/Research dissertation – 144 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –I** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-I** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-I** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-I** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOMES:**General & Community Based Rehabilitation: Clinical Sciences I (MPT4-301)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
301.1	Diagnose and analyze the clinical reasoning of changes during pre and post pregnancy.	PO1,PO2,PO9
301.2	Formulate the objective for the management in women's health during and after menopause.	PO1,PO2,PO9
301.3	Evaluate various gynaecological conditions like urogenital dysfunctions, pelvic organ prolapse, pelvic inflammatory disease, incontinence etc.	PO1,PO2, PO9
301.4	Assess the physiological changes during aerobic and anaerobic exercise in fitness.	PO1,PO2,PO 4,PO9
301.5	Formulate prevention program at a community level for health and fitness.	PO1,PO4, PO3, PO5, PO6,PO7, PO8,PO9

General & Community Based Rehabilitation: Physiotherapeutics I(MPT 4-302)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
302.1	Formulate and deliver the effective management for the complications during pre and post natal period.	PO1,PO2,PO 3,PO5,PO7, PO9
302.2	Design and depart exercise prescription in gynecological conditions like UV prolapse ,urinary incontinence in patients.	PO1,PO2,PO 3,PO5,PO7,P O9
302.3	Design and execute fitness programs for different age group.	PO1,PO2,PO 7,PO8,PO9
302.4	Analyze the sensitive areas and organize awareness/ screening camp at community level	PO1,PO2,PO 3,PO4,PO5, PO6,PO7,PO 8,PO9

General & Community Based Rehabilitation: Recent Advances I (MPT 4-303)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
303.1	Review recent advances related to various obstetric and gynaecological conditions in women's health for clinical practices.	PO1,PO4, PO9
303.2	Review recent advances related to various conditions like diabetes, hypothyroidism affecting fitness in clinical practices	PO1,PO4, PO9
303.3	Design health camps ,awareness programs based on current health statistics for the rural and urban community	PO1,PO2,PO 3,PO4, PO5, PO7,PO8, PO9

General & Community Based Rehabilitation: Advanced Physiotherapeutics-I(MPT 4-304)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
304.1	Identify and discuss, the Urogenital Dysfunction, Pre and Post Natal complications in terms of Recent Advances in the field of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with theprovisional diagnosis, routine investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of physiotherapy.	PO 1, PO2, PO7, PO4,PO9
304.2	Design and execute fitness programs for different age group and various Conditions with Recent Advances in the field of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with theprovisional diagnosis, routine investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of physiotherapy.	PO 1, PO2, PO7, PO4,PO9
304.3	Document patients with latest and new version of scale, out come measures and asses the progression	PO1,PO4,PO 6, PO7,PO9
304.4	Use Recent Physiotherapeutic Technique/ approaches to treat patients with in Women’s Health and Fitness	PO 1, PO4,PO 6, PO7,PO9

COURSE CONTENTS:

The syllabus shall focus on General Community Physiotherapy, women’s health and Fitness & health promotion.

General Community Physiotherapy:.

- Scope for Community Physiotherapy
- Institution based rehabilitation and community based rehabilitation:– its principles and differences, multi-disciplinary approach, role of national institutes, District rehabilitation centre and primary health centre.
- W.H.O.’s policies about rural health care, concept of primary, Secondary, tertiary health centers, District hospitals etc, Principles and Functions of a Rehabilitation team like Medical person, Physiotherapist, Occupational therapist, audiologist, speech therapist, Prosthetic & Orthotics, etc..., Vocational guide in C.B.R. of physically handicapped person.
- Population studies and epidemiological implications of impairment, handicap and disability.
- Evidence based practice in Community health.
- Natural calamity or disaster management – Role of Physiotherapist in disaster management team.
- Public health education methods and appropriate media:– Public awareness to the various disabilities, communications, message generation and dissipation.
- Health care - National and International health delivery systems.
- Role of Government in Community based rehabilitation, inter-sectoral programs and co-ordination, Implementation of the Act.
- Role of Non-Government organizations in Community based rehabilitation.
- Disability evaluation, National policies for rehabilitation of disabled.

Fitness and health promotion

- Principles of fitness for health promotion in community, Nutrition and Diet. Physical fitness definition and evaluation.
- Physiological effects of aerobic exercise – clinical reasoning for advocating aerobic exercise as preventive measure in obesity & its related conditions / in cardio-respiratory conditions / Aging / deconditioning effect after prolonged bed rest / Diabetes.

Women's health and mother & child care

- Applied anatomy, physiology and biomechanics related to Women's health, mother and child care.
- Health Promotion in Women's Health. Social issue having impact on physical Function, Legal rights and benefits for women.
- Anatomy of Pelvic floor, Physiological changes occurring in female during pregnancy, Clinical reasoning for Physical exercises during pregnancy. Clinical reasoning for care to be taken while performing exercises during pregnancy,
- Prenatal /antenatal programme, Clinical reasoning for specific breathing exercises/ relaxation/ postural training/ Pelvic floor stretching & strengthening exercises, musculoskeletal pain during pregnancy, Maintenance of posture during pregnancy
- Physiology of Labour, Pain during delivery and its management, Physiotherapy during labor
- Post-natal care after normal labour and labour with invasive procedures and Physiotherapy management
- Fitness programmes and breast feeding techniques. Mother and child care.
- Psychological and emotional changes and coping up with demands of new born.
- Uro-genital dysfunctions like organ Prolapse, PID, Incontinence, etc. and its management
- Physiological changes occurring with Menopause, Problems faced by women after menopause and role of physiotherapy
- Common Gynaecological surgeries and its Physiotherapy management
- Radical Mastectomy and Its Management
- Application of Electro- therapeutic measures in Obstetrics and Gynecology with Clinical reasoning

REFERENCE BOOKS

1. Hogg K. Worksite health Development, Health Development Foundation 1987.
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Scheme of Examination for MPT III Semester

Evaluation Pattern					
MPT 4-301		General & Community Based Rehabilitation: Clinical Sciences I			
MPT 4-302		General & Community Based Rehabilitation: Physiotherapeutics I			
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
20	80	100	--	--	--

Evaluation Pattern					
MPT 4-303		General & Community Based Rehabilitation: Recent Advances I			
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks
Part B	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks

Evaluation Pattern					
Course code : MPT 4 - 304			General & Community Based Rehabilitation: Advanced Physiotherapeutics-I		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ Practical Examination (80 marks)

Semester – III

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

MPT- SECOND YEAR
SYLLABUS FOR SEMESTER III
MPT 5 : Paediatrics

MPT- Semester III																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
		Theory		Practical		Theory		Practical		Theory		Practical		Theory		Practical			
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 5 - 301	Paediatrics: Clinical Sciences I	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 5 - 302	Paediatrics: Physiotherapeutics I	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 5 - 303	Paediatrics: Recent Advances I	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 5 - 304	Paediatrics: Advanced Physiotherapeutics I	-	-	192	192	-	-	12	12	-	-	4	4	-	-	-	20	80	100
	Total	176	160	192	528	11	10	12	33	11	5	4	20	50	200	250	20	80	100
	Research Dissertation	-	-	144	144	-	-	9	9	-	-	-	-	3 Credit Assessed & Accumulated in Semester 4					
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)
 Elective based advance Physiotherapeutics-I:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic – 176 hours, Clinical training -192 hours, Laboratory work (includes project / review of literature/ seminars/case Presentation, journal clubs etc.) – 160 hrs, Scientific enquiry/Research dissertation – 144 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –I** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-I** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-I** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-I** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOMES:**Paediatrics: Clinical Sciences I (MPT5-301)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
301.1	To gain knowledge related to embryology of nervous system, basic and applied neuroanatomy and neurophysiology.	PO1,PO2, PO3, PO4, PO9
301.2	To acquire the knowledge related to reflex and reactions , motor development , motor control, and motor learning techniques.	PO3, PO4, PO5, PO9
301.3	To document outcome measures ,electrodiagnostic procedures	PO1, PO2, PO4, PO5
301.4	Able To learn different approaches like temple fay, Roods , Voijta, Sensory integration, NDT	PO1, PO2, PO7
301.5	Learn techniques and instruments in Neonatal ICU, Pediatric ICU	PO1, PO2, PO4, PO8, PO9

Paediatrics: Physiotherapeutics I(MPT 5-302)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
302.1	To acquire the skill; related to assessment and diagnose of all possible findings in pediatric congenital and acquired neurological conditions.	PO1, PO2, PO4, PO9
302.2	To plan ICU and rehabilitation program by applying recent technique / approaches to treat and train.	PO1, PO2, PO3, PO4, PO7
302.3	To get well acquainted with planning and implementation of conservative programs appropriately for various conditions.	PO1, PO2, PO3, PO4, PO7
302.4	To Develop clinical reasoning that incorporate theoretical concepts with evidence based practice in the field of paediatrics	PO1, PO2, PO4, PO5, PO8

Paediatrics: Recent Advances I (MPT 5-303)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
303.1	To acquire the competence related to assessment and management of all possible finding with reference to recent trends in pediatric neurological research.	PO1, PO2, PO3, PO4, PO6,PO7,PO9
303.2	To be familiar with various types of research and methodology and its ethical use In own study.	PO1, PO2, PO3, PO6, PO7, PO9
303.3	To create awareness about recent researchers and their use in clinical setups with reference to paediatric rehabilitation.	PO1, PO2 PO3, PO5, PO6, PO9
303.4	To be familiar with analysis of different article along with their criticism	PO2, PO4, PO5
303.5	To be able to identify merits and demerits of research articles	PO4,PO5,PO9

Paediatrics: Advanced Physiotherapeutics-I(MPT 5-304)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
304.1	Identify and discuss, the paediatric congenital and acquired neurological conditions in terms of recent advances with the provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of Paediatric physiotherapy.	PO1, PO2, PO3, PO4 PO5, PO6, PO7, PO9
304.2	Develop skill in Paediatric ICU and NICU rehabilitation program by applying recent technique / approaches to treat and train system with updated clinical decision making	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9
304.3	Document patients with latest and new version of scale, outcome measures and assess the progression	PO2, PO4, PO5
304.4	Use Recent Physiotherapeutic Technique/ approaches to treat patients with disorders in different age groups.	PO1, PO2, PO3, PO4, PO5, PO9

COURSE CONTENTS:

Paediatrics

- a) Embryology of nervous system
- b) Paediatric neurology
- c) ICU in neurological condition
- d) Electro diagnosis
- e) Mother and child care

TOPICS:

- ❖ Embryology of nervous system
- ❖ Neurophysiology of nervous system.
- ❖ Basic and Applied NeuroAnatomy.
- ❖ Reflex & reactions
- ❖ Motor development - theories, developmental sequence, movement in infants
- ❖ Motor control
- ❖ Motor learning – principles, factors affecting motor learning, theories
- ❖ Cerebral palsy -assessment & management with approaches, roods, vojta, sensory integration, N.D.T, Temple Fay
- ❖ Cognitive and perceptual dysfunction – learning disabilities, attention deficit, hyperactive disorder, autism
- ❖ Gravitational insecurity, Mental retardation, Epilepsy
- ❖ Genetic disorder – Down’s syndrome, Marfan’s syndrome, Trisomy 21 and single gene disorder.
- ❖ Movement disorder – Chorea, Athetosis, Dystonia, Choreoathetosis
- ❖ Oromotor disorder
- ❖ Bowel/bladder dysfunction
- ❖ Infection condition – pyogenic infection (Bacterial, brain abscess, tuberculosis, Meningitis), viral infections of CNS (polio., encephalitis, neurosyphillis, rabies, HIV)
- ❖ Metabolic disorder – hepatic encephalopathy, hypoglycemic encephalopathy,
 - Hypocalcemic encephalopathy, Hypokalemic encephalopathy

- ❖ Polyneuropathy – post infective polyneuropathy, acute infective polyneuropathy
- ❖ Disorder of muscle – muscular dystrophy (Duchenne’s, Becker’s, Limb girdle, Facio-scapulohumeral, Spinal muscular atrophy)
- ❖ Developmental anomalies – spina bifida, hydrocephalus, cranio-vertebral junction anomalies
- ❖ Traumatic head injury
- ❖ Birth injuries – brachial plexus injuries
- ❖ Neonatal ICU, Paediatric ICU, Complications of low birth weight
- ❖ Mother and child care
- ❖ Electro physiological studies – somatosensory evoked potentials, brainstem, auditory evoked potentials, visual evoked potentials, EMG, single fiber EMG, nerve conduction studies.

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13. Campbell S (Ed) (2000) Physical therapy for children. WB Saunders Co.
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Development:

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Scheme of Examination for MPT III Semester

Evaluation Pattern					
MPT 5-301		Paediatrics: Clinical Sciences I			
MPT 5-302		Paediatrics: Physiotherapeutics I			
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
20	80	100	--	--	--

Evaluation Pattern					
MPT 5-303		Paediatrics: Recent Advances I			
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks
Part B	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks

Evaluation Pattern					
Course code : MPT 5- 304			Paediatrics: Advanced Physiotherapeutics-I		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ Practical Examination (80 marks)

Semester – III

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

MPT- SECOND YEAR
SYLLABUS FOR SEMESTER III
MPT 6 : Musculoskeletal Sciences & Sports

MPT- Semester III																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Theory			Practical		
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 6 - 301	Musculoskeletal Sciences & Sports: Clinical Sciences I	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 6 - 302	Musculoskeletal Sciences & Sports: Physiotherapeutics I	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 6 - 303	Musculoskeletal Sciences & Sports: Recent Advances I	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 6 - 304	Musculoskeletal Sciences & Sports: Advanced Physiotherapeutics I	-	-	192	192	-	-	12	12	-	-	4	4	-	-	-	20	80	100
	Total	176	160	192	528	11	10	12	33	11	5	4	20	50	200	250	20	80	100
	Research Dissertation	-	-	144	144	-	-	9	9	-	-	-	-	3 Credit Assessed & Accumulated in Semester 4					
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)
 Elective based advance Physiotherapeutics-I:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic – 176 hours, Clinical training -192 hours, Laboratory work (includes project / review of literature/ seminars/case Presentation, journal clubs etc.) – 160 hrs, Scientific enquiry/Research dissertation – 144 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –I** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-I** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-I** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-I** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOMES:**Musculoskeletal Sciences & Sports: Clinical Sciences I (MPT 6-301)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
301.1	Be able to identify, discuss & analyse, the Musculo skeletal dysfunction in terms of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of musculoskeletal physiotherapy.	PO 1, PO 2, PO 9
301.2	Be able to correlate neuromusculo skeletal system with clinical decision making	PO 1, PO 2, PO 6, PO 9
301.3	Document patients with scale, out come measures and asses the progression	PO 1, PO 2
301.4	Use Manual Therapy Technique/ approaches to treat patients with musculoskeletal disorders in different age groups and be able to transfer skill and knowledge for training undergraduate students.	PO 1, PO 2
301.5	Be able to correlate neuromusculo skeletal system with clinical sign and symptoms along with Medical and Surgical Management	PO 2, PO 3

Musculoskeletal Sciences & Sports: Physiotherapeutics I (MPT 6-302)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
302.1	Be able to provisional diagnose, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of musculoskeletal physiotherapy.	PO 1, PO2, PO 9
302.2	Be able to correlate neuromusculo skeletal system with clinical decision making	PO 1, PO 2
302.3	Document patients with scale, out come measures and asses the progression	PO 1, PO 2
302.4	Use Manual Therapy Technique/ approaches to treat patients with musculoskeletal disorders in different age groups and be able to transfer skill and knowledge for training undergraduate students	PO 1, PO 2

Musculoskeletal Sciences & Sports: Recent Advances I (MPT 6-303)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
303.1	Be able to, discuss & analyse, the Musculo skeletal dysfunction in terms of updated Recent Developments in Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the Recent Trends in provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of musculoskeletal physiotherapy.	PO1, PO3, PO 4
303.2	Be able to correlate neuromusculo skeletal system with Updated methods of clinical decision making	PO1
303.3	Document patients with current version of scale, out come measures and asses the progression	PO1, PO5, PO4

Musculoskeletal Sciences & Sports: Advanced Physiotherapeutics-I (MPT 6-304)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
304.1	Assess, diagnose and manage musculoskeletal dysfunction for common musculoskeletal conditions	PO 1, PO 2
304.2	document case histories in the prescribed format	PO 1, PO 2
304.3	critically analyze different treatment and assessment procedures based on strong rationale and evidence for delivery of best patient care	PO 5, PO 6
304.4	discuss the recent management approaches for different musculoskeletal conditions and deliberate on best practice model for patient centered care	PO 1, PO 2, PO 5, PO 6

COURSE CONTENTS:

- ❖ Introduction To Orthopaedics – Assessment & Evaluation in detail related to orthopedic patient history taking, clinical features, clinical examination and investigation.
- ❖ Musculoskeletal system:
 - Embryology of musculoskeletal system - Long bone, Short & Flat bone, Skull & Thumb - Skeletal growth and development (normal & Pathological)
 - Architecture of bone.
 - Gross anatomy of bone, joints, muscles and nerves.
 - Dermatomes & Myotomes.
 - Joint play movements.
 - Types of muscle contraction, nerve – muscle pathology.
- ❖ Fractures
 - General principles of Fracture treatment
 - Stress shearing / shielding devices.
 - Fracture healing (normal & Pathological)
 - Upper Quarter Fractures-Clavicle. Scapula. Humerus. Fore arm bones. Hand. Rib fracture. Vertebral fracture.
 - Lower Quarter fractures-Fracture Neck of femur. Fracture Acetabulum. Fracture Pelvis. Fracture Trochanter. Shaft of femur. Patellar fracture. Intercondylar fracture of shaft of tibia. Pott's fracture. Calcaneal fracture. Metatarsal fracture. Phalanges fracture.
- ❖ Dislocation – Complication & management
- ❖ Soft Tissue Injuries [injury & repair, clinical presentation, evaluation & general principles of rehabilitation management]
 - Upper limb. - Bursitis. Tendonitis. Snapping & winged scapula. Tennis elbow. Trapezitis, Tenosynovitis. Carpel tunnel syndrome. Dupuytren's contracture. VIC. Reflex Sympathetic Dystrophy. Periarthritis of shoulder. Thoracic outlet syndrome. Shoulder hand syndrome.
 - Lower Limb.- Fat pad inflammation. Baker's cyst. ACL, PCL. Meniscal injury. Chondromalacia patella.
 - Deltoid Fibrosis, Trigger Finger & Thumb, Quadriceps Fibrosis, Bursitis around the knee, Plantar Fasciitis, Calcaneal Spur, IT Syndrome, TMJ dysfunction.
 - Sprains & strains of spine & extrimities.
 - Fibromyalgia, trigger points.
 - TMJ dysfunction.
- ❖ Osteokinematics & Arthrokinematics of Musculoskeletal system
- ❖ Gait Analysis - Walking.
- ❖ Activity Analysis – Lifting, Throwing, Jogging. Running, Ascending & descending stairs
- ❖ Spinal Deformities - Scoliosis. Kyphosis. Traumatic deformities. Flat back.
- ❖ Arthritis & Rheumatic Diseases - Rheumatoid arthritis. Osteoarthritis. Ankylosing spondylitis.

- ❖ Spine – Low Back Pain (mechanical), LBP (Pathological) Disc prolapse. Cord compression. Spondylosis. Ankylosing spondylitis. Spinal injuries., Cranio Vertebral dysfunction, Sacralisation, Lumbarisation, Lumbar Canal Stenosis, Sciatica, Failed Back syndrome, SI joint dysfunction, Zygoapophysel Joint arthropathy, Thoraco-lumbar junction Dysfunction, Coxydynia.
- ❖ Neuro-musculo skeletal conditions – Spasticity, Neural compression, Compartment syndromes.
- ❖ Ergonomics in Musculoskeletal Dysfunction

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Scheme of Examination for MPT III Semester

Evaluation Pattern					
MPT 6-301		Musculoskeletal Sciences & Sports Clinical Sciences I			
MPT 6-302		Musculoskeletal Sciences & Sports Physiotherapeutics I			
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
20	80	100	--	--	--

Evaluation Pattern					
MPT 6-303		Musculoskeletal Sciences & Sports: Recent Advances I			
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks
Part B	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks

Evaluation Pattern					
Course code : MPT 6- 304			Musculoskeletal Sciences & Sports: Advanced Physiotherapeutics-I		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ Practical Examination (80 marks)

Semester – III

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

MPT- SECOND YEAR
SYLLABUS FOR SEMESTER III
MPT 7 : Musculoskeletal Sciences & Manual Therapy

MPT- Semester III																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
														Theory			Practical		
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 7 - 301	Musculoskeletal Sciences & Manual Therapy: Clinical Sciences I	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 7 - 302	Musculoskeletal Sciences & Manual Therapy: Physiotherapeutics I	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 7 - 303	Musculoskeletal Sciences & Manual Therapy: Recent Advances I	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 7 - 304	Musculoskeletal Sciences & Manual Therapy: Advanced Physiotherapeutics I	-	-	192	192	-	-	12	12	-	-	4	4	-	-	-	20	80	100
	Total	176	160	192	528	11	10	12	33	11	5	4	20	50	200	250	20	80	100
	Research Dissertation	-	-	144	144	-	-	9	9	-	-	-	3 Credit Assessed & Accumulated in Semester 4						
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)
 Elective based advance Physiotherapeutics-I:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic – 176 hours, Clinical training -192 hours,Laboratory work (includes project / review of literature/seminars/case Presentation, journal clubs etc.)–160 hrs, Scientific enquiry/Research dissertation – 144 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –I** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-I** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-I** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-I** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOME:**Musculoskeletal Sciences & Manual Therapy: Clinical Sciences I (MPT 7-301)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
301.1	Be able to identify, discuss & analyse, the Musculo skeletal dysfunction in terms of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of musculoskeletal and manual physiotherapy.	PO1, PO2, PO9
301.2	Be able to correlate neuromusculo skeletal system with clinical decision making and the techniques accordingly.	PO1, PO2, PO6, PO9
301.3	Document patients with scales, out come measures and asses the progression	PO1, PO2
301.4	Use Manual Therapy Technique/ approaches to treat patients with musculoskeletal disorders in different age groups and be able to transfer skill and knowledge for training undergraduate students.	PO1, PO2
301.5	Be able to correlate neuromusculo skeletal system with clinical sign and symptoms along with Medical and Surgical Management	PO1, PO2

Musculoskeletal Sciences & Manual Therapy: Physiotherapeutics I (MPT 7-302)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
302.1	Be able to provisional diagnose, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of musculoskeletal and manual physiotherapy.	PO1, PO2, PO9
302.2	Be able to correlate neuromusculo skeletal system with clinical decision making	PO1, PO2, PO6, PO9
302.3	Document patients with scale, out come measures and asses the progression	PO1, PO2
302.4	Use Manual Therapy Technique/ approaches to treat patients with musculoskeletal disorders in different age groups and be able to transfer skill and knowledge for training undergraduate students	PO1, PO2

Musculoskeletal Sciences & Manual Therapy: Recent Advances I (MPT 7-303)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
303.1	Be able to, discuss & analyse, the Musculo skeletal dysfunction in terms of updated Recent Developments in Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the Recent Trends in provision diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of manual therapy physiotherapy.	PO1, PO2, PO9
303.2	Critically analyze different treatment and assessment procedures based on evidence for delivery of best patient care	PO1, PO2, PO6
303.3	Document patients with current version of scale, out come measures and asses the progression	PO1, PO2, PO9

Musculoskeletal Sciences & Manual Therapy: Advanced Physiotherapeutics-I (MPT 7-304)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
304.1	Assess, diagnose and manage musculoskeletal dysfunction for common musculoskeletal conditions	PO1, PO2
304.2	Document case histories in the prescribed format and analyse.	PO1, PO3
304.3	Critically analyze different treatment and assessment procedures based on strong rationale and evidence for delivery of best patient care	PO5
304.4	Discuss the recent management approaches for different musculoskeletal conditions in manual therapy and deliberate on best practice model for patient centered care	PO1, PO2, PO5, PO6

COURSE CONTENTS

- ❖ Introduction To Orthopaedics – Assessment & Evaluation in detail related to orthopedic patient history taking, clinical features, clinical examination and investigation.
- ❖ Musculoskeletal system:
 - Embryology of musculoskeletal system - Long bone, Short & Flat bone, Skull & Thumb - Skeletal growth and development (normal & Pathological)
 - Architecture of bone.
 - Gross anatomy of bone, joints, muscles and nerves.
 - Dermatomes & Myotomes.
 - Joint play movements.
 - Types of muscle contraction, nerve – muscle pathology.
- ❖ Fractures
 - General principles of Fracture treatment
 - Stress shearing / shielding devices.
 - Fracture healing (normal & Pathological)
 - Upper Quarter Fractures-Clavicle. Scapula. Humerus. Fore arm bones. Hand. Rib fracture. Vertebral fracture.
 - Lower Quarter fractures-Fracture Neck of femur. Fracture Acetabulum. Fracture Pelvis. Fracture Trochanter. Shaft of femur. Patellar fracture. Intercondylar fracture of shaft of tibia. Pott's fracture. Calcaneal fracture. Metatarsal fracture. Phalanges fracture.
- ❖ Dislocation – Complication & management
- ❖ Soft Tissue Injuries [injury & repair, clinical presentation, evaluation & general principles of rehabilitation management]
 - Upper limb. - Bursitis. Tendonitis. Snapping & winged scapula. Tennis elbow. Trapezitis, Tenosynovitis. Carpel tunnel syndrome. Dupuytren's contracture. VIC. Reflex Sympathetic Dystrophy. Periarthritis of shoulder. Thoracic outlet syndrome. Shoulder hand syndrome.
 - Lower Limb.- Fat pad inflammation. Baker's cyst. ACL, PCL. Meniscal injury. Chondromalacia patella.
 - Deltoid Fibrosis, Trigger Finger & Thumb, Quadriceps Fibrosis, Bursitis around the knee, Plantar Fasciitis, Calcaneal Spur, IT Syndrome, TMJ dysfunction.
 - Sprains & strains of spine & extrimities.
 - Fibromyalgia, trigger points.
 - TMJ dysfunction.
- ❖ Osteokinematics & Arthrokinematics of Musculoskeletal system
- ❖ Gait Analysis - Walking.
- ❖ Activity Analysis – Lifting, Throwing, Jogging. Running, Ascending & descending stairs
- ❖ Spinal Deformities - Scoliosis. Kyphosis. Traumatic deformities. Flat back.
- ❖ Arthritis & Rheumatic Diseases - Rheumatoid arthritis. Osteoarthritis. Ankylosing spondylitis.

- ❖ Spine – Low Back Pain (mechanical), LBP (Pathological) Disc prolapse. Cord compression. Spondylosis. Ankylosing spondylitis. Spinal injuries., Cranio Vertebral dysfunction, Sacralisation, Lumbarisation, Lumbar Canal Stenosis, Sciatica, Failed Back syndrome, SI joint dysfunction, Zygoapophysel Joint arthropathy, Thoraco-lumbar junction Dysfunction, Coxydynia.
- ❖ Neuro-musculo skeletal conditions – Spasticity, Neural compression, Compartment syndromes.
- ❖ Ergonomics in Musculoskeletal Dysfunction

REFERENCE BOOKS

1. Black d and Dumbleton J. H. clinical Biomechanics 2nd edn. Churchill Livingstone 1987.
2. Sullivan P.D. and Minor M.A. An Integrated Approach to Therapeutic Exercises Resten 1982.
3. Donatelli R. ed. Physical Therapy of the Shoulder, 2nd edn Churchill, Livingston 1991.
4. Donatelli R. and wooden M.J. Ed Orthopaedic Physical Therapy Churchill, Livingston 1989.
5. Grant, R. (ed) Physical Therapy of the Cervical and Thoracic Spine, Churchill, Livingstone, 1987.
6. Grieve G. P. Common Vertebral Joint Problems, 2nd edn Churchill, Livingstone, 1988.
7. Jayson M.I.V. (ed) The Lumber Spine and Back Pain, 3rd edn Churchill, Livingstone, 1987.
8. Kirkaldy- Willis W. H. (ed) Managing low back pain, 2nd edn Churchill, Livingstone, 1988.
9. Traveil J. G. and Simons, D.G. Myofascial pain and Dysfunction. The Trigger Point manual, Williams and Willkins, 1983.
10. Cruess, R.L. ed. The Musculoskeletal System: Embryology, Bio- Chemistry and Physiology, Churchill, Livingstone, 1982.
11. Vander, A. J. Human Physiology: The mechanisms of body Function, 5th edn. Mc. Graw-Hill, 1990.
12. Chaffin, D.B. and Anderson, G. Occupational Biomechanics, 2nd edn. Wiley, 1984.
13. Orthopaedic physical therapy – Donatelli, London Churchill Livingstone 1994.
14. Clinical biomechanics of spine – White A.A and Panjabi- J.B. Lippincot, Philadelphia 1978.
15. Vertebral manipulation- Maitland G.D. Boston, Butterworth & Co. Boston, 1997.
16. Peripheral manipulation - Maitland G.D. Boston, Butterworth & Co. Boston, 1997.
17. Benson, Fixsen and Macnicol (Ed) Children's orthopaedics and fractures. Churchill Livingstone.
18. Cyriax James. Text book of Orthopaedic Medicine , diagnosis of soft Tissue Lesions 8th edn. Bailliere Tindall 1982.
19. Mobilization of the extremity joint – Kaltenbore, Harper and Row, Philadelphia, 1980.
20. Kisner C. & Colby L.A. (2002). Therapeutic Exercise: Foundations and Techniques, 4th ed. Philadelphia, PA: F. A. Davis.
21. Lederman E. (1997): Fundamentals of Manual Therapy–Physiology, Neurology and Psychology. New York: Churchill-Livingstone.
22. Kaltenborn F.M., Evjenth O., Volowitz E., Kaltenborn T.B., and Morgan D. (2002) Manual Mobilization of the Extremity Joints, 6th ed. Oslo, Norway: Orthopedic Physical Therapy Products (OPTP).
23. Rich G.J. (2002, ed) Massage Therapy: The Evidence for Practice. New York, U.S.A.: Mosby.
24. Mulligan B. (2003) Manual Therapy: NAGS, SNAGS, MWMS etc., 4th ed. Wellington, New Zealand: Plane View Services
25. Chaitow L., Liebenson L., Murphy D.R. (2001) Muscle Energy Techniques. New York, U.S.A.: Elsevier Science.
26. Orthopaedics – A Post Graduate Manual, Dr.(col)S.K.Biswas, Jaypee Publication, New Delhi 1st edition, 2012.

Scheme of Examination for MPT III Semester

Evaluation Pattern					
MPT 7-301		Musculoskeletal Sciences & Manual Therapy: Clinical Sciences I			
MPT 7-302		Musculoskeletal Sciences & Manual Therapy: Physiotherapeutics I			
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
20	80	100	--	--	--

Evaluation Pattern					
MPT 7-303		Musculoskeletal Sciences & Manual Therapy: Recent Advances I			
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks
Part B	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks

Evaluation Pattern					
Course code : MPT 7- 304			Musculoskeletal Sciences & Manual Therapy: Advanced Physiotherapeutics-I		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ **Practical Examination (80 marks)**

Semester – III

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

MPT- SECOND YEAR
SYLLABUS FOR SEMESTER III
MPT 8 : Musculoskeletal Sciences & Hand Conditions

MPT- Semester III																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
		Theory		Practical		Theory		Practical		Theory		Practical		Theory		Practical			
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 8 - 301	Musculoskeletal Sciences & Hand Conditions: Clinical Sciences I	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 8 - 302	Musculoskeletal Sciences & Hand Conditions: Physiotherapeutics I	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 8 - 303	Musculoskeletal Sciences & Hand Conditions: Recent Advances I	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 8 - 304	Musculoskeletal Sciences & Hand Conditions: Advanced Physiotherapeutics I	-	-	192	192	-	-	12	12	-	-	4	4	-	-	-	20	80	100
	Total	176	160	192	528	11	10	12	33	11	5	4	20	50	200	250	20	80	100
	Research Dissertation	-	-	144	144	-	-	9	9	-	-	-	-	3 Credit Assessed & Accumulated in Semester 4					
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)
 Elective based advance Physiotherapeutics-I:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic – 176 hours, Clinical training -192 hours, Laboratory work (includes project / review of literature/ seminars/case Presentation, journal clubs etc.) – 160 hrs, Scientific enquiry/Research dissertation – 144 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –I** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-I** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-I** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-I** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOME:**Musculoskeletal Sciences & Hand Conditions: Clinical Sciences I (MPT 8-301)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
301.1	Be able to identify, discuss & analyse, the Hand dysfunctions in terms of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of hand physiotherapy.	PO 1, PO2, PO 9
301.2	Be able to correlate neuro-musculoskeletal system with clinical decision making	PO 1, PO 2, PO 9
301.3	Document patients with scale, out come measures and asses the progression	PO 1, PO 2, PO 3
301.4	Use Manual Therapy Technique/ approaches to treat patients with musculoskeletal disorders in different age groups and be able to transfer skill and knowledge for training undergraduate students.	PO 1, PO 2, PO 3, PO 5

Musculoskeletal Sciences & Hand Conditions: Physiotherapeutics I (MPT 8-302)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
302.1	Be able to identify, discuss & analyse, the Hand dysfunction in terms of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of hand physiotherapy	PO 1, PO 2, PO 9
302.2	Be able to correlate neuromusculo skeletal system with clinical decision making	PO 1, PO 2, PO 9
302.3	Document patients with scale, out come measures and asses the progression	PO 1, PO 2, PO 3
302.4	Use Manual Therapy Technique/ approaches to treat patients with musculoskeletal disorders in different age groups and be able to transfer skill and knowledge for training undergraduate students	PO 1, PO 2, PO 3, PO 5

Musculoskeletal Sciences & Hand Conditions: Recent Advances I (MPT 8-303)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
303.1	Be able to identify, discuss and co-relate the same with the Provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of musculoskeletal physiotherapy.	PO 1, PO 2, PO 3
303.2	Be able to correlate neuromuscular skeletal system with clinical decision making with Physiotherapy Management.	PO 1, PO 2
303.3	Document patients with scale, out come measures and asses the progression and Follow ups	PO 2, PO 3

**Musculoskeletal Sciences & Hand Conditions: Advanced Physiotherapeutics I
(MPT 8-304)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
304.1	Be able to identify and discuss, the Hand dysfunction in terms of Recent Advances in the field of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of musculoskeletal physiotherapy.	PO 1, PO 4, PO 7
304.2	Be able to correlate neuromusculo skeletal system with updated clinical decision making	PO 1, PO 2, PO 9
304.3	Document patients with latest and new version of scale, out come measures and asses the progression	PO 1, PO 2, PO 9
304.4	Use Recent Physiotherapeutic Technique/ approaches to treat patients with hand disorders in different age groups.	PO 2, PO 4

COURSE CONTENTS:

- ❖ Introduction To Orthopaedics – Assessment & Evaluation in detail related to orthopedic patient history taking, clinical features, clinical examination and investigation.
- ❖ Musculoskeletal system:
 - Embryology of musculoskeletal system - Long bone, Short & Flat bone, Skull & Thumb - Skeletal growth and development (normal & Pathological)
 - Architecture of bone.
 - Gross anatomy of bone, joints, muscles and nerves.
 - Dermatomes & Myotomes.
 - Joint play movements.
 - Types of muscle contraction, nerve – muscle pathology.
- ❖ Fractures
 - General principles of Fracture treatment
 - Stress shearing / shielding devices.
 - Fracture healing (normal & Pathological)
 - Upper Quarter Fractures-Clavicle. Scapula. Humerus. Fore arm bones. Hand. Rib fracture. Vertebral fracture.
 - Lower Quarter fractures-Fracture Neck of femur. Fracture Acetabulum. Fracture Pelvis. Fracture Trochanter. Shaft of femur. Patellar fracture. Intercondylar fracture of shaft of tibia. Pott’s fracture. Calcaneal fracture. Metatarsal fracture. Phalanges fracture.
- ❖ Dislocation – Complication & management
- ❖ Soft Tissue Injuries [injury & repair, clinical presentation, evaluation & general principles of rehabilitation management]
 - Upper limb. - Bursitis. Tendonitis. Snapping & winged scapula. Tennis elbow. Trapezitis, Tenosynovitis. Carpel tunnel syndrome. Dupuytren’s contracture. VIC. Reflex Sympathetic Dystrophy. Periarthritis of shoulder. Thoracic outlet syndrome. Shoulder hand syndrome.

- Lower Limb.- Fat pad inflammation. Baker's cyst. ACL, PCL. Meniscal injury. Chondromalacia patella.
- Deltoid Fibrosis, Trigger Finger & Thumb, Quadriceps Fibrosis, Bursitis around the knee, Plantar Fasciitis, Calcaneal Spur, IT Syndrome, TMJ dysfunction.
- Sprains & strains of spine & extremities.
- Fibromyalgia, trigger points.
- TMJ dysfunction.
- ❖ Osteokinematics & Arthrokinematics of Musculoskeletal system
- ❖ Gait Analysis - Walking.
- ❖ Activity Analysis – Lifting, Throwing, Jogging. Running, Ascending & descending stairs
- ❖ Spinal Deformities - Scoliosis. Kyphosis. Traumatic deformities. Flat back.
- ❖ Arthritis & Rheumatic Diseases - Rheumatoid arthritis. Osteoarthritis. Ankylosing spondylitis.
- ❖ Spine – Low Back Pain (mechanical), LBP (Pathological) Disc prolapse. Cord compression. Spondylosis. Ankylosing spondylitis. Spinal injuries., Cranio Vertebral dysfunction, Sacralisation, Lumbarisation, Lumbar Canal Stenosis, Sciatica, Failed Back syndrome, SI joint dysfunction, Zygoapophysel Joint arthropathy, Thoraco-lumbar junction Dysfunction, Coxydynia.
- ❖ Neuro-musculo skeletal conditions – Spasticity, Neural compression, Compartment syndromes.
- ❖ Ergonomics in Musculoskeletal Dysfunction

REFERENCE BOOKS

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16. Peripheral manipulation - Maitland G.D. Boston, Butterworth & Co. Boston, 1997.

17. Benson, Fixsen and Macnicol (Ed) Children's orthopaedics and fractures. Churchill Livingstone.
18. Cyriax James. Text book of Orthopaedic Medicine , diagnosis of soft Tissue Lesions 8th edn. Bailliere Tindall 1982.
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24. Mulligan B. (2003) Manual Therapy: NAGS, SNAGS, MWMS etc., 4th ed. Wellington, New Zealand: Plane View Services
25. Chaitow L., Liebenson L., Murphy D.R. (2001) Muscle Energy Techniques. New York, U.S.A.: Elsevier Science.
26. Orthopaedics – A Post Graduate Manual, Dr.(col)S.K.Biswas, Jaypee Publication, New Delhi 1st edition, 2012.

Scheme of Examination for MPT III Semester

Evaluation Pattern					
MPT 8-301		Musculoskeletal Sciences & Hand Conditions: Clinical Sciences I			
MPT 8-302		Musculoskeletal Sciences & Hand Conditions: Physiotherapeutics I			
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
20	80	100	--	--	--

Evaluation Pattern					
MPT 8-303		Musculoskeletal Sciences & Hand Conditions: Recent Advances I			
Written		Total	Practical		Total
IA	Final exam	Final exam	IA	Final exam	Final exam
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks
Part B	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks

Evaluation Pattern					
Course code : MPT 8- 304			Musculoskeletal Sciences& Hand Conditions: Advanced Physiotherapeutics-I		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ Practical Examination (80 marks)

Semester – III

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

MPT- SECOND YEAR

Syllabus for Semester IV

MPT 1: Orthopaedics

MPT- Semester IV																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
		Theory		Practical		Theory		Practical		Theory		Practical		Theory		Practical			
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 1 - 401	Orthopedics: Clinical Sciences II	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 1 - 402	Orthopedics: Physiotherapeutics II	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 1 - 403	Orthopedics: Recent Advances II	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 1 - 404	Orthopedics: Advanced Physiotherapeutics II	-	-	288	288	-	-	18	18	-	-	6	6	-	-	-	20	80	100
	Total	176	160	288	624	11	10	18	39	11	5	6	22	50	200	250	20	80	100
	Research Dissertation	-	-	48	48	-	-	3	3	-	-	-	-	1 Credit Assessed & Accumulated in Semester 4					
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-
MPT 1 - 405	Research Dissertation-Semester -I to IV (11 Credit Accumulated in Semester 4)	-	-	-	528	-	-	-	-	-	-	-	11	-	-	-	50	50	100

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)

Elective Based Advanced Physiotherapeutics - II:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic –176 hours, Clinical training -288 hours, Laboratory work (includes project / review of literature/ seminars/case Presentation, journal clubs etc.) –160 hrs, Scientific enquiry/Research dissertation – 48 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –II** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-II** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-II** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.

- **Elective Based Advanced Physiotherapeutics-II** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOME:

Orthopaedics: Clinical Sciences II (MPT 1-401)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
401.1	Be able to identify, discuss & analyse, the Musculo skeletal dysfunction in terms of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of musculoskeletal physiotherapy.	PO 1
401.2	Be able to correlate neuromusculo skeletal system with clinical decision making	PO 1, PO4
401.3	Document patients with scale, outcome measures and asses the progression	PO 6, PO 7
401.4	Use Manual Therapy Technique/ approaches to treat patients with musculoskeletal disorders in different age groups and be able to transfer skill and knowledge for training undergraduate students.	PO 1, PO 2, PO 4
401.5	Be able to correlate neuromusculo skeletal system with clinical sign and symptoms along with Medical and Surgical Management	PO 1

Orthopaedics: Physiotherapeutics II (MPT 1-402)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
402.1	Be able to provisional diagnose, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of musculoskeletal physiotherapy.	PO1
402.2	Be able to correlate neuromusculo skeletal system with clinical decision making	PO1
402.3	Document patients with scale, outcome measures and asses the progression	PO 1, PO 2, PO 4, PO 6
402.4	Use Manual Therapy Technique/ approaches to treat patients with musculoskeletal disorders in different age groups and be able to transfer skill and knowledge for training undergraduate students	PO 1, PO 2, PO 4, PO 6

Orthopaedics: Recent Advances II (MPT 1-403)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
403.1	Be able to, discuss & analyse, the Musculo skeletal dysfunction in terms of updated Recent Developments in Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the Recent Trends in provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional	PO 1, PO 2, PO 4

	diagnosis and clinical reasoning based on evidence-based practice in the field of musculoskeletal physiotherapy.	
403.2	Be able to correlate neuromusculo skeletal system with Updated methods of clinical decision making	PO 1, PO 4
403.3	Document patients with current version of scale, out come measures and asses the progression	PO 1, PO 2, PO 4, PO 6
403.4	Use of Recent and Updated Manual Therapy Technique/ approaches to treat patients with musculoskeletal disorders in different age groups and be able to transfer skill and knowledge for training undergraduate students.	PO 4, PO 5

Orthopaedics: Advanced Physiotherapeutics II (MPT6-404)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
404.1	assess, diagnose and manage musculoskeletal dysfunction for common musculoskeletal conditions	PO 1, PO 4
404.2	document case histories in the prescribed format	PO 1, PO 2
404.3	critically analyze different treatment and assessment procedures based on strong rationale and evidence for delivery of best patient care	PO 1, PO 2
404.4	discuss the recent management approaches for different musculoskeletal conditions and deliberate on best practice model for patient centered care	PO 1, PO 2, PO 4

Dissertation (MPT -405)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
405.1	Critically appraise the scientific literature and formulate a research question	PO3, PO 4
405.2	Search the relevant database and develop a rationale for research	PO3, PO 4
405.3	Effectively document and disseminate research findings	PO2, PO3, PO 4
405.4	Facilitate collaborative relationships with other healthcare professionals	PO5, PO 6
405.5	Use ICT for research	PO3
405.6	Develop innovative ways to promote evidence based clinical practice	PO3, PO6

COURSE CONTENTS:

- ❖ Osteokinematics & Arthrokinematics of Musculoskeletal system
- ❖ Podiometry.
- ❖ Gait Analysis - Walking. Jogging. Running. Climbing up & Down the stairs.
- ❖ Congenital Malformation.- Congenital hip displasia. Congenital Talipes Equinovarus. Calcaneoalgus. Arthrogryposis Multiplex Congenita. Congenital Torticollis. Acromelia. Phocomelia. Amelia. Spina bifida.
- ❖ Development Disease Of Skeleton- Chondro-osteodystrophy. Osteogenesis. Imperfecta. Osteoporosis. Heterotopic ossification. Osteochondritis desiccans. Perthes' disease. Tibial epiphysitis. Congenital coxa vara.

- ❖ Neuromuscular Diseases- Muscular dystrophies. Infantile hypotonia. Volkmann's Ischaemic contracture. Obstetrical paralysis. Peroneal muscle atrophy. Cerebral palsy. Poliomyelitis.
- ❖ Spinal Deformities - Scoliosis. Kyphosis. Traumatic deformities. Flat back.
- ❖ Infections Of Musculoskeletal System - Bacterial infections of bones & joints. Tuberculosis infections of bones & joints. Leprosy. Pott's paraplegia.
- ❖ Arthritis & Rheumatic Diseases - Rheumatoid arthritis. Juvenile arthritis. Reiter's disease. Polymyalgia rheumatica. Gout. Osteoarthritis. Ankylosing spondylitis. Neuropathic-joints. Haemophilic arthropathy. Avascular necrosis.
- ❖ Neurovascular Diseases. - Nerve injuries (general & specific). Plexus injuries. Vascular ailments (Raynaud's. Thromboangitisoblitrans Frostbite Diabetic foot.)
- ❖ Spine - Disc prolapse. Cord compression. Spondylosis. Ankylosing spondylitis. Spinal injuries., Sacralisation, Lumbarisation, Lumbar Canal Stenosis.
- ❖ Amputation.
- ❖ Disability Evaluation.
- ❖ Role of Orthotics & Prosthetics in Orthopaedics.
 - Applied mechanics in application of prosthesis
 - Procedure in Prosthetic & Orthotic Fabrication of temporary splints
- ❖ Leprosy
- ❖ Paget's Disease
- ❖ Cervical Rib
- ❖ Bone Skin Graft
- ❖ Osteotomy
- ❖ Nerve suturing and grafting

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MPT: Orthopaedics

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 25. Benson, Fixsen and Macnicol (Ed) Children's orthopaedics and fractures. Churchill Livingstone.
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Scheme of Examination for MPT IV Semester

Evaluation Pattern					
MPT 1 - 401			Orthopaedics: Clinical Sciences II		
MPT 1 - 402			Orthopaedics: Physiotherapeutics II		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
20	80	100	--	--	--

Evaluation Pattern					
MPT 1- 403			Orthopaedics: Recent Advances II		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks
Part B	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks

Evaluation Pattern					
Course code : MPT 1- 404			Orthopaedics: Advanced Physiotherapeutics- II		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ Practical Examination (80 marks)

Semester – IV

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

Dissertation at the IV semester:

- ❖ Internal evaluation as per the process & execution: 50 marks
- ❖ Dissertation evaluation & Presentation: 50 marks (external)

Evaluation Pattern					
Course code : MPT- 405			Dissertation		
Written		Total	Dissertation Presentation/ Viva		Total
IA	Final exam		IA	Final exam	
--	--	--	50	50	100

MPT- SECOND YEAR

Syllabus for Semester IV MPT-2: Neurosciences

MPT- Semester IV																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
		Theory		Practical		Theory		Practical		Theory		Practical		Theory		Practical			
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 2 - 401	Neurosciences: Clinical Sciences II	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 2 - 402	Neurosciences: Physiotherapeutics II	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 2 - 403	Neurosciences: Recent Advances II	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 2 - 404	Neurosciences: Advanced Physiotherapeutics II	-	-	288	288	-	-	18	18	-	-	6	6	-	-	-	20	80	100
	Total	176	160	288	624	11	10	18	39	11	5	6	22	50	200	250	20	80	100
	Research Dissertation	-	-	48	48	-	-	3	3	-	-	-	-	1 Credit Assessed & Accumulated in Semester 4					
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-
MPT 2 - 405	Research Dissertation-Semester -I to IV (11 Credit Accumulated in Semester 4)	-	-	-	528	-	-	-	-	-	-	-	11	-	-	-	50	50	100

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)
Elective Based Advanced Physiotherapeutics - II:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic – 176 hours, Clinical training -288 hours, Laboratory work (includes project / review of literature/ seminars/case Presentation, journal clubs etc.) – 160 hrs, Scientific enquiry/Research dissertation – 48 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –II** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-II** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-II** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-II** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOMES:**Neurosciences: Clinical Sciences II (MPT 2-401)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
401.1	Familiar with basic theoretical concepts, major conditions with its epidemiology, etiology, Clinical feature, & principles in adult & paediatric conditions	PO1, PO3, PO4, PO5, PO7, PO8, PO9
401.2	Familiar with basic instruments used in clinical setups and their effective use in neuro rehabilitation.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9
401.3	Arrive at a functional diagnosis with assessed data obtained and further develop clinical reasoning with evidence based concepts in the field of neuroscience.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9
401.4	Basic Knowledge, Assessment and handling of patients and equipments in ICU.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9
401.5	Documentation of cases with functional scales reliable outcome measures with assessment of follow ups	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9

Neurosciences: Physiotherapeutics II (MPT 2-402)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
402.1	Expertise the evaluation of patients, level of affection, pertaining to signs and symptoms for specific neurological conditions. eg. Traumatic brain injury. Design an illustrative ICF according to the evaluated data	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9
402.2	Plan a rehabilitation protocol ,implication of it effectively and understand the steps and duration of progression of the neuro rehabilitation protocols.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9
402.3	To develop professional relationship and provide emergency care in co-operation with multi-disciplinary team	PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO9
402.4	To impart knowledge and awareness about neurological conditions in patients and public by conducting camps etc	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9

Neurosciences: Recent Advances II (MPT 2-403)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
403.1	Implicate effective researches in clinical setups and generate awareness with evidence based practise	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9
403.2	Discussion on Research, critical appraisal and its clinical implication for future excellence in patient care.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9
403.3	Well acquainted with research presentations & Publication related to the field of neurosciences.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9

Neurosciences: Advanced Physiotherapeutics II (MPT 2-404)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
404.1	Identify and discuss, the neurological dysfunction in terms of Recent Advances in the field of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of Neurophysiotherapy.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9
404.2	Correlate Neuromusculoskeletal system with updated clinical decision making	PO1, PO2, PO4, PO5, PO7, PO8, PO9,
404.3	Document patients with latest and appropriate outcome measures and assess the progression	PO1, PO4, PO5, PO7, PO8, PO9
404.4	Use Physiotherapeutic Technique/ approaches to treat patients with Neurological disorders in different age groups incorporate with Recent advances	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9

Dissertation (MPT -405)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
405.1	Critically appraise the scientific literature and formulate a research question	PO1, PO4, PO9
405.2	Search the relevant database and develop a rationale for research	PO1, PO4, PO9
405.3	Effectively document and disseminate research findings	PO2, PO3, PO4, PO9
405.4	Facilitate collaborative relationships with other healthcare professionals	PO6
405.5	Use ICT for research	PO2, PO4
405.6	Develop innovative ways to promote evidence based clinical practice	PO2, PO4, PO6, PO9

COURSE CONTENTS:

- a) I.C.U. Management
- b) Neuro surgery
- c) Neuro Psychology

Objective:-

All the end of the course the student should be able to-

- a) Assess & plan management programme for critical care patients in I.C.U.
- b) Plan management programme with response to drop & its complication, monitoring lines.
- c) Understanding, behave & counsel patients in ICU, surgery, following Neurological deficit, behavioral problem.
- d) Provide emergency care with the multidisciplinary team.

Topics

- ❖ Outline of psychiatric Examination.
- ❖ Psychiatric illness – Anxiety, Neurosis, Depression, obsessive compulsive Neurosis psychosis, organic brain syndrome, dementia, post- traumatic stress disorder, drug dependence & alcoholism, Somato form & dissociate disorders.
- ❖ Child psychiatry – Mental retardation, attention deficit syndrome, Behavioral disorders.
- ❖ Geriatric psychiatry.
- ❖ Learning disability.
- ❖ Autistic behavior.
- ❖ Intra cranial tumours – Gliomas, meningioma, Neutrinosis Angioma, Cranio Pharyngioma, Pituitary adenoma.
- ❖ Traumatic spinal cord injury- complete, in-complete.
- ❖ Disorder of spinal cord- Compression of spinal cord, spinal cord tumors, neoplasm of vertebral column, IVDP, Extradural & Epidural Abscess, Syringomyelia, Syringobulbia, Transverse Myelitis.
- ❖ Cranio –vertebral function Anomalies – Soft tissue anomalies, Bony Anomalies.
- ❖ Head injury – Hemorrhage, Haematoma, Aneurismal rupture.
- ❖ Peripheral Nerve injuries.
- ❖ Coma stimulation.
- ❖ Cognitive & perceptual Disorders.
- ❖ Spina bifida.
- ❖ Hydrocephalus.
- ❖ Raised Intra-cranial pressure.
- ❖ Sensory approaches – (PNF, Roods, Burnstrom, NDT, SI, Vojta, Temple-Fay).
- ❖ Motor learning theories.
- ❖ Motor control theories.
- ❖ Oro- motor Dysfunction.
- ❖ Central palsy.
- ❖ Stroke (Hemorrhagic).
- ❖ Adult ICU - evaluation & management.
- ❖ Paediatrics ICU - Evaluation & management.
- ❖ Disability Evaluation
- ❖ Role of Orthotics in Neurological conditions.

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2. Brooks, V.B. The Neural Basis of Motor Control, Oxford University press 1986.Clinics in Physical Therapy series.
3. Knott M. and Voss D.E. Proprioceptive Neuromuscular Facilitation 3rd edn Harper and Row 1984.
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27. Crombie S Home programmes for children with motor delay. Winslow Press.
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29. Edwards S (Ed) (1997) "Neurological Physiotherapy" Churchill Livingstone
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32. Illingworth R (1991) 10 th edition. The normal child. Livingstone.
33. Levitt S (1984) Paediatric developmental therapy. Blackwell Scientific Publications.
34. Levitt S (1995) 3 rd edition. Treatment of cerebral palsy and motor delay. Blackwell Scientific Publications.
35. Scrutton D (Ed) (1990) Management of motor disorders with cerebral palsy. Clinics in Developmental Medicine. Cambridge University Press.
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Scheme of Examination for MPT IV Semester

Evaluation Pattern					
MPT 2- 401			Neurosciences: Clinical Sciences II		
MPT 2- 402			Neurosciences: Physiotherapeutics II		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
20	80	100	--	--	--

Evaluation Pattern					
MPT 2- 403			Neurosciences: Recent Advances II		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks
Part B	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks

Evaluation Pattern					
Course code : MPT 2- 404			Neurosciences: Advanced Physiotherapeutics-II		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ Practical Examination (80 marks)

Semester – IV

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

Dissertation at the IV semester:

- ❖ Internal evaluation as per the process & execution: 50 marks
- ❖ Dissertation evaluation & Presentation: 50 marks (external)

Evaluation Pattern					
Course code : MPT 2- 405			Dissertation		
Written		Total	Dissertation Presentation/ Viva		Total
IA	Final exam		IA	Final exam	
--	--	--	50	50	100

MPT- SECOND YEAR
Syllabus for Semester IV
MPT 3: CARDIO-RESPIRATORY SCIENCES

MPT- Semester IV																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
		Theory		Practical		Theory		Practical		Theory		Practical		Theory			Practical		
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 3 - 401	Cardio-Respiratory Sciences: Clinical Sciences II	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 3 - 402	Cardio-Respiratory Sciences: Physiotherapeutics II	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 3 - 403	Cardio-Respiratory Sciences: Recent Advances II	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 3 - 404	Cardio-Respiratory Sciences: Advanced Physiotherapeutics II	-	-	288	288	-	-	18	18	-	-	6	6	-	-	-	20	80	100
	Total	176	160	288	624	11	10	18	39	11	5	6	22	50	200	250	20	80	100
	Research Dissertation	-	-	48	48	-	-	3	3	-	-	-	-	1 Credit Assessed & Accumulated in Semester 4					
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-
MPT 3 - 405	Research Dissertation-Semester -I to IV (11 Credit Accumulated in Semester 4)	-	-	-	528	-	-	-	-	-	-	-	11	-	-	-	50	50	100

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)

Elective Based Advanced Physiotherapeutics - II:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic - 176 hours, Clinical training -288 hours, Laboratory work (includes project / review of literature/ seminars/case Presentation, journal clubs etc.) - 160 hrs, Scientific enquiry/Research dissertation - 48 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –II** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-II** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-II** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-II** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOMES:**Cardio-Respiratory Sciences: Clinical Sciences II (MPT 3-401)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
401.1	Describe Anatomy & Physiology of heart, coronary circulation, development of cardiovascular system, fetal circulation.	PO1
401.2	Describe the pathophysiology, etiology, clinical features and impairments of cardiovascular conditions.	PO1, PO2
402.3	Analyze common investigations like ECG, ECHO, Color Doppler etc.	PO1, PO2
402.4	Describe medical and surgical management of the various cardiovascular diseases.	PO1, PO2, PO3
402.5	Formulate differential diagnosis with the help of the acquired knowledge.	PO1, PO2, PO4, PO9

Cardio-Respiratory Sciences: Physiotherapeutics II (MPT 3-402)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
402.1	Select appropriate scales, outcome measures and investigations.	PO1,PO2,PO4
402.2	Describe the patho-mechanics of cardiovascular conditions.	PO1,PO2
402.3	Interpret investigations and document as per ICF.	PO2,PO4
402.4	Perform physiotherapy assessment for cardiac conditions.	PO1, PO2, PO3,PO4,PO9
402.5	Create a physiotherapy management protocol on the basis of the assessment.	PO2,PO3,PO4 PO5, PO9

Cardio-Respiratory Sciences: Recent Advances II (MPT 3-403)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
403.1	Describe and perform detailed assessment for the various cardiovascular conditions.	PO1, PO2, PO3
403.2	Search reliable and valid sources for recent advances.	PO1, PO2, PO4, PO9
403.3	Critically evaluate recent articles related to the cardiovascular conditions.	PO1, PO2, PO4, PO9
403.4	Create a physiotherapy management protocol based on recent advances	PO1, PO2, PO4, PO5

Cardio-Respiratory Sciences: Advanced Physiotherapeutics-II (MPT 3-404)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
404.1	Take appropriate patient history in the prescribed format.	PO1,PO2,PO3
404.2	Select an appropriate outcome measure and correlate patient examination findings.	PO1, PO2, PO3, PO4
404.3	Use appropriate Physiotherapeutic Technique / approaches to treat patients.	PO1, PO2, PO3, PO5
404.4	Discuss the recent management approaches for common conditions and deliberate on best practice model for patient centered care	PO1, PO2, PO4, PO9

Dissertation (MPT -405)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
405.1	Critically appraise the scientific literature and formulate a research question	PO1, PO4, PO9
405.2	Search the relevant database and develop a rationale for research	PO1, PO4, PO9
405.3	Effectively document and disseminate research findings	PO2, PO3, PO4, PO9
405.4	Facilitate collaborative relationships with other healthcare professionals	PO6
405.5	Use ICT for research	PO2, PO4
405.6	Develop innovative ways to promote evidence based clinical practice	PO2, PO4, PO6, PO9

COURSE CONTENTS:

CARDIAC CONDITIONS

- ✚ Development of Cardiovascular system, fetal circulation.
- ❖ Review of Cardiovascular anatomy & physiology.
- ❖ Vascular mechanism.
- ❖ Neural control of cardiovascular system & autonomic nervous system.
- ❖ Maintenance of Blood Pressure.
- ❖ Fatigue.
- ❖ Evaluation of Cardiovascular system.
 - Inspection- Chest wall deformities, respiratory pattern, cyanosis, clubbing, palpation.
 - Auscultation- Heart sounds, normal & abnormal respiratory sounds.
 - ECG- Lead placement, tracing, recording, interpretation of normal & abnormal.
 - Stress testing.
 - ADL + Functional evaluation in cardiac patients.
 - Exercise testing
 - ✓ Low level/submaximal/maximal.
 - ✓ Procedure of testing, Contraindications & precautions in adults and Paediatrics.
 - ✓ Exercise testing and prescription, METS in stress testing.
- ❖ Evaluation of Peripheral vascular diseases- Artery/Vein/Lymphatic.
- ❖ ICU evaluation of cardiac patient.
- ❖ Cardio-pulmonary evaluation of ventilator dependant patient.
 - Respiratory rate, pulse rate, drainage tube, fluid collection, ABG, ECG, catheter, IV line, central venous pressure, intra-cranial pressure.
- ❖ Radiological Investigations.
 - CT, MRI, Echo, Doppler, Angiography + interpretations.
- ❖ Physiotherapy evaluation and management in Cardiac conditions – CHD, MI, Hypertension, Pericarditis, Cardiac tumours.
- ❖ Physiotherapy evaluation in cardiac surgeries- Pre operative & Post operative.
- ❖ Causes, Pathomechanics, Signs & Symptoms, Medical/Surgical management, Physiotherapy management for:

- Congenital heart disease. Valvular heart disease. Rheumatic heart disease. Diseases of myocardium. Ischaemic heart disease. Hypertension, cardiac hypertrophy, Cardiac failure, altered heart beat & rhythm.
- Cardiac compliance in burns, conservative, pre & post operative management.
- ❖ Recent advances in management of surgical conditions.
 - Thoracic wall surgeries.
 - Cardiac surgeries & rehabilitation.
- ❖ Cardiac evaluation and management in ICCU.
 - Monitoring, recording, ventilatory support, rehabilitation protocol.
 - Coma patient evaluation & management in ICCU.
 - Acute MI.
 - Defibrillators. & Cardiopulmonary resuscitations.
- ❖ Peripheral Vascular disorders- DVT, Venous insufficiency, oedema congestion, varicose veins, Claudication.
- ❖ Pre & Post operative rehabilitation of Arterial disorders.
- ❖ Recent advances in management of cardiac conditions (surgical and conservative).
- ❖ Life style modification for cardiac patients – Diet, Yoga, Exercises for prevention and management to improve health status.

REFERENCE BOOKS

MPT: Cardio Respiratory Sciences

1. Text book of work physiology – Guyton, pain Books Bangalore- 1991 8th edition.
2. Chest physiotherapy in Intensive care unit – Makezie, Williams & Wilkins, Baltimore.
3. Cardiopulmonary symptoms in physiotherapy – Cohen M. Churchill, Livingstone, London 1988.
4. Cardiopulmonary symptoms in physiotherapy practice- Cohen M. Churchill Livingstone, London 1988.
5. Clinical application of ventilatory support – Kinby , Churchill Livingstone, New York 1990.
6. Cardiopulmonary Physiotherapy – Irwin, C.V. Mosby, St. Louis 1990.
7. Pulmonary rehabilitation: guidelines to success- Hoidkins, Butterworth, Boston, 1984.
8. Cardiac rehabilitation – Amundsen L.R. Churchill Livingstone, London 1988.
9. Dinwiddie R (1990) The diagnosis and management of respiratory disease. Churchill Livingstone.
10. Greenough A, Robertson C and Milner A (Ed) (1996) Neonatal respiratory disorders. Arnold.
11. Prasad S A and Hussey J M (Ed) (1994) Paediatric respiratory care – a guide for physiotherapists and other health professionals. Chapman and Hall.
12. Webber B and Pryor J (1993) Physiotherapy for respiratory and cardiac problems. Churchill Livingstone, London. ISBN 0-443-04471-6

Scheme of Examination for MPT IV Semester

Evaluation Pattern					
MPT 3 - 401			Cardio-Respiratory Sciences: Clinical Sciences II		
MPT 3 - 402			Cardio-Respiratory Sciences: Physiotherapeutics II		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
20	80	100	--	--	--

Evaluation Pattern					
MPT 3- 403			Cardio-Respiratory Sciences: Recent Advances II		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks
Part B	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks

Evaluation Pattern					
Course code : MPT 3- 404			Cardio-Respiratory Sciences: Advanced Physiotherapeutics-II		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ **Practical Examination (80 marks)**

Semester – IV

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

Dissertation at the IV semester:

- ❖ Internal evaluation as per the process & execution: 50 marks
- ❖ Dissertation evaluation & Presentation: 50 marks (external)

Evaluation Pattern					
Course code : MPT 3 - 405			Dissertation		
Written		Total	Dissertation Presentation/ Viva		Total
IA	Final exam		IA	Final exam	
--	--	--	50	50	100

MPT- SECOND YEAR

Syllabus for Semester IV MPT-4 : General & Community Based Rehabilitation

MPT- Semester IV																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
		Theory		Practical		Theory		Practical		Theory		Practical		Theory		Practical			
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 4 - 401	General & Community Based Rehabilitation: Clinical Sciences II	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 4 - 402	General & Community Based Rehabilitation: Physiotherapeutics II	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 4 - 403	General & Community Based Rehabilitation: Recent Advances II	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 4 - 404	General & Community Based Rehabilitation: Advanced Physiotherapeutics II	-	-	288	288	-	-	18	18	-	-	6	6	-	-	-	20	80	100
	Total	176	160	288	624	11	10	18	39	11	5	6	22	50	200	250	20	80	100
	Research Dissertation	-	-	48	48	-	-	3	3	-	-	-	-	1 Credit Assessed & Accumulated in Semester 4					
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-
MPT 4 - 405	Research Dissertation-Semester -I to IV (11 Credit Accumulated in Semester 4)	-	-	-	528	-	-	-	-	-	-	-	11	-	-	-	50	50	100

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)

Elective Based Advanced Physiotherapeutics - II:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic – 176 hours, Clinical training -288 hours, Laboratory work (includes project / review of literature/ seminars/case Presentation, journal clubs etc.)-160 hrs, Scientific enquiry/Research dissertation – 48 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –II** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-II** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-II** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-II** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOMES:**General & Community Based Rehabilitation: Clinical Sciences II (MPT4-401)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
401.1	Diagnose and analyze the clinical reasoning for condition like musculoskeletal, cardiovascular and psychological problems in geriatrics fitness	PO1,PO2, PO9
401.2	Distinguish commonly used drugs and their consequences with drug dependency.	PO1,PO2, PO4, PO9
402.3	Analyze the clinical condition like musculoskeletal system, cardiovascular, psychological and neurological problems in industrial workers.	PO1,PO2, PO4,PO9
402.4	Analyze various postural deviations in accordance with ergonomic sciences in industrial workers.	PO1,PO2, PO4,PO9

General & Community Based Rehabilitation: Physiotherapeutics II(MPT4-402)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
402.1	Formulate and deliver the management of complications during geriatric conditions due to cardiovascular complications and falls.	PO1,PO2,PO3, PO5,PO7,PO9
402.2	Manage and treat and promote fitness in geriatrics	PO1,PO3,PO4 PO5,PO7,PO9
402.3	Design and execute fitness programs for various industrial workers like IT workers and heavy industrial workers etc	PO1,PO2, PO5,PO9
402.4	Analyze the areas to organize awareness/ screening camp for geriatrics and industries.	PO1,PO2, PO5,PO7,PO9

General & Community Based Rehabilitation: Recent Advances II(MPT4-403)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
403.1	Review recent advances and formulate exercise prescription related to various geriatric conditions	PO1,PO2,P O4,PO9
403.2	Design health camps, awareness programs based on current health statistics in the different industries	PO1,PO6,PO 7,PO8,PO9
403.3	Do competent evidenced based practice in geriatric and industrial health.	PO1,PO2,PO3, PO4,PO9

General & Community Based Rehabilitation: Advanced Physiotherapeutics-II (MPT4-404)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
404.1	Assess, diagnose and manage Age related disorders among geriatrics	PO1, PO2,PO3, PO 4, PO7,PO9
404.2	Assess, diagnose and manage with ergonomic advice for all types Industrial Workers	PO1, PO2,PO3, PO4, PO7,PO9
404.3	Document case histories in the prescribed format	PO 1, PO 2

404.4	Critically analyze different treatment and assessment procedures based on strong rationale and evidence for delivery of best patient care	PO 1, PO 2,PO9
404.5	Discuss the recent management approaches for different age related disorders and betterment of Industrial worker's health and deliberate on best practice model for patient centered care	PO 1, PO 2, PO 4, PO5, PO7,PO9

Dissertation (MPT -405)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
405.1	Critically appraise the scientific literature and formulate a research question	PO3, PO 4
405.2	Search the relevant database and develop a rationale for research	PO3, PO 4
405.3	Effectively document and disseminate research findings	PO2, PO3,PO4
405.4	Facilitate collaborative relationships with other healthcare professionals	PO5, PO 6
405.5	Use ICT for research	PO3
405.6	Develop innovative ways to promote evidence based clinical practice	PO3, PO6

COURSE CONTENTS:

General and Community Based Rehabilitation

The syllabus shall focus on Industrial health, Geriatrics and health promotion.

Industrial Health-

- ❖ Applied anatomy, physiology and biomechanics related to Industrial health.
- ❖ Clinical decision making skill in assessment and management of dysfunction related to Industrial community health.
- ❖ Ability Management:- Job analysis- Job description, Job demand Analysis, Task Analysis, Ergonomics Evaluation, Injury Prevention, Employee Fitness Programme
- ❖ Disability Management:- Acute care, Concept of Functional Capacity assessment, Work Conditioning and Work Hardening, work station adaptations/ modifications
- ❖ Environmental stress in the industrial area --Accidents due to
- ❖ a] Physical agents-e.g.-Heat/cold, light, noise, Vibration, U.V. radiation, Ionizing radiation.
- ❖ b] Chemical agents-Inhalation, local action, ingestion,
- ❖ c] Mechanical hazards-overuse/fatigue injuries due to ergonomic alteration &
 - ergonomic evaluation of work place and mechanical stresses per hierarchy –
 - i] Sedentary table work –executives, clerks, etc
 - ii] Inappropriate seating arrangement- vehicle drivers,
 - iii] Constant standing- watchman, Defense forces, surgeons, etc
 - iv] Over-exertion in labourers,- common accidents
- ❖ d]-Psychological hazards- e.g monotonicity & dissatisfaction in job, anxiety of
 - work completion with quality,
- ❖ Physiotherapist role in industry – preventive, promotive, curative, intervention, ergonomic and rehabilitative services.
- ❖ Occupational Stress and its management.
- ❖ Health promotion in the industry

Geriatrics:-

- Applied anatomy, physiology and biomechanics related to Geriatrics.
- Clinical decision making skill in assessment and management of dysfunction related to geriatric community health.
- Physiology of Aging, Theories of Aging, Age related changes in Musculoskeletal system, Central Nervous System, Cardio- Vascular system, Respiratory system, Immune system, Metabolic and Temperature related changes, Balance problems
- Role of Physiotherapy in a Home for the aged- geriatric care , holistic approach.
- Communication with Elderly,
- Fitness and Health promotion in Elderly.
- Evidence based practice in Elderly
- Psychosomatic approaches in management of disorders of stress, change in life-style to reduce risk factors for disability.
- Drug dependence and Iatrogenic disorders. Ethical considerations in Elderly
- Assistive Technology used for Stability & mobility to enhance function.

REFERENCE BOOKS

MPT: General and Community based Rehabilitation

1. Hogg K. Worksite health Development, Health Development Foundation 1987.
2. Rurrell J. J. Murphy L. R. Sauter, S.L. and Cooper, C.L. Occupational Stress: Issues and Development in Research Taylor and Francis, 1988.
3. C.B. back Schools and Ergonomics in Twomey L.R. and Taylor J.R. (eds) physical Therapy of the Low Back Churchill, Livingstone, 1987.
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6. Gardner, H. Ed. The Politics of Health The Australian Experience Churchill, Livingstone, 1989.
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8. Palmer, G.E. and Short S.D. Health Care and Public Policy an Australian Analysis, Macmillan, 1989.
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11. South Australian Health Commission, Primary Health Care in South Australia : A Discussion Paper SAHC, 1998.
12. Wilenski, P Public Power and Public Administration Hale and iremonger, 1986.
13. Masoro, E.J. ed. CRC hand book of physiology in Agening, CRC press, 1981.
14. Clark, T.S. The Ergonomic of workspace and Machine: a design manual Taylor and Francis, 1984.
15. Corlett, N. and Wilson, J., The Ergonomic of working Postures, Taylor and Francis, 1986.
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17. Manjchrzak, A Chang, TLC Banfield W. Ebert's, R. and Salvendy G. Human Aspects of Computer- Aided Design Taylor and Francis, 1987.
18. McCormick. E. J. and Sanders, M.S. Human Factors in Engineering and Design 6th edn. Graw Hill 1987.

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20. Hand book of physiology in Aging – Masoro, C.R.C. Press, 1981.
21. Physiotherapy in obstetrics and gynecology- Polden & Mantle, Jayee Brothers, New Delhi 1994.
22. Physical therapy of the cancer patient- McGartex, Charles Churchill Livingstone, New York, 1989.
23. Industrial therapy – Key G.L. Mosby, St. Louis 1987.

Disability

1. Hall D M B, Hill P D (1996) The Child with a Disability 2 nd Edition Blackwell Science
2. McCarthy G T (Ed) (1992) Physical Disability in Childhood An interdisciplinary approach to management. Churchill Livingstone, London. ISBN0-443-04288-8
3. Morris J (1998) Don't leave us out: Involving disabled children and young people with communication impairments. York Publishing Services, York. ISBN 1 899987 800
4. Robinson C and Stalker K (1998) Growing up with disability. Jessica Kingsley Publishers, London. ISBN 1 85302 568 2
5. Russell J (1988) Graded activities for children with motor difficulties. Cambridge University Press.



Scheme of Examination for MPT IV Semester

Evaluation Pattern					
MPT 4- 401		General & Community Based Rehabilitation: Clinical Sciences II			
MPT 4- 402		General & Community Based Rehabilitation: Physiotherapeutics II			
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
20	80	100	--	--	--

Evaluation Pattern					
MPT 4- 403		General & Community Based Rehabilitation: Recent Advances II			
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks
Part B	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks

Evaluation Pattern					
Course code : MPT 4- 404			General & Community Based Rehabilitation: Advanced Physiotherapeutics-II		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ **Practical Examination (80 marks)**

Semester – IV

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

Dissertation at the IV semester:

- ❖ Internal evaluation as per the process & execution: 50 marks
- ❖ Dissertation evaluation & Presentation: 50 marks (external)

Evaluation Pattern					
Course code : MPT 4 - 405			Dissertation		
Written		Total	Dissertation Presentation/ Viva		Total
IA	Final exam		IA	Final exam	
--	--	--	50	50	100

MPT- SECOND YEAR

Syllabus for Semester IV MPT 5: Paediatrics

MPT- Semester IV																							
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks									
		Th.		Pr.		Cl.		Tot.		Th.		Pr.		Cl.		Tot.		Theory			Practical		
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.				
MPT 5 - 401	Paediatrics: Clinical Sciences II	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-				
MPT 5 - 402	Paediatrics: Physiotherapeutics II	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-				
MPT 5 - 403	Paediatrics: Recent Advances II	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-				
MPT 5 - 404	Paediatrics: Advanced Physiotherapeutics II	-	-	288	288	-	-	18	18	-	-	6	6	-	-	-	20	80	100				
	Total	176	160	288	624	11	10	18	39	11	5	6	22	50	200	250	20	80	100				
	Research Dissertation	-	-	48	48	-	-	3	3	-	-	-	-	1 Credit Assessed & Accumulated in Semester 4									
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-				
MPT 5 - 405	Research Dissertation-Semester -I to IV (11 Credit Accumulated in Semester 4)	-	-	-	528	-	-	-	-	-	-	-	11	-	-	-	50	50	100				

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)

Elective Based Advanced Physiotherapeutics - II:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic – 176 hours, Clinical training -288 hours, Laboratory work (includes project / review of literature/ seminars/case Presentation, journal clubs etc.) –160 hrs, Scientific enquiry/Research dissertation – 48 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –II** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-II** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-II** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-II** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

Course Outcomes:**Paediatrics: Clinical Sciences II (MPT5-401)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
401.1	To plan assessment and management programme for critical care patients in ICU.	PO1, PO2, PO3, PO4 PO5, PO7, PO8
401.2	To gain knowledge related to embryology of cardiovascular, pulmonary and musculoskeletal system	PO1, PO2 PO4, PO5
401.3	To acquire the knowledge related to orthotics used in paediatrics conditions	PO1, PO2, PO3, PO4 PO5, PO9
401.4	To acquire knowledge related to amputation, limb deficiencies ,burns, tumours of bone and muscle in childhood-Classification ,pathophysiology and management.	PO1, PO2, PO3, PO4 PO5,
401.5	To acquire the knowledge related to child Abuse.	PO1, PO2, PO3, PO4 PO5

Paediatrics: Physiotherapeutics II(MPT5-402)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
402.1	To acquire the skill related to assessment and diagnose of pediatric congenital and acquired cardiovascular, pulmonary & musculoskeletal conditions and to plan ICU and rehabilitation programme by applying recent technique/approached to treat & train.	PO1, PO2, PO3, PO4 PO5, PO6, PO7, PO9
402.2	To acquire the skill related to assessment and management of childhood obesity, exercise testing and prescription, strength, endurance, flexibility and sports injuries programme by applying recent technique/approaches.	PO1, PO2, PO3, PO4 PO5, PO6, PO7, PO9
402.3	Explicit and perform the steps of each Paediatric approaches skilfully	PO1, PO2, PO3, PO4 PO5, PO6, PO7, PO9
402.4	Recognise the implication of dysfunction of neurological deficit and its co-relation with clinical decision making	PO1, PO2, PO3, PO4 PO5, PO6, PO7, PO9

Paediatrics: Recent Advances II(MPT5-403)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
403.1	To expertise in the skill related to assessment and diagnose of Paediatrics congenital and acquired cardiovascular pulmonary and musculoskeletal conditions and to plan ICU and rehabilitation program by applying recent trends in pediatric research	PO1, PO2, PO3, PO4 PO5, PO6, PO7, PO9
403.2	To acquire the competence related to assessment and management of childhood obesity exercise testing and prescription, strength, endurance, flexibility and sports injuries with reference to recent trends in pediatric research.	PO1, PO2, PO3, PO4 PO5, PO6, PO7, PO9
403.3	Discussion and group studies about the merits and demerits of recent advances..	PO1,PO4,PO5 PO9
403.4	To raise a research question from every methodological studies	PO1,PO3, PO9

403.5	Create a physiotherapy based management protocol	PO1, PO2, PO3, PO4 PO5, PO6, PO7, PO9
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Paediatrics: Advanced Physiotherapeutics-II(MPT5-404)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
404.1	Identify and discuss, the pediatric congenital and acquired cardiovascular ,pulmonary and musculoskeletal conditions by routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning, by applying recent technique/approaches, based on evidence-based practice in the field of Paediatric physiotherapy	PO1, PO2, PO3, PO4 PO5, PO6, PO7, PO9
404.2	To acquire the skill related to assessment and management of childhood obesity,exercise testing and prescription ,strength,endurance,flexibility and sports injuries programme by applying recent technique/approaches	PO 1, PO4, PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9
404.3	Document patients with latest and new version of scale, out come measures and asses the progression	PO2, PO4, PO5, PO9
404.4	Use Recent Physiotherapeutic Technique/ approaches to treat patients with disorders in different Paediatric age groups.	PO1, PO2, PO4 PO5,PO9

Dissertation (MPT -405)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
405.1	Critically appraise the scientific literature and formulate a research question	PO1, PO4, PO9
405.2	Search the relevant database and develop a rationale for research	PO1, PO4, PO9
405.3	Effectively document and disseminate research findings	PO2, PO3, PO4, PO9
405.4	Facilitate collaborative relationships with other healthcare profession	PO6
405.5	Use ICT for research	PO2, PO4
405.6	Develop innovative ways to promote evidence based clinical practice	PO2, PO4, PO6, PO9

COURSE CONTENTS:

Paediatrics – II

- Embryology of cardiovascular, pulmonary & musculoskeletal system
- Developmental deformities & congenital anomalies
- Paediatric musculo-skeletal condition
- Paediatric cardio-vascular & pulmonary condition
- Paediatric fitness

TOPICS:

- ❖ Development of heart, lung, conduction system, great vessels, hand, foot, thumb,
- ❖ Vertebral column, long bones & muscular system
- ❖ Anatomical & physiological differences of cardio-vascular & respiratory system in neonates, childhood & adults

- ❖ Fetal circulation
- ❖ Arthrogyrosis
- ❖ Congenital dislocation of hip
- ❖ CTEV, vertical talus, Blount disease, Perthe's disease, slipped capital femoral epiphysis, limb length discrepancies and Osteogenesis Imperfecta.
- ❖ Deformities of vertebral column, deformities of chest wall
- ❖ Traumatic injuries in child – fractures, dislocations, epiphyseal injuries
- ❖ Infective condition of musculo-skeletal – osteomyelitis, pyogenic arthritis, juvenile rheumatoid arthritis, tuberculous arthritis
- ❖ Amputation and Limb deficiencies in childhood
- ❖ Burns in childhood – Classification, Pathophysiology and Management.
- ❖ Tumors of bone & muscle in Paediatrics
- ❖ Congenital heart disease – pathodynamics, clinical presentation, investigation, medico-surgical & physiotherapy management of cyanotic & acyanotic heart disease
- ❖ Rheumatic heart disease
- ❖ Chest injuries
- ❖ Respiratory disorder in childhood – IRDS, Bronchopulmonary dysplasia, pneumonia, lung abscess, asthma, cystic fibrosis, bronchitis, bronchiectasis, bronchiolitis, pertusis, CROUP, epiglottitis, chronic lung disease, primary ciliary dyskinesia, fatigue, sleep apnoea, hyperventilation syndrome
- ❖ Respiratory problems in neonates – respiratory failure in neonates, neonatal ICU
- ❖ Child abuse
- ❖ Childhood obesity
- ❖ Exercise testing & prescription in children
- ❖ Strength endurance & flexibility in childhood
- ❖ Sports injuries in children
- ❖ PT management in PICU, NICU, emergency care & trauma, ventilator management, oxymeter, defibrillator.
- ❖ Paediatric cardio-thoracic surgeries.
- ❖ Recent advances in management of musculoskeletal, cardio-vascular & pulmonary conditions
- ❖ Role of Orthotics in Paediatric conditions.

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2. Tecklin J.S. Pediatric Physical Therapy Lippincott, 1989.
3. Campion, Mr. Ed hydrotherapy in paediatric, Heinemann 1985.
4. Physical therapy Assessment in Early Infancy - Wilhelm Churchill Livingstone, New York, 1993.
5. Physical therapy for children – Campbell Suzann K. W.B. Saunders, Philadelphia, 1994.
6. Physical management of multiple handicapped – Fraser, William & Wilkins, Baltimore.
7. Elements of paediatric physiotherapy – Eckerley P. Churchill Livingstone, Edingburgh, 1993.
8. Physiotherapy in Paediatrics – Shepherd R. Heinemann. London, 1980 2nd edition.
9. The growth chart – WHO, Geneva, 1986.
10. Child with spina Bifida – Anderson E.M. and Spina B Methun, Lodon 1977.
11. A manual of neonatal intensive care- Robert N.R.C. Edwaed Arnold, London 1986.
12. Burns Physiotherapy in the growing child. McDonald.

13. Campbell S (Ed) (2000) Physical therapy for children. WB Saunders Co.
14. Eckersley P (Ed.) (1993) Elements of paediatric physiotherapy. Churchill Livingstone, Edinburgh. ISBN 0-44-03894-S
15. O'Hagan M and Smith M (1998) Special issues in child care. Balliere Tindall, London ISBN 0-7020-1604-7
16. Shepherd R (1997) 2 nd edition. Physiotherapy in paediatrics. Butterworth and Heinemann.
17. Tecklin J S (1999) 3 rd edition Paediatric physical therapy. Lippincott Philadelphia.

Development:

1. Sheridan M (1997) From birth to five years – children's developmental progress Nfer Nelson
 2. Haywood K M (1993) "Lifespan Motor Development" 2 nd edition. Human Kinetics.
Lee H (2000) The Developing Child 9 th Edition Allyn and Bacon
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Scheme of Examination for MPT IV Semester

Evaluation Pattern					
MPT 5- 401		Paediatrics: Clinical Sciences II			
MPT 5- 402		Paediatrics: Physiotherapeutics II			
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
20	80	100	--	--	--

Evaluation Pattern					
MPT 5- 403		Paediatrics: Recent Advances II			
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks)	= 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks
Part B	Q.1 LAQ (1 X 15 Marks)	= 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks

Evaluation Pattern					
Course code : MPT 5- 404			Paediatrics: Advanced Physiotherapeutics-II		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ **Practical Examination (80 marks)**

Semester – IV

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

Dissertation at the IV semester:

- ❖ Internal evaluation as per the process & execution: 50 marks
- ❖ Dissertation evaluation & Presentation: 50 marks (external)

Evaluation Pattern					
Course code : MPT 5 - 405			Dissertation		
Written		Total	Dissertation Presentation/ Viva		Total
IA	Final exam		IA	Final exam	
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MPT- SECOND YEAR

Syllabus for Semester IV MPT-6: Musculoskeletal Sciences & Sports

MPT- Semester IV																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
		Theory		Practical		Theory		Practical		Theory		Practical		Theory		Practical			
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 6 - 401	Musculoskeletal Sciences & Sports: Clinical Sciences II	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 6 - 402	Musculoskeletal Sciences & Sports: Physiotherapeutics II	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 6 - 403	Musculoskeletal Sciences & Sports: Recent Advances II	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 6 - 404	Musculoskeletal Sciences & Sports: Advanced Physiotherapeutics II	-	-	288	288	-	-	18	18	-	-	6	6	-	-	-	20	80	100
	Total	176	160	288	624	11	10	18	39	11	5	6	22	50	200	250	20	80	100
	Research Dissertation	-	-	48	48	-	-	3	3	-	-	-	-	1 Credit Assessed & Accumulated in Semester 4					
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-
MPT 6 - 405	Research Dissertation-Semester -I to IV (11 Credit Accumulated in Semester 4)	-	-	-	528	-	-	-	-	-	-	-	11	-	-	-	50	50	100

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)

Elective Based Advanced Physiotherapeutics - II:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic – 176 hours, Clinical training -288 hours, Laboratory work (includes project / review of literature/ seminars/case Presentation, journal clubs etc.) – 160 hrs, Scientific enquiry/Research dissertation – 48 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –II** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-II** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-II** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-II** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOMES:**Musculoskeletal Sciences & Sports: Clinical Sciences II (MPT 6-401)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
401.1	Apply scientific principles of clinical reasoning to assess, diagnose and manage musculoskeletal and sports injuries	PO 1, PO2,
401.2	Correlate neuro-musculoskeletal dysfunction within framework of clinical reasoning	PO 2, PO 3
401.3	Document patients' clinical findings with reliable and valid outcome measures and prognostic indicators	PO 2, PO 5
401.4	Prepare a comprehensive management plan based on informed clinical goals and robust clinical rationale	PO 2, PO 5
401.5	Discuss the clinical case scenarios with other healthcare professionals and disseminate the findings by maintaining professional ethics and integrity	PO 2, PO 3, PO 5

Musculoskeletal Sciences & Sports: Physiotherapeutics II (MPT6-402)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
402.1	Assess the prognostic indicators within the scope of practice of Physiotherapy, prepare and implement the management approach	PO 2, PO 3
402.2	Justify the clinical rationale for the treatment plan and assess its effectiveness using appropriate clinical outcome analysis	PO1, PO3, PO 5
402.3	Critically analyse the management approaches by referring to scientific literature	PO 2, PO4
402.4	Guide the undergraduate students in domains of Physiotherapy practices and disseminate the clinical knowledge gained through case presentations and discussions	PO 2, PO 3, PO 4, PO 6

Musculoskeletal Sciences & Sports: Recent Advances II (MPT6-403)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
403.1	Appraise the recent advancements in Physiotherapy practice and critically analyse and apply in domains of patient management	PO 4, PO 9
403.2	Lead healthcare professionals to disseminate the advances of Physiotherapeutic practices using appropriate clinical evaluation indicators	PO 3, PO 4, PO 9
403.3	Critically examine clinical decisions in light of new information and knowledge from the scientific literature	PO 4, PO 9

Musculoskeletal Sciences & Sports: Advanced Physiotherapeutics II (MPT6-404)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
404.1	Examine and assess the clinical case scenarios using reliable and valid outcome measures and comment on patient's progressions during the treatment	PO 2, PO 3, PO 5

404.2	Use evidence based clinical decision framework to evaluate and examine the advance Physiotherapeutic methods	PO 4, PO 9
404.3	Appraise the strength of scientific evidences in the advancements and comment on possible application into clinical practice	PO 2, PO 3, PO 9
404.4	Discuss, disseminate and document the advancements to innovate clinical and research practices	PO 4, PO 9

Dissertation (MPT -405)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
405.1	Critically appraise the scientific literature and formulate a research question	PO1, PO4, PO9
405.2	Search the relevant database and develop a rationale for research	PO1, PO4, PO9
405.3	Effectively document and disseminate research findings	PO2, PO3, PO4, PO9
405.4	Facilitate collaborative relationships with other healthcare professionals	PO6
405.5	Use ICT for research	PO2, PO4
405.6	Develop innovative ways to promote evidence based clinical practice	PO2, PO4, PO6, PO9

COURSE CONTENTS:

Part -A

- a) Exercise Physiology
- b) Biomechanics & pathomechanics in sports activities
- c) Assessment & evaluation of sports fitness, performance and injuries
- d) Sport psychology

TOPICS:

- ❖ Sports team approach
- ❖ Communication among team members & participants
- ❖ Physiological changes & adaptations – aerobic exercises & anaerobic exercises
- ❖ Psychosocial factors of sports injuries
- ❖ Physical demand in different sports
- ❖ Neurodynamics in sports
- ❖ Physiological response to exercises
- ❖ Physiological response to injury – muscle, ligament, tendon, bone, synovial joint structure, nervous system, pain.
- ❖ Biomechanics of sports activities & its relation to injuries in – tennis, golf, cricket, volleyball, soccer, basketball, short & long distant runners, swimming, throwing events, jump events, pathomechanics of injuries (pattern, velocity, angular & linear movements)
- ❖ Warm up
- ❖ Protective & supportive equipments
- ❖ Injury evaluation & management _ sporting emergencies, principles of assessment & management, on field evaluation & diagnosis, assessment of head injury & spinal cord, assessment of eye. Chest & abdominal injuries, fractures.
- ❖ Isokinetic testing

- ❖ Assessment of strength, power, endurance (muscular & cardiac), vo2max, flexibility, pliability, reaction time and pulmonary function.
- ❖ Body composition – assessment & its importance in sports
- ❖ Sports injuries - emergency sports injury assessment; mechanism, patho-mechanism, clinical presentation, assessment & examination of shoulder girdle injuries, elbow joint injuries, wrist & hand injuries, thigh injuries, knee injuries, injuries of patella, injuries to ankle & foot, injuries to cervical spine & skull, injuries to thoracic spine & thoracic cage, injuries to lumbo-sacral region, athletic injuries, swimming injuries, abdominal injuries
- ❖ Over-use syndrome, tenosynovitis, friction syndrome
- ❖ Radio-imaging in sports – X-Ray, CT, MRI, Ultrasonography.
- ❖ Ground evaluation
- ❖ Evaluation of paediatric fitness & paediatric injuries
- ❖ Evaluation of injuries of old age
- ❖ Specific sports injuries in women
- ❖ Pathophysiology & assessment of fatigue
- ❖ Drugs in sports
- ❖ Sport psychology – athletic response to injury (Kubler –Ross grief model, Peretz model of loss, Cognitive stress model, Cognitive emotional response), psychological management
- ❖ Evaluation of disabled sportsmen.

Part B.

1. Prevention of sports injuries.
2. Management of sports injuries.
3. Rehabilitation of sports injuries.
4. Diet & nutrition.

Topics:

- ❖ Detraining effects of cardiovascular, musculoskeletal nervous system.
- ❖ Sports specific training. & Cross training.
- ❖ Risk factors in sports injuries and strategies of prevention.
- ❖ Protection & supportive equipments.
- ❖ Emergency care & first aid, Transportation of injured athlete, Sports emergency kit.
- ❖ Athletic co-ordination programme.
- ❖ Warm up- sports specific.
- ❖ Manual therapy in sports.
- ❖ Therapeutic exercises - Strength training, power training, Flexibility training, endurance training, Plyometrics, Reaction training, Proprioceptive training, Stretching.
- ❖ Sports massage,
- ❖ Trigger point release, neural tissue mobilization.
- ❖ Core Stability assessment & Training.
- ❖ Pilates
- ❖ Swiss Ball training
- ❖ Sports taping
- ❖ Electrotherapy in sports injuries.
- ❖ Hydrotherapy.
- ❖ Physiotherapeutic management, rehabilitation & sports specific training for injuries in:-Shoulder girdle, Elbow joint, Wrist & hand, Thigh, Knee, Patella, Ankle & foot, Cervical spine & skull, Thoracic spine & thoracic cage, Lumbosacral region, Swimming, Athletic, Abdominal.

- ❖ Sports rehabilitation for disability.
- ❖ Exercise testing, prescription & rehabilitation of older adults and geriatrics.
- ❖ Sports during pregnancy.
- ❖ Diet & sports- Pre-session diet, pre-game meal, carbohydrate loading, high fat diet, high protein diet.
- ❖ Performance enhancing drugs, doping.

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MPT- SPORTS

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2. Bird, S. R., Black, N. Sports Injuries: Causes, Diagnosis, Treatment and Prevention Cheltenham: Stanley Thomes, 1997 ISBN: 0748731814
3. Brownstein, B. Functional movement in Orthopaedic and Sports Physical Therapy: Evaluation, Treatment and Outcomes New York; London: Churchill Livingstone, 1997 ISBN: 0443075301
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6. Hollis, M. Massage for Therapists Oxford: Blackwell Science, 1998 (2nd edition) ISBN: 0632047887
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Journals

1. British Journal of Sports Medicine (UK)
2. Journal of Orthopaedic and Sports Physical Therapy (USA)
3. Journal of Sport Rehabilitation (USA)
4. Journal of Sports Chiropractic and Rehabilitation (USA)
5. Medicine and Science in Sports and Exercise (USA)

Scheme of Examination for MPT IV Semester

Evaluation Pattern					
MPT 6- 401		Musculoskeletal Sciences & Sports: Clinical Sciences II			
MPT 6- 402		Musculoskeletal Sciences & Sports : Physiotherapeutics II			
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
20	80	100	--	--	--

Evaluation Pattern					
MPT 6- 403		Musculoskeletal Sciences & Sports : Recent Advances II			
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks) = 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks
Part B	Q.1 LAQ (1 X 15 Marks) = 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks

Evaluation Pattern					
Course code : MPT 6- 404			Musculoskeletal Sciences & Sports: Advanced Physiotherapeutics-II		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ **Practical Examination (80 marks)**

Semester – IV

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

Dissertation at the IV semester:

- ❖ Internal evaluation as per the process & execution: 50 marks
- ❖ Dissertation evaluation & Presentation: 50 marks (external)

Evaluation Pattern					
Course code : MPT 6 - 405			Dissertation		
Written		Total	Dissertation Presentation/ Viva		Total
IA	Final exam		IA	Final exam	
--	--	--	50	50	100

MPT- SECOND YEAR

Syllabus for Semester IV MPT 7: Musculoskeletal Sciences & Manual Therapy

MPT- Semester IV																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
		Theory		Practical		Theory		Practical		Theory		Practical		Theory			Practical		
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 7 - 401	Musculoskeletal Sciences & Manual Therapy: Clinical Sciences II	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 7 - 402	Musculoskeletal Sciences & Manual Therapy: Physiotherapeutics II	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 7 - 403	Musculoskeletal Sciences & Manual Therapy: Recent Advances II	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 7 - 404	Musculoskeletal Sciences & Manual Therapy: Advanced Physiotherapeutics II	-	-	288	288	-	-	18	18	-	-	6	6	-	-	-	20	80	100
	Total	176	160	288	624	11	10	18	39	11	5	6	22	50	200	250	20	80	100
	Research Dissertation	-	-	48	48	-	-	3	3	-	-	-	-	1 Credit Assessed & Accumulated in Semester 4					
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-
MPT 7 - 405	Research Dissertation-Semester -I to IV (11 Credit Accumulated in Semester 4)	-	-	-	528	-	-	-	-	-	-	-	11	-	-	-	50	50	100

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)
 Elective Based Advanced Physiotherapeutics - II:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic – 176 hours, Clinical training -288 hours, Laboratory work (includes project / review of literature/ seminars/case Presentation, journal clubs etc.) – 160 hrs, Scientific enquiry/Research dissertation – 48 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –II** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus.
- **Elective Based Physiotherapeutics-II** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence.
- **Elective Based Recent Advances-II** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-II** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOMES:**Musculoskeletal Sciences & Manual Therapy: Clinical Sciences II(MPT7-401)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
401.1	Apply scientific principles of clinical reasoning to assess, diagnose and manage musculoskeletal and sports injuries manually	PO1, PO2
401.2	Correlate neuro-musculoskeletal dysfunction within framework of clinical reasoning	PO1
401.3	Document patients' clinical findings with reliable and valid outcome measures and prognostic indicators	PO1, PO2, PO5, PO7, PO9
401.4	Prepare a comprehensive management plan based on informed clinical goals and robust clinical rationale	PO1, PO2, PO9
401.5	Discuss the clinical case scenarios with other healthcare professionals and disseminate the findings by maintaining professional ethics and integrity	PO1, PO2, PO3, PO7

Musculoskeletal Sciences & Manual Therapy: Physiotherapeutics II(MPT 7-402)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
402.1	Assess the prognostic indicators within the scope of practice of manual Physiotherapy, prepare and implement the management approach	PO1, PO2
402.2	Justify the clinical rationale for the treatment plan and assess its effectiveness using appropriate clinical outcome analysis	PO1, PO2
402.3	Critically analyse the management approaches by referring to scientific literature	PO1, PO2, PO6
402.4	Guide the undergraduate students in domains of Physiotherapy practices and disseminate the clinical knowledge gained through case presentations and discussions	PO1, PO2, PO6, PO7

Musculoskeletal Sciences & Manual Therapy: Recent Advances II(MPT7-403)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
403.1	Appraise the recent advancements in Physiotherapy practice and critically analyse and apply in domains of patient management	PO1, PO2, PO9
403.2	Lead healthcare professionals to disseminate the advances of Physiotherapeutic practices using appropriate clinical evaluation indicators	PO1, PO9
403.3	Critically examine clinical decisions in light of new information and knowledge from the scientific literature	PO1, PO6, PO9

**Musculoskeletal Sciences & Manual Therapy: Advanced Physiotherapeutics-II
(MPT7-404)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
404.1	Examine and assess the clinical case scenarios using reliable and valid outcome measures and comment on patient's progressions during the treatment	PO1, PO4
404.2	Use evidence based clinical decision framework to evaluate and examine the advance Physiotherapeutic methods	PO1, PO4
404.3	Appraise the strength of scientific evidences in the advancements and comment on possible application of manual therapy into clinical practice	PO1, PO4, PO9
404.4	Discuss, disseminate and document the advancements to innovate clinical and research practices	PO1, PO3, PO9

Dissertation (MPT -405)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
405.1	Critically appraise the scientific literature and formulate a research question	PO1, PO4, PO9
405.2	Search the relevant database and develop a rationale for research	PO1, PO4, PO9
405.3	Effectively document and disseminate research findings	PO2, PO3, PO4, PO9
405.4	Facilitate collaborative relationships with other healthcare professionals	PO6
405.5	Use ICT for research	PO2, PO4
405.6	Develop innovative ways to promote evidence based clinical practice	PO2, PO4, PO6, PO9

COURSE CONTENTS:

- ❖ Introduction & Basic concepts of Manual therapy
- ❖ Principles of Manual Therapy- principles of subjective examination and physical examination ,treatment ,re-assessment of spinal and peripheral joint problems
- ❖ Communication, Documentation, Clinical Reasoning, Evidence based practice & Medico-legal issues in manual therapy.
- ❖ Pain – Concepts, theories, assessment, differential diagnosis & principles of management.
- ❖ General schools of thought of Manual Therapy – principles & philosophies.
- ❖ Neurodynamics and neural tissue mobilization.
- ❖ basics of anatomy ,physiology ,biomechanics of neural tissue
- ❖ clinical reasoning ,principles of subjective ,objective ,treatment and reassessment in spinal and extremity adverse neural tension disorders
- ❖ Clinical presentation of the intraneural and extraneural pathology
- ❖ indications ,contraindications and precautions in adverse neural tension testing and management in upper and lower extremity and spine
- ❖ Osteopathic and Chiropractic school of thoughts

- ❖ Different schools of thought – its clinical applications, principles of assessment & management of various segments of the body (Joints, Spine , Soft-Tissues), in accordance with the pathology, patho-mechanics (Traumatic & Non Traumatic) of structural & functional dysfunction.
- ❖ Mulligan--principles of assessment and treatment using mulligan concept
 - NAGS ,SNAGS ,RNAGS ,MWM, application in spinal and peripheral joint dysfunction
- ❖ Maitland-Principles and application in spinal and peripheral joint dysfunction
- ❖ Kaltenborn - Principles and application in spinal and peripheral joint dysfunction
- ❖ Cyriax - history ,physical examination-selective tissue tension test, management strategies in spinal and peripheral joint and soft tissue techniques - deep transverse friction massage ,massage ,manipulation , injection
- ❖ McKenzie-- classification of spinal pain as adopted by McKenzie-postural, dysfunction and derangement -assessment and treatment procedures
- ❖ Pilates techniques.
- ❖ Mennel's technique
- ❖ Myofascial Release technique—fibromyalgia, trigger point therapy principles of assessment and treatment
- ❖ Positional release technique--assessment and treatment procedures strain and counter strain technique - Functional technique
- ❖ Muscle Energy Technique--theories of spinal and peripheral joint dysfunction - fryette's laws of physiological spinal motion - segmental vertebral dysfunction - NRS, ERS, FRS - screening examination ,scanning examination ,skill rolling ,segmental definition (diagnosis) , treatment using MET
- ❖ Neuro-Muscular Taping
- ❖ Combined Movements of spine
- ❖ Recent advances & controversies in manual therapy and grey areas of research.

REFERENCE BOOKS

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2. Sullivan P.D. and Minor M.A. An Integrated Approach to Therapeutic Exercises Resten 1982.
3. Donatelli R. ed. Physical Therapy of the Shoulder, 2nd edn Churchill, Livingston 1991.
4. Donatelli R. and wooden M.J. Ed Orthopaedic Physical Therapy Churchill, Livingston 1989.
5. Grant, R. (ed) Physical Therapy of the Cervical and Thoracic Spine, Churchill, Livingstone, 1987.
6. Grieve G. P. Common Vertebral Joint Problems, 2nd edn Churchill, Livingstone, 1988.
7. Jayson M.I.V. (ed) The Lumber Spine and Back Pain, 3rd edn Churchill, Livingstone, 1987.
8. Kirkaldy- Willis W. H. (ed) Managing low back pain, 2nd edn Churchill, Livingstone, 1988.
9. Traveil J. G. and Simons, D.G. Myofascial pain and Dysfuntion. The Trigger Point manual, Williams and Willkins, 1983.
10. Cruess, R.L. ed. The Musculoskeletal System: Embryology, Bio- Chemistry and Physiology, Churchill, Livingstone, 1982.
11. Vander, A. J. Human Physiology: The mechanisms of body Function, 5th edn. Mc. Graw-Hill, 1990.
12. Chaffin, D.B. and Anderson, G. Occupational Biomechanics, 2nd edn. Wiley, 1984.

13. Orthopaedic physical therapy – Donatelli, London Churchill Livingstone 1994.
 14. Clinical biomechanics of spine – White A.A and Panjabi- J.B. Lippincot, Philadelphia 1978.
 15. Vertebral manipulation- Maitland G.D. Boston, Butterworth & Co. Boston, 1997.
 16. Peripheral manipulation - Maitland G.D. Boston, Butterworth & Co. Boston, 1997.
 17. Benson, Fixsen and Macnicol (Ed) Children's orthopaedics and fractures. Churchill Livingstone.
 18. Cyriax James. Text book of Orthopaedic Medicine , diagnosis of soft Tissue Lesions 8th edn. Bailliere Tindall1982.
 19. Mobilization of the extremity joint – Kaltenbore, Harper and Row, Philadelphia, 1980.
 20. Kisner C. & Colby L.A. (2002). Therapeutic Exercise: Foundations and Techniques, 4th ed. Philadelphia, PA: F. A. Davis.
 21. Lederman E. (1997): Fundamentals of Manual Therapy–Physiology, Neurology and Psychology. New York: Churchill-Livingstone.
 22. Kaltenborn F.M., Evjenth O., Volowitz E., Kaltenborn T.B., and Morgan D. (2002) Manual Mobilization of the Extremity Joints, 6th ed. Oslo, Norway: Orthopedic Physical Therapy Products (OPTP).
 23. Rich G.J. (2002, ed) Massage Therapy: The Evidence for Practice. New York, U.S.A.: Mosby.
 24. Mulligan B. (2003) Manual Therapy: NAGS, SNAGS, MWMS etc., 4th ed. Wellington, New Zealand: Plane View Services
 25. Chaitow L., Liebenson L., Murphy D.R. (2001) Muscle Energy Techniques. New York, U.S.A.: Elsevier Science.
 26. Orthopaedics – A Post Graduate Manual, Dr.(col)S.K.Biswas, Jaypee Publication, New Delhi 1st edition, 2012.
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Scheme of Examination for MPT IV Semester

Evaluation Pattern					
MPT 7- 401		Musculoskeletal Sciences & Manual Therapy: Clinical Sciences II			
MPT 7- 402		Musculoskeletal Sciences & Manual Therapy: Physiotherapeutics II			
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
20	80	100	--	--	--

Evaluation Pattern					
MPT 7- 403		Musculoskeletal Sciences & Manual Therapy: Recent Advances II			
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15marks
Part B	Q.1 LAQ (1 X 15 Marks) = 15 marks Q.2 SAQ (any 1 out of 2 X 10 Marks) = 10 Marks Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks = 15 marks

Evaluation Pattern					
Course code : MPT 7- 404			Musculoskeletal Sciences & Manual Therapy: Advanced Physiotherapeutics-II		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
--	--	--	20	80	100

IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ Practical Examination (80 marks)

Semester – IV

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

Dissertation at the IV semester:

- ❖ Internal evaluation as per the process & execution: 50 marks
- ❖ Dissertation evaluation & Presentation: 50 marks (external)

Evaluation Pattern					
Course code : MPT 7 - 405			Dissertation		
Written		Total	Dissertation Presentation/ Viva		Total
IA	Final exam		IA	Final exam	
--	--	--	50	50	100

MPT- SECOND YEAR

Syllabus for Semester IV MPT 8: Musculoskeletal Sciences & Hand Conditions

MPT- Semester IV																			
Course Code	Course	Teaching Learning Hrs.				Teaching Learning Hrs/Week.				Credit Hrs.				Exam Marks					
														Theory			Practical		
		Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Th.	Pr.	Cl.	Tot.	Int.	Ext.	Tot.	Int.	Ext.	Tot.
MPT 8 - 401	Musculoskeletal Sciences & Hand Conditions: Clinical Sciences II	64	64	-	128	4	4	-	8	4	2	-	6	20	80	100	-	-	-
MPT 8 - 402	Musculoskeletal Sciences & Hand Conditions: Physiotherapeutics II	80	64	-	144	5	4	-	9	5	2	-	7	20	80	100	-	-	-
MPT 8 - 403	Musculoskeletal Sciences & Hand Conditions: Recent Advances II	32	32	-	64	2	2	-	4	2	1	-	3	10	40	50	-	-	-
MPT 8 - 404	Musculoskeletal Sciences & Hand Conditions: Advanced Physiotherapeutics II	-	-	288	288	-	-	18	18	-	-	6	6	-	-	-	20	80	100
	Total	176	160	288	624	11	10	18	39	11	5	6	22	50	200	250	20	80	100
	Research Dissertation	-	-	48	48	-	-	3	3	-	-	-	-	1 Credit Assessed & Accumulated in Semester 4					
	Total Hours	-	-	-	672	-	-	-	42	-	-	-	-	-	-	-	-	-	-
MPT 8 - 405	Research Dissertation-Semester -I to IV (11 Credit Accumulated in Semester 4)	-	-	-	528	-	-	-	-	-	-	-	11	-	-	-	50	50	100

Duration – 20 weeks. (16 weeks of teaching learning hours for 672 clock hours of course duration)
 Elective Based Advanced Physiotherapeutics - II:-The regular clinical posting shall be done in the concerned elective and clinical training/ laboratory work shall be done in various special clinics.

Didactic – 176 hours, Clinical training -288 hours, Laboratory work (includes project / review of literature/ seminars/case Presentation, journal clubs etc.) – 160 hrs, Scientific enquiry/Research dissertation – 48 hours

Note: The subjects of III-Semester MPT shall include the following contents as classified for examination.

- **Elective Based Clinical Sciences –II** consist of Anatomy, Physiology, Pathophysiology, Etiology, Clinical Feature, Complications, Impairments, Clinical Assessment, Medical & Surgical Management, Prognosis, Investigations, Differential Diagnosis of the condition mentioned in the syllabus
- **Elective Based Physiotherapeutics-II** consist of Biomechanics, Patho- mechanics, Physiotherapy Assessment including Scales, outcome measure, Investigation, ICF, Physiotherapy Management of the condition mentioned in the syllabus Supported with Evidence
- **Elective Based Recent Advances-II** This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context. However due importance shall also be given for advances in Anatomy and Physiology.
- **Elective Based Advanced Physiotherapeutics-II** This paper shall focus on planning implementation and management of conditions mentioned in the syllabus with emphasis on empirical clinical learning and decision making.

COURSE OUTCOMES:**Musculoskeletal Sciences & Hand Conditions: Clinical Sciences II (MPT 8-401)**

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
401.1	Be able to identify, discuss & analyse, the Hand dysfunction in terms of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of hand physiotherapy.	PO 1, PO 2, PO 4
401.2	Be able to correlate neuromusculo skeletal system with clinical decision making	PO 1, PO 2, PO 9
401.3	Document patients with scale, out come measures and asses the progression	PO 1, PO 2, PO 3
401.4	Use Manual Therapy Technique/ approaches to treat patients with hand disorders in different age groups and be able to transfer skill and knowledge for training undergraduate students.	PO 1, PO 2, PO 3, PO 5
401.5	Be able to correlate neuromusculo skeletal system with clinical sign and symptoms along with Medical and Surgical Management	PO 1, PO 2

Musculoskeletal Sciences & Hand Conditions: Physiotherapeutics II (MPT 8-402)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
402.1	Be able to identify, discuss and correlate provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of hand physiotherapy.	PO 1, PO 2, PO 3
402.2	Be able to correlate neuromusculoskeletal system with clinical decision making	PO 1, PO 2
402.3	Document patients with scale, out come measures and asses the progression	PO 2, PO 3
402.4	Use Manual Therapy Technique/ approaches to treat patients with hand disorders in different age groups and be able to transfer skill and knowledge for training undergraduate students	PO 1, PO 2, PO 3, PO 5

Musculoskeletal Sciences & Hand Conditions: Recent Advances II (MPT 8-403)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
403.1	Be able to, discuss & analyse, the Musculo skeletal dysfunction in terms of updated recent developments in Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the Recent Trends in provisional diagnosis, routine radiological & Electro-physiological investigations with appropriate functional diagnosis and clinical reasoning based on evidence-based practice in the field of hand physiotherapy.	PO 1, PO 2, PO 9
403.2	Be able to correlate neuromusculo skeletal system with Updated methods of clinical decision making	PO 1, PO 2, PO 9

403.3	Document patients with current version of scale, out come measures and asses the progression	PO 1, PO 2, PO 3
403.4	Use of Recent and Updated Manual Therapy Technique/ approaches to treat patients with musculoskeletal disorders in different age groups and be able to transfer skill and knowledge for training undergraduate students.	PO 1, PO 2, PO 3, PO 5

Musculoskeletal Sciences & Hand Conditions: Advanced Physiotherapeutics II (MPT 8-404)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
404.1	assess, diagnose and manage musculoskeletal dysfunction for common musculoskeletal hand conditions	PO 2
404.2	document case histories in the prescribed format	PO 3
404.3	critically analyze different treatment and assessment procedures based on strong rationale and evidence for delivery of best patient care	PO 2, PO 3
404.4	discuss the recent management approaches for different musculoskeletal conditions and deliberate on best practice model for patient centered care	PO 1, PO 2, PO 7, PO 9

Dissertation (MPT -405)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
405.1	Critically appraise the scientific literature and formulate a research question	PO 4, PO 9
405.2	Search the relevant database and develop a rationale for research	PO 4, PO 9
405.3	Effectively document and disseminate research findings	PO 3, PO 4, PO 9
405.4	Facilitate collaborative relationships with other healthcare professionals	PO 6
405.5	Use ICT for research	PO 4
405.6	Develop innovative ways to promote evidence based clinical practice	PO 4, PO 6

COURSE CONTENTS:

Hand Conditions – Part A

1. Anatomy & Biomechanics

Wrist joint , Carpometacarpal joint, Metacarpo-Phalangeal Joint, Interphalangeal joint

Surface Anatomy

- Flexor Retinaculum and recurrent branches of median nerve.
- Motor functions of median, ulnar and radial nerve.
- Pulse points

Muscles

- Dorsal interossei, Palmar Interossei, Adductor Pollicis, Thenar Muscles, Hypothenar Muscles, Lumbricals

Soft tissue

- Carpal Tunnel & Structures, Palmar Aponeurosis, Palmaris Brevis, Anatomical Snuff Box
- Extensor Hoods, Tunnels and Synovial Sheath of flexor and extensor tendons

Lymphatic system.

Biomechanics & Kinesiology

- a) Biomechanics and Pathomechanics of hand
- b) Functions of hand
- c) Mode of Prehension
- d) Percussion contact gestures
- e) Positions of functions and of immobilization
- f) Motor & sensory testing and function of the upper limb
- g) Prehensile ability of hand

2] EXAMINATION

- Anatomy & biomechanics of hand and wrist., Assessment and evaluation of Hand & Wrist, Elbow, Shoulder, Brachial plexus, Cervical spine, Nerves, Architecture of hand, Assessment of strength, power, endurance, specific scales & outcome measures of pain, movement, ROM, flexibility, joint pliability, joint mobility (articular & Osteo), skin.

3] HAND TRAUMA

- Debridement, Contaminated wounds I & II, Amputation, Arthrodesis in trauma, Joint transfer, Mutilated hand, crushed hand, Pediatric mutilated hand, Nail bed, Fingertip
- Skin Grafts, Cross and reverse cross finger flaps
- Local regional flaps of the hand, Emergency free flaps
- Dorsal hand reconstruction, Soft tissue coverage-traumatized limb
- Thumb replant/immediate pollicization/immediate transfer
- Chemical, radiation, frostbite injuries
- Electrical burns, Injection injuries, Farm injuries, Microvascular techniques
- Recent advances in the management of replantation.

4] TENDONS

- Applied anatomy, physiology and biomechanics of tendons
- Scientific basis of flexor rehabilitation, Technical aspects of flexor repair
- History of flexor tendon repair
- Postoperative management flexor tendon injuries
- Extensor tendon injuries: Extensor tendon repair I & II: bracing/splinting/therapy
- Extrinsic, intrinsic tightness, quadregia, and lumbrical plus

5] BONE

- Anatomy/physiology of bone healing & cartilage, Kienbock/Preisers, Scapular and clavicular fractures
- Shoulder & Humerus (extrarticular) fractures, Elbow fractures,Forearm (Extrarticular) fractures, Distal radius fractures
- Distal radius malunion,Distal ulna fracture & dislocations DRUJ
- Scaphoid fractures, Scaphoid nonunions/malunions,Carpal dislocation./fractures (not scaphoid), CMC, MCPJ dislocation without fractures
- Metacarpal and P1 fractures, P2 fractures PIP fractures -dislocations
- P3 fractures & dislocations and bony mallet
- Phalangeal/metacarpal malunions, Carpal instability
- Principles and advantages of External Fixation in hand & wrist fractures.

6] ARTHROPLASTY

- Principles and physiotherapy management with recent advances for Shoulder, Elbow, Wrist

7] ARTHROSCOPY

- Rehabilitation of Shoulder, Elbow, Wrist with advancements.

8] MISCELLANEOUS

- History of hand surgery, Tourniquet, Transplantation of the hand, Elbow pathology (not neuropathy), Shoulder pathology/treatment, Trigger digits, Compartment syndromes, Vascular disorders, Sports injuries

Hand Conditions – Part B.

1] TUMORS:

- Benign & Malignant soft tissue tumors, Benign bone tumors, Malignant and metastasis, Radiology of bone tumors, Skin cancer, Melanoma in the hand, Ganglion cysts

2] INFECTIONS:

- Common infections (excluding tenosynovitis): Atypical hand infections: Tenosynovitis

3] DUPUYTREN'S:

- Anatomy and pathobiology & Treatment

4] NERVE COMPRESSIONS:

- Compressive neuropathies, Neuromicroanatomy, physiology Nerve blood flow, Sense and sensibility; Nerve grafting in acute/chronic injury; Vascularized nerve grafts, Carpal tunnel, Carpal tunnel: open vs. closed, Median compression outside the carpal tunnel, Radial compressive neuropathy, Ulnar compressive neuropathy, Decision making in nerve compression, History of nerve compression

5] NERVE PALSIES

- Ulnar nerve palsy, Radial nerve palsy, Median nerve palsy, Brachial plexus, Obstetrical palsy, Tendon transfers in tetraplegia, Tendon transfers in plexus, Combined nerve palsy, Cerebral palsy/stroke

6] NERVE:

- Nonsurgical neuropathies, Dystrophy/chronic regional pain, Painful neuromas/neurolysis, Pain Management

7] CONGENITAL:

- Overview, Genesis,
- Examination of the congenital hand, Congenital radiology, Transverse absence/symbrachydactyly/phocomelia, Radial club hand, Radial deficiencies, Camptodactyly, clinodactyly, Kirner's, delta phalanx, Syndactyly and Thumb clasped and windblown hand,
- Polydactyly, Macrodactyly, constriction band syndrome, Synostosis and brachydactyly

8] ARTHRITIS

- Medical treatment, Non RA arthritides
- Osteoarthritis wrist, including arthrodesis and arthroplasties
- Osteoarthritis digits (not CMC)
- RA general principles, Swan neck/boutonniere, CMC except arthroplasty
- CMC Jt. Arthroplasty

9] HAND THERAPY:

- Hand Therapy, Massage for hand, Prosthetics & Orthotics of upper limb, principles of tendon splinting.
- Clinical decision making skill in assessment and management of Hand conditions in details
- Recent advances and evidence based practice in Hand Rehabilitation
- Disability evaluation

REFERENCE BOOKS

1. Clinical Mechanics of hand (2nd edn); Paul Brand & Anne Hollister [Mobsy publications]
2. Hand rehabilitation: A practical guide (2nd edn); Gaylord L.Clark [Churchill Livingston]
3. Clinical pathways in therapeutic intervention upper extremities; David C.Saidoff & Andrew L.McDonough [Mobsy publications]
4. The Hand; Fundamental of therapy (2nd edn); Judith Boscheinen Morrin & Victoria Davey [Butter worth Heinemann]
5. Examination of hand & wrist; Tubiana [Mobsy publications]
6. Fundamentals of hand rehabilitation; Salter [Mobsy publications]
7. Concepts of hand rehabilitation [Mobsy publications]
8. \Rehabilitation of Hand; J.M. Hunter [C.V.Mobsy]
9. Hand splinting: Principles of designer fabrication Judith L.Wilton; W.B.Saunders
10. Structural and dynamic bases of surgery; Zancolli; J.B.Lippincott
11. Rehabilitation of Hand; Wynn Parry [Butter worth Heinemann]
12. Hand Rehabilitation: A Quick Reference Guide and Review Nancy Falkenstein (Author), Susan Weiss- Lessard [Mobsy publications]
13. Hand Secrets by Peter Jebson [Mobsy publications]
14. Hand and Upper Extremity Rehabilitation: A Practical Guide by Susan L. Burke [Mobsy publications]
15. Physical Agent Modalities:: Theory and Application for the Occupational Therapist by Alfred Bracciano [Mobsy publications]
16. Splinting the Hand and Upper Extremity: Principles and Process by MaryLynn A Jacobs [Mobsy publications]
17. Hand and Upper Extremity Splinting: Principles and Methods by Elaine Ewing Fess [Mobsy publications]
18. Hunter, Mackin & Callahan's Rehabilitation of the Hand and Upper Extremity (2 Volume Set) by Evelyn J. Mackin [Mobsy publications]
19. Hand rehabilitation – Christine - Churchill Livingstone, London 1995.

Journals

1. Journal of hand therapy.
2. Journal of hand surgery.
3. Journal of bone & joint surgery.
4. Achieves of physical medicine & rehabilitation.
5. Occupational therapy & rehabilitation.
6. American journal of hand surgery

REFERENCE BOOKS - GENERAL

1. Wall P.D. and Melzack R. (eds) Textbook of pain 2nd edn Churchill Livingstone 1989.
 2. Knight, K. L. Cryotherapy: Theory, technique and Physiology, Chattanooga, 1985.
 3. Melzack R. and Wall, P.D. The Challenge of Pain, 2nd edn. Penguin 1988.
 4. Michlovitz S.L. Thermal Agents in Rehabilitation, Davis 1988.
 5. Currier, D.P. Elements of Research in Physical Therapy, 3rd edn, Williams and Wilkins, 1990.
 6. Hicks, C. M. Practical Research Methods for Physiotherapists, Churchill, Livingstone, 1988.
 7. Lister, M. J. Writing manuscripts in a scientific journal. Physiotherapy Practice 5:147-155. 1989.
 8. Polgar, S. and Thomas, S.A. Introduction to research in the Health Science. Churchill, Livingstone, 1988.
 9. Shilling, L.M. Twenty tips for conquering writing anxiety. Physical Therapy 65:1113-1115.
 10. Simmonds, D. and Brogg. G. Charts and Graphs. Guidelines for visual Presentation of Statistical Data in the Life Sciences MTP Press 1980.
 11. Currier, D. P. Elements of Research in Physical Therapy 3rd edn. Williams and Wilkins 1990.
 12. Sproull, N.I. Handbook of Research Methods, Scarecrow Press, 1988.
 13. Research for physiotherapists – Hicks C. Churchill Livingstone, London, 1988.
 14. Introduction to Research in Health Science – Polgar S. Churchill Livingstone, London, 1988.
 15. Elements of Research in physical Therapy- Currier D. P. Williams & Wilkins, Baltimore, 1990, Ed. 3.
 16. Hand book of Research Method – Sproull, Scarecrow Press, 1998.
 17. Physical Therapy Research – Domholdt, W.B. Saunders, Philadelphia, 1993.
 18. Public power & Administration – Wilenski, Hale & Iremonger, 1986.
 19. Physical Therapy Administration & Management- Hickik Robert J.
 20. Management Principles for physiotherapists – Nosse Lorry J.
 21. Physical rehabilitation: assessment and treatment- O Sullivan, F.A. Davis, Philadelphia 1994.
 22. Yoga Therapy- Kunalayananda Swami and Vinekar, popular prakashan, Bombay, 1992.
 23. Gait analysis – Perry J. Black Thorofare, New Jersey, 1992.
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Scheme of Examination for MPT IV Semester

Evaluation Pattern					
MPT 8- 401		Musculoskeletal Sciences & Hand Conditions: Clinical Sciences II			
MPT 8- 402		Musculoskeletal Sciences & Hand Conditions: Physiotherapeutics II			
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
20	80	100	--	--	--

Evaluation Pattern					
MPT 8- 403		Musculoskeletal Sciences & Hand Conditions: Recent Advances II			
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
10	40	50	--	--	--

Preliminary Examination / University (Final) Examination

Written Examination (For 80 marks Part A & Part B, for 40 Marks only Part A)

Part A	Q.1 LAQ (1 X 15 Marks)	= 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks
Part B	Q.1 LAQ (1 X 15 Marks)	= 15 marks
	Q.2 SAQ (any 1 out of 2 X 10 Marks)	= 10 Marks
	Q.3 Short Notes (Any 3 out of 4) 3 X 5 marks	= 15marks

Evaluation Pattern					
Course code : MPT 8- 404			Musculoskeletal Sciences & Hand Conditions: Advanced Physiotherapeutics-II		
Written		Total	Practical		Total
IA	Final exam		IA	Final exam	
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IA= 20 marks shall include completion of the log book/ work diary with graded responsibility, continuous appraisals, attendance % and internal exam marks simplified for 20 marks at the end of every semester.

Preliminary Examination / University (Final) Examination

❖ Practical Examination (80 marks)

Semester – IV

Practical

- ❖ Clinical case (1) elective Long Case – 60 marks
- ❖ Clinical case (2) elective Short Case – 20 marks

Dissertation at the IV semester:

- ❖ Internal evaluation as per the process & execution: 50 marks
- ❖ Dissertation evaluation & Presentation: 50 marks (external)

Evaluation Pattern					
Course code : MPT 8 - 405			Dissertation		
Written		Total	Dissertation Presentation/ Viva		Total
IA	Final exam		IA	Final exam	
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