Master of Physiotherapy – MPT

Two Year Degree Course

REGULATION & CURRICULUM

2018

CHOICE BASED CREDIT SYSTEM

YENEPOYA
(DEEMED TO BE UNIVERSITY)
Recognized under Sec 3(A) of the UGC Act 1956

Yenepoya (Deemed to be University)
University Road, Deralakatte
Mangalore - 575018

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The logo of the University

The Yenepoya (Deemed to be University) emblem reflects the rich ideals and the core values upon which the very foundations have been built. The colours on the shield are a salutation to the three key facets of the University - the mentor, the materials and the medium - through which this increase takes place, and are also representative of them.

Green embodies life and the giver thereof. Green is the color of paradise, the ultimate destination for all knowledge seekers. Just as the azure sky, wraps the Earth, blue symbolizes protection. Blue is synonymous with scholastic achievements and the success the institution has to its credit.

And last but not the least, grey symbolizes stability and dependability. It stands for the staunch guiding (governing) principles and discipline that our students and hence our institutions are known for.

The Shield, symbolic of a reputed seat of learning is adorned with (emblazoned with) the motto "Rabbi Zidni 'Ilma" on the ribbon below. The words in Arabic, taken from the Holy Quran, literally translate into the meaningful phrase - "Lord, increase me in knowledge" - indeed the very frame, the life plasma and the purpose of the institution, all its faculties and facilities.

Vision

To provide access to quality higher education, ensuring equity, to create a vibrant knowledge capital and to create inspiring leaders of tomorrow who can take this country to the forefront of the developed nations.

Mission

- To achieve academic excellence and global competencies among students.
- To create an environment for the generation of new knowledge through meaningful research, adopting latest methods of pedagogy and incorporating modern principles of academics integrated with highest ethical standards.
- To extend the knowledge acquired and new knowledge generated for the development of the community.

Objectives

- To be at the forefront of innovation by consistently up dating curriculum, course content and practices enabling the students to be competent and well versed in the respective field of study.
- Provide use of cutting edge technology and resources available to ensure effective transaction of the course content.
- To complement classroom learning with interactive learning systems and hands on learning by creating a collaborative Industry University Interface.
- Provide freedom to continuously evaluate the evaluation systems and be at the forefront of innovation to enable and incorporate best practices.
- To promote research in the frontier areas of the subject by encouraging the faculty and students by inculcating ethical principles in research.
- To facilitate knowledge exchange by organizing seminars, symposia, workshops, lectures and other such activities.
- To facilitate communication and collaboration with academia, industry and society.
- To create advanced centers of research by developing state-of-the art facilities and meaningful collaborations.
- To sensitize the students towards the social responsibilities by incorporating value education system.
- To extend the university services to the community for building a healthy, empowered and sustainable society.
- To build human resources and develop technologies to respond to the professional needs of the society.
- To take up extension and outreach programs to serve the community.

Master of Physiotherapy (MPT)

The Master of Physiotherapy is a 2-year fulltime program with 4 semesters (18 weeks per semester) through Choice Based Credit System 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.

CHOICE BASED CREDIT SYSTEM

1. Preamble

The University Grants Commission, New Delhi, has directed all Universities in the country to implement the CBCS semester scheme in both under graduate and post graduate programmes to enhance academic standards and quality in higher education through innovation and improvements in curriculum, teaching-learning process and examination and evaluation systems. Choice Based Credit System is a flexible system of learning. It enables the students choose electives from a wide range of elective courses offered by the other University Departments, adopt an inter-disciplinary and intra-disciplinary approach in learning, make best use of the available expertise of the faculty across the departments or disciplines and has an inbuilt evaluation system to assess the analytical and creativity skills of students in addition to the conventional domain knowledge assessment pattern.

2. Definitions of Key Words

i. **Academic Year:** Two consecutive (one odd + one even) semesters constitute one academic year.

ii. **Choice Based Credit System**: The CBCS provides choice for students to select from the prescribed courses (core, elective or minor or soft skill courses).

iii. **Course:** Usually referred to, as ‘papers‟ is a component of a programme. The courses shall define learning objectives and learning outcomes. A course shall comprise lectures/ tutorials/ laboratory work/ field work/ outreach activities/ project work/ vocational training/viva/ seminars/ term papers/assignments/ presentations/ self-study etc. or a combination of some of these.

iv. **Credits:** Credit defines the quantum of contents/syllabus prescribed for a course and determines the number of hours of instruction required per week. Thus, normally in each of the courses, credits will be assigned on the basis of the number of lectures/tutorial laboratory work and other forms of learning required, to complete the course contents in a 16-20 week schedule: One credit =1 hour of lecture per week/

two hours of Laboratory or practical/three hours of clinical rotation, field work/posting. All courses need not carry the same credits.

v. **Grade Point**: It is a numerical weight allotted to each letter grade on a 10-point scale.

vi. **Credit Point**: It is the product of grade point and number of credits for a course.

vii. **Cumulative Grade Point Average (CGPA)**: It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.

viii. **Letter Grade:** It is an index of the performance of students in a said course. Grades are denoted by letters: A+, A, B+, B, C, P, F.

ix. **Semester Grade Point Average (SGPA):** It is a measure of performance of work done in a semester. It is ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.

x. **Transcript or Grade Card or Certificate:** Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester.

3. Semester System and Choice Based Credit System

The semester system accelerates the teaching-learning process. The credit based semester system provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching. The choice based credit system provides a cafeteria ‘type approach in which the students can take courses of their choice, undergo additional courses and acquire more than the required credits, and adopt an interdisciplinary approach to learning**.**

4. Semesters

An academic year shall consist of two semesters;

Odd Semester 1^{st}& 3^{rd}	July/August to December/January
Even semester 2^{nd}& 4^{th}	January/February to June/July

5. Types of Courses

i. **Core course**: a course that should compulsorily be studied by a candidate as a

requirement is termed as a core course this can be hard core or soft core.

ii. **Open Elective**: Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope or which enables an exposure to some other discipline or subject or domain or nurtures the candidates proficiency skill.

- The open elective courses shall be offered in the second and third semesters only.
- The list of open elective courses offered shall be displayed in the website.
- A student shall not take the courses offered by the department in which she/he is enrolled.
- Registration for the open elective courses shall be at least one week prior to the commencement of the course with the CBCS coordinator.

iii. **Assigning Credit Hours per Course:** While there is flexibility for the departments in allocation of credits to various courses offered, the general formula shall be:

- All core course shall be restricted to a maximum of 4 credits
- All open electives shall be restricted to a maximum of 3 credits
- Projects shall be restricted to a maximum of 25 credits

The credits assigned to the course are indicated as L: T: P format. For example, for a 4 credit course format could be: 4:0:0 or 1:2:1 or 3:1:0 or 0:0:4 etc

6. Assigning Total Credits for a Programme

The UGC, in its notification No.F.1-1/2015 **(Sec.)** dated 10/4/15 has provided a set of "Model curricula and syllabi for CBCS programmes. In conformation with this notification, at YENEPOYA (Deemed to be University), for PG programs with a study period of 4 semesters, the total credits assigned are minimum 90 credits to a maximum of 110 credits.

7. CBCS Programmes Coding System

The coding system shall have the following pattern:

First letter describing the Faculty name, followed by level of programme (UG-U; PG-P), two letters representing the programme name and numbers for the courses.

Details are given in the table below:

CBCS-Program List and codes

FACULTY AND PROGRAM CODE						
Sl. No.	**Faculty Code**	**Program level**	**Degree Name**	**Program Name**	**Programme Code**	**Course Code**
Faculty of Allied Health Sciences [A]						
1.	Allied Health Science – A Medicine -M	PG – P	MPT	Physiotherapy	APPT	Course code shall have prefix of respective programme code followed by numbers 1st SEM: 101 - 2nd SEM: 201- 3rd SEM: 301- 4th SEM: 401-
2			MSW	Social Works	APSW	
3.			M.Sc.	Bioscience	APBS	
4.			MHA	Hospital Administration	MPHA	
5.			MPH	Public Health	MPPH	

8. Eligibility for admission to MPT

Candidates who have passed B.Sc. (PT) or BPT degree from institutions where the mode of study is a full time program, with minimum 3½ years duration from this university or any other university in India or abroad as equivalent with not less than 50% of marks in aggregate and have completed 6 months of compulsory rotating internship in Physiotherapy Colleges recognized by Yenepoya University- Karnataka are eligible.

OR

Candidates who have passed BPT through Bridge Course or through Lateral Entry after completing their Diploma in Physiotherapy from institutions where the mode of study is a full time program from this university or any other university in India or abroad as equivalent with not less than 50% of marks in aggregate and have completed 6 months of compulsory rotating internship in Physiotherapy Colleges recognized by Yenepoya University - Karnataka are eligible.

9. Obtaining Eligibility Certificate

No candidate other than candidate passed the examinations conducted by Yenepoya University shall be admitted for the postgraduate degree course unless the candidate has obtained and produced the eligibility certificate issued by Yenepoya University. Karnataka. The candidate has to make the application to the university with the following documents along with the prescribed fee

1. B.P.T. or B.Sc. (PT) provisional / degree certificate issued by the respective university.
2. Marks cards of all the university examinations passed.
3. Completion of internship certificate.
4. Proof of SC/ST or category - I as the case may be.

Candidate should obtain the eligibility certificate before the last date for admission as notified by the university.

A candidate who has been admitted to postgraduate course should register his/her name in the university within a month of admission after paying the registration fee.

10: Medium of instruction

English shall be the medium of instruction for the subjects of study and for the examination of the MPT course.

11. Method of training

The training of postgraduate for MPT degree shall be on a full time pattern with graded responsibilities in the management and treatment of patients entrusted to his / her care. The participation of all the 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 meetings & CME. Every candidate should be required to participate in the teaching and training programs of undergraduate students. Training should include involvement in laboratory experimental work and research studies.

12. Monitoring Process of studies (Internal)

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring 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.

Work diary: Every candidate shall maintain a work diary and record his/her participation in the training programmers conducted by the department such as journal reviews, seminars etc.

Special mention may be made of the presentations by the candidate as well as details of clinical of 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 and presented in the university examination.

Periodic tests: The College may conduct periodic tests. 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 Head of Department and sent to the University, when called for.

13. Conference rules:

PGs who present papers at conferences will be entitled to take leave which will be considered as "on duty".

14. Clinics

- The PG must enter the details of equipment's taken to the ward in the appropriate register. He /She is also responsible for returning it back to the department.

- PGs may be permitted by the unit in-charge to attend the rounds conducted by the other departments and while attending the rounds, student must identify himself/herself to the unit head, who is conducting the rounds.

• Unit in-charges of other areas may ask the PG students to help them, once their assigned clinical work in the posted unit is over.

14.1. Clinical responsibilities

- The postgraduate responsibilities include patient care, clinical supervision of undergraduate students. Students may be asked to co-ordinate undergraduate Sessional examinations.
- PG students are not permitted to assign patients to interns and undergraduate students without the permission from unit in-charge. If the unit in-charge or faculty is not available, then the PG student will have to take the responsibility for smooth running of the clinical unit he/she is posted in. Any problems arising at such junctures must be informed and discussed immediately with the faculty available or clinical in-charge or Principal without fail.

15. Attendance

i. A candidate, who has less than 80% attendance,(Theory/Practical/Clinical) shall not be permitted to appear for the Semester end- examination in the course in which the short fall exists.

ii. The HOD/course coordinator through the Dean of Faculties shall announce the names of the students who will not be eligible to take the Semester End-examinations in the various courses and send a copy of the same to the COE's office. Registrations of such students for those courses shall be treated as cancelled.

16. Scheme of examination and Assessment of a Course

Evaluation of a course shall be done on a continuous basis followed by one semester end university examination (SEE) for each course.

The components of CIA may include sessional tests, Seminar / Journal Cub /other related activities, Review/Assignment/Social involvement and other activities relevant to the course.

i. The CIA shall be 40% and SEE shall be 60%.

ii. There shall be no minimum marks for CIA, but the minimum marks for SEE shall be 40% and in aggregate it shall be 50% for pass per course

iii. There shall be examinations at the end of each semester ordinarily during December/January for odd semesters and during June/July for even semesters

iv. The SEE duration shall be three hours.

v. The question paper pattern shall be decided by the respective BoS.

vi. There shall be a supplementary examination for the failed candidates at a specified time of the academic year.

17. Valuation of answer scripts

i. Each theory examination shall be evaluated by one internal and one external examiner. There shall be a third evaluation if the difference is more than 15%.

ii. Practical examination shall be jointly conducted and evaluated by one internal examiner and one external examiner.

18. Evaluation of Dissertation

- 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 results of such a work shall be submitted in the form of dissertation. The topic of research shall be from the area of the elective paper.
- The dissertation is aimed to train a graduate 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 shall submit to the Controller of Examination of university in the prescribed proforma a synopsis containing particulars of proposed dissertation work within 6 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. Such synopsis will be reviewed and the university will register the dissertation topic
- No change in the dissertation topic or guide shall be made without prior approval of the university. Guide will be a facilitator, advisor of the concept and hold responsible in correctly directing the candidate in the methodology and not responsible for the outcome and results.

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. References
9. Appendices

The written text of dissertation shall not be less than 50 pages and shall not exceed 100 pages excluding references, tables, questionnaires and other annexure. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69" and bound properly. Spiral binding should be avoided. The guide, head of the department and head of the institution shall certify the dissertation. Four copies of dissertation thus prepared shall be submitted to the Registrar, three months before final examination on or before the dates notified by the university. The student who fails to do so will not be allowed to take SEE. The examiners appointed by the university shall value the dissertation. Approval of dissertation work is also an essential precondition for a candidate to appear in the university examination. The dissertation shall be valued by the evaluator (Examiners) apart from the guide out of which one is external outside the university and one internal from other college of the same university. Any one-evaluator acceptance other than the guide will be considered as a precondition for eligibility to take up the examination.

Publication/Presentation

Before the final exam Students shall have either published or submitted an article to an indexed Journal or one Oral/Poster Presentation in a conference, from the dissertation work.

19. GUIDE

The academic qualification and teaching experience required for recognition by this university is as per the criteria for recognition of MPT teachers for guides.

19.1. Criteria for recognition of MPT teacher / guide

1. M.Sc. (PT) /MPT with three years teaching experience working on a full time position at a recognized institution.
2. The age of guide / teacher shall not exceed 60 years.
3. The guide student ratio should be 1:5

19.2. Change of Guide

In the event of registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the university.

20. Letter Grades and Grade Points

i. The results of successful candidates at the end of each semester shall be declared in terms of Grade Point Average (GPA) and letter grades as given below shall be followed:

Letter Grade	Grade Point	Range of marks
A+(Outstanding)	10	95-100
A (Excellent)	9	85-94
B+ (Very Good)	8	75-84
B (Good)	7	65-74
C (Average)	6	55-64
P (pass)	5	50-54
F (Fail)	<5	Less than 50

20.1. Letter grade for Cumulative Grade point average (CGPA)

The results at the end of the fourth semester shall be classified on the basis of the Cumulative Grade Point Average (CGPA) obtained in all the four semesters and the corresponding overall letter grade. The letter grade as described below shall be adopted.

CGPA Range	Letter Grade
9.0-10.0	A+(Outstanding)
8.0 – 8.99	A (Excellent)
7.0 - 7.99	B+ (Very Good)
6.0 - 6.99	B (Good)

5.5 - 5.99	C (Average)
5.0 – 5.49	P (pass)
<5.0	F (Fail)

11. Carry over

i. A candidate who passes the semester examinations in parts is eligible for only CGPA and letter Grade but not for ranking.

ii. Carry over shall be allowed for candidate who failed in **not more than two** courses in a semester.

iii. The results of the candidates who have passed the fourth semester examination but not passed the lower semester examinations shall be declared as NCL (Not Completed Lower semester examinations). Such candidates shall be eligible for the degree only after completion of all the lower semester examinations.

iv. A Candidate who fails in any of the project work/Project Report/ dissertation shall reappear for the same within the nearest semester end examination schedule.

v. Re-Entry after Break of the study

a. Students admitted to a program abstaining for more than 3 months must seek readmission into the appropriate semester.
b. The student shall follow the syllabus in vogue (currently approved/is being followed) for the program
c. All re admissions of students are subject to the approval of the Vice Chancellor.

22. Maximum period for completion of the Programme

A candidate shall complete the four semesters (two years) programme within five years from the date of admission.

PROGRAMME OUTCOME

1. To prepare a postgraduate student towards professional autonomy, promote community health through his/her professional practice by referral as well as first contact mode using evidence based practices.

2. To impart research basis to validate techniques during professional practice towards quality care of health care delivery.

3. To develop appropriate professional relationships in multi-disciplinary set up to provide total care of the name.

4. To update the students with recent advances in the professional practice and provide them opportunities to think, reason and practice towards excellent patients care.

5. To achieve skills in patients handling and professional teaching to other subordinates partly.

6. Inculcate the various skills in patient care handling including communication skills, confidence, clinical reasoning, counseling and research. .

7. Inculcate the quality of patient care handling with ethical values following the bioethical principles, and able to provide rational justification for ethical decisions

8. To train the graduates to execute professional practice through professional ethical code.

NOMENCLATURE

The course will be referred to as a Master of Physiotherapy (MPT) with their elective as given below.

Sl.No.	Semester III Specialty Branch (choose any one)	Course code and *Elective Semester IV		NAME OF THE DEGREE AWARDED
1	APPT 302 **Orthopaedics**	APPT 401 **Sports Physiotherapy**	**ANY ONE**	MPT in Orthopaedics and Sports Physiotherapy.
		APPT 402 Manual therapy		MPT in Orthopaedics and Manual Therapy
		APPT 403 **Hand rehabilitation**		MPT in Orthopaedics and Hand rehabilitation
2	APPT 325 **Neurosciences**	APPT 425 **Advanced Physiotherapy in Neurosciences**	**NO CHOICE**	MPT in Neurosciences
3	APPT 351 **Cardiovascular and Pulmonary sciences**	APPT 451 **Critical care**	**ANY ONE**	MPT in Cardio-Pulmonary sciences and Critical Care
		APPT 452 **Health promotion and fitness**		MPT in Cardio -Pulmonary sciences and Health promotion &fitness
4	APPT 375 **Paediatrics**	APPT 475 **Advanced Paediatric Physiotherapy**	**NO CHOICE**	MPT in Paediatrics

Student shall choose any one if the 4 specialties offered (Sl.No.1-4) from the 2nd column during III semester and any one from their corresponding specialties row in 3rd column during IV semester.

Example: If a student has chosen Orthopaedics as specialty from the 2nd column, he/she will have 3 elective options, and if he/she chosen Sports Physiotherapy the degree awarded will be MPT in Orthopaedics and Sports Physiotherapy.

Student has to choose his/her specialty at the time of admission. Once registered will not be changed.

PROGRAMME: MASTER OF PHYSIOTHERAPY

DISTRIBUTION OF TEACHING LEARNING ACTIVITIES

SEMESTER I (0-6 months)

Sl. No	Type & Course code	Course Title	Credits per week			Hours per Semester			Credits	Total
			L	T	P	L/T	P	Total		
1	Hard core APPT 101	**Part A** -Research methodology& Ethics **Part B**- Biostatistics	**4**	**0**	**0**	**60**	**-**	**60**	**4-0-0**	**4**
2	Hard core APPT 102	Biomechanics, Kinesiology & Pathomechanics - I	**4**	**0**	**0**	**60**	**-**	**60**	**4-0-0**	**4**
3	Hardcore APPT 103 A*	Physical and functional diagnosis **(Theory)**	**2**	**0**	**0**	**30**	**-**	**60**	**2-0-1**	**3**
		(Practical)	**0**	**0**	**2**	**-**	**30**			
4	Soft core APPT 104	Principles of Physiotherapy practice, Teaching methodology & Evidence Based Practice	**4**	**0**	**0**	**60**	**-**	**60**	**4-0-0**	**4**
5	Rotatory clinical training		**-**	**-**	**15**	**-**	**270**	**270**		**5**
6	Research work & Submission of synopsis		**-**	**-**	**3**	**-**	**54**	**54**		**2**
7	Case presentations/ Journal club/ Supervised UG teaching		**-**	**-**	**3**	**-**	**54**	**54**		**3**
Total			**14**	**0**	**23**	**210**	**408**	**618**		**25**

SEMESTER II (7-12 months)

Sl. No	Type & Course code	Course Title	Credits per week			Hours per Semester			Credits	Total
			L	T	P	L/T	P	Total		
1	Open elective APPT 201	Health & Fitness	**3**	**0**	**0**	**45**	**0**	**45**	**3-0-0**	**3**
2	Hard core APPT 202	Biomechanics, Kinesiology & Pathomechanics – II	**4**	**0**	**0**	**60**	**0**	**60**	**4-0-0**	**4**
3	Hardcore APPT 203 B*	Physical rehabilitation **Theory**	**2**	**0**	**0**	**30**	**-**	**60**	**2-0-1**	**3**
		Practical	**0**	**0**	**2**	**0**	**30**			
4	Hard core APPT 204	Exercise Physiology & Exercise prescription	**4**	**0**	**0**	**60**	**0**	**60**	**4-0-0**	**4**
5	Hard core APPT 205	Electro diagnosis & Physical modalities	**4**	**0**	**0**	**60**	**0**	**60**	**4-0-0**	**4**
6	Rotatory clinical training		**-**	**-**	**15**	**-**	**270**	**270**	**-**	**5**
7	Case presentations/ Journal club/ Supervised UG teaching		**-**	**-**	**3**	**-**	**57**	**57**	**-**	**3**
Total			**17**	**-**	**20**	**255**	**357**	**612**	**-**	**26**

SEMESTER III (13-18 months)

Sl.No.	Specialty Branch (Generic Elective)	Program name	*Specialty paper Semester III
1	MPT in Orthopaedics	MPT in Orthopaedics and Sports	**APPT 302** General Physiotherapy in orthopaedics conditions **Common paper for all Orthopaedic specialties.**
		MPT in Orthopaedics and Manual Therapy	
		MPT in Orthopaedics and Hand rehabilitation	
2	MPT in Neurosciences	MPT in Neurosciences	**APPT 325** General Physiotherapy in Neuro sciences
3	MPT in Cardio Pulmonary sciences	MPT in Cardio-Pulmonary sciences and Critical Care	**APPT 351** Physiotherapy in Cardio Pulmonary sciences **Common paper for all Cardio Pulmonary Sciences specialties.**
		MPT in Cardio -Pulmonary sciences and Health promotion &fitness	
4	MPT in Paediatrics	MPT in Paediatrics	APPT 375 General Paediatric Physiotherapy

***Student shall choose one specialty branch (Sl. no.1 to 4)**

Sl. No	Type & Course code	Course Title	Credits per week			Hours per Semester			Credits	Total
			L	T	P	L/T	P	Total		
1	Open elective APPT301	Women's health in Pregnancy	**3**	**0**	**0**	**45**	**-**	**45**	**3-0-0**	**3**
2	**Hard core** To choose any one paper as per speciality course. APPT302 or APPT325 or APPT 351or APPT 375 **C***	**Speciality paper (Theory)**	**4**	**0**	**0**	**60**	**-**	**120**	**4-0-4**	**8**
		Speciality paper (Practical)	**0**	**0**	**4**	**-**	**60**			
3	Rotatory clinical training (Speciality area)		**-**	**-**	**15**	**-**	**270**	**270**	**-**	**6**
4	Research work		**-**	**-**	**8**	**-**	**144**	**144**	**-**	**4**
5	Case presentations/ Journal club/ Supervised UG teaching		**-**	**-**	**3**	**-**	**54**	**54**	**-**	**3**
		Total	**7**	**-**	**28**	**105**	**528**	**633**	**-**	**24**

SEMESTER IV (19-24 months)

Sl.No.	Specialty Branch (Generic Elective)	Course code and *Elective Semester IV		NAME OF THE DEGREE AWARDED
1	Orthopaedics (Any one of three electives to be chosen)	APPT 401 Sports Physiotherapy	**ANY ONE**	MPT in Orthopaedics and Sports
		APPT 402 Manual therapy		MPT in Orthopaedics and Manual Therapy
		APPT 403 Hand rehabilitation		MPT in Orthopaedics and Hand rehabilitation
2	Neurosciences	APPT 425 Advanced Physiotherapy in Neurosciences	**NO CHOICE**	MPT in Neurosciences
3	Cardio Pulmonary sciences (Any one of two electives to be chosen)	APPT 451 Critical care	**ANY ONE**	MPT in Cardio-Pulmonary sciences and Critical Care
		APPT 452 Health promotion and fitness		MPT in Cardio - Pulmonary sciences and Health promotion &fitness
4	Paediatrics	APPT 475 Advanced Paediatric Physiotherapy	**NO CHOICE**	MPT in Paediatrics

***Student shall any one elective under the specialty**

Sl. No	Type & Course code	Course Title	Credits per week			Hours per Semester			Credits	Total
			L	T	P	L/T	P	Total		
1	Soft core To choose one APPT(401,402, 403, 425, 451, 452, 475)	Elective D* (Theory)	**4**	**0**	**0**	**60**	**0**	**120**	**4-0-4**	**8**
		Elective D* (Practical)	**0**	**0**	**4**	**0**	**60**			
2	Hard Core APPT 485	*Research work (Dissertation)	**-**	**-**	**-**	**-**	**-**	**60**	**-**	**6**
3	Soft core APPT 486	Ergonomics	**3**	**-**	**1**	**45**	**15**	**60**	**3-0-1**	**4**
3	Rotatory clinical training (Specific to elective)		**-**	**-**	**18**	**-**	**324**	**324**		**6**
4	Case presentations/ Journal club/ Supervised UG teaching		**-**	**-**	**3**	**-**	**54**	**54**		**3**
		Total	**7**		**30**	**105**	**513**	**618**		**27**

***Research work (Dissertation) for the whole programme-** Total **(2+0+4+6) (54+144+60=258 hrs)**

Scheme of examination- Semester-I

Course title: Part A -Research methodology& Ethics Part B- Biostatistics Hard core APPT 101							**Pass % (a+b=50)**
Sl. No	**Evaluation**						
	*CIA		* SEE			**Total (a+c)**	
	W (a)	P(b)	W(c)	P (d)	Viva (e)		
1	40	-	60	-	-	100	50

Course title: **Biomechanics, Kinesiology & Pathomechanics - I** Hard core APPT 102							**Pass % (a+b=50)**
Sl. No	**Evaluation**						
	***CIA**		***SEE**			**Total (a+b)**	
	W (a)	P(b)	W(c)	P (d)	Viva (e)		
1	40	-	60	-	-	100	50

Course title: Physical and functional diagnosis (Theory & Practical) **A***						
Hard core APPT 103						
Sl. No	Evaluation					
	*CIA		*SEE			Total
	W (a)	P(b)	W(c)	P (d)	Viva (e)	
1	40	40	60	40	20	Theory-(a+c=100) Practical(b+d+e=100)
Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50% .i.e 100 in total.						

Course title: Principles of Physiotherapy practice, Teaching methodology & Evidence Based Practice APPT 104							**Pass % (a+c=50)**
Sl. No	Evaluation						
	*CIA		*SEE			Total (a+c)	
	W (a)	P(b)	W(c)	P (d)	Viva (e)		
1	40	-	60	-	-	100	50

CIA-cumulative Internal Assessment (College examination)

SEE- Semester End Examination (University Examination)

Scheme of examination- Semester- II

Course title: Open elective -Health & Fitness APPT 201							**Pass % (a+c=50)**
Sl. No	**Evaluation**						
	*CIA		* SEE			**Total (a+c)**	
	W (a)	P(b)	W(c)	P (d)	P(e)		
1	40	-	60	40	-	100	50

Course title: Biomechanics, Kinesiology & Pathomechanics – II & Ergonomics APPT 202 -Hard core							**Pass % (a+c=50)**
Sl. No	**Evaluation**						
	*CIA		* SEE			**Total (a+c)**	
	W (a)	P(b)	W(c)	P (d)	Viva(e)		
1	40	-	60	--	-	100	50

Course title: Physical Rehabilitation (Theory & Practical) **B*** APPT 203 -Hard core						
Sl. No	Evaluation					
	*CIA		*SEE			Total
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	Theory-(a+c=100) Practical(b+d+e=100) Total=200
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

Course title: Exercise Physiology & Exercise prescription **APPT 204 Hard core**							**Pass % (a+c=50)**
Sl. No	Evaluation						
	*CIA		* SEE			**Total (a+c)**	
	W (a)	P(b)	W(c)	P(d)	Viva (e)		
1	40	-	60	40	-	100	50

Course title: Electro diagnosis & Physical modalities **APPT 205 Hard core**							**Pass % (a+c=50)**
Sl. No	Evaluation						
	*CIA		* SEE			**Total (a+c)** W(c)	
	W (a)	P(b)	W(c)	P(d)	Viva (e)		
1	40	-	60	40	-	100	40

CIA-cumulative Internal Assessment (College examination)
SEE- Semester End Examination (University Examination)

Scheme of examination- Semester-III

Course title: Open elective - Women's health in Pregnancy APPT 301							**Pass % (a+c=50)**
Sl. No	**Evaluation**						
	*CIA		*SEE			**Total (a+b)**	
	W (a)	P(b)	W(c)	P(d)	Viva (e)		
1	40	-	60	-	-	100	50

Course title: **Speciality paper** (Theory & Practical) **C*** APPT 302,325,351 &375 -Hard core						
Sl. No	Evaluation					
	*CIA		*SEE			Total
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	Theory-(a+c=100) Practical(b+d+e=100) Total=200
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

CIA-cumulative Internal Assessment (College examination)
SEE- Semester End Examination (University Examination)

Scheme of examination- Semester IV

Course title: Elective (Theory & Practical) **D*** MPT 401,402,403,425, 451,452,475 -Soft core						
Sl. No	Evaluation					
	*CIA		*SEE			Total (a+b+c+d+e)
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	(a+c)=100 (b+d+e)=100
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

Course title: Dissertation **APPT 485** Hard core								
Sl. No	**Type**	Evaluation						Pass % (b+c+d+e)=50)
		*CIA		*SEE			Total (b+c+d+e)	
		W(a)	P (b)	Book (c)	Presentation (d)	Viva (e)		
1	Hard core	-	20	20	30	30	100	50

Course title: Ergonomics Soft core APPT 486							**Pass % (a+c=50)**
Sl. No	Evaluation						
	*CIA		*SEE			Total (a+c)	
	W (a)	P(b)	W(c)	P(d)	Viva (e)		
1	40	-	60	-	-	100	50

CIA-cumulative Internal Assessment (College examination)
SEE- Semester End Examination (University Examination)

CBCS SCHEME OF PAPERS – (MPT)

Sem.	Hard core			Soft core			Open electives			Total	Total semester credit
	Course	Credits	Total	Course	Credits	Total	course	Credits	Total		
I	2 1	4 3	11	1	4	**4**	-	-	-	15	**25**
II	3 1	4 3	12 3	-	-	-	1	3	**3**	18	**26**
III	2	4	8	-	-	-	1	3	**3**	11	**24**
IV	-	-	-	3	4	**12**	-	-	-	12	**27**
Research (Sem I, III. IV)		**(2+4+6)**	**12**	-	-	-	-	-	-	**12**	-
Clinical (Sem I - IV)		**(5+5+6+6)**	**22**	-	-	-	-	-	-	**22**	-
JC/CP/SUgT (Sem I-IV) -		-	-	-	**(3+3+3+3)**	**12**	-	-	-	**12**	-
Total		-	**68**	-	-	**28**	-	-	**6**	**102**	**102**
		-	**66.67 %**	-	-	**27.45 %**	-	-	**5.9 %**	**100**	**102**

Internal assessment format (distribution of marks)

Subject code: APPT101, 102, 104, 201, 201, 301 & 403

Course code	Parts	W	Ata.	Seminar	Asg.	UgT	Total	Max.
101	Part A	15	5	NA	NA	NA	20	40
	Part B	15	5	NA	NA	NA	20	
201 & 301	NA	20	5	10	5	NA	40	40
102,104, 202, 204,205 & 486	NA	20	5	10	NA	5	40	40

Subject Codes: **APPT 103, 203, 302 & 401**

Course code		w	p	JC	CP	Seminar	Ata.	Clinical	Total	Max.
103, 203 , 302,325,351 ,375, 401, 402,403, 425, 451,452 & 475	**Theory**	**20**	**NA**	**10**	**NA**	**5**	**5**	**NA**	**40**	**40**
	Practical	**NA**	**20**	**NA**	**10**	**NA**	**5**	**5**	**40**	**40**

Course code	Synopsis submission	Completion of dissertation	Presentations	Total	Max.
APPT 402	**5**	**5**	**10**	**20**	**20**

W= Written, P- Practical. ASg.-Assignments, Ata. -Attendance, CP- Case Presentation, JC=Journal club, Max. Maximum marks allotted, NA=Not applicable, UgT.-Supervised UG teaching.

Attendance	Synopsis submission	Completion of dissertation	Presentations
95-100% =5 90-94.9% =4 85-89.9% =3 82-84.9% =2 80-81.9% =1	On time-5 Late -1	On time-5 Late -1	4- Publication 3- Oral 2-Poster 1-Part of any of the above activity (Group)

QUESTION PAPER PATTERN FOR MPT EXAMINATION

THEORY

SUBJECTS HAVING MAXIMUM MARKS = 60				**Duration**
Type of question	**Marks for each question**	**Number of questions**	**Total**	
LONG ESSAY TYPE	12	02	24	180 minutes
SHORT ESSAY TYPE	08	02	16	
SHORT ANSWERS	05	04	20	
		Total	**60**	

SUBJECTS HAVING SECTION A & SECTION B [35 + 25 = 60] MARKS]				**Duration**
Type of question	**Marks for each question**	**Number of questions**	**Total**	
LONG ESSAY TYPE	12	Part A – 01 Part B - 01	12 12	180 minutes
SHORT ESSAY TYPE	08	Part A – 01 Part B – 01	08 08	
SHORT ANSWERS	05	Part A – 03 Part B – 01	15 05	
Total			**60**	

Practical examination

1. Long case- 1X15 =15 marks
2. Short case- 1X10= 10 marks
3. OSPE/OSCE- 15 marks

Total 40

PARTICULARS OF PRACTICAL, VIVA-VOCE & DISSERTATION

- Practical examination will be aimed at examination of clinical skills and competence of the candidates for under taking independent work as a specialist.
- Viva- Voce examination shall aim at assessing depth of knowledge, logical reasoning, confidence & oral communication skills.
- Special emphasis shall be given to dissertation work during the MPT 2nd Year examination.
- The marks of Viva-Voce examination shall be included in the clinical examination to calculate the percentage and declaration of results.
- OSCE/OSPE- shall have minimum of 5 stations.

SEMESTER I

SEMESTER –I (0-6 months)

Distribution of Teaching Learning activities

Sl. No	Type & Course code	Course Title	Credits per week			Hours per Semester			Credits	Total
			L	T	P	L/T	P	Total		
1	Hard core APPT 101	**Part A** -Research methodology& Ethics **Part B-** Biostatistics	**4**	**0**	**0**	**60**	**-**	**60**	**4-0-0**	**4**
2	Hard core APPT 102	Biomechanics, Kinesiology & Pathomechanics - I	**4**	**0**	**0**	**60**	**-**	**60**	**4-0-0**	**4**
3	Hardcore APPT 103 A*	Physical and functional diagnosis **(Theory)**	**2**	**0**	**0**	**30**	**-**	**60**	**2-0-1**	**3**
		(Practical)	**0**	**0**	**2**	**-**	**30**			
4	Soft core APPT 104	Principles of Physiotherapy practice, Teaching methodology & Evidence Based Practice	**4**	**0**	**0**	**60**	**-**	**60**	**4-0-0**	**4**
5	Rotatory clinical training		**-**	**-**	**15**	**-**	**270**	**270**	**-**	**5**
6	Research work & Submission of synopsis		**-**	**-**	**3**	**-**	**54**	**54**	**-**	**2**
7	Case presentations/ Journal club/ Supervised UG teaching		**-**	**-**	**3**	**-**	**54**	**54**	**-**	**3**
Total			**14**	**0**	**23**	**210**	**408**	**618**	**-**	**25**

Course code: APPT101 Type: Hard core 4-0-0

Course title: Part A -Research methodology & Ethics
Part B- Biostatistics

Course title: Part A -Research methodology& Ethics Part B- Biostatistics Hard core APPT 101							**Pass % (a+b=50)**
Sl. No	**Evaluation**						
	*CIA		* SEE			**Total (a+c)**	
	W (a)	P(b)	W(c)	P (d)	Viva (e)		
1	40	-	60	-	-	100	50

CIA-cumulative Internal Assessment (College examination)
SEE- Semester End Examination (University Examination)

LEARNING OBJECTIVES
• Apply basic concepts of statistics & principles of scientific enquiry in planning and evaluating the results. • Participate in or conduct descriptive, explorative, surveys studies in Physiotherapy practice • Present data in appropriate methods • To educate the student to practice with respect to Ethical codes, moral and legal aspects

Course content

Title: Research methodology

Sl. No.	**Title of the content**	**Hours**		**Type of questions**	
		Th.	**Pr.**	**Type**	**Marks**
1	**Introduction** • Terminology in research • Research process	2		Long essay	12
2	**Review of literature** • Importance, sources & steps	2		Long essay	12
3	**Research design** • Type of research- Qualitative & Quantitative • Experimental & non experimental, survey- advantage & disadvantages.	3		Long essay	12
4	**Research process** • Research question, Aim & Objectives, Assumptions, Limitations & Delimitations, Variables. • Hypothesis- formation & testing	2		Long essay	12

5	**Sampling** • Sampling technique • Population, sample • Sample size & determination of sample size • Sampling methods • Sampling error	**3**		Long essay Short essay	12 8
6	**Data collection and analysis** • Data sources, technique of data collection, tools • Reliability & validity • Process of data collection • Pilot study- method, need	**3**		Long essay Short essay	12 8
7	**Interpretation & presentation of data** • Qualitative & quantitative analysis • Graphical representation of data • Conclusion & discussion	**3**		Long essay Short answer	12 5
8	**Writing a dissertation, research paper**	**2**		Long essay	12
9	Criti**cal appraisal of research**	**2**		Short essay	8
10	**Presentation and publication of research- steps and process**	**2**		Long essay	12
11	**Autonomy and individual responsibility consent** ➢ **Autonomy and individual responsibility (1 hrs)** • Levels and notions of autonomy • Responsibility : its different aspects and dual nature • Autonomy and patients right to self determination in treatment • The patient's right to refuse • Special measures for protecting the rights and interests of socially and mentally disables patients • Patient responsibilities ➢ **Consent (2 hrs)** • Purpose of the principle of consent (prior, free & informed consent) • What is express 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	**3**		Short essay	8

	• Exceptional circumstances for the application of the principle of consent • Persons without the capacity to consent ❖ Criteria for capacity to consent ❖ Categories of persons without the capacity to consent ❖ How to obtain consent in health care practice for the special categories?				
Ethics					
1	• Medical ethics versus medical law – (Definition - Goal – Scope) • Introduction to Code of conduct	**1**		Short answer	5
2	Basic principles of Bio ethics & ICMR guidelines	**2**		Short essay	5
3	Malpractice and negligence	**1**		Short essay	5
4	Animal ethics	**1**		Short essay	5
5	Medico legal aspects of medical records – Medico legal case and type- Records and document related to MLC - ownership of medical records - Confidentiality Privilege communication - Release of medical information - Unauthorized disclosure - retention of medical records - other various aspects.	**1**		Short essay	5
5	Professional Indemnity insurance policy	**1**		Short answer	5
6	Development of standardized protocol to avoid near miss or sentinel events	**1**			
7	Medical diagnosis versus physiotherapy diagnosis.	**1**		Short answer	5
8	Code of ethics for physiotherapists (IAP & WCPT)	**1**		Short answer	5
Title : Biostatistics					
1	**Introduction** • Types of variables • Measurement scales • Frequency distribution • Tabulation & graphical presentation of data	**4**		Long essay	12

2	**Measures of central tendency** • Mean • Median • Mode	**2**		Long essay	12
3	**Measures of variability** • Range • Interquartile range • SD • Coefficient of variation	**3**		Long essay	12
4	• Sample distribution & error • Normal distribution, • Skewness and Kurtosis	**3**		Long essay	12
5	**Correlation** • Meaning • Types of correlation • Scatter diagram • Karl Pearsons correlation • Spearman rank correlation	**2**		Short essay	8
6	**Statistical significance** • Basic concepts of hypothesis testing • Parametric tests- 't' tests -paired & unpaired One way ANOVA • Nonparametric tests: Chi-square test, Mann Whitney U test, 'Z'test, Wilcoxon's signed rank test	**4**		Short essay	8
7	**Computer application for statistical analysis**	**2**		Short essay	8

Question pattern (60 marks)

Part A : Research methodology & Ethics 35 marks

Part B : Bio statistics 25 marks

Recommended books:

1. Fundamentals of Biostatistics; Rastogi Veer Bala
2. Teaching Health Statistics; Lwanga SK and Cho-Yook Tye
3. Twenty lessons and seminar outlines, World Health Organization ,Geneva.
4. Mahajan's Methods in Biostatistics for medical students and research workers. 8th Edition, Khanal Arun Bhadra Jaypee brothers Medical Publishers, New Delhi;.
5. Research Methodology: Methods and Techniques. Kothari CR.
6. Physical Theraphy Ethics Gabard Donald L

Course code: APPT 102 4-0-0

Course title: Biomechanics, Kinesiology & Pathomechanics - I

Course title: Biomechanics, Kinesiology & Pathomechanics - I Hard core APPT 102							**Pass %** **(a+b=50)**
Sl. No	**Evaluation**						
	***CIA**		***SEE**			**Total (a+b)**	
	W (a)	P(b)	W(c)	P (d)	Viva (e)		
1	40	-	60	-	-	100	50

CIA-cumulative Internal Assessment (College examination)
SEE- Semester End Examination (University Examination)

LEARNING OBJECTIVES
At the end of the course student will be able to understand the basic knowledge about the applied anatomy, applied physiology, biomechanics & Pathomechanics. • This provides a detailed introduction on applied anatomy and applied physiology of musculoskeletal system. • This course explains the structure and function, forces that affect motion and the resultant Kinematics and kinetics. • This provides detail lecture on bio mechanics and Pathomechanics of each joint in the Upper limb and spine.

Course content

Title:

Sl. No.	**Title of the content**	**Hours**		**Type of questions**	
		Th.	**Pr.**	**Type**	**Marks**
1	**Biomechanical principles** a) Biomechanics – definition and perspective. b) Kinematic concepts for analyzing human motion c) Kinetic concepts for analyzing human motion d) Linear kinematics of human movement e) Angular kinematics of human movement f) Linear kinetics of human movement g) Angular kinetics of human movement h) Fluid mechanics (Related to Hydrotherapy)	12	-	Short essay	8
2	**Biomechanics of tissues and structures of musculoskeletal system** a) Biomechanics of human bone growth and	5	-	Short essay	8

	development b) Biomechanics of joints. c) Biomechanics of skeletal muscle. d) Biomechanics of cartilage, tendons and ligaments. e) Biomechanics of nerves.				
3	**Kinesiology and pathomechanics of upper extremity** **3.1.Shoulder complex.** a) Gleno humeral joint b) Scapulo thoracic joint c) Acromio clavicular joint d) Sterno – clavicular joint e) Dynamic & static stability f) Scapulo humeral rhythm g) Muscles of shoulder girdle h) Pathomechanics: ▪ Paralysis of trapezius, Serratus anterior, Rhomboids deltoid, supraspinatus, ▪ Sub clavius, pectoralis major & Latissimus dorsi	15	-	Long	12
	3.2 Elbow unit a) Types motion, axis of motion, mechanism & muscle producing movement. b) Radioulnar joint: Type, motion, axis of motion muscles producing movement c) Pathomechanics: Paralysis of elbow extensions , flexors, methods of transposition of forearm muscle, Substitution by triceps, Nurse Maids elbow, students elbow, Cubitus varus, valgus	5	-	Short essay	8
	3.3 Wrist and hand unit a) Type, motion, axis of motion b) Mechanism of extension, radial deviation c) Lumbrical mechanism d) Interossei mechanism e) Flexor, extensor mechanism f) CMC, MCP, IPS – type, motion & mechanism g) Prehension activities h) Pathomechanics & Pathokinetics: Paralysis of finger flexor, extensors, lumbricals, interossei, Implantation of flexors & extensors, Arthrodesis	8	-	Long essay	12

	of wrist with tendon transplantation, Trigger finger, Dequervains tenosynovitis, Mallet finger, Claw finger				
4	**Kinesiology and pathomechanics of head and spine** **1. Musculoskeletal function within the head.** **2. Spine unit:** a) Vertebral column – structure of function & different types of vertebrae b) Ribs – structure of function of various joints involved in thoracic cage c) Types of movements taking place during respiration **3. Pathomechanics:** a) Paralysis of neck, trunk flexors, extensors lat flexors & Rotators b) Disc prolapse c) Spondylosis , Spondylitis , Spondylolysthesis d) Scoliosis e) Kyphosis f) Lordosis g) Hemi vertebra h) Pigeon chest i) Barrel chest	15		Long	12

Recommended books:

1. Basic Biomechanics of the Musculoskeletal System ;Nordin Margareta
2. Kinesiology Movement In The Context Of Activity With CD David Paul Greene
3. Brunnstrams Clinical Kinesiology; Laura K Smith
4. Functional Anatomy Musculoskeletal Anatomy Kinesiology And Palpation For Manual Therapists ; Chirsty Cael
5. Physiology of joints (Volume I,II &III); Kapandji A I
6. Basic biomechanics Hall Susan J
7. Kinesiology (The mechanics and Pathomechanics of human movement) Carol A Otis
8. Joint Structure and Function; Levangic Pamela K
9. Fundamental Of Biomechanics: Ozkaya
10. Biomechanical Basis of Human Movement.-4th ed./Hamill

Course code: APPT 103 2-0-1

Course title: Physical and functional diagnosis

Course title: Physical and functional diagnosis (Theory & Practical) **A*** Hard core APPT 103						
Sl. No	Evaluation					
	*CIA		*SEE			Total
	W (a)	P(b)	W(c)	P (d)	Viva (e)	
1	40	40	60	40	20	Theory-(a+c=100) Practical(b+d+e=100)
Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50% .i.e 100 in total.						

LEARNING OBJECTIVES
At the end of the course students • Shall be able to acquire knowledge about various assessment methods and tools for Cardio respiratory, Neurological and Musculoskeletal disorders. • Shall be able to understand various theories of motor control and learning as well as theories of aging. • Shall be able to understand and perform gait analysis • Shall be able to understand the principles, types and prescription of Orthotics & Prosthetics devices.

Course content					
Title: Physical and functional diagnosis					
Sl. No.	**Title of the content**	**Hours**		**Type of questions**	
		Th.	**Pr.**	**Type**	**Marks**
1	1.1. ICF & SOAP Format of assessment. 1.2. Pain: a) Historical perspective, theories of pain, and classification of pain, clinical manifestations. b) Tools and instruments of pain assessment, body charts, and pathological assessment (Questionnaires and Pain Rating Scales). 1.3. Overview of Psychosocial aspects of rehabilitation 1.4. Ethics in clinical practice	5	2	Long Essay	12
2	Basic Theories 2.1. Theories of motor control and motor learning 2.2. Theories of aging.	4	-	Long essay	12
3	3.1. Clinical examination in general and detection of movement dysfunction.	8	10	Short essay	08

	3.2.Developmental screening, motor learning –motor control assessment. 3.3.Anthropometric measurements. 3.4.Examination of Functional status and activity level. 3.5.Investigations and imaging techniques related to neuromuscular, skeletal and cardiopulmonary disorders and its interpretation. 3.6.Examination of environment.			Short answer	05
4	4.1.Assessment by Range of motion, Muscle strength, endurance and skills, Body composition and energy consumption, Fitness test for sports. 4.2.Evaluation Methods Commonly used Special tests and Scales in Musculoskeletal, Neurological and Cardiopulmonary disorders. 4.3. Biophysical measurements, physiotherapy modalities, techniques and approaches.	8	8	Short essay Short answe er	08
5	5.1.Types and prescription of Aids and appliances. 5.2.Principles and prescription of orthotic and prosthetic devices 5.3.Physical disability evaluation and disability diagnosis. 5.4.Gait analysis and diagnosis.	5	10	Long essay	12

Recommended Books:

1. Introduction to The Neurologic Examination, Nalan Michael F
2. Motor Control , Cook Anne Shumway ,
3. Motor Control And Learning, Schmidt Richard A ,
4. Topics on Prosthetics And Orthotics Janardhanam K ,
5. Amputation And Prosthetics, May Bella J
6. Physical therapy for children, Camphell Susan
7. Physical rehabilitation, O'Sullaivan, FA Davis,Philadelphia.
8. Orthopaedic Physical therapy, Donattelli
9. Orthopdedic Physical Assessment, David J Magee
10. Cardio vascular and pulmonary physical therapy, Dona Frown Felter & Elizebath Dean.

Course code: APPT- 104 4-0-0

Principles of Physiotherapy practice, Teaching methodology & Evidence Based Practice

Course title: Principles of Physiotherapy practice, Teaching methodology & Evidence Based Practice APPT 104							**Pass %** **(a+c=50)**
Sl. No	Evaluation						
	*CIA		*SEE			Total (a+c)	
	W (a)	P(b)	W(c)	P (d)	Viva (e)		
1	40	-	60	-	-	100	50

CIA-cumulative Internal Assessment (College examination)
SEE- Semester En Examination (University Examination)

LEARNING OBJECTIVES
Principles of Physiotherapy practice • Acquire the managerial & management skills in planning, implementation, & administration in clinical practice (service / self-employment) & academic activities including the skill of Documentation & use of information technology in professional practice • Constitutions and Function of the Indian Association of Physiotherapy • Be able to impart the knowledge with the undergraduate students • Acquire the brief knowledge of role of W.H.O. and W.C.P.T.
Teaching methodology • Describe the development of Education and Aims from early civilization to modern times. • Compare and contrast the beliefs of traditional and modern philosophies of education. • Define the major educational theories and illustrate their application in curriculum development. • Describe the history of education in India giving the current issues and trends. • Describe and explain the concepts and principles of curriculum development, instruction, learning and evaluation. • Locate the use of library and other resources in planning.
Evidence Based Practice • Define and explain the concepts of Evidence Based Practice in Physiotherapy • Familiarize in searching and assessing the evidence • Familiarize in systematic review and using the evidence in Physiotherapy clinical practice & teaching

Course content					
Title: Principles of Physiotherapy practice					
Sl. No.	**Title of the content**	**Hours**		**Type of questions**	
		Th.	**Pr.**	**Type**	**Marks**
1	Development of Physiotherapy Profession	1	-	Short essay	8
2	History taking, assessment, tests, Patient communication, documentation of findings, treatment organization and planning/execution for intervention	4	2	Long essay	12
3	Documentation of rehabilitation assessment and management using International Classification of Functioning Disability and Health	2	-	Short essay	8
4	Standardized tests and scales used in various types of cases for assessment and interpretation in Physiotherapy practice	8	3	Long essay	12
Title: Teaching methodology					
1	**Philosophy of education** Meaning and definition a) Functions of education b) Aims and types of education c) Major philosophies – naturalism, idealism, pragmatism	2	-	Short	8
2	**Concept of teaching and learning** a) Methods of study in educational psychology b) Definitions : teaching and learning c) **Theories of teaching** (Mental discipline theories, naturalistic theories, apperception theories) , d) **Theories of learning** (Thorndike's connectionism, Watson's and Pavlov's classical conditioning, Skinner's operant conditioning, kohler's gestalt) e) Relationship between teaching and learning f) Individual differences	3	-	Long	12
3	**Curriculum** a) Objectives of curriculum development b) Bases of curriculum, process of curriculum development c) Curriculum evaluation d) Placing, course placement, time allotment e) Selection and organization of learning experience	3	1	Short	8

	f) Master plans of courses g) Master rotational plan- individual rotational plan h) Hospital and community areas for clinical instruction i) Correlation of theory and practice j) Clinical assignments k) Current trends in curriculum planning				
4	**Methods and techniques of teaching** a) Strategies of teaching b) Planning for teaching c) Writing Lesson plans d) Teaching aids	3	2	Short answer	5
5	**Measurement and evaluation** a) Nature of educational measurement, functions of measurement, levels of measurement b) Assessment- types c) Achievement tests – construction of achievement tests d) Standardized tests and their uses e) Intelligence tests, personality tests	3	-	Short answer	5
6	**Guidance and counseling** a) Meaning of guidance b) Characteristics of guidance, nature and objectives of guidance c) Principle of guidance, classification of guidance, techniques of guidance d) Counseling – meaning, characteristics, objectives, principles, types e) Guidance and counseling for students and faculty f) Faculty development and development of personnel for PT services	2	-	Short	8
7	**Clinical education** a) Available professional services b) Dimensions of physiotherapy c) Guidelines for clinical education	1	-	Short	8
Title : Evidence Based Practice					
1	Introduction to Evidence Based Practice: Definitions, Evidence Based Practice,	**1**	-	-	-
2	Concepts of Evidence based Physiotherapy: Awareness, Consultation, Judgment, and Creativity	**1**	-	Long essay	12
3	Development of Evidence based knowledge, The Individual Professional, Professionals within a discipline, and Professionals across disciplines	**2**	-	Long essay	12
4	Evidence Based Practitioner: The Reflective	**1**	-	Short	8

	Practitioner, The E Model, Using the E Model			essay	
5	Finding the Evidence: Measuring outcomes in Evidence Based Practice, Measuring Health Outcomes, Measuring clinical outcomes, Inferential statistics and Causation	**1**	**1**	Short essay	8
6	Searching for the Evidence: Asking Questions, Identifying different sources of evidence, Electronic Bibliographic databases and World Wide Web, Conducting a literature search. Step by-step search for evidence	**1**	**1**	Long essay	12
7	Assessing the Evidence: Evaluating the evidence; Levels of evidence in research using quantitative methods, Levels of evidence classification system, Outcome Measurement, The critical review of research using qualitative methods	**2**	**2**	Long essay	12
8	Systematically reviewing the evidence: Stages of systematic reviews, Meta-analysis, The Cochrane collaboration	**1**	**1**	-	-
9	Economic evaluation of the evidence: Types of economic evaluation, conducting economic evaluation, critically reviewing economic evaluation, locating economic evaluation in the literature	**1**	-	Short answer	5
10	Using the evidence: Building evidence in practice; Critically Appraised Topics (CATs), CAT format, Using CATs, Drawbacks of CATs	**1**		Long essay	12
11	Practice guidelines, algorithms, and clinical pathways: Recent trends in health care, Clinical Practice Guidelines (CPG), Algorithms, Clinical pathways, Legal implications in clinical pathways and CPG, Comparison of CPGs, Algorithms and Clinical Pathways	**1**	-	Short Essay Short answer	8 5
12	Communicating evidence to clients, managers and funders: Effectively communicating evidence, Evidence based communication in the face of uncertainty; Evidence based communication opportunities in everyday practice	**1**	-	Short Essay Short answer	8 5
13	Research dissemination and transfer of knowledge: Models of research transfer, Concrete research transfer strategies, Evidence based policy	**1**	-	Short essay	10

Recommended books:

1. Hand Book Teaching for Physical Therapist – Katherine & Shepard – 1st Edition, Butterworth Heinemann
2. Pedagogy in Physiotherapy Education- C.S.Ram AITBS publishers, India
3. Introduction to Physical therapy, Michael A Pagliarulo,4t edition, Elsevier
4. Practical Evidence –Based Physiotherapy: Rob Herbert,Gro Jamtdevt et.al, Elseiver.

SEMESTER II

SEMESTER-II (07-12 months)

Sl. No	Type & Course code	Course Title	Credits per week			Hours per Semester			Credits	Total
			L	T	P	L/T	P	Total		
1	Open elective APPT 201	Health & Fitness	**3**	**0**	**0**	**45**	**0**	**45**	**3-0-0**	**3**
2	Hard core APPT 202	Biomechanics, Kinesiology & Pathomechanics – II	**4**	**0**	**0**	**60**	**0**	**60**	**4-0-0**	**4**
3	Hardcore APPT 203 B*	Physical rehabilitation **Theory**	**2**	**0**	**0**	**30**	**-**	**60**	**2-0-1**	**3**
		Practical	**0**	**0**	**2**	**0**	**30**			
4	Hard core APPT 204	Exercise Physiology & Exercise prescription	**4**	**0**	**0**	**60**	**0**	**60**	**4-0-0**	**4**
5	Hard core APPT 205	Electro diagnosis & Physical modalities	**4**	**0**	**0**	**60**	**0**	**60**	**4-0-0**	**4**
6	Rotatory clinical training		**-**	**-**	**15**	**-**	**270**	**270**		**5**
7	Case presentations/ Journal club/ Supervised UG teaching		**-**	**-**	**3**	**-**	**57**	**57**		**3**
		Total	**17**	**-**	**20**	**255**	**357**	**612**		**26**

Course code: APPT 201 3-0-0
Course title: Health & Fitness

Course title: Open elective -Health & Fitness APPT 201							**Pass % (a+c=50)**
Sl. No	**Evaluation**						
	*CIA		* SEE			**Total (a+c)**	
	W (a)	P(b)	W(c)	P (d)	P(e)		
1	40	-	60	40	-	100	50

CIA-cumulative Internal Assessment (College examination)
SEE—Semester End Examinations (University Examination)

LEARNING OBJECTIVES

- **Health & Fitness**

General course objectives

1. Students will be able to describe basic concepts of health and fitness.
2. Develop an understanding of the importance of regular physical activity and maintaining fitness as part of a healthy lifestyle.
3. Understand how to safely participate in an activity program
4. Students will be able to explain the implications of exercises on various populations.

Specific course objectives

Upon successful completion of the course the students will:

1. Understand the importance of fitness, health , nutrition throughout a person's lifespan
2. Understand the role of physical activity in our society
3. Gain an appreciation for making healthy lifestyle choices.

Learning objectives:

1. To define health and fitness
2. To differentiate holistic medicine and conventional medicine.
3. To define the role of physiotherapy in terms of health and fitness in the community.
4. To identify the key concepts of fitness
5. To understand the implications of and benefits derived from involvement in physical activity.
6. To apply the concepts of physical activity to maintain a physically active lifestyle and health enhancing level of physical fitness.

Course content					
Title: Health & Fitness					
Sl. No.	**Title of the content**	**Hours**		**Type of questions**	
		Th.	**Pr.**	**Type**	**Marks**
1	UNIT 1: Holistic perspective for physiotherapy a) Defining health b) Comparing holistic medicine and conventional medicine c) Distinguishing the types of prevention practice	5		Short essay	8
2	UNIT 2: Healthy people a) Definition of healthy people b) Health education in India c) Physiotherapist role for a healthy community	4		Short essay	8
3	UNIT 3: Key concepts of fitness a) Defining physical fitness b) Health related physical fitness c) Body composition d) Optimal nutrition for physical activity	10		Long Essay Short answer	12 05
4	UNIT 4: Physical activity and Fitness training a) Measurement of human energy expenditure b) Human energy expenditure during rest and physical activity c) Pre activity screening d) Physical activity pyramid e) Fitness measurements (muscular fitness, cardio respiratory fitness) f) Sub maximal and maximal exercise testing g) Exercise training impact on aerobic and anaerobic system h) Effects of overtraining	12		Long essay Short essay	12 8
5	UNIT 5: Physique, performance and physical activity	4		Short essay	10
6	UNIT 6: Obesity and weight control	5		Long essay	12
7	UNIT 7: Physical activity for various populations a) Physical activity in childhood and adolescence b) Physical activity, health and aging c) Physical activity for post-menopausal women	5		Short answer	5

Recommended Books:

1. Exercise physiology- William D McArdle,Frank I Katch , Victor L Katch
2. ACSM's Health Related Physical Fitness Assessment Manual
3. Physical Activity and Bone Health-Karim Khan, Heather McKay, Pekka Kannu

Course code: APPT 202 **4-0-0**

Course title: Biomechanics, Kinesiology & Pathomechanics - II

Course title: Biomechanics, Kinesiology & Pathomechanics – II & Ergonomics APPT 202 -Hard core							**Pass % (a+c=50)**
Sl. No	**Evaluation**						
	*CIA		* SEE			**Total (a+c)**	
	W (a)	P(b)	W(c)	P (d)	Viva(e)		
1	40	-	60	--	-	100	50

CIA-cumulative Internal Assessment (College examination)

SEE- Semester End Examination (University Examination)

LEARNING OBJECTIVES

Learning Objective:

The objectives of this course is that after 60 hours of lectures & demonstrations, the student will be able to understand the basic knowledge about the applied anatomy, applied physiology, biomechanics & patho mechanics .

Learning outcomes:

1. This course explains the structure and function, forces that affect motion and the resultant Kinematics and kinetics.
2. This provides detail lecture on bio mechanics and patho mechanics of each joint in the Lower limb.
3. Evidence-based skills, techniques and practice in managing and treating people with injury, disability or illness in a range of industry.

Course content

Title: Biomechanics, Kinesiology & Pathomechanics - II

Sl. No.	**Title of the content**	**Hours**		**Type of questions**	
		Th.	**Pr.**	**Type**	**Marks**
1	**1.1.Kinesiology and mechanics of hip joint (6hrs)** a. Type, axis of motion b. Pelvic & femoral motion c. Unilateral, bilateral stance – stability & weight distribution d. Reduction of forces using canes e. Muscles producing movement	16	-	Long essay Short essay Short essay	12 8 5

	1.2. Pathomechanics & Pathokinetics of hip joint (10 hrs) a. Coxa vara, coxa valga, dysplasia of hip joint pelvic obliquity b. Paralysis of hip abduction, adductors, extensors flexors, internal & external rotators c. Reconstructive procedure of paralysed hip joint – paralytic conditions, shelving operation d. Substitution of abductors				
2	**2.1. Kinesiology and mechanics Knee joint (5 hrs)** a. Type, axis of motion b. Movement of Tibio femoral & patella femoral joint c. Muscles producing movements **2.2. Pathomechanics & Pathokinetics of knee joint: (10 hrs)** a. Genu valgum, genu varum, recurvatum b. Tibial torsion c. Patella Alta & Baja d. Lateral dislocation of patella e. Paralysis of extensors, flexors f. Fasiodesis , Tenodesis, Osteoplastic arthodesis g. Reconstruction of paralytic genu valgus h. Reconstruction of flexor contracture	15		Long essay Short essay Short essay	12 8 5
3	**3.1.Kinesiology and mechanics ankle & Foot.(6 hrs)** Types of axis of motion arthro & osteokinematics a. Subtalar joint b. Transverse joint	14		Short essay Short answ	8 5

	c. Tarsal joint d. MTP joint e. IP joint f. Plantar arches & their functions **3.2. Pathomechanics & Pathokinetics of ankle & foot (8 hrs)** a. Pronated foot b. Pes planus c. Pes cavus d. Paralysis of dorsiflexors, Plantorflexors, invertors, evertors, intrinsic muscles of foot e. Transplantation of muscles for paralysis			er	
4	Equilibrium, Posture and Gait a. Neurophysiology of aging and its effects on movement posture and gait. b. Postural deformities c. Determinants of gait, Gait cycle, Locomotive training aids. d. Functional assessment of gait and disability evaluation	15		Short answer	5

Recommended books:

1. Basic Biomechanics of the Musculoskeletal System ;Nordin Margareta ,
2. Kinesiology Movement In The Context Of Activity With CD David Paul Greene
3. Brunnstrams Clinical Kinesiology Laura K Smith
4. Functional Anatomy Musculoskeletal Anatomy Kinesiology And Palpation For Manual Therapists; Chirsty Cael
5. Physiology of joints (Volume I,II &III) Kapandji A I
6. Basic biomechanics Hall Susan J
7. Kinesiology (The mechanics and Pathomechanics of human movement); Carol A Otis
8. Joint Structure and Function; Levangic Pamela K
9. Fundamental Of Biomechanics: Ozkaya
10. Biomechanical Basis of Human Movement.-4th ed./Hamill

Course code: APPT 203 **2-0-1**

Course title: Physical rehabilitation

Type: Hard core (theory & Practical)

Course title: Physical Rehabilitation (Theory & Practical) **B*** APPT 203 -Hard core						
Sl. No	Evaluation					
	*CIA		*SEE			Total
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	Theory-(a+c=100) Practical(b+d+e=100) Total=200
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

CIA-cumulative Internal Assessment (College examination)
SEE- Semester End Examination (University Examination)

LEARNING OBJECTIVES
At the end of the course the student shall be able to • Explain the concepts and principles and its application of various rehabilitation approaches • Analyse and to obtain effective clinical decision making pertaining to Cardio respiratory, Neurological and Musculoskeletal disorders, • Understand and follow the rehabilitation protocols to be followed in Cardio respiratory, Neurological, Musculoskeletal, Geriatric rehabilitation, burns rehabilitation, cancer rehabilitation and Palliative care etc. • Understand the principles of Yoga and its integrated practice in physiotherapy. • Understand the principles and its effects of various allied therapies.

Course content

Title: Physical Rehabilitation

Sl. No.	**Title of the content**	**Hours**		**Type of questions**	
		Th.	**Pr.**	**Type**	**Marks**
1	Assessment and clinical decision making	2	3	Long essay	12
2	General rehabilitation related to musculoskeletal, cardiopulmonary and neurological disorders.	4	3	Long essay	12
3	General Guidelines/Protocol to be followed in	6	5	Long	12

	Cardiac Rehabilitation, Pulmonary Rehabilitation, Burns Rehabilitation and Cancer Rehabilitation.			essay	
4	Gait analysis and gait training	3	2	Long essay	12
5	Geriatric rehabilitation	3	3	Short essay	08
6	Role of Physiotherapy in Palliative care	2	3	Short essay	08
7	Physiotherapy in psychiatric conditions.	1	2	Short answers	05
8	Application of Yoga in integrated Physiotherapy Practice. • Introduction to Yoga • Various asana and its effects • Indications and contra indications to various asana	6	6	Short essay Short answer	08 05
9	Allied therapies in rehabilitation • Introduction and principles and effects of Acupuncture, Acupressure, Reflexology, Reiki, Thai-Chi. Naturopathy	3	3	Short answer	05

Recommended books

1. Complementary Therapies for Physical Therapists. Charman Robert A,
2. Clinical Introduction To Medical Acupuncture, Steven K Alng,
3. Physical Rehabilitation, Sullivan B O Susan
4. Rehabilitation Specialists Hand Book, Jules M Rothstein
5. Physiotherapy In Deformity Correction and Pain Relief , Louis Irudayaraj R
6. Psychiatric Rehabilitation, Carlos W Pralt
7. Examination and Diagnosis of Musculo Skeletal Disorders, Castro William H M
8. Saunders Manual of Physical Therapy Practice. Myers Rose Sgarlat
9. Yoga A Way Of Life/Kumar
10. A Comprehensive Guide to Geriatric Rehabilitation,3/Ed/Kauffman
11. Clinical orthopaedics rehabilitation- An evidence based approach: S Brent Brotzmen.

Course code: APPT 204 4-0-0
Course title: Exercise Physiology & Exercise Prescription

Course title: Exercise Physiology & Exercise prescription **APPT 204 Hard core**							**Pass % (a+c=50)**
Sl. No	Evaluation						
	*CIA		* SEE			**Total (a+c)**	
	W (a)	P(b)	W(c)	P(d)	Viva (e)		
1	40	-	60	40	-	100	50

CIA-cumulative Internal Assessment (College examination)
ESA- End Semester Assessment (University Examination)

LEARNING OBJECTIVES

At the end of this course, the student

1. Should be able to identify the important micro and macro nutrients, their types, sources and role in the body for human performance
2. Should be able to describe mechanism of energy transfer and release in the body
3. Should be able to identify the systems of energy release during activity
4. Should be able to describe the various methods used for measuring energy expenditure
5. Should be able describe the various organ systems involved in the delivery and utilization of energy
6. Should be able to recall the exercise training principles
7. Should be able to recall the methods of training for enhancing aerobic and anaerobic power
8. Should be able to describe the effects of aerobic and anaerobic training on various body system
9. Should be able to recall the special aids used for enhancing exercise performance
10. Should be able to recall the effects of environmental factors on exercise performance
11. Should be able to describe body composition, and overweight and underweight
12. Should be able to recall effects of aging on various physiological functions and the effect of exercise on age related changes

EXERCISE TESTING AND PRESCRIPTION

At the end of this course, the student

1. Should be able to recall types of health related and skill related fitness
2. Should be able to recall the steps involved in pre-participation health screening and risk stratification
3. Should be able to describe the methods of pre-exercise evaluation
4. Should be able to recall the principles, protocols and techniques of body composition analysis, cardio respiratory fitness testing, muscular strength and endurance testing , and flexibility testing
5. Should be able to describe the principles and components of exercise prescription
6. Should be able to recall modifications in exercise prescription for special populations
7. Should be able to recall the factors affecting exercise performance

Course content					
Title: Exercise Physiology					
Sl. No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
1	**Nutrition for Human Performance** **1.1. Carbohydrates** • Types and sources & Role in the body **1.2. Lipids** • Types and sources & Role in the body **1.3. Proteins** • Types and sources & Role in the body **1.4. Vitamins** • Types and sources & Role in the body **1.5. Minerals** • Types and sources &Role in the body **1.6. Water** • Body's water content • Water balance **1.7. Optimal nutrition** • Healthy eating • Recommended intake	4	-	Short essay	8
2	**Energy for Physical Activity** **2.1. Energy transfer in the body** a) Adenosine triphosphate b) Phosphocreatine c) Cellular oxidation d) Oxygen role in energy metabolism **2.2. Energy release** a) Carbohydrate b) Fat c) Protein **2.3. Energy release during physical activity** a) ATP-PCr system b) Glycolytic (lactate forming) system c) Aerobic system • Oxygen consumption • Oxygen deficit • VO2 Max • Oxygen consumption during recovery **2.4. Measurement of energy expenditure** a) Measuring body's heat production	10		Long essay	12

	b) Basal and resting metabolic rates c) Factors affecting daily energy expenditure d) The MET e) Heart rate to estimate energy expenditure				
3	**Energy delivery and utilization** **3.1. Pulmonary system** a) Mechanics of ventilation b) Lung volumes and capacities c) Gas exchange in lungs and tissues d) O_2 and CO_2 transport in blood e) Regulation of ventilation during physical activity f) Energy cost of breathing g) Acid-base regulation **3.2. Cardiovascular system** a) Components b) Blood pressure response to physical activity c) Regulation of heart rate and circulation d) Cardiac output at rest and during exercise e) Cardiac output distribution f) Cardiovascular adjustments to upper body exercise **3.3. Neuromuscular system** a) Sequence of events in muscle action b) Muscle fiber types c) Motor unit functional characteristics d) Fatigue **3.4. Endocrine system** a) Resting and exercise induced endocrine secretions b) Exercise training and endocrine function c) Resistance training and endocrine function d) Physical activity and endogenous opioids e) Effects of physical activity on infectious illness, cancer and immune response	10		Long	12
4	**4.1. Strength training** a) Measurement of muscle strength b) Gender differences in muscle strength c) Types of training i. Dynamic constant external resistance training ii. Progressive resistance training iii. Concurrent resistance and aerobic training iv. Isometric resistance training v. Isokinetic resistance training			Long essay	12

	vi. Plyometric training vii. Body weight loaded training d) Resistance training for children **4.2. Structural and functional adaptations to resistance training** a) Factors modifying human strength i. Psychologic-neural factors ii. Muscular factors iii. Metabolic adaptations b) Comparative training responses in men and women c) Detraining effects of muscle d) Metabolic stress of resistance training e) Circuit resistance training f) Muscle soreness and stiffness **4.3. Special aids to exercise training and performance** a) Pharmacological agents for ergogenic effects **b)** Non-pharmacological approaches for ergogenic effects				
5	**Exercise performance and environmental stress** **5.1. Medium and High altitude** a) Stress of altitude b) Acclimatization c) Metabolic, physiologic and exercise capacities at altitude **5.2. Environmental heat stress** a) Physical activity in heat b) Maintaining fluid balance c) Factors that modify heat tolerance d) Complications from excessive heat stress **5.3. Environmental cold stress** a) Physical activity in cold b) Cold acclimatization c) Cold injuries **5.4. Sport diving (underwater stress)** a) Pressure volume relationship with diving depth b) Special problems with breathing gases at high pressure c) Energy cost of underwater swimming **5.5. Microgravity** a) Weightless environment b) Physiological alterations c) Countermeasure strategies	4		Short Essay	8

6	**Body composition and energy balance** a) Body composition b) Overweight, over fatness and obesity c) Composition of human body	1		Short Answer	5
7	**Aging and physical activity** a) Ageing and physiologic function b) Effects of physical activity on age related changes	1		Short essay	5
Exercise prescription			**20 hrs**		
1	**Physical activity and fitness terminology** a) Health related physical fitness b) Skill related physical fitness c) Benefits of exercise d) Risks associated with exercise	1		Long essay	12
2	**Pre participation** a) Pre participation health screening b) Risk stratification c) Exercise testing and participation recommendation d) Exercise testing supervision recommendation	**2**		**Short essay**	**8**
3	**Pre exercise evaluation** a) Medical history b) Physical evaluation c) Laboratory tests d) Contraindications to exercise testing e) Informed consent f) Participant's instructions	**2**		**Short answer**	**5**
4	Health related Exercise testing **4.1 .Introduction (2 hrs)** a) Purpose b) Basic principles and guidelines c) Body composition ➢ Anthropometric measurement ➢ Densitometry **4.2. Cardio respiratory fitness (2 hrs)** a) Sub maximal exercise testing b) Modes of testing c) Protocols d) Test sequence and measures e) Test termination criteria f) Interpretation of results **4.3. Muscular strength and endurance (2 hrs)** a) Determination of 1 RM	**7**		**Long essay**	**12**

	b) Bench press c) Leg press d) Push up e) Curl-up (Crunch) **4.4. Special considerations** a) Older adults b) Coronary prone clients c) Children and adolescents **4.4. Flexibility (1 hrs)** a) Range of motion b) Sit and reach test				
5	Exercise prescription **5.1. General principles (2 hours)** a) Overload and reversibility principles b) FITT principle c) Mode of exercise (Type) d) Frequency of exercise e) Intensity of exercise f) Duration of exercise (Time) g) Components of exercise training session h) Progression of exercise **5.2. Components of exercise program (2 hours)** a) Aerobic exercise b) Resistance training c) Flexibility exercise d) Neuromuscular exercise 5.3. General guidelines for exercise program supervision (1 hour) 5.4. Strategies for exercise program adherence (1 hour) 5.5. Exercise prescription for special population (1 hour) a) Pregnancy b) Children and adolescents c) Older adults	**7**		**Short essay**	**5**
6	**Factors affecting exercise performance** a) Hot and cold environment b) High altitude	**1**		**Short answer**	**5**

Recommended books:

1. Exercise Physiology Mc Ardle
2. Exercise Physiology, Energy, Nutrition And Human Performance.Baltimore: Lippincott, Williams & Wilkins; McArdle, W.D., Katch, F.I. and Katch, V.L

3. ACSMS Health Related Physical Fitness Assessment Manual; Leonard A Kaminsky
4. Physical Activity And Bone Health; Karim Khan
5. Muscles Testing And Function With Posture And Pain With CD; Florence Peterson Kendall ,
6. Clinical Sports Nutrition, Louise Burke
7. Muscle Testing Techniques Of Manual Examination With CD; Helen J Hislop, Daniels And Worthinghams
8. Clinical Exercise Physiology Ehrman Jonathan K
9. Physiotherapist pocket guide to exercise- Assessment, Prescription and Training: Helen Fiddler & Angela Glenn

Course code: APPT 205 4-0-0

Course title: Electro diagnosis & Physical modalities

Course title: Electro diagnosis & Physical modalities **APPT 205 Hard core**							**Pass % (a+c=50)**
Sl. No	Evaluation						
	*CIA		* SEE			**Total (a+c)** W(c)	
	W (a)	P(b)	W(c)	P(d)	Viva (e)		
1	40	-	60	40	-	100	40

CIA-cumulative Internal Assessment (College examination)
SEE- Semester End Examination (University Examination)

LEARNING OBJECTIVES

Electro Diagnosis:

At the end of the course the candidate will

- Be able to interpret the E.M.G. and nerve conduction studies with appropriate clinical reasoning.
- Acquire the sound Knowledge of E.M.G. machine for the simple electro diagnosis of motor unit and methodology of sensory and Motor conduction, Reflex study
- Expertise in the skill of using various electrical currents for the purpose of Electro diagnosis able to interpret the same with appropriate clinical reasoning.
- Be able to train the undergraduate students at Pre clinical and clinical level
-

Physical modalities

- Acquire the updated knowledge of production / biophysics as well as the Physiological / therapeutics effects (at the cellular levels) of various electrical currents, Thermal agents, ultra sound & electro – magnetic forces & potential risk factors on prolonged exposure.

- Acquire the knowledge about various Pharmaco Therapeutic agents to be used in combination with various electro – therapeutic modes, with appropriate clinical decision & reasoning in the management of pain / tissue healing / Wound care & skin condition conditions.

Course content					
Title: Electro diagnosis					**30 hrs**
Sl. No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
1	**Anatomical and physiological basis for electromyography and nerve conduction studies** a) Motor unit b) Excitability of the nerve and muscle c) Propagation of action potential d) Neuro muscular transmission e) Muscle contraction	2		Short answer	5
2	**Concepts of Electromyography** **1. Instrumentation and signal characteristics** a) Electrodes. b) Myoelectric signal c) Motor unit action potential. d) Artifacts **2. Amplifying the EMG signal** a) Differential amplifier b) Common mode rejection ratio c) Signal – to – noise ratio d) Gain e) Input – impedance f) Frequency band width g) Displaying the EMG signal	5		Long essay Short essay	12 8
3	**Clinical EMG** 1. EMG examination a) Insertional activity b) Electrical silence (Muscle at rest) c) Normal motor unit action potentials d) Abnormal potentials i. Spontaneous activity • Fibrillation potentials • Positive sharp waves • Fasciculations • Myotonic and complex repetitive discharges ii Abnormal voluntary potentials	5		Long essay	12

	2. Single fibre EMG 3. Macro EMG				
4	**Nerve conduction tests** 1. Instrumentation 2. Motor nerve conduction velocity a) Stimulation and recording b) Calculation of motor nerve conduction velocity c) Standard motor nerve conduction techniques for – Median Nerve , Radial Nerve , Ulnar Nerve , Peroneal Nerve , Tibial Nerve , Femoral Nerve 3. Sensory Nerve conduction velocity a) Stimulation and recording b) Calculation of sensory nerve conduction velocity c) Standard sensory nerve conduction techniques for Median Nerve, Radial Nerve, Ulnar Nerve, Tibial Nerve, Peroneal Nerve, Sural Nerve, Saphenous Nerve 4. Effect of Age and Temperature on Nerve conduction velocity 5. F Wave 6. Repetitive nerve stimulation test (Jolly Test) 7. Nerve excitability test	5		Short essay Short answer	8 5
5	**Reflex Tests** a) H – reflex b) T- reflex c) Blink reflex d) Jaw reflex e) Bulbo cavernosus reflex	2		Short answer	5
6	**Clinical implication of electromyography and nerve conduction tests** 1. Disorders of peripheral nerves a) Peripheral nerve leisons b) Neuropathies – Peripheral neuropathies -Entrapment syndromes	5		Short essay	8

	c) Radiculopathy 2. Motor Neuron Disorders 3. Myopathies 4. Myotonia 5. Myasthenia Gravis				
7	**Kinesiological EMG** 1. Locating electrode sites 2. Signal processing 3. Timing of muscle activity 4. Normalization 5. Relationship between EMG signal and force 6. EMG and exercise	3		Short essay	8
8	**Electrical safety and risks in electrodiagnostic practice** 1. Guide lines for electrical safety a) EMG laboratory b) Equipment c) Patient precautions 2. Risks in electro diagnostic practice a) Bleeding disorders b) Cardiac valvular diseases c) Cardiac pace makers d) Chest wall EMG e) Hepatitis f) AIDS	3		Short answer	5
Title: Physical Modalities					**30 hrs**
1	Medical Physics of various therapeutic currents, Ultrasound, Electro- magnetic energy, SWD	**5**		Short essay	8
2	Cellular response & tissue response to environment & manmade Electro- magnetic field, risk factor of prolonged exposure, safety measures.	**3**		Short essay	8
3	Appropriate dose for the treatment of various disorders/disease conditions with various therapeutic modalities	**5**		Long essay	12
4	Advanced electro therapeutic in the management of Pain and various other conditions	**3**		Long essay	12
5	Principles of combination of therapeutic currents & Ulatrasound with Pharmaco- therapeutic with special reference to Musculo skeletal / neuropathic & paschosomatic pain and various other conditions	**3**		Short essay	8
6	Advanced Electro,Therapeutics in tissue healing, wound	**5**		Short	8

	care, scar & keloid management , De pigmentation –skin conditions.			essay	
7	Modalities for wound healing	**2**		Short essay	8
8	Recent advances: • Extra corporal shock wave therapy • Matrix rhythm therapy	**4**		Short essay Short answer	8 5

Recommended books

1. Electrotherapy Explained Principles And Practice With CD ; Val Robertson
2. Electrotherapy Explained Principles And Practice Low John Reed
3. Therapeutic Modalities: The Art And Science.-2nd Ed./Knight
4. Acm's Behavioral Aspects Of Physical Activity And Exercise: /Nigg
5. Acsm's Resources For The Health Fitness Specialist:
6. Clinical Electromyograph nerve conduction studies -Shin J. oh, second edition, Williams & Wilkins
7. Clinical Neurophysiology – Misra and Kalitha, Second edition, Elsevier
8. Physical rehabilitation –O' Sullivan and Schmitz, fifth edition, Jaypee brothers.

SEMESTER III

Sl. No	Type & Course code	Course Title	Credits per week			Hours per Semester			Credits	Total
			L	T	P	L/T	P	Total		
1	Open elective APPT301	Women's health in Pregnancy	**3**	**0**	**0**	**45**	**-**	**45**	**3-0-0**	**3**
2	**Hard core** To choose any one paper as per speciality course. APPT302 or APPT325 or APPT 351or APPT 375 **C***	**Speciality paper (Theory)**	**4**	**0**	**0**	**60**	**-**	**120**	**4-0-4**	**8**
		Speciality paper (Practical)	**0**	**0**	**4**	**-**	**60**			
3	Rotatory clinical training (Speciality area)		**-**	**-**	**15**	**-**	**270**	**270**	**-**	**6**
4	Research work		**-**	**-**	**8**	**-**	**144**	**144**	**-**	**4**
5	Case presentations/ Journal club/ Supervised UG teaching		**-**	**-**	**3**	**-**	**54**	**54**	**-**	**3**
		Total	**7**	**-**	**28**	**105**	**528**	**633**	**-**	**24**

Sl.No.	**Specialty Branch (Generic Elective)**	**Program name**	*Specialty paper Semester III
1	MPT in Orthopaedics	MPT in Orthopaedics and Sports	**APPT 302** General Physiotherapy in orthopaedics conditions **Common paper for all Orthopaedic specialties.**
		MPT in Orthopaedics and Manual Therapy	
		MPT in Orthopaedics and Hand rehabilitation	
2	MPT in Neurosciences	MPT in Neurosciences	**APPT 325** General Physiotherapy in Neuro sciences
3	MPT in Cardio Pulmonary sciences	MPT in Cardio-Pulmonary sciences and Critical Care	**APPT 351** Physiotherapy in Cardio Pulmonary sciences **Common paper for all Cardio Pulmonary Sciences specialties.**
		MPT in Cardio - Pulmonary sciences and Health promotion &fitness	
4	MPT in Paediatrics	MPT in Paediatrics	APPT 375 General Paediatric Physiotherapy

Course code: APPT 301 (Open elective) **3-0-0**

Course title: Women's health in Pregnancy

Course title: - Women's health in Pregnancy APPT 301 Open elective							**Pass % (a+c=50)**
Sl. No	**Evaluation**						
	*CIA		*SEE			**Total (a+b)**	
	W (a)	P(b)	W(c)	P(d)	Viva (e)		
1	40	-	60	-	-	100	50

LEARNING OBJECTIVES

On completion of this subject, students will have had the opportunity to develop the following specific skills.

- To develop their understanding of the role and responsibilities of the health care provider during pregnancy, birth and after.
- To develop an increased awareness of the psychological, biological, cultural and social aspects affecting the antenatal, intrapartum and postpartum periods
- To understood the changing nature of maternity care in developed countries and the ways these services focus on the needs of the users
- To Plan, deliver and evaluate appropriate exercise programs for specific women's groups with the community.
- To understand the impact of exercise on the altered physiology, pathophysiology and psychology of pregnancy, menopause, aging and osteopenia /osteoporosis.
- To identify the legal and safety issues associated with leading exercise classes for women with specific physical needs.
- To understand the motivational and marketing aspects of leading community and hospital based exercise classes.

Course content					
Title: Women's health in Pregnancy. Open elective				**45hrs**	
Sl. No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
1	Biomechanical changes in pregnancy a) Posture b) Pelvic floor muscles c) Joint stability d) Breathing pattern e) Gait	6	-		

2	Ergonomics in pregnancy a) Workplace modification and b) Injury prevention strategies in workplace and Daily activities	3	-		
3	Exercise physiology and prescription in pregnancy a) Cardiovascular changes b) Pulmonary changes c) Endocrine changes d) Musculoskeletal changes e) Exercise prescription	5	-		
4	Nutrition in pregnancy a) Healthy diet in pregnancy b) RDA-Recommended diet ALLOWANCE	3	-		
5	Pre and post natal management	8	-		
6	Health problems in pregnancy a) Antenatal problems b) Posture c) Lowback pain d) Carpel tunnel syndrome e) Edema f) Over-weight g) Pelvic floor dysfunction h) Postnatal problems i) Posture correction j) Pelvic floor dysfunction k) Prevention of weight gain	10	-		
7	Exercise testing and prescription a) Physical activity during pregnancy b) Components of exercise prescription c) Clinical exercise testing during pregnancy d) Guidelines on exercise prescription	10	-		

Recommended books:

1. CSP, Clinical guidelines for the Physiotherapy management of females with stress urinary incontinence. CSP 2001
2. Women's Waterworks: curing incontinence, Chiarelli P Gore & Osment 1998
3. Hysterectomy and Vaginal Repair. 4th Ed.; Haslett S & Jennings M, Beaconsfield 1997.
4. * ACPWH Rotational Physiotherapist Handbook of Women's Health. ACPWH 1997 Butterworth Heinemann 1990.
5. Women's Health for Physiotherapists. Sapsford R, Bullock- Saxton J, Marxwell S. WB Saunders 1998.
6. Physiotherapy in Obstetrics & Gynaecology - Polden & Mantle, Jaypee Brothers, New Delhi, 1994.
7. Obstetrics & Gynaecologic Physical Therapy - Wilder Elnine, Churchill, Livingstone, New York, 1988.
8. Women's Health - Sapsford, Publisher Lippinc

SPECIALITY BRANCH

1. MPT in Orthopaedics

(Common paper for all orthopaedic specialities)

APPT 302 Hard core 4-0-4

Course title: General Physiotherapy in orthopaedic conditions

Course title: Physiotherapy in orthopaedic conditions APPT 302 **Speciality paper** (Theory & Practical) **C***						
Sl. No	Evaluation					
	*CIA		*SEE			Total
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	Theory-(a+c=100) Practical(b+d+e=100) Total=200
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

CIA-cumulative Internal Assessment (College examination)
SEE- Semester End Examination (University Examination)

LEARNING OBJECTIVES

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 and arrive at appropriate functional diagnosis with clinical reasoning.
2. Use the anatomical rationale for the clinical tests used in differential diagnosis.
3. Learn the ability to perform an appropriate subjective and physical examination, with development of suitable analytical skills to evaluate data obtained.
4. Further develop clinical reasoning that incorporates theoretical concept with evidence-based practice in the field of musculoskeletal physiotherapy.
5. Recognize the implication of dysfunction on the Neuro- Musculoskeletal system and the student's clinical decision making.
6. Document patients with scale, out come measures and asses the progression.
7. Use recent Technique/ approaches to treat & train patients with musculo-skeletal deficit in children, adults & geriatrics.
8. Be able to impart knowledge for training the under graduate students

Course content					
Title: Physiotherapy in orthopaedic conditions					**120 hrs**
Sl. No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
1	**Upper Limb fractures, Dislocation and other common conditions** 1.1. Orthopedic and PT assessment and management of all upper limb fractures and their complications Dislocations of shoulder and elbow with medical, surgical and PT management. Physical therapy Rehabilitation followed by Puttiplat, Bankart's, Magnusson stalk and Bristow operations. 1.2. Rotator cuff injuries, Impingement syndrome, Supraspinatus tendinitis, Bicipital tendinitis, Thoracic outlet syndrome, Shoulder Hand syndrome, Carpal tunnel syndrome, A.C joint sprain, Subacromial bursitis, Adhesive capsulitis Myofacial pain syndrome and Primary fibromyalgia syndrome, Tennis elbow, Trigger finger, Dequervain's disease, Dorsal ganglion, Flexion and Extension tendon injuries Dupuytren's contracture and Reynaud's phenomenon. 1.3. Causes and Mechanism of sports injuries and prevention of sports injures of Upper Limb	8	8	Long Short essay Short essay	12 8 8
2	**Lower Limb Fractures, Dislocations and Other Common Conditions** 2.1.Orthopedics and PT assessment and	8	8	Long	12

	management of all Lower Limb fractures and their Complications. 2.2.Hip, Knee and patella dislocations, its medical, surgical and PT management. Ligament injuries around knee and ankle. Physical rehabilitation after ACL and PCL reconstruction. 2.3.Osteochondritis dissecans, Popliteus strain, Plica syndrome, Illiotibial band friction syndrome, Meralgia paresthetica, trochanteric bursitis, osteitis pubis, piriformis syndrome, tarsal tunnel syndrome. 2.4.Flat foot, Hallux Valgus, Hallux rigidus, Huglands deformity, sinus tarsi syndrome, Turf toe, interdigital neuroma, Inferior heel pain. 2.5.Causes and Mechanism of sports injuries and prevention of sports injuries of Lower limb.			Short essay Short essay Short answer Short essay	8 8 5 8
3	**Spine Fractures :** Fractures of cervical spine, thoraco lumbar spine its medical, surgical and PT management	6	6	Long	12
4	**Degenerative and Inflammatory joint disorders**: Osteoarthritis, rheumatoid arthritis, degenerative and inflammatory spinal disorders	8	8	Long Short essay	12 8
5	**Orthopedic Surgeries and its rehabilitation :** Osteotomy, bone graft, bone fixation, distraction histogenesis, arthrotomy, realignment, arthrodesis, arthroplasty, microsurgery, limb replantation, tendon transfer and amputation	8	8	Long Short essay Short answer	12 8 5
6	**Congenital orthopedic conditions and its PT management** Congenital dysplasia of hip, CTEV, Slipped	6	6	Long Short essay	12 8

	capital femoral epiphysis, AVN of femoral head, Coxavara. Coxavalga, Forefoot varus, Forefoot valgus and Congenital vertical talus.				
7	**Spinal deformities** Orthotic, Surgical and PT management	4	6	Long Short essay	12 8
8	**Basic knowledge on radiology** Plain radiographs, Bone scans, CT and MRI.	4	4	Short answer	5
9	**Pharmacology in Orthopedics** Basic knowledge of common drugs used in orthopedics, their effects, interactions, relevance to PT modalities (NSAIDS, Antipyretics, antibiotics, antihypertensive, diabetic drug therapy).	4	--	Short answer	5
10	**Application of yoga in orthopedic conditions**	4	6	Short answer	5

Recommended books:

1. Orthopedic neurology; Hoppenfeld
2. Pathology And Intervention In Musculoskeletal Rehabilitation ; David I Magee,james E.Zachazewski,William S.Quillen, Robert C.Manske. Elsevier publication
3. Pracatical Fracture treatment ;Ronald Mc Ree
4. Tests And Exercise For The Spine ;Peter Fischer
5. Apley's System of Orthopaedics and Fractures, Louis Solomon, Eighth Edition
6. Orthopaedic Physical Examination : 9th Edition : By David J. Magee
7. Campbell's Operative Orthopedics, Canale and Beaty, 11th edition
8. Treatment and Rehabilitation of fractures: Stanley Hoppenfeld and Vasantha L Murthy, Philadelphia: Lippincott Williams and Wilkins
9. Clinical Orthopaedic Rehabilitation : 3rd Edition: Brent Boltzmann M.D
10. Common Vertebral Joint Problems Gregory P Grieve;Philip H Newman
11. Sports Physiotherapy, Zuluga.etal : W B Saunders

12. Sports injuries – Assessment and Rehabilitation Reid WB Saunders
13. Rehabilitation for the post surgical orthopaedic patient; Lisa Maxey, Jim Magnusson.3rd edition.Elsevier.
14. Rehabilitation of movement- theoretical basis of clinical practice. Judith pitt-Brooke.WB saunders.
15. Clinical Sports Medicine; Buckner and Khan ME grawhill
16. Therapeutic Modalities In Rehabilitation; William E Prentice
17. Mechanisms And Management Of Pain For The Physical Therapist ; Kathleen A Sluka
18. Basic Radiology : Michael Chen, Thomas Pope, David Ott.
19. Fundamentals Of Skeletal Radiology ; Clyde A Helms
20. Pharmacology For The Physical Therapist;Peter C Panus
21. Yoga A Way Of Life/Kumar
22. Anatomy Of Yoga An Insider's Guide To Improving Your Poses; Abby Ellsworth
23. Geetha Iyer: Illuminating lives with Yoga.
24. Diagnostic imaging for Physicaltherapist- James S
25. Fundamentals of skeletal radiology; Clyde A.Helms. Elsevier
26. Differential diagnosis for Physical therapists screening for referral,Goodman,4th ed.
27. Electrotherapy, Kitchen Sheila, 11th edition.
28. Pranayama and simple yogasanas;Prahlad, Aum Yoga Prathistana publication.
29. Managing common musculoskeletal conditions by Physiotherapy& Yoga; PP Mohnty,Monalisa Paatnaik, Jaypee publishers

SPECIALITY BRANCH

2. MPT in Neurosciences

Course code: APPT 325 **Hard core** **4-0-4**

Course title: General Physiotherapy in Neuro sciences

Course title: Speciality paper (Theory & Practical) **C*** APPT 325,						
Sl. No	Evaluation					
	*CIA		*SEE			Total
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	Theory-(a+c=100) Practical(b+d+e=100) Total=200
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

CIA-cumulative Internal Assessment (College examination)

SEE- Semester End Examination (University Examination)

LEARNING OBJECTIVES
At the end of the course. The student should be able to 1. Recall the basics of neuro anatomy and neuro physiology 2. Assess and correlated with the medical investigation, and able to differentially diagnose the various neurological conditions. 3. Use various scales for documentation. 4. Plan various physiotherapeutic approaches in neurological rehabilitation

Course content					
Title:				**120hrs**	
Sl. No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
1	Anatomy and Physiology of nervous system	6	-	Short essay	8
2	Neuro-physiology of balance, co-ordination and locomotion	6	-	Short essay	8
3	Neurological examination including assessment, investigations and differential diagnosis	6	15	Long essay	12
4	Various evaluation scales and assessment methods used in Neurological Rehabilitation.	6	5	Long essay	12
5	Pain pathway,Assessment, & management.	4	2	Short answer	5

6	Evoked potentials a. Somato sensory evoked potentials b. Motor evoked potentials c. Visual evoked potential d. Brain stem auditory evoked potentials	5	-	Short answer	5
7	2. Physiotherapeutic approaches in neurological rehabilitation a. Neuro Developmental Therapy b. Rood's approach c. Brunnstrom's movement therapy d. PNF e. Vojta approach f. Motor relearning programme g. Myofacial release h. Sensory integration Constraint induced movement therapy (CIMT)	10	20	Short essay	8
8	Neuro Dynamics	6	10	Short essay	8
9	Biofeedback and functional electrical stimulation	5	3	Long essay	12
10	Aids and appliances in neurological disorders, prescription, testing and training	5	5	Long essay	12
11	Basic knowledge of drugs used for neurological conditions	1	-	Short answer	5

Recommended books:

1. Clinical Neuroanatomy - Richard S. Snell
2. Text book of Clinical neruoanatomy – Vishram Singh
3. Text book of Neuroanatomy – Inderbir Sing
4. Clinical Neurophysiology – UK Misra& J Kalita
5. Neuroscience for Rehabilitation – Helen Cohen, Lippincott Williams & Wilkins
6. Neurological Rehabilitation – Darcy Umphred, Mosby
7. Hand book of Neurological Rehabilitation – Greenwood & McMillan , Psychology press
8. Neurological Disabilities- Assessment and treatment – Bennet & Karnes, Lippincott Williams & Wilkins
9. Mobilisation of Nervous System – Butler

10. Clinical Neurophysiology – Binnie &Osselton, Butter worth Heinemann.
11. Neurological Differential Diagnosis - Patten, John P
12. Dejong's the Neurologic Examination - William W. Campbell

SPECIALITY BRANCH

3. MPT in Cardio Pulmonary sciences

(Common paper for all Cardio Pulmonary Sciences specialties)

Course code: APPT 351 Hardcore 4-0-4

Course title: Physiotherapy in Cardio Pulmonary sciences

Course title: Physiotherapy in Cardio Pulmonary sciences

Speciality paper (Theory & Practical) **C*** Hard core

APPT 351

Sl. No	Evaluation					
	*CIA		*SEE			Total
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	Theory-(a+c=100) Practical(b+d+e=100) Total=200
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

CIA-cumulative Internal Assessment (College examination)

SEE- Semester End Examination (University Examination)

LEARNING OBJECTIVES

At the end of the course the student should be able to

1. Recall cardiovascular and pulmonary anatomy and physiology
2. Recall intrauterine development and age related changes of cardio pulmonary system
3. Describe difference between adult and pediatric cardio pulmonary systems
4. Explain and demonstrate strategies used for clinical assessment of cardiopulmonary system
5. Describe and interpret techniques used for evaluation of cardiopulmonary disorders
6. Explain and interpret techniques used for multisystem assessment and laboratory investigations
7. Describe the epidemiology, symptomatology and pathophysiology of cardio- respiratory and peripheral vascular disorders
8. Recall the drugs used in cardiopulmonary and vascular disorders and its effect on exercise
9. Explain and demonstrate various physiotherapy interventions and complimentary therapies used in cardiopulmonary conditions
10. Describe physiotherapy management in thoracic and abdominal surgeries
11. Describe physiotherapy management in lung, cardiac and vascular disorders
12. Describe cardiac and pulmonary rehabilitation
13. Explain physiotherapy management in critical care
14. Explain the modifications of cardiopulmonary physiotherapy in special vases and populations
15. Describe community based rehabilitation strategies for cardiopulmonary problems
16. Recall the recent advances in cardiopulmonary physiotherapy

Course content					
Title: Physiotherapy in Cardio Pulmonary sciences					**120 hrs**
Sl.No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
1	Review of Cardiopulmonary Anatomy and Physiology	4	-	Short answer	5
2	Intrauterine development and age related changes of cardio pulmonary system	1	-	Short answer	5
3	Difference between adult and pediatric cardio pulmonary systems	1	-	Short answer	5
4	Clinical assessment of cardiopulmonary system a) History b) Physical examination i. Inspection ii. Palpation iii. Percussion iv. Auscultation of lungs and heart	2	3	Long essay Short essay Short answer	12 8 5
5	Evaluation of cardiopulmonary disorders a) Pulmonary function test (PFT) b) Arterial blood gas analysis (ABG) c) Pulse oximetry d) ECG e) Chest radiograph f) Nuclear imaging g) Computed tomography h) Echocardiography i) Angiography j) Magnetic resonance imaging	3	5	Long essay Short essay Short answer	12 8 5
6	Multisystem assessment and laboratory investigations a) Blood tests b) Peripheral vascular function c) Renal function d) Endocrine function e) Liver function f) Immunologic function	2	2	Short essay Short answer	8 5
7	Epidemiology, symptomatology and	4	-	Long	12

	pathophysiology of cardio- respiratory and peripheral vascular disorders a) Obstructive lung disease b) Occupational lung disease c) Restrictive lung disease d) Coronary artery disease e) Congestive heart failure f) Valvular heart disease g) Systemic hypertension h) Pulmonary hypertension			essay Short essay Short answer	 8 5
8	Pharmacology in cardiopulmonary and vascular disorders and its effect on exercise	2	-	Short essay Short answer	8 5
9	Cardiopulmonary physiotherapy interventions a) Body positioning b) Facilitating ventilation pattern and breathing strategies c) Airway clearance techniques and coughing techniques d) Lung expansion techniques e) Respiratory muscle training f) Mobilization and exercise g) Exercise tolerance testing & stress testing with training for cardiopulmonary dysfunctions h) Patient education	10	20	Long essay Short essay Short answer	12 8 5
10	Complementary therapies in cardiopulmonary physiotherapy	1	-	Short answer	5
11	Physiotherapy management following surgical conditions a) Cardiac surgeries b) Pulmonary surgeries c) Pleural surgeries d) Abdominal surgeries e) Gynecological surgeries	2	3	Long essay Short essay Short answer	12 8 5
12	Physiotherapy management in obstructive and restrictive lung disorders	3	3	Long essay	12

				Short essay Short answer	8 5
13	Pulmonary rehabilitation	3	4	Long essay Short essay Short answer	12 8 5
14	Physiotherapy management following congenital and acquired heart disease	3	3	Long essay Short essay Short answer	12 8 5
15	Cardiac rehabilitation	3	4	Long essay Short essay Short answer	12 8 5
16	Physiotherapy in peripheral vascular disorders	2	2	Long essay Short essay Short	12 8 5

				answer	
17	Physiotherapy in intensive care unit a) Critical care concept and setup b) Equipments and monitors c) Physiotherapy assessment and management d) ICU acquired weakness and its management	4	4	Long essay Short essay Short answer	12 8 5
18	Cardio pulmonary physiotherapy for special cases a) Neonatal and pediatric patient b) Pre and post natal women c) Aging patient d) Heart and lung transplant patient	3	3	Long essay Short essay Short answer	12 8 5
19	Exercise prescription for special population a) Diabetes mellitus b) Obesity c) Hypertension d) Renal failure e) Pregnancy	3	2	Long essay Short essay Short answer	12 8 5
20	Community Based Rehabilitation in cardiovascular and respiratory conditions	2	2	Short essay Short answer	8 5
21	Recent advances in cardio respiratory physiotherapy a) Techniques b) Equipment c) Effectiveness of exercise in various diseases and disorders	2	-	Short essay Short answer	8 5

Recommended books:

1. CASH textbook of general medicine and general surgery for physiotherapist: 2nd Ed.
2. Cash textbook of chest heart and vascular disorders for physiotherapist.
3. Physiotherapy ion obstetrics and gynaecology: Margaret Polden
4. Physiotherapy for respiratory and cardiac problems: Jennifer Pryor 3ed
5. Textbook of medical physiology – Guyton and Hall
6. Physiotherapy in respiratory care: Shapiro
7. Physiotherapy in respiratory care: Alexandra Hough
8. Women's health: text book for physiotherapist: Ruth Sapsford
9. Crofton and Douglas's Respiratory Diseases: 5th Ed.
10. ECG made easy
11. Chest X Rays: Karthikeyan
12. Essentials of cardio pulmonary physical therapy: Hillgass
13. Cardio pulmonary physical therapy: Scott Irwin and Jan Stephen Tecklin
14. Egan's Fundamentals of Respiratory Care: Kacmareck, Stoller, Heuer: 11th Edition

SPECIALITY BRANCH

4. MPT in Paediatrics

Course code: APPT 375 Hardcore 4-0-4

Course title: General Paediatric Physiotherapy

APPT 375 **Speciality paper** (Theory & Practical) **C*** Hard core						
Sl. No	Evaluation					
	*CIA		*SEE			Total
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	Theory-(a+c=100) Practical(b+d+e=100) Total=200
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

CIA-cumulative Internal Assessment (College examination)

SEE- Semester End Examination (University Examination)

LEARNING OBJECTIVES
At the end of the course the student should be able to - 1. Assess and diagnose all possible findings on the patient to plan a Rehabilitation programme. 2. Document patients with scale, out come measures, electro diagnostic procedures and assess the progression. 3. Use basic physiotherapy technique/ approaches to treat & train children with Neurological, Orthopaedic & Cardio respiratory deficit. 4. Be able to impart knowledge for training the under graduate students.

Course content					
Title: General Paediatric Physiotherapy					**120 hrs**
Sl. No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
1	Embryology, Genetic basis of paediatric disorders. and genetic counseling.	3	-	Short essay Short answer	8 5
2	Maturational, patho-physiological& recovery process in	3	-	Short	8

	the CNS.			essay	
3	Analysis and classification of paediatric disorders.	3	-	Long essay Short essay	12 8
4	Evaluation, diagnosis & management of Paediatric condition.	3	6	Long essay Short essay Short answer	12 8 5
5	Rationale of basic and advanced investigative procedures with differential diagnosis.	3	2	Short essay Short answer	8 5
6	Neonatal care, high risk babies and early intervention.	3	6	Short essay	8
7	Equipments, assessment& treatment in neonatal & pediatric intensive care units.	3	4	Short essay	8
8	Pain, assessment & management in children	2	3	Short essay	8
9	Exercise testing & prescription in pediatrics	3	5	Long essay	`12
10	Rehabilitation of paediatric musulo-skeletal disorders.	7	8	Long essay	`12
11	Epidemiology, symptomatology, patho-physiology and management of paediatric cardio-respiratory disorders, Paediatric oncology & burns.	8	8	Long essay Short essay	`12 8
12	Congenital neurological, musculo-skeletal and cardio-respiratory disorders, assessment and management.	8	8	Long essay Short essay	`12 8
13	Learning skills, A.D.L and functional activities.	3	4	Short essay	8
14	Psychiatry in paediatrics.	2	-	Short answer	5
15	Role of Physical therapy in public and special schools.	3	-	Short essay	8

				Short answer	5
16	Self care, management and exercise prescription for home programme, and documentation	3	6	Long essay Short essay Short answer	12 8 5

Recommended books:

1. Brunstroms Clinical Kinesiology, Smith Laura K et al.
2. Clinical Skills in Neurology, Harrison Michael J G.
3. Clinical Neurophysiology, Binnie Colin D.
4. Clinical neurology and neurosurgery, Kitchen Neil.
5. DeJong's The Neurologic exanination, 6th ed.
6. Early Diagnosis and therapy in cerebralpalsy, Scherzer Alfred l.
7. Examination and diagnosis of musculoskeletal disorders, *Castro William H M.*
8. Functional Neuro rehabilitation, Bertoti Dolores B.
9. Hand book of neurological rehabilitation, Greenwood Richard J.
10. Mechanical ventilation, Maclntyre Neil R.
11. Motor control and learning, Schmidt Richard A.
12. Neurological and neurosurgical Intensive care, Ropper allan H.
13. Neuroscience for rehabilitation, Helen Cohen.
14. Neurological rehabilitation, Umphred Darcy A.
15. Neurological disabilities, Bennet Susan E.
16. Neurological Physiotherapy, Edwards Susan
17. Neurological differential diagnosis, Pattern John.
18. Physioherapy and growing child, Burns Yuonne R.
19. Physiotherapy for respiratory and cardiac problems in adult and paediatrics, Jennifer A Prayer, 4th ed.
20. Physical therapy for children, Campbell Suzann K.
21. Therapeutic Exercise in Development Dissabilities, Connolly Barbara H.
22. Treatment of cerebral palsy and motor delay. Levitt Sophie.

SEMESTER IV

SEMESTER IV (19-24 months)

***Student shall any one elective under the specialty**

Sl. No	Type & Course code	Course Title	Credits per week			Hours per Semester			Credits	Total
			L	T	P	L/T	P	Total		
1	Soft core To choose one APPT(401,402, 403, 425, 451, 452, 475)	Elective D* (Theory)	**4**	**0**	**0**	**60**	**0**	**120**	**4-0-4**	**8**
		Elective D* (Practical)	**0**	**0**	**4**	**0**	**60**			
2	Hard Core APPT 485	*Research work (Dissertation)	**-**	**-**	**-**	**-**	**-**	**60**	**-**	**6**
3	Soft core APPT 486	Ergonomics	**3**	**-**	**1**	**45**	**15**	**60**	**3-0-1**	**4**
3	Rotatory clinical training (Specific to elective)		**-**	**-**	**18**	**-**	**324**	**324**		**6**
4	Case presentations/ Journal club/ Supervised UG teaching		**-**	**-**	**3**	**-**	**54**	**54**		**3**
		Total	**7**		**30**	**105**	**513**	**618**		**27**

***Research work (Dissertation) for the whole programme-** Total **(2+0+4+6) (54+144+60=258 hrs)**

Sl.No.	Specialty Branch (Generic Elective)	Course code and *Elective Semester IV		NAME OF THE DEGREE AWARDED
1	Orthopaedics (Any one of three electives to be chosen)	APPT 401 Sports Physiotherapy	**ANY ONE**	MPT in Orthopaedics and Sports
		APPT 402 Manual therapy		MPT in Orthopaedics and Manual Therapy
		APPT 403 Hand rehabilitation		MPT in Orthopaedics and Hand rehabilitation
2	Neurosciences	APPT 425 Advanced Physiotherapy in Neurosciences	**NO CHOICE**	MPT in Neurosciences
3	Cardiovascular and Pulmonary sciences (Any one of two electives)	APPT 451 Critical care	**ANY ONE**	MPT in Cardio-Pulmonary sciences and Critical Care
		APPT 452 Health promotion and fitness		MPT in Cardio - Pulmonary sciences and Health promotion &fitness
4	Paediatrics	APPT 475 Advanced Paediatric Physiotherapy	**NO CHOICE**	MPT in Paediatrics

Course code: APPT 401 **Soft core** **4-0-4**

SPECIALITY: MPT in Orthopaedics and Sports

Elective: Sports Physiotherapy

Course title: Sports Physiotherapy Elective (Theory & Practical) **D*** **Corse code:** APPT401 Soft core						
Sl. No	Evaluation					
	*CIA		*SEE			Total (a+b+c+d+e)
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	(a+c)=100 (b+d+e)=100
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

LEARNING OBJECTIVES

At the end of the course, the candidate will be able to

1. Understand the psychosocial factors, environmental factors & individual factors affecting the performance.
2. 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 and arrive at appropriate functional diagnosis with clinical reasoning for fitness training & rehabilitation.
3. Use the anatomical rationale for the clinical tests used in differential diagnosis.
4. Be able to identify, discuss & analyse, the various cardio-respiratory function & co-relate the same with the provisional diagnosis, for fitness training & rehabilitation.
5. Lay down rehabilitation protocol for sports specific injuries focusing an early rehabilitation to injuries.
6. Identify the causes prone for injury & prevent them.
7. Guide participants for a confident sports activity & rehabilitation to attain maximal achievement.
8. Understand the role of Sports physiotherapist in the team.

Course content					
Title: Sports Physiotherapy					**120 hrs**
Sl. No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
1	**History of Sports medicine** • Ancient Greece and Gladiators, Hippocrates and Galon • FIMS and its Evolution • Primary care sports medicine in injury prevention	3	-	Short answer	5
2	**Sports physiology** • High energy phosphagen system • Cellular oxidation • Aerobic/Anaerobic glucolysis • Krebs cycle • Interrelationship with Carbohydrates, Protein, Fat, Metabolic Mill • Energy systems • VO_2 max and O_2 debt and deficit and recovery • Onset of blood lactate accumulation • Support system and its adaptations to exercises Thermoregulation and exercises- Altitude training, underwater training.	8	-	Short essay	8
3	Principles of injury prevention, Diagnosis, treatment and rehabilitation • History taking • Intrinsic and extrinsic factors • Work ergonomics and leisure • Training history • Knowledge of the sports	8	10	Long essay Short essay Short answer	12 8 5

	• Electrophysical modalities • Taping and splinting techniques • Aquatic therapy • Stretching, warm up & cool down • Speed, Endurance, Agility, Power, Balance, Plyometrics & Reaction time assessment and training • General and selective tissue training • Pre-activity and off season conditioning				
4	**Sports performance** • Muscle fiber typing and prediction of sports selection and performance • Anthropometry and performance • Overtraining syndrome • Fitness	3	-	Short essay	8
5	**Sports nutrition** • Significance of nutrition • Common food fads • Maximizing energy stores • Adequate hydration maintaining • Weight gain and loss • Optimizing pre competition meal ergogenic aids • Vegetarianism	3	-	Short essay	8
6	**Immediate first aid management** • On field • Off field	1	-	Short essay	8
7	**Sports Pharmacology (Doping in sports** • Historical perspective • International Olympic committee and the ban • Banned drugs	2	-	Short essay	8

	• Procedure of dope testing • Control of doping abuse. • Ethical dilemma				
8	**Non – traumatic medical condition in athlete** • DOMS • Runner's high • Exercise induced asthma • Infections • Hypertension • Urine abnormalities • Exercise addictions	4	-	Short essay Short answer	8 5
9	**Female Sports specific problems :** • Gender difference in sports participation • Amenorrhea, menstrual synchrony, injury to female reproductive system • Effect of exercise on menstrual cycle and performance • Exercises in pregnancy, Lactation, Menopause, and eating disorders. • Care of breast • Common injuries in women	4	-	Short essay Short answer	8 5
10	**Sports Specific injuries:** Special emphasis on risk factors, nature of sports and preventive with respect to individual sports. • Individual event: Field and track method. • Team events. • Contact and Non – contact Sports. • Water sports	6	6	Long essay	12
11	**Sports Psychology** • Role of a Sports Psychologist	3	-	Short essay	8

	• Predictive models of injury • Psychological factor involved in performance • Pre – competitive anxiety • Injury prone profile • Relaxation training.				
12	**Medico legal issues** • Negligence, Liability, Litigation • Basic principles to reduce the threat of litigation • Act of god • Assumption of risk • Contributing negligence • Comparative negligence • Legal rights to disabled athletes	2	-	Short answer	5
13	Sports in chronic illness • Rheumatoid arthritis • Diabetes • Hypertension • Congenital heart diseases • Asthma • Sports anemia • Epilepsy • Spinal deformities	4	10	Long essay	12
14	Sports for the special population • Screening for participation • Prevention of injuries & rehabilitation • Classification of sports for paraplegics • Mental retardation • Wheelchair athletes • Sports rehabilitation for disabled, pediatrics and geriatrics	5	4	Long essay	12

15	Manual therapy in sports	6	20	Long essay	12
16	Promotion of healthy life style in the community	2	10	Short answer	5

Recommended books:

1. Biomechanics of Sport and exercise. Peter m.McGinnis. 2nd edition
2. Anatomy of stretching. Craig Ramsay. Hinkler publication
3. Clinical Sports Medicine Buckner and Khan ME grawhill
4. Sports injuries Diagnosis and Management for Physiotherapist; C. Norris, Heinmans
5. Sports injuries – Assessment and Rehabilitation; Reid : WB Saunders
6. Encyclopedia of sports medicine, Lyle J. Micheli Sage publication
7. Office Sports Medicine ;Morris B. Mellion, Hanky and Beyus
8. Sports nutrition guide book, Nancy Clark 4th edition
9. Psychology in Sports-Methods and application, Suin Richard:
10. Kinanthrometry Singh and Malhotra Lunar Publications
11. Orthopaedic Physiotherapy; Donatelli Robert A, Micheal J. Wooden : Chrchill Liningstone
12. Mechanisms and Management of Pain for the Physical therapist; Kathleen A.Aluka2nd edition.Wolters Kluwer
13. The shoulder in Sport- management,rehabilitation and prevention.Andrea Fusco,Andrea Fogila,Frank Musarra, Marco Testa. Elsevier
14. Foot and ankle sports medicine, David W.Altchek, Christober W. DiGiovanni,Joshua S.Dines, Rock G.Positano. Wolters Kluwer
15. Physical therapies in sport and exercise. Gregory S kolt, Lynn Synder-mackler. 2nd edition
16. Principles and practice of isokinetics in sports medicine and rehabilitation. Kai-Ming Chan, Nocola Maffulli.
17. Balance training- Stability workouts for core strength and a sculpted body; Karon karter; Ulysses press.
18. Core strength for dummies; LaReine Chabut; Willy Publishing Inc.
19. Grieve's Modern Manual Therapy: Jeffery Boyling and Gwendokn Jull, 3rd Edition
20. Principles of Manual Medicine : By Philip E Greenmon

21. Text Book of Orthopedic Medicine; James Cyriax, 11th Edition
22. Muscle stretching in manual therapy- a clinical manual, Olaf Evjenth, Jern Hamberg Volume 1-the extremities.5th edition.
23. Pocket book of taping techniques, Rose McDonald Churchill livingstone.
24. Maitland Peripheral Manipulation
25. Maitland Spinal Manipulation
26. Fascial manipulation by John V. Basmajian.
27. www.fims.org
28. Rehabilitation of movement- theoretical basis of clinical practice. Judith pitt-Brooke.WB saunders.

Course code: APPT 402 Soft core 4-0-4

SPECIALITY: MPT in Orthopaedics and Manual therapy

Elective: Manual therapy

Course title: Manual therapy

Elective (Theory & Practical) **D***

Corse code: APPT402 Soft core

Sl. No	Evaluation					
	*CIA		*SEE			Total (a+b+c+d+e)
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	(a+c)=100 (b+d+e)=100
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

LEARNING OBJECTIVES

After completing this course, students are expected

1. Describe the basic theories and principles of various types of manual therapy
2. Identify the scope of manual therapy and summarize basic biomechanics of synovial joint and its related soft tissues
3. Use the anatomical rationale for the clinical tests used in differential diagnosis through manual therapy.
4. Learn the ability to perform an appropriate subjective and physical examination, with development of suitable analytical skills to evaluate data obtained.
5. Understand the indications and contra-indications, treatment efficacy, and clinical applications of each kind of manual therapy
6. Demonstrate basic techniques of orthopedic physical therapy assessment, especially biomechanical examination
7. Identify the indications, limitations, and contra-indication of joint mobilization and soft tissue mobilization
8. Use Manual Therapy Technique/ approaches to treat & train patients with musculo-skeletal deficit in children, adults & geriatrics.
9. Explicit and perform the steps of each manual therapy skills
10. Explicit interpretations and principles of orthopedic physical therapy assessment
11. Distinguish the differences in core concepts among various schools of thought

Course content					
Title: Manual therapy					**120 hrs**
Sl. No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
1	**Introduction to Manual Therapy.** History, Background and concepts of Manual therapy, comparing Grades of moments (Maitland, Cyriax & Kaltenbron)	2	-	Short essay	8
2	**Clinical Reasoning.** Surface anatomy, Palpation, Assessment, differential diagnosis and treatment planning	4	4	Short essay	8
3	**Biomechanics** of different tissues & movement analysis.	4	2	Short answer	5
4	**PAIN** – Theories of pain, Modulation,Causes, Presentation, Assessment, Differential Diagnosis and principles of management.	4	-	Short essay	8
5	**MAITLAND'S Concept.** • Basics of Subjective and Physical Examination • Movement diagram • VBI testing • Quadrant testing. • Instability Testing. **Maitland's Concepts for Various Joints.** • Cervical, Thoracic, Lumbar, SI. • Disc pathologies. • Peripheral Joints. • Home Programme. • **HVLT**	10	10	Long essay Short essay	12 8

6	**Combined Movements** • Regular and Irregular pattern in Cervical, thoracic, and Lumbar region. • Importance of Combined Movements in spinal dysfunction diagnosis and treatment. • Home Programme.	2	2	Short essay	8
7	**Mulligan's concept.** • Concept of **NAG, SNAGS, RNAGS, MWM** • Mechanical Basis of SNAGS. • Application of concepts in spinal and peripheral dysfunction. • Current trends in Mulligan concept • Home program	6	10	Long essay	8
8	**McKenzie concepts.** • Concepts • Postural Syndrome, Dysfunction Syndrome and Derangement Syndromes. • Approaches to Cervical, Thoracic and Lumbar spine. • Home program	2	4	Long essay Short essay	12 8
9	**Muscle Energy Technique.** • ***Fryette's Laws*** of physiological spinal motion • Segmented vertebral dysfunction • NRS, ERS, FRS • Technique and its application • Home program	2	4	Short essay	8
10	**CYRIAX.** • Selective Tissue Tension Test.	4	4	Short essay Short	8 5

	• Indication, Technique and Application of Deep Friction Massage. . • Indication, Assessment and Management Soft Tissue Lesions. • Merits and Demerits of Cyriax concepts in the management & soft tissue lesions. • Home program.			answer	
11	**Myo Fascial Release.** • Concept • Indications • Application techniques	2	2	Short essay	8
12	**Neural Mobilization.** • Basics, Neuro Anatomy/Neuro dynamics • Indications and contraindication • Adverse neural testing • Home program	2	4	Long essay Short answer	12 5
13	Positional Release Technique.	2	4	Short essay	8
14	Trigger Point Therapy.	2	4	Short answer	5
15	Tapping Techniques	2	4	Long essay	12
16	• Recent Advances in manual therapy. • Integrated Approaches in Manual Therapy. • Adjunct therapy to manual therapy. • Ethical Issue in Manual Therapy Practice. • Clinical Record Maintenance in Manual Therapy. • Evidence Based Practice in Manual Therapy. • Scope of Manual therapy in Veterinary • Scope of Manual therapy in Dentistry	10	2	Short answer	5

Recommended books:

1. Athletic taping and Bracing, Pessin David H.
2. Basic Biomechanics of the Musculoskeletal system, Victor H. Frankel and Margareta Nordin,3rd Edition.
3. Chaitow - Muscle energy technique, Mangement of common Musculoskeletal disorders,3rd Edition.
4. Cervical and Thoracic Spine Mechanical diagnosis and therapy- R A McKenzie.
5. Clinical applications of Neuromuscular techniques, Leon Chaitow-2nd ed Vol 1&2
6. Clinical Reasoning; CherylMethingly.
7. Complementary therapies for physiotherapists, Charman Robert A.
8. Combined movement theory-Rational mobilization and manipulation of the vertebral coloums; Chris McCarthy. Churchill Livingstone
9. Colour atlas of skeletal landmark definitions; Serge Van Sint Jan.Curchill Livingstone
10. Diagnostic imaging for Physicaltherapist- James S
11. Differential diagnosis for Physicaltherapists screening for referral,Goodman,4th ed.
12. Electrotherapy, Kitchen Sheila, 11th edition.
13. Evidance Based Rehabilitation, Law mary.
14. Fascial Manupulation for musculoskeletal pain, Stecco Luigi.
15. Functional soft tissue examination and treatment by manual methods, Hammer Wassen I.
16. Functional Anatomy;Musculoskeletal Anatomy,kinesiology and Palpation for Manualtherapist-Christy Cael.
17. Grieve's modern manual therapy
18. Joint mobilization and Manipulation, Edmond Susan L.
19. Kinesiology movement in the context of activity-David Paul Greene,2nd ed
20. Lumbar Spine Mechanical diagnosis and therapy- R A McKenzie
21. Maitland's – Peripheral manipulation 4th Edition
22. Maitland's – Vertebral manipulation 7th Edition
23. Management Principles for Physical therapists,Noose Larry J.
24. Manual Therapy,NAGs,SNAGs,MWM etc by Brian R Mulligan,5thedn.
25. Manualtherapy for Peripheral Nerves- Jean Pierre Barral.
26. Manualtherapy in Children, Biedermann Heirer.

27. Manual of Combined Movements, Edwards Brain C.
28. Mobilization of the Nervous system, David S Butler.
29. Modalities for therapeutic intervention, Susan L Michlovitz, 4th ed.
30. Musculoskeletal Physical examination, Malanga Gerald.
31. Nicola J. Petty, Ann P. Moore Neuro Musuloskeletal Examination and Assessment,
32. Orthopaedic Physical Therapy, Donatelli Robert A,Micheal J Wooden
33. Orthopaedic Neurology-a diagnostic guide to neurologic level, Stanley Hoppen Field.
34. Palpation Skills, Leon Chaitow.
35. Physicaltherapy ethics, Gabard Donald L.
36. Positional Release Techniques, Leon Chaitow.
37. Principles of Manual Medicine, Philip E Greenman. 4th Edition.
38. Randy W.Beck; Functional neurology for practitioners of manual therapy. Churchill livingstone.
39. Rose McDonald; Pocket book of taping techniques, Churchill livingstone.
40. Reflexology, Beryl Crane.
41. Rehabilitation of movement- theoretical basis of clinical practice. Judith pitt-Brooke.WB saunders
42. Text book of Orthopaedic Medicine, James Cyriax, 11th Edn.
43. Therapeutic electrophysical agents evidence behind Practice-Alain Yvan Belangar, 2nd edition.
44. The muscle book. K.P.Valerius et.al. Quintessence publishing.
45. TMJ joint dysfunction –Essentials, Jagger R G.

Course code: APPT 403 Soft core 4-0-4

SPECIALITY: MPT in Orthopaedics and Hand rehabilitation

Elective: Hand rehabilitation

Course title: Hand rehabilitation Elective (Theory & Practical) **D*** **Corse code:** APPT403 Soft core						
Sl. No	Evaluation					
	*CIA		*SEE			Total (a+b+c+d+e)
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	(a+c)=100 (b+d+e)=100
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

LEARNING OBJECTIVES

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 and arrive at appropriate functional diagnosis with clinical reasoning.
2. Use the anatomical rationale for the clinical tests used in differential diagnosis.
3. Learn the ability to perform an appropriate subjective and physical examination, with development of suitable analytical skills to evaluate data obtained.
4. Further develop clinical reasoning that incorporates theoretical concept with evidence-based practice in the field of Hand rehabilitation.
5. Recognize the implication of dysfunction on the Neuro- Musculoskeletal system on hand function and the student's clinical decision making for rehabilitation.
6. Asses and diagnose all possible findings on the patient to plan a Rehabilitation programme.
7. Lay down rehabilitation protocol for sports specific hand injuries focusing an early rehabilitation to injuries.
8. Identify the causes prone for injury & prevent them.
9. Document patients with scale, out come measures and asses the progression.
10. Use recent Technique/ approaches to treat & train patients with hand dysfunction in children, adults & geriatrics.
11. Be able to impart knowledge for training the under graduate students.

Course content					
Title: Hand rehabilitation		**120hrs**			
Sl. No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
1	1.1. Architecture of the hand 1.2. **Lymphatic system.** 1.3. **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	-	Long essay	12
2	**EXAMINATION** 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, ROM, flexibility, joint pliability, joint mobility (articular & Osteo), skin.	4	10	Long essay	12
3	**HAND TRAUMA** 3.1. Debridement, Contaminated wounds I & II, Amputation, Arthrodesis in trauma, Joint transfer, Mutilated hand, crushed hand, Pediatric mutilated hand, Nail bed, Fingertip 3.2. Skin Grafts, Cross and reverse cross finger flaps 3.3. Local regional flaps of the hand, Emergency free flaps 3.4. Dorsal hand reconstruction, Soft tissue coverage-traumatized limb 3.5. Thumb replant/immediate pollicization/immediate transfer 3.6. Chemical, radiation, frostbite injuries 3.7. Electrical burns, Injection injuries, Farm injuries, Micro vascular techniques 3.8. Recent advances in the management of replantation.	8	6	Short essay Short answer	8 5

4	**TENDONS** 4.1. Applied anatomy, physiology and biomechanics of tendons 4.2. Scientific basis of flexor rehabilitation, Technical aspects of flexor repair 4.3. History of flexor tendon repair 4.4. Postoperative management flexor tendon injuries 4.5. Extensor tendon injuries: Extensor tendon repair I & II: bracing/splinting/therapy 4.6. Extrinsic, intrinsic tightness, quadregia, and lumbrical plus	4	6	Long essay	12
5	**BONE** 5.1. Anatomy/physiology of bone healing & cartilage, Kienbock/Preisers, 5.2. Distal radius fractures, malunion, Distal ulna fracture & dislocations DRUJ 5.3. Scaphoid fractures, Scaphoid nonunions/malunions,Carpal dislocation./fractures (not scaphoid), CMC, MCPJ dislocation without fractures 5.4. Metacarpal and P1 fractures, P2 fractures PIP fractures –dislocations. 5.5. P3 fractures & dislocations and bony mallet 5.6. Phalangeal/metacarpal malunions, Carpal instability 5.7. Principles and advantages of External Fixation in hand & wrist fractures.	2	4	Short answer	5
6	**NERVE** 6.1. 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 6.2. Ulnar nerve palsy, Radial nerve palsy, Median nerve palsy, Brachial plexus, Obstetrical palsy,	5	6	Short essay	8

	Tendon transfers in tetraplegia, Tendon transfers in plexus, Combined nerve palsy, Cerebral palsy/stroke 6.3. Nonsurgical neuropathies, Dystrophy/chronic regional pain, Painful neuromas/neurolysis, Pain Management				
7	**ARTHROPLASTY** Principles and physiotherapy management with recent advances for Wrist & Hand	3	3	Short answer	5
8	**TUMORS:** Benign & Malignant soft tissue tumors, Benign bone tumors, Malignant and metastasis, Radiology of bone tumors, Skin cancer, Melanoma in the hand, Ganglion cysts	4	3	Short answer	5
9	**INFECTIONS:** Common infections (excluding tenosynovitis): Atypical hand infections: Tenosynovitis	3	2	Short answer	5
10	**DUPUYTREN'S:** Anatomy and pathobiology & Treatment	2	1	Short essay	8
11	**CONGENITAL:** Examination of the congenital hand, , 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	5	2	Short essay	8
12	**ARTHRITIS** • Non RA arthritis's • Osteoarthritis wrist, including arthrodesis and arthroplasties • Osteoarthritis digits (not CMC) • RA general principles, Swan neck/boutonierre, CMC except arthroplasty • CMC Jt. Arthroplasty	5	4	Short essay	8
13	**APPLIANCES** Recent advances in Prosthetic & Orthotic appliances' in hand	3	3	Long essay	12
14	• Recent advances and evidence based practice in Hand Rehabilitation • Disability evaluation	10	10		

Recommended 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. Fundamentals of Hand therapy-Clinical reasoning and treatment guidelines for common diagnosis of the upper extremity; Cynthia Cooper .Mosby publication
8. Concepts of hand rehabilitation [Mobsy publications]
9. \Rehabilitation of Hand; J.M. Hunter [C.V.Mobsy]
10. Hand splinting: Principles of designer fabrication Judith L.Wilton; W.B.Saunders
11. Structural and dynamic bases of surgery; Zancolli; J.B.Lippincott
12. Rehabilitation of Hand; Wynn Parry [Butter worth Heinemann]
13. Hand Rehabilitation: A Quick Reference Guide and Review Nancy Falkenstein (Author), Susan Weiss- Lessard [Mobsy publications]
14. Hand Secrets by Peter Jebson [Mobsy publications]
15. Hand and Upper Extremity Rehabilitation: A Practical Guide by Susan L. Burke [Mobsy publications]
16. Physical Agent Modalities:: Theory and Application for the Occupational Therapist by Alfred Bracciano [Mobsy publications]
17. Splinting the Hand and Upper Extremity: Principles and Process by MaryLynn A Jacobs [Mobsy publications]
18. Hand and Upper Extremity Splinting: Principles and Methods by Elaine Ewing Fess [Mobsy publications]
19. Hunter, Mackin & Callahan's Rehabilitation of the Hand and Upper Extremity (2 Volume Set) by Evelyn J. Mackin [Mobsy publications]
20. Hand rehabilitation – Christine - Churchill Livingstone, London 1995.

Course code: APPT 425 Soft core 4-0-4

SPECIALITY: MPT in Neurosciences

Elective: Advanced Physiotherapy in Neurosciences

Course title: Advanced Physiotherapy in Neurosciences Elective (Theory & Practical) **D*** **Corse code:** APPT425 Soft core						
Sl. No	Evaluation					
	*CIA		*SEE			Total (a+b+c+d+e)
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	(a+c)=100 (b+d+e)=100
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

LEARNING OBJECTIVES
At the end of the course. The student should be able to 1. Asses & plan management programme for various adult and paediatric neurological conditions. 2. Apply physiotherapy management at community settings related to neurological conditions. 3. Disability evaluation applied to neurology 4. Refer and apply recent physiotherapy techniques in neurological conditions

Course content					
Title: Advanced Physiotherapy in Neurosciences				**120 hrs**	
Sl.No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
ADULT NEUROLOGY					
1	Cerebro vascular accidents	3	3	Long essay	12
2	Traumatic Brain injuries	3	3	Long essay	12
3	Traumatic spinal cord injuries	3	3	Long essay	12
4	1. Inflammatory and infectious disorders of the nervous system	3	2	-	-
	a. Brain abscess			Short essay	8

	b. Meningitis			Short essay	8
	c. Encephalitis			Short essay	8
	d. GBS			Long essay	12
	e. Poliomyelitis			Long essay	12
5	Disorders of cerebellum and basal ganglia	2	2	Long essay	12
6	Degenerative, demyelinating and metabolic diseases of nervous system	3	1	Long essay	12
7	Diseases of spinal cord, cranial nerves and peripheral nerves	4	3	Long essay	12
8	Neuromuscular disorders	2	1	Long essay	12
9	Space occupying lesions in the nervous system	2	1	Short essay	8
10	Cognitive rehabilitation	1	3	Short essay	8
11	Oromotor rehabilitation	1	1	Short answer	5
12	Vestibular rehabilitation	2	2	Short essay	8
13	Assessment and management of various neurological gaits	2	3	Short essay	8
14	Learning skills, ADL_S and functional activities	1	1	Short answer	5
15	Bladder and bowel dysfunction and its rehabilitation	2	1		8
16	Rehabilitation following disorders of special senses and perception	1	1	Short answer	5
17	Community based rehabilitation for neurological dysfunction	1	3	Short essay	8
18	Disability evaluation applied to neurology	1	3	Short essay	8
19	Recent advances in neurological rehabilitation	1	-	Long essay	12
PEDIATRIC NEUROLOGY					
20	Normal motor development	2	2	Short answer	5

21	Reflex maturation	1	-	Short essay	8
22	Assessment and testing of infant and child development	2	2	Short essay	8
23	Assessment and interventions for high risk infants	2	2	Long essay	12
24	Cerebral palsy	2	2	Long essay	12
25	Spina bifida (Myelodysplasia)	1	1	Short essay	8
26	Hydrocephalus	1	1	Short answer	5
27	Brain injuries	1	1	Long essay	12
28	Brachial plexus injuries	2	2	Short essay	8
29	Neuromuscular disorders	2	2	Long essay	12
30	Mental retardation	1	1	Short answer	5
31	Down's syndrome	1	1	Short essay	8
32	Autism	1	1	Short essay	8
33	Developmental coordination disorder	1	2	Short answer	5
34	Learning disabilities	1	1	Short answer	5
35	Physiotherapy in public/special schools	1	2	Short answer	5

Recommended books:

1. Neuroscience for Rehabilitation – Helen Cohen, Lippincott Williams & Wilkins
2. Neurological Rehabilitation – Dany Umphred Mosby
3. Hand book of Neurological Rehabilitation – Greenwood & McMillan , Psychology press
4. Neurological Disabilities- Assessment and treatment – Bennet & Kames, Lippincott Williams & Wilkins
5. Functional Neuro rehabilitation through the life span – Bertoti, F.A Davis
6. Pediatric Physiotherapy – Tecklin, Lippincott Williams & Wilkins
7. Physical therapy for children – Campbell, Saunders
8. Treatment of cerebral palsy and motor delay – Sophie Levitt, Blackwell

9. Paraplegia and Tetraplegia – Brombley, Churchill Livingstone
10. Neurological Rehabilitation – optimizing motor performance – Carr and Shepherd, Elsevier.
11. Neurological Differential Diagnosis - Patten, John P
12. Adams and Victor's Principles of Neurology - Allan Ropper and Robert H Brown

Course code: APPT 451 Soft core 4-0-4
SPECIALITY: MPT in Cardio-Pulmonary sciences and Critical Care
Elective: Critical care

Course title: Critical care Elective (Theory & Practical) **D*** **Corse code:** APPT451						Soft core
Sl. No	Evaluation					
	*CIA		*SEE			Total (a+b+c+d+e)
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	(a+c)=100 (b+d+e)=100
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

LEARNING OBJECTIVES

At the end of the course the student should be able to

1. Recall critical care concepts and set up
2. Recall critical care team and their role
3. Describe critical care equipment and their role in life support
4. Recall monitoring equipment and diagnostic equipment in critical care and explain their role
5. Describe the role of mechanical ventilation in life support
6. Explain role of oxygen therapy in critical care and methods of its delivery
7. Describe cardiorespiratory emergencies and management
8. Describe and demonstrate cardiopulmonary resuscitation
9. Explain the various mechanisms of ICU acquired weakness
10. Describe in detail and demonstrate physiotherapy assessment and management in secretion clearance, improving oxygenation, breathing retraining, thoracic expansion, musculoskeletal complications and ICU acquired weakness
11. Recall the ethical considerations in critical care

Course content					
Title: Critical care					**120hrs**
Sl.No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
1	Critical care concept and critical care set up	2	-	Short answer	5
2	Critical care team and their roles a. Intensivist b. Critical care nurses c. Physical therapist d. Respiratory therapist	1	-	Short answer	5
3	Safety issues in ICU	2	-	Short answer	5
4	Critical care equipment for advanced methods of life support 1. Artificial airways 2. Mechanical ventilation 3. IPPB 4. CPAP 5. BiPAP 6. Oxygen therapy 7. Intra-aortic balloon pump (IABP) 8. Ventricular assistive devices (VAD) 9. Humidifiers 10. Nebulizers 11. Infusion pump 12. Emergency resuscitation crash cart 13. Dialysis unit	5	5	Long essay Short essay Short answer	12 8 5
5	Patient monitoring equipment	2	5	Short	8

	1. ECG a. Heart rate b. Arrhythmia c. Ischemia 2. Noninvasive BP monitor 3. Arterial lines a. Invasive BP monitoring 4. Pulmonary artery catheter a. Intra-cardiac pressure b. Cardiac output 5. CVP monitor 6. Pulse oximetry a. Respiratory rate b. Oxygen saturation 7. ICP monitor 8. Intra-abdominal pressure monitor 9. Temperature monitor			essay Short answer	 5
6	Diagnostic devices 1. Portable X ray unit 2. Portable clinical lab devices 3. Blood analyzer	1	1	Short answer	5
7	Mechanical Ventilator management 1. Principles of invasive and noninvasive mechanical ventilation 2. Indications 3. Criteria for initiation of MV 4. Settings of MV a. Trigger and sensitivity b. Respiratory rate c. Tidal Volume	10	5	Long essay Short essay Short answer	12 8 5

	d. Minute volume e. Positive end-expiratory pressure (PEEP) f. Flow rate g. Inspiratory time h. Fraction of inspired oxygen i. Sigh 5. Modes of MV a. Volume modes b. Pressure modes 6. Weaning a. Criteria b. Methods 7. Alarms a. High pressure alarms b. Low pressure alarms c. Oxygen alarm d. High respiratory rate alarm e. Apnea alarm 8. Complications of MV a. Airway Complications b. Mechanical complications, c. Physiological Complications, d. Artificial Airway Complications				
8	Oxygen therapy 1. Indications 2. Assessment of need for oxygen	3	5	Long essay	12

	3. Oxygen delivery systems a. Low flow delivery systems b. High flow delivery systems 4. Methods of oxygen delivery a. Nasal bi-prongs b. Nasal cannula c. Simple mask d. Partial rebreathing mask e. Non rebreathing mask f. Venturi mask g. Tracheostomy collar/mask h. T piece i. Face tent j. Trans-tracheal catheter 5. Dangers and precautions for oxygen therapy a. Oxygen toxicity b. Suppression of ventilation c. Absorption atelectasis			Short essay Short answer	8 5
9	Cardio respiratory emergencies and management principles	10	10	Long essay Short essay Short answer	12 8 5
10	Cardiopulmonary Resuscitation	3	5	Long essay	12
11	ICU acquired weakness 1. Pathophysiology 2. Risk factors	2	-	Short essay	8

	3. Complications 4. Management			Short answer	5
12	Recognition of emergencies in ICU and their management	1	2	Short answer	5
13	Physiotherapy management in ICU 1. Assessment 2. Signs of intolerance and poor tolerance to physiotherapy 3. Precautions for physiotherapy 4. Secretion clearance a. Postural drainage b. Percussion c. Vibration and shaking d. Coughing and Suctioning e. Lavage and Manual hyperinflation 5. Optimizing oxygen delivery a. Body positioning b. Position changes 6. Musculoskeletal complications a. Positioning and splinting joints b. Passive and active movements c. Passive stretching 7. Respiratory muscle retraining a. Breathing exercise b. Inspiratory muscle training 8. Thoracic expansion a. Deep breathing exercise b. Incentive spirometry c. Thoracic expansion exercises 9. ICU acquired weakness	10	12	Long essay Short essay Short answer	12 8 5

	a. Early controlled mobilization 10. Role of physiotherapy in weaning				
14	Physiotherapy management in pediatric ICU 1. Monitors and equipment 2. Common problems encountered in children and infants 3. Assessment 4. Management 5. Modification of techniques	5	5	Long essay Short essay Short answer	12 8 5
15	Physiotherapy management in neonatal ICU 1. Monitors and equipment 2. Common problems encountered in neonates 3. Assessment 4. Management 5. Modification of techniques	5	5		
16	Ethical considerations in intensive care 1. End of life issues	2	-	Short answer	5

Course code: APPT 452 Soft core 4-0-4

SPECIALITY: MPT in Cardio-Pulmonary sciences and Health promotion &fitness

Elective: Health promotion and fitness

Course title: Health promotion and fitness Elective (Theory & Practical) **D*** **Corse code:** APPT452 Soft core						
Sl. No	Evaluation					
	*CIA		*SEE			Total (a+b+c+d+e)
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	(a+c)=100 (b+d+e)=100
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

LEARNING OBJECTIVES
On completion of the subject, students will have had the opportunity to develop the following skills. 1. Well developed problem solving abilities in both the clinical and the theoretical aspects of cardiothoracic physiotherapy. 2. A capacity to manage competing demands on time, including self-directed project work. 3. To function as an essential team member of intensive care units, as well as team of experts in the Cardio-Pulmonary rehabilitation general fitness and health promotion at the hospital set ups industrial/geriatric set ups, health clubs, sports fitness/training and women's health. 4. Describe and understand the general pathophysiological basis for exercise limitation by patients with cardiopulmonary disease. 5. To understand the general principles used to evaluate patients with cardiopulmonary disease and design effective and safe exercise rehabilitation programs 6. Communicate effectively with patients and colleagues on appropriate exercise prescription

Course content					
Title: Health promotion and fitness		**120 hrs**			
Sl.No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
1	Health Fitness , Risk assessment and safety of exercise 1.1 Fitness, definition, aspects and parameters for testing. 1.2 Scientific basis for exercise programs 1.3 Benefits of regular physical activity and exercise 1.4. Risk associated with exercise testing and vigorous exercise 1.5. Recommendation to reduce the incidence and severity of complication during exercise 1.6. Health screening and risk stratification	15	10	Long essay Short essay Short answer	12 8 5
2	Exercise Testing: 2.1.pretest clinical evaluation 2. 2.Exercise training, planning and prescription 2. 3. Exercise testing - principles of testing and interpretation 2. 4.clinical exercise testing 2. 5.Interpretation of clinical Test Data	15	15	Long essay Short essay Short answer	12 8 5
3	Exercise prescription: 3.1.General principles of exercise prescription. 3.2.Exercise prescription for cardiac patients normal and abnormal cardiac activity and effects	15	15	Long essay Short	12 8

	on cardio vascular system. 3.3.Exercise prescription for pulmonary patients 3.4. .Exercise prescription for health promotion and for special populations 3.5.Exercise testing and prescription for children ,The elderly, And pregnant women			essay Short answer	 5
4	Fitness and Nutrition	5	5	Short answer	5
5	Special considerations 5.1. Methods for changing exercising behaviors. 5.2.Legal issues and Ethical consideration 5.3. Recent advances in cardio-respiratory physiotherapy	10	15	Long essay Short essay	12 8

Recommended Books:

1. Human Physiology by Guyton
2. Physiology of Human joints by Kapandji
3. Hand book of physiology in Aging - Masoro, C.R.C Press
4. Mechanical Ventilation by Irwin R.S.Bemers
5. Mechanical Ventilation by David W. Chang
6. ECG by Schamroth
7. Interpretation of Pulmonary Function Tests: A Practical Guide by Hyatt, Robert E.; Scanlon, Paul D
8. Principles of Exercise Testing and Interpretation: Including Pathophysiology and Clinical Applications by Kalman Wasserman
9. Baum's text book of pulmonary diseases
10. Crofton and Douglas's Respiratory diseases
11. Egan's Fundamentals of Respiratory care by Robert Wilkins

12. Harrison's Textbook of medicine
13. Brawnwald's Cardiology
14. API's Text book of Medicine
15. Cardiopulmonary Physical Therapy - Irwin & Tecklin (Mosby).
16. Cardiopulmonary Rehabilitation - Barbara.
17. Cardiopulmonary Rehabilitation - Frown Felter & Dean.
18. Chest Physiotherapy in Intensive Care Unit - Makezie, Williams & Wilkins, Baltimore.
19. Cardiopulmonary symptoms in Physiotherapy - Cohen M, Churchill, Livingstone, London.
20. A Manual of Neonatal Intensive Care - Robert NRC, Edward Arnold, London
21. Cardiopulmonary Equipments - David Eubanks & Bone
22. Clinical Nutrition - Davidson.
23. Exercise Physiology and Physical Education in Athletics - Fox and Mathews.
24. ACSM Guidelines For Exercise testing and prescription –American college of sports medicine

Course code: APPT 475 Soft core 4-0-4
SPECIALITY: MPT in Paediatrics
Elective: Advanced Paediatric Physiotherapy

Course title: Advanced Paediatric Physiotherapy Elective (Theory & Practical) **D*** **Corse code:** APPT475 Soft core						
Sl. No	Evaluation					
	*CIA		*SEE			Total (a+b+c+d+e)
	W (a)	P(b)	W(c)	P(d)	Viva (e)	
1	40	40	60	40	20	(a+c)=100 (b+d+e)=100
	Passing criteria: Must obtain 50% separately in Theory (a+c) & Practical (b+d+e) . And in aggregate of (a+b+c+d+e) 50%. i.e 100 in total					

LEARNING OBJECTIVES

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

1. Assess and diagnose all possible findings on the patient to plan a advanced Rehabilitation programme.
2. Document patients with scale, out come measures, electro diagnostic procedures and assess the progression.
3. Use recent Technique/ approaches to treat & train children with Neurological, Orthopaedic & Cardio respiratory deficit.
4. Use evidenced based practices in paediatric rehabilitation
5. Be able to impart knowledge for training the under graduate students.

Course content

Title: Advanced Paediatric Physiotherapy **120hrs**

Sl.No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
1	Recent advances in instrumentations, theories, handling and pediatric physical therapy techniques.	3	-	Short essay	8
2	Developmental assessment and screening scales in pediatrics	3	3	Long essay	12
3	Neuro-developmental therapy, Vojta, assessment and treatment	4	5	Long essay Short essay	12 8
4	Motor learning process-theory and techniques	4	-	Short essay	8
5	Sensory integration disorder and management	4	4	Long essay	12

6	Integrated approach in management of paediaric disorders	5	5	Long essay Short essay	12 8
7	Advanced instruction in physical examination, diagnosis, treatment and reassessment of the paediatric neurological, musculoskeletal, cardio respiratory system	8	10	Long essay Short essay Short answer	12 8 5
8	Disability detection and early intervention in pediatrics	2	5	Short essay	8
9	Posture and movement analysis.	2	2	Short answer	5
10	Assessment and Management of progressive locomotor disorder- Neuropathic and myopathic conditions	5	10	Long essay Short essay Short answer	12 8 5
11	Learning and behavioral disorders and its management	2	2	Short answer	5
12	Metabolic disorders and their management	2	2	Short answer	5
13	Recent advances in adaptive equipments for physically challenged children	2	2	Short essay	8
14	Assessment of Play behavior & its clinical application in therapy.	2	-	Short answer	5
15	Sports training in pediatrics	2	2	Short essay	8
16	Vocational rehabilitation in pediatric disorders with disability	2	2	Short answer	5
17	Disorders of perception & cognition &their management	2	2	Short essay	8
18	Paediatric surgeries and its postoperative management.	2	2	Short essay Short answer	8 5
19	Evidence based practice in paediatric physical therapy.	4	2	Long essay Short essay	12 8

Recommended books:

1. Clinical reasoning, Cheryl Mathingaly.
2. DeJong's The Neurologic exanination, 6th ed.
3. Evidance Based Rehabilitation, *Law mary*.
4. Functional Neuro rehabilitation, Bertoti Dolores B.

5. Hand book of neurological rehabilitation, Greenwood Richard J.
6. Management Principles for Physical therapists, *Noose Larry J.*
7. Motor control and learning, Schmidt Richard A.
8. Neurological Physiotherapy, Edwards Susan
9. Neurologic examination, Schwartzma Robert
10. Neurological differential diagnosis, John Patten, 2nd ed.
11. Neurological rehabilitation, Carr Janet H.
12. Treatment of cerebral palsy and motor delay. Levitt Sophie.
13. Physical therapy for children, Campbell Suzann K.
14. Paediatric Physical therapy, Tecklin Jan Stephen.
15. Therapeutic Exercise in Development Disabilities, Connolly Barbara H.

Course title: Dissertation

Course title: Dissertation **APPT 485** Hard core								
Sl. No	**Type**	Evaluation						Pass % (b+c+d+e)=50)
		*CIA		*SEE			Total (b+c+d+e)	
		W(a)	P (b)	Book (c)	Presentation (d)	Viva (e)		
1	Hard core	-	20	20	30	30	100	50

Refer regulation for details (Sl.18) - Pg.No.11&12

Course code: APPT 486 3-0-1

Course title: Ergonomics

Course title: Ergonomics Soft core APPT 486							**Pass %** **(a+c=50)**
Sl. No	Evaluation						
	*CIA		*SEE			Total (a+c)	
	W (a)	P(b)	W(c)	P(d)	Viva (e)		
1	40	-	60	-	-	100	50

CIA-cumulative Internal Assessment (College examination)

SEE- Semester End Examination (University Examination)

LEARNING OBJECTIVES
At the end of the course 1. Student will be able to define ergonomics and explain the focus of ergonomics 2. Student will be able to identify the risk factors for Work related musculoskeletal disorders(WRMSDs) also the prevention of WRSMDs at work place, 3. Student will be able to explain the application of anthropometric in the designing of work space and instruments. 4. Student will be able to evaluate and modify a work space/computer work station 5. Student will be able to use basic ergonomic tools in the assessment 6. Will be able to educate the society on work related health and fitness

Course content					
Title: hrs					
Sl. No.	Title of the content	Hours		Types of questions	
		Th.	**Pr.**	**Type**	**Marks**
1	Introduction 1.1. The focus of ergonomics 1.2. Ergonomics and its area of application in work system 1.3. History of ergonomics 1.4. Modern ergonomics 1.5. Effectiveness and cost effectiveness 1.6. Rehabilitation ergonomics- Conceptual basis 1.7. Energy cost consideration in common disabilities 1.8. Aging and ergonomics	2	-	Short essay	8
2	Anatomy, posture and body mechanics 2.1. Basic Anatomy & Body Mechanics.	5	-	Long essay	12

	2.2. Spine and pelvis related to posture 2.3. Postural stability & Postural adaptation 2.4. Low back Pain 2.5. Risk factors for musculoskeletal disorders in work place 2.6. Behavioral aspects of posture				
3	Anthropometric principles in work place and equipment design 3.1. Designing for a population of users 3.2. Principles and uses of anthropometry in ergonomics 3.3. Application of anthropometry in design	5	2	Long essay	12
4	Static work: Design for standing and seated works 4.1. An ergonomic approach to workstation design 4.2. Design for standing and seated workers 4.3. Work Surface design 4.4. Visual display units 4.5. Guidelines for the design of static work	5	2	Short answer	5
5	Design of repetitive tasks 1.1. Work related musculoskeletal disorders (WMSDs) 1.2. Review of tissue Pathomechanics and WMSDs 1.3. Injuries of upper body at work • Disorders of neck • Carpal tunnel syndrome • Tennis elbow • Disorders of the shoulder 1.4. Injuries to lower limb 1.5. Ergonomic intervention	5	2	Short answer	5
6	Design of manual handling tasks 6.1. Anatomy, biomechanics of manual handling 6.2. Prevention of Injuries 6.3. Design of manual handling tasks 6.4. Carrying	5	2	Short answer	5
7	Work capacity, stress and fatigue 7.1. Stress and fatigue 7.2. Muscle structure, function and capacity 7.3. The cardio vascular and respiratory system 7.4. Physical work capacity 7.5. Factors affecting work capacity	5	-	Short essay	8
8	Industrial application of physiology 8.1. Measurement of the physiological cost of work • Indirect measures of energy expenditure • Subjective measures of physical work 8.2. Applied physiology in the work place • Calculation of rest periods in manual work	5	5	Short essay	8

	8.3. Fitness for work • Fitness and health • Assessment of physical work demands • Physical fitness and everyday life • Work load, physical fitness and health • Energy conservation technique • Work hardening programmes • Maintaining fitness at work • Accidents and fatigue • Health promotion				
9	Environmental factors • Heat, Cold, Light, Noise, Vibration	3	-	Short answer	5
10	10.1. Human-Machine interaction, Human errors and safety 10.2. Human information processing, skill and performance 10.3. Human-computer interaction, memory and language 10.4. Displays, controls and virtual environments	3	-	Short answer	5
11	16.1. Gait and ergonomics 16.2. Wheel chair ambulation 16.3. Seat, seating and seat selection- implication for pressure ulcers	1	2	Short answer	5
12	Macro ergonomics	1	-	Short answer	5

Recommended books:

1. Ergonomics: Practical Manual for Beginners; Manjit Kaur Chauhan
2. Ergonomics for rehabilitation professionals; Shrawan kumar, CRC pres
3. Introduction to ergonomics; R.S.Bridger, Taylor & Fransis
4. Introduction to work study; George Kanawaty4th edition, Universal Publishing corporation, Bombay
5. Work study & Ergonomics K Sharma, Savita Sharma. Katson books.
6. Work study and Ergonomics; Lakhwinder Pal Sing. Cambridge University press

Recommended journals

1. Physical Therapy (APTA, America)
2. Physiotherapy (CSP London)
3. American Journal of Physical Medicine And Rehabilitation
4. Physiotherapy (Canada)
5. Physiotherapy Theory and Practice
6. Australian Journal of Physiotherapy
7. Journal of Indian Association of Physiotherapy
8. Clinical Kinesiology
9. Journal of Biomechanics
10. American Journal of Sports Exercise
11. Pediatric Physical Therapy
12. Journal of Neurologic Physical Therapy
13. Journal of Rehabilitation Research and Development
14. Journal of Cardio Pulmonary Rehabilitation
15. Journal of ergonomics
16. Ergonomics
17. International journal of human factors and ergonomics
18. Applied ergonomics
19. Archives of Physical Medicine and Rehabilitation
20. Journal of Neurological Sciences
21. Clinical Rehabilitation
22. Spine
23. Manual Therapy
24. Gait and Posture