Shri Govind Guru University

(Established by Government of Gujarat Vide Gujarat Act no 24/2015)

Towards Smart Quality Education

Programme & Subject: **Masters of Physiotherapy – M.P.T**

(2 Years Degree Course)

Under **The Faculty of Medicine**

Regulations & Curriculum

(In force for the students from academic year 2018-2019 and thereafter)

Rules Regulations & Curriculum

For The Degree of Master of Physiotherapy

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Program Title: Master of Physiotherapy [MPT]

Program Outline: The Master of Physiotherapy (MPT) is a two year Full time Post Graduation degree program consisting of Seminars, Recent Advances, journal reviews, classroom teachings, clinical education through supervised and guided clinical training/posting and other academic activities etc. In the first year Core subjects of physiotherapy is refreshed along with research methodology and biostatistics. The students are rotated in all areas of clinical expertise during this period. They are required to choose their study for dissertation and submit a synopsis. During the second year the students will be posted in their area of elective/specialty. They are required to complete and submit their dissertation. The students are encouraged to attend conference, workshop to enhance their knowledge during the course of study. University Examinations are held at the end of First year and Second Year respectively.

A. REGULATIONS GOVERNING MPT DEGREE COURSE:

1. The name of the PG Degree program shall be Master of Physiotherapy [MPT].
2. The Master of Physiotherapy program shall be under the Faculty of Medicine.
3. These ordinances shall be called "The Ordinances, Syllabus and Scheme of Examination Pertaining to the Master of Physiotherapy course, MPT"
4. This syllabus will be applicable from academic year 2018-19 onwards.

Regulations for teaching and training program and examination of post graduate course in Physiotherapy under faculty of Medicine:

The recommendations are mandatory in nature. The recommendations prescribed herein shall be applicable to the post graduate course in physiotherapy, faculty of medicine under Shri Govind Guru University, Godhra.

O. MPT 1: THE COURSE

The Master in Physiotherapy Course will be a regular full-time course of 2 years duration. Any break in the career, power of extension of the course and the fixation of the term will be vested with the University.

O. MPT 2: NOMENCLATURE

The course will be referred to as a Master of Physiotherapy / Master of Physical Therapy (MPT).

O. MPT 3: LEARNING OBJECTIVES OF THE COURSE:

At the completion of this course, the student should be -

1. Able to execute all routine physiotherapeutic procedures with evidence based practice.
2. Able to be a prominent member of the multidisciplinary physiotherapy team and treat all the conditions which need physiotherapeutic procedures.
3. Able to provide adequate knowledge about the treatment procedures and its benefit.
4. Able to transfer knowledge and skills to students as well young professionals.
5. Able to perform independent physiotherapy assessment and treatment for patients.
6. Able to undertake independent research in the field of physiotherapy.
7. Learn multidisciplinary practice skills.
8. Able to practice and assess patient independently.
9. On successful completion of M.P.T programme, the Physiotherapist professional will be able to take up physiotherapy teaching assignments independently for undergraduate

teaching programme. He / She will be able to prepare project proposal with selected research design and interpret the evaluated outcome measures (using sound data processing techniques and statistical methods). He/she will be able to practice in his / her specialty area with advanced knowledge and skills.

Expectation from the Post-graduates in providing patient care:

1. The student will be skilled in treatment planning, management, administration of physiotherapy treatment and provision of patient support.
2. Acquire in-depth knowledge of structure and function of human body related to the respective branch of specialty.
3. Acquire the in-depth knowledge of movement dysfunction of human body, cause thereof principles underlying the use of physiotherapeutic interventions for restoring movement dysfunction towards normalcy.
4. Demonstrate skill in Physical & Functional diagnosis pertaining to patient under his/her care.
5. Demonstrate ability to critically appraise recent physiotherapeutic and related literature from journals & adopt diagnostic & therapeutic procedures based on it.
6. The student will also perform independent research within the department and help the department and the team for treatment planning of the patient.
7. PT post-graduate is encouraged to pursue further qualification to attain senior position in the professional field, also to keep abreast with the advance and new technology the professional should opt for continuous professional education credits offered by national and international institutes.
8. Employment opportunities can be found in hospitals in both private and public sectors as well as in independent physiotherapy clinics and as well as teaching institutes.
9. Demonstrate ability to make clinical decision (based on evaluation) regarding Physiotherapy strategy techniques and select appropriate outcome measures based on the comprehensive knowledge of specialty.
9. Demonstrate an expertise in evidence-based skill in the management disorders including movement dysfunction in concerned specialty.
10. Demonstrate an expertise in health promotion, early identification and intervention for quality restoration of function.
11. Planning and implementation of treatment programme adequately and appropriately for all clinical conditions common as well as rare related to respective specialty in acute and chronic stage, in intensive care, indoor, outdoor and institutional care, independent practice, on fields of sports and community and during disaster situations.
12. Demonstrate proficiency in creating awareness using newer technology, at various levels in community for healthcare & professional awareness.
13. Demonstrate leadership, managerial, administrative & communication skills.
14. Demonstrate the knowledge of legislation applicable to compensation for functional disability welfare schemes & rights of the disabled, laws related to industrial workers & disabled & appropriate certification.
15. Demonstrate proficiency in classroom and clinical teaching using newer and appropriate technology.

O. MPT 4: SPECIALITIES/ ELECTIVES OFFERED

This course shall offer SIX specialties & the respective Degree shall be called as follows –

1. Master of Physiotherapy in Musculoskeletal Disorders and Sports
2. Master of Physiotherapy in Neurological and Psychosomatic Disorders
3. Master of Physiotherapy in Cardiovascular and Respiratory Disorders
4. Master of Physiotherapy in Preventive and Community Health
5. Master of Physiotherapy in Paediatrics
6. Master of Physiotherapy in Women's Health

O. MPT 5: ELIGIBILITY FOR ADMISSION:

Every candidate for admission to the course for the degree of Master of Physiotherapy (specialty) should have passed the Bachelor degree in Physiotherapy full time program of the Shri Govind Guru University or an equivalent degree of any other University recognized as equivalent thereto with not less than 50% of marks.

O. MPT 6: SELECTION CRITERIA FOR ADMISSION

Selection criteria for admission as per the norms adopted for post graduate selection in Physiotherapy, by Post-graduation Admission Committee, Shri Govind Guru University, Godhra, from time to time.

O. MPT 7: OBTAINING ELIGIBILITY CERTIFICATE BY THE UNIVERSITY & SUBSEQUENT REGISTRATION

No candidate shall be admitted into the Master of Physiotherapy course unless the candidate has obtained the eligibility certificate issued by Shri Govind Guru University, Godhra. The candidates have to make an application to the university with the relevant documents along with the prescribed fees.

Candidates should obtain the Provisional eligibility certificate at the earliest by Shri Govind Guru University, Godhra, latest as per notification by the University, else the registration may be canceled.

The candidate has to make the application to the university with the following documents along with the prescribed fee.

1. Bachelor of Physiotherapy (B.P.T) provisional / degree certificate issued by the respective university.
2. Marks Sheets of all the years of university examinations passed.
3. Completion of internship certificate.
4. Migration Certificate from the parent University.

O. MPT 8: INTAKE OF STUDENTS

The intake of students to the course shall be in accordance with the ordinance in this behalf. The guide to student ratio should be 1:3.

The course will commence on the 1st of May every year or as per the notification of Shri Govind Guru University, Godhra, or the Centralized admission committee for PG admission. The intake of students to the course shall be once in a year.

No Post-graduate seat left unfilled in an academic year shall be carried forward to the next or subsequent academic years.

O. MPT 9: DURATION OF THE COURSE

Duration of the course: 2 Years

The course is for two academic years of 84 working weeks, which is conducted in two parts – First year (MPT Part- I) & second year (MPT Part- II) each having 42 & 42 weeks/one academic year respectively. Seven hours in full day = 42 hours /week = 1764 hrs in the MPT Part- I, first year & 1764 hrs in the MPT Part- II, second year - a total of 3528 hours + additional 100 clinical hours for on call / Sunday/Holiday duties in two years. The total transcript hours will be 3628 hours.

O. MPT 10: MEDIUM OF INSTRUCTION:

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

O. MPT 11: COURSE OF THE STUDY

The course of the study, subjects and teaching schedule for 1^{st} and 2^{nd} year MPT course is shown in the table below:

Curriculum Outline

Subjects	Teaching & Learning Methods	Weekly Class hours	Total Hours
CORE SUBJECTS 1. Professional practice(History, Laws, Ethics, Administration, Education) 2. Research Methodology & Biostatistics and Scientific writing 3. Physiotherapy Movement Sciences 4. Physical and Functional Diagnosis and clinical decision making 5. Advance Physiotherapeutics **ELECTIVE/SPECIALITY** 1. Master of Physiotherapy in Musculoskeletal Disorders and Sports 2. Master of Physiotherapy in Neurological and Psychosomatic Disorders 3. Master of Physiotherapy in Cardiovascular and Respiratory Disorders 4. Master of Physiotherapy in Preventive and Community Health 5. Master of Physiotherapy in Paediatrics 6. Master of Physiotherapy in Women's Health	Lectures	2	168
	Seminars	2	168
	Practical and Demonstrations	4	336
	Clinical Discussions	2	168
	Clinical Case presentations	2	168
	Journal Club	2	168
	Classroom Teaching to Undergraduates (BPT)	1	84
	Library	3	252
	Clinical Training	21	1764
Synopsis & Dissertation work		3	192
Community Camps, Field Visits, Participation in Workshops & Conferences			60
Clinical hours for on call / Sunday/Holiday duties in two years			100
TOTAL HOURS		**42**	**3628**

Scheduled outline shall be maintained as minimum standard for MPT program with higher order of teaching and learning process. Hours for lecture shall not be given separately for each subject and will be planned by teachers concerned.

O. MPT 12: METHOD OF TRAINING

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

O. MPT 13: MONITORING PROCESS OF STUDIES (INTERNAL MONITORING)

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 is 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.

Model checklists are included in the log book / work diary of the students.

- **Work diary / Log book:**

Every candidate shall maintain a work diary and record his/ her participation in the training programs 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 or laboratory procedures, if any, conducted by the candidate. The work diary shall be scrutinized and certified by the Head of the Department and Head of the Institution and presented in the University Examination.

- **Periodic tests:**

The college will conduct an internal exam one month before the final exam of each academic year. 20% marks will be considered for the total in the University examination.

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 the Department and send to the University, when called for.

CONTINUOUS APPRAISAL FOR TEACHING & LEARNING EXPERIENCE:

Every candidate admitted shall attend a minimum of and record these learning procedures in the work diary for their progressive evaluation. Participation in departmental activities:

a) Journal Review meetings : Minimum six in two years
b) Seminars : Minimum Ten in two years
c) Clinical presentation : Minimum 20 cases in two years
d) Special clinics : Minimum 20 in two years
e) Inter department meetings : Minimum 5 in two years
f) Community work, camps/field visits : Minimum four in two years
g) Special Clinical rounds : Minimum 250 in two years
h) Dissertation work : Minimum 200 hours in two year
i) Participation in conferences/Presentation of papers : Minimum 2 in two years
j) Teaching Activities – UG Teaching : Minimum 40 in two years
k) Learning Activities : Self Learning, Use of computers & library
l) Any other – Specify (eg: CME)
m) Rotation and posting in other department if any – minimum 2 months in 1 speciality

The assessment will be comprised of Formative and summative-

- Theory,
- Practical, bed side evaluation & application.
- Journal club
- Open discussion, debate, Viva.
- Seminars, recent advances, case presentation, discussion and clinical conference.

Graded responsibility in the care of patients and operative work (Structured Training Schedule of clinical & elective subjects only)

Category	I year MPT	II year MPT
O	20 Cases	20 Cases
A	20 Cases	30 Cases
PA	100 Cases	60 Cases
PI	20 Cases	50 Cases

Keys:
O – Observes
A – Assisted a more senior Physiotherapist
PA – Performed procedure under the direct supervision of a senior specialist PI – Performed Independently

Pattern of Internal Examination:

MPT Part-I

Theory Exam
20% of total marks of each paper for that particular subject

Practical Exam
20% of Total Marks of Each Practical
Major Case from Non Elective subject + Micro Teaching + Spot examination + Viva voce

MPT Part-II

Theory Exam
(20% of total marks)
20% of total marks of each paper for that particular subject

Practical Exam (20% of total marks)
20% of total marks of each practical for that particular subject
Major Case from Elective subject + Minor Case from Elective subject + Minor Case from Non-Elective subject + Spot examination + Viva voce

O. MPT 14: ATTENDANCE
A candidate will be permitted to appear for the University Examination for any year if he/she secures not less than 85% of attendance in the number of instructional days/ practical at hospitals during the calendar year, failing which he/she should complete the number of days/hours before undergoing the next year/final examination conducted by the university.

Every candidate shall attend symposia, seminars, conferences, journal review meetings, grand rounds, case presentations, clinics and lectures during each year as prescribed by the department and not to remain absent from work without Permission/ valid reasons. No candidate is permitted to practice outside the institution where he/she is admitted during the tenure of the postgraduate course.

Any student who fails to complete the course in the manner stated above shall not be permitted to appear for the University Examination.

CONDONATION OF LACK OF ATTENDANCE

Condonation of shortage of attendance to appear for the University examination rests with the discretionary power of the Vice-Chancellor. For valid reasons, a candidate lacking in attendance may submit an application in the prescribed form and remit the stipulated fee 15 days prior to the commencement of the theory examination. The Head of the Department and Head of the Institution should satisfy themselves on the reasonableness of the candidate's request while forwarding the application with their endorsements to the Controller of Examination who would obtain the Vice-Chancellor's approval for admission of the candidate to the University examination.

LEAVE RULES

- Students are entitled to avail 12 days of Casual Leave (CL) per year. In addition to the above, the candidates will be given 15 days preparatory leave before university exams.
- All applications for leave will have to be approved by unit faculty and forwarded to the HOD/Principal for leave sanction.
- The unit faculty can refuse to grant leave, depending on the clinical work load.
- CL can be carried over from first year to second year. Half day CL is permitted.
- Study leave can be combined with CL at the discretion of the PG coordinators/HOD/Principal. Preparatory leave prior to supplementary exams will not be permitted; however, CL may be taken. The dates on which the candidate appears for the supplementary exam will be considered as 'on duty'.

Sick Leave:-A maximum of 10 days medical leave will be allowed for the entire course period on submission of medical certificates from the concerned doctor (Associate Professor or above) and it cannot be claimed, as a matter of right and will be granted at the sole discretion of the HOD and Principal.

- No compensatory off will be given for classes on Sundays.
- Any compensatory off will be granted at the sole discretion of the HOD and Principal.
- Public holidays will be as per the list issued by the college.

DRESS CODE

- The post graduate students are expected to dress professionally.
- Apron with a nametag is compulsory within the campus and clinics.
- Due to certain reason, if apron is not worn, the nametag must be displayed for revealing your identification.
- Jeans, T-shirts, sleeveless tops and high heels are strictly not allowed within the campus and clinics during the working hours.
- Girls with long hair must tie it back. If hair is too short to tie, secure them with pins or clips.

O. MPT 15: EXAMINATION

➢ **Eligibility for appearing in the University examination**

A student nearing completion of the tenure may be permitted to appear at the University examination by filling the appropriate form and paying the stipulated fee to the University. However, his/her form will be forwarded to the University only if the student concerned fulfils the following provisions:

A minimum of 85% (eighty five percent) of attendance in all components of the training during each year (and not the cumulative / comprehensive attendance) is necessary.
Cumulative assessment based on Log Book / Work Diary, Presentations, Symposia, Seminars etc.
Candidate has to secure, not less than **50% marks** aggregate in theory and practical (all theory papers and all practical combined) in the internals to be eligible to appear in the University exams.
Submission of dissertation work is an essential precondition for a candidate to appear in the MPT Part-II university examination.

Internal Assessment:
The internal assessment will be done based on continuous evaluation method. There will be an internal examination for both the theory and the practical every year. For the award of internal marks in theory and practical, the internal examination marks will be considered along with other components like Case presentations, seminar presentations, Journal reviews, workshops & conferences attended.

A candidate must obtain minimum of **50% marks** aggregate in theory and practical (all theory papers and all practical combined). Failing which he/she would not be eligible for University examination.

University (External) Examination: The University shall conduct examination for MPT course at the end of each academic year. The examinations shall be known as MPT Part-I Examination and MPT Part-II Examination.

It is mandatory to appear and pass in both MPT Part-I Examination and MPT Part-II Examination.

A candidate can not appear for MPT Part-II Examination till he/she has cleared/passed the MPT Part-I Examination. If a candidate fails in aggregate of theory and practical then he/she shall be declared as fail. A candidate will have to reappear in the whole examination including theory and practical during the supplementary examination for MPT Part-I however he/she will be allowed to continue for MPT Part-II.

The University will conduct examination twice in a year with preferably in April and October, the Annual examination in the month of April and the Supplementary examination in the month of October every year.

PASSING CRITERIA: Every student has to have an aggregate score of minimum **50% marks** of both the internal and University (external) Examination of 100 % marks in theory and practical examination combined together to be declared pass in the University Examination. But, the student has to score minimum 40% of marks separately in individual theory papers and practical in the University Examination to **PASS** in the said examination.

If a candidate fails to score **minimum 50% in either aggregate of theory and practical** or **minimum 40% of marks separately in individual theory papers and practical** in the University Examination then he/she shall be declared as fail. A candidate will have to reappear in the whole examination including all theory papers and practical/s during the supplementary examination; however he/she will be allowed to proceed to Next semester.

The University will conduct examination twice in a year; preferably in April and October every year.

Promotion Criteria / Carry over System:

It is not mandatory to pass in examination of 1st year M.P.T - MPT Part -I Examination to proceed to 2nd year / Final year M.P.T. However, it is mandatory to pass in all subjects of 1st year M.P.T - MPT Part -I Examination to be eligible to appear for examination of Final year - M.P.T, MPT Part –II examination.

- **DEFINITION OF TRIAL**

First trial is deemed to take place when the candidate is due to appear for the examination irrespective of his/her actual appearance, provided that non-appearance is not a result of reasons beyond his/her control. Similarly 2nd, 3rd, etc. trials relating to subsequent examination.

O. MPT 16: SCHEME OF EXAMINATION

The degree of Master in Physiotherapy will be taken by theory, practical and viva-voce.

- **Written Examination (Theory)**

The theory examination - each question paper will be of three hours duration and each paper carrying 80 marks.

Particulars of Distribution of Marks are Shown on Table

MPT PART - I			
Component	**Title**	**Subject**	**Marks**
			Internal+External
Theory	Theory - I	Research Methodology & Biostatistics and Scientific Writing (Univ. exam- 40 marks)	20 + 80 = 100
		Physiotherapy Ethics, Education, Management and Psychosocial Sciences (Univ. exam- 40 marks)	
	Theory - II	Physiotherapy Movement Sciences	20 + 80 = 100
	Theory-III	Physical & Functional Diagnosis and Clinical Decision Making	20 + 80 = 100
	Theory-IV	Advance Physiotherapeutics	20 + 80 = 100
Practical	Practical	1 Major cases from Non Elective subject + Micro-teaching	20 + 80 = 100
		Spot Examination + Viva-Voce	20 + 80 = 100

MPT PART - II			
Component	**Title**	**Subject**	**Marks**
			Internal+External =Total
Theory	Theory -I	Elective Subject (Separate for each elective subject)	20 + 80 = 100
	Theory-II	Recent Advances in Elective Subject (Separate for each elective subject)	20 + 80 = 100
Practical	Practical-I	Elective - Major case (Separate for each Elective)	20 + 80 = 100
		1 Elective and 1 Non-Elective Minor cases	20 + 80 = 100
		Spot Examination + Viva-Voce	20 + 80 = 100
	Practical-II	Dissertation	20 + 80 = 100

PRACTICAL EXAMINATION SCHEME IN UNIVERSITY EXAMINATION:

PRACTICAL	SUBJECT	MARKS
Practical in MPT Part-I	1 Major case from area other than Elective subject for Assessment, Physical & Functional Diagnosis and Management	60
	Micro Teaching	20
	Spot Examination (40 marks) + Viva-Voce (40 marks)	80
Practical in MPT Part-II	Elective subject major case aimed at examining clinical skills and competency of the candidate for undertaking independent work as specialist	80
	1 Minor case from area of Elective subject	40
	1 Minor case from area of Non- Elective subject	40
	Spot Examination (40 marks) + Viva-Voce (40 marks)	80
	Dissertation	80

- **Practical / Clinical Examination:**

It should be aimed at examining clinical skills and competency of the candidate for undertaking independent work as a specialist.

- **Viva-voce:**

Viva-voce examination shall aim at assessing depth of knowledge, logical reasoning, confidence and oral communication skills. The marks of viva-voce examination shall be included in the clinical examination to calculate the percentage and declaration of results.

- **Spot Examination:** 8 spots of 5 marks each, not exceeding 5 minutes for each spot.

➢ **Micro teaching & Log Book:**

The candidate shall prepare 3 topic of his / her choice, not exceeding more than 10 minutes each, he/she will be asked to present any one.

Micro teaching shall aim at assessing the topic chosen (which shall be concise so as to be introduced and summarized within the time frame allotted), clear concepts, communication skill and use of appropriate audio-visual aids.

The candidate has to submit the Log book for assessment to the examiners during the practical examination.

➢ **Number of Candidates per Day:**

The maximum number of candidates for practical clinical and viva voce examination shall not be more than 06 per day

➢ **Examiners:**

All examiners shall be recognized post graduate teachers. At least 50 % of total examiners shall be externals.

Number of Examiners for Practical: -

There shall be four (4) examiners: Two Internal and two external.

Internal 1: - From same centre (Convener)

Internal 2: - From Other college within same University.

External 1: - From same region/zone but from other University.

External 2: - Preferably From Outside Gujarat, if not available then, from other region/zone of Gujarat and other University.

An external examiner must be a faculty of physiotherapy, ordinarily may be appointed for not more than 3 terms consecutively. The external examiner must be a faculty of physiotherapy having at least 5 years of teaching experience as PG Teacher.

➢ **DECLARATION OF CLASS:**

- A candidate having appeared in all the PAPERS in the same examination and passed that examination in the first attempt and secures 75% of marks or more of grand total marks prescribed will be declared to have passed the examination in **First Class with Distinction.**

- A candidate having appeared in all PAPERS in the same examination and passed that examination in the first attempt and secures 60% of marks or more but less than 75% of grand total marks prescribed will be declared to have passed the examination in **First Class.**

- A candidate having appeared in all the PAPERS in the same examination and passed that examination in the first attempt and secures 50% of marks or more but less than 60% of grand total marks prescribed will be declared to have passed the examination in **Second Class.**

- A candidate passing the university examination in more than one attempt shall be placed in **Pass class** irrespective of the percentage of marks secured by him/her in the examination.

O. MPT 17: PATTERN OF UNIVERSITY EXAMINATION

MPT Part - I

Theory – 80 marks each paper (No Choice)- 3 hours

Long Essay (2 Questions) – 2 x 15 = 30 marks
Short Essay (5 Questions) – 5 x 10 = 50 marks

Practical / Clinical – Total 80 marks
Note: All cases for clinical examination should be on patients & not on models.

Non elective Major cases -1 x 60 = 60 marks
(Assessment, Physical & Functional Diagnosis and Management)
Spot examination – 8 x 5 = 40 marks
Micro-teaching = 20 marks
Viva-voce = 40 marks

MPT Part-II
Theory – 80 marks each paper (No Choice)- 3 hours

Long Essay (2 Questions) – 2 x 15 = 30 marks
Short Essay (5 Questions) – 5 x 10 = 50 marks

Practical / Clinical –
Note: All cases for clinical examination should be on patients & not on models.

Day – 1
Elective Major case - 1x 80 = 80 marks
(Assessment, Physical & Functional Diagnosis and Management)
Elective Minor case - 1 x 40 = 40 marks
Spot examination – 8 x 5 = 40 marks

Day – 2
Non-Elective Minor case - 1 x 40 = 40 marks
Viva-voce = 40 marks
Dissertation = 80 marks

Supplementary Examination:
In Supplementary examination practical examinations shall be conducted same as main exam.

O. MPT 18: DISSERTATION / THESIS

1. The dissertation is aimed to train a postgraduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, and comparison of results and drawing conclusions.
2. Every candidate pursuing MPT degree course is required to carry out work on a selected research project under the guidance of a recognized postgraduate teacher. The result of such a work shall be submitted in the form of dissertation.

3. The postgraduate activity must be written /updated in the PG work diary.
4. A minor change in the topic of Dissertation may be allowed at any time. A major change may be approved by necessary procedures, provided there is an interval of ten months between the date of application and the date of examination.
5. Any change in the dissertation topic or guide should be informed to the university.
6. Guide will be only a facilitator, advisor of the concept and is not responsible for the outcome and results.
7. The format of sequence of contents of Dissertation should be as under:

INDEX

1. Introduction
2. Aims and Objectives of study
3. Other relevant material like anatomical, physiological, biomechanical and therapeutic description, if applicable.
4. Review of literature
5. Material and methods
6. Results
7. Discussion
8. Conclusion
9. Summary
10. Bibliography
11. Annexure

(a) Consent Form (b) List of abbreviations.
(c) Proforma/ Questionnaire (d) Master Chart

Review of Literature should be written in chronological order viz. the reference with the oldest year or date should come as first and followed by chronology.

References should be written in **Vancouver format** i.e., name of the author, up to six authors with their initials, title of the paper followed by name of the journal, year of the journal, volume and page numbers. If the reference is taken from a book then name of the author with initials, name of the chapter, title of the book from which the reference is taken, followed by edition no., followed by name of the editor, name of the publisher, place of the publication, year of publication followed by page numbers.

Bibliography should be written in the order of appearance of references starting from introduction – numbered and onwards followed by the numerical references in their order of appearance and not alphabetically.

8. Every candidate shall submit the synopsis duly approved by the Institutional Ethical Committee (IEC), containing particulars of proposed dissertation work, to the registrar (Academic) of the university in the prescribed Performa, within one year 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.
9. The written text of dissertation shall not be less than 50 pages and shall not exceed 100pages 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.
10. The Dissertation shall be submitted three months before the final theory and practical

examination to the university duly certified by the Guide, Head of the Department and Head of the Institution as per the format.

11. Submission of Dissertation is one of the pre-requisite for a candidate to be eligible to appear for final MPT examination. The Dissertation should be submitted three months prior to the scheduled examination, i.e., on or before 31st December for candidates appearing for April Examination and 31st June for October Examination.
12. Each candidate will be required to prepare total 7 (seven) copies of Dissertation. 4 (four) copies are required to be sent to the university. These copies will neither reveal the identity of the guide nor the candidate, nor have any acknowledgements. The thesis will be sent to all examiners appointed by the university and evaluation shall be conducted during practical examination of the university. Remaining 3 (three) copies – 1 for the Guide, 1 for the candidate, and 1 for the College Library, should have the names of the guide and the candidate including certificate of Principal, certificate of Guide, Declaration and Acknowledgement. They should also submit 2 (Two) soft copies in CD, 1 for Guide and 1 for the College Library.
13. The candidate has to present the dissertation in front of the examiners in the university examination where it will be awarded with the marks and will be graded as accepted/ accepted with modification(s). If the dissertation is graded as accepted with modification(s), the candidate has to submit the modified dissertation on or before the date notified by the university.
14. A candidate who has submitted his/her dissertation once is not required to submit a fresh dissertation if he/she reappears for the examination in the same branch on the subsequent occasion, provided the dissertation has been accepted by the examiners.

O. MPT 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 of IAP.

Co- guide: may be included provided the work requires substantial contribution from a sister department or from another institution recognized for teaching /training by Shri Govind Guru University. The co- guide shall be a recognized postgraduate teacher of Shri Govind Guru University.

Criteria for recognition of MPT teacher / Guide

MPT with five years full time teaching experience obtained after MPT.

Notwithstanding the above clause in a case of acute shortage of qualified postgraduate guides, A PG teacher with 3 years teaching experience after Masters can be considered.

The guide to students' ratio should be 1:3

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.

O. MPT 20: READMISSION AFTER BREAK OF STUDY

Candidates having a break (continuously or in spells) of study of 5 years and above from the date of admission will not be considered for re-admission.

The five years period of break of study shall be calculated from the date of first discontinuance of the course by the candidate.

A candidate having a break of study shall be re-admitted after satisfactory fulfillment of the regulations of the University at the commencement of an academic year only and shall undergo the full duration of the course with no exemption in the period of study and will be permitted to appear for the examinations as prescribed in the regulations.

O. MPT 21: MIGRATION / TRANSFER OF CANDIDATE

Request of Migration / Transfer of Candidate to any other University during the course of study will not be entertained under any circumstances. A candidate has to complete the whole course in Shri Govind Guru University only. No transfer to any other university is permitted.

COURSE CONTENT

MPT Part I

First and Second semester combined together for the core subjects

RESEARCH METHODOLOGY & BIOSTATISTICS and SCIENTIFIC WRITING

1. **INTRODUCTION TO RESEARCH**
   - **a.** Meaning, Objective and Motivation in research.
   - **b.** The importance of Research in Physiotherapy.
   - **c.** Physiotherapist as a consumer and contributor to research.
   - **d.** Research ethics.

2. **RESEARCH DESIGN**
   - **a.** Research problems - Statement of purpose and objectives.
   - **b.** Principles of research design.
   - **c.** Research Paradigm – Quantitative paradigm and Qualitative paradigm, various types of research designs.
   - **d.** Research validity – Internal validity and External validity.
   - **e.** Sampling – Population and samples, sampling rationale, Types, Calculation of sample size.

3. **LITERATURE REVIEW**
   - **a.** Purpose and use of literature review.
   - **b.** Use of internet in literature review.
   - **c.** Use of electronic databases like PEDRO, CINAHL etc.

4. **HYPOTHESIS**
   - **a.** What is hypothesis? , Types of Hypothesis, Testing of hypothesis, Measuring the power of hypothesis, Tests of hypothesis, Limitations of the tests of hypothesis.

5. **MEASUREMENT**
   - **a.** Validity: definition and various types of measurement validity including face validity, construct validity, content validity, and criterion-related validity.
   - **b.** Sensitivity and Specificity of a measurement.
   - **c.** Reliability and its types including inter and intra rater reliability, test-retest reliability.

6. **DATA COLLECTION & ANALYSIS**
   - **a.** Collection of primary data: Various types of quantitative and qualitative data collection methods: Biophysical and physiologic Measures, Observation, Self-reports, Interviews, Questionnaires and Scales.
   - **b.** Collection of Secondary data: Meta-Analysis and systematic reviews.
   - **c.** Statistics in research, Statistical reasoning, Types of analysis.

7. **CRITIQUING PUBLISHED RESEARCH**
   - **a.** Need & Guidelines for critiquing research.

b. Criteria for good research.

8. IMPLEMENTING RESEARCH

a. Preparation of a Research project.
b. Presentation and publication of research.

9. INTRODUCTION TO STATISTICS

a. Definition, characteristics of statistics, importance of the study of statistics and branches of statistics, Statistics and health science including physiotherapy, Descriptive and inferential statistics.

10. EXPLORATORY TOOLS FOR UNVARIED DATA

a. Types of variables- Quantitative and qualitative variables.
b. Simple plot for Continous variables- dot plots, stem plots, histograms and interpreting plots.
c. Measure of Central Tendency: Mean, Median, Mode and Standard deviation, Quartiles, Percentiles.
d. Frequency tables.
e. Various types of graphs.
f. Statistics in MS EXCEL and other softwares.

11. PROBABILITIES AND PROPORTION

a. Introduction
b. Discrete random variables – Binomial distribution, Poisson distribution.
c. Continous random variables – Normal distribution.

12. SAMPLING

a. Parameters and estimates.
b. Sampling distribution of sample proportions.
c. Sampling designs errors.
d. Tests of significance & Confidence intervals

13. TABLE OF COUNTS

a. One dimensional tables-chi square test and its distribution.
b. Two way table of counts.

14. ANALYSIS OF VARIANCE & COVARIANCE

a. What is ANOVA? Basic principle of ANOVA, ANOVA technique.
b. Analysis of Co variance (ANACOVA).

15. CORRELATION AND REGRESSION

a. Introduction.
b. Relationship modeling.
c. Interference for simple linear model.
d. Correlation and association, Rank correlation.

SCIENTIFIC WRITING

1. Definition and kinds of scientific documents – Research paper, Review paper, Book , Reviews, Thesis, Conference and project reports (for the scientific community and for funding agencies).
2. Publication – Role of author, Guide, Co-authors.
3. Structure, Style and contents; Style manuals (APA, MLA); Citation styles: Footnotes, References; Evaluation of research
4. Significance of Report writing; Different steps in Report writing; Mechanics and precautions of writing research reports Oral and poster presentation of research papers in conferences/symposia; Preparation of abstracts.
5. Structure of Thesis and Content – Preparing Abstracts.

RECOMMENDED BOOKS FOR REFERENCE:

1. Methods in Biostatistics - Mahajan B. K, Jaypee.
2. Research Methodology - Kothari C. R, Vishwa prakashan.
3. How to Write a Thesis - Teitalbaum.
4. Statistical Methods for Professional Education courses - Gupta S. P, Sultan Chand.
5. Rehabilitation Research: Principles & Applications - Domholdt, Elizabeth.
6. Writing Case Reports – How to manual for Clinicians - Mc Ewen Irene, APTA.
7. The Researching Therapist: A Practical Guide to Planning, Performing and Communicating Research by Sue Jenkins, Connie J. Price and Leon Straker (Nov 17, 1997)
8. Research Methods for Clinical Therapists - Hicks Carolyn, Churchill Livingstone.
9. Elements of Research in Physical therapy - Currier D, Williams and Wilkins.
10. Qualitative Research for Occupational and Physical Therapists: A Practical Guide by Christine Carpenter and Melinda Suto (Feb 12, 2008)
11. First Steps in Research: A Pocketbook for Healthcare Students (Physiotherapy Pocketbooks) by Stuart B. Porter (May 30, 2008)
12. Barbara; statistical methods for health care research
13. Research Methods: A Framework for Evidence-Based Clinical Practice by Wendy L. Hurley, Craig R. Denegar and Jay Hertel (Oct 25, 2010)
14. Foundations of clinical research: Applications to practice. By Leslie G. Portney and Mary P. Watkins

PHYSIOTHERAPY ETHICS, EDUCATION, MANAGEMENT and PSYCHOSOCIAL SCIENCES

1. **PHYSIOTHERAPY VALUES & ETHICS**
   a. **P.T Values and Ethics**
      i. Rules of Professional Conduct.
      ii. Concept of Morality, Ethics and Legality.
      iii. Rules of Professional conduct, Medico Legal and Moral Implications.
      iv. Communication skills, Client interest and Satisfaction.
      v. Inter Disciplinary Relation, Co-partnership, Mutual Respect, Confidence and Communication, Responsibilities of the Physiotherapists, Status of Physiotherapist in Health Care.
      vi. Role of Professional in Socio Personal and Socio Economical conditions.

   b. **P.T. Law and Legal Concepts**
      i. Medico legal aspects of physical therapy, liability, informed consent negligence, malpractice, licensure, consumer protection act.
      ii. Law of disability & discrimination, confidentially of the Patient's status.

2. **PHYSIOTHERAPY EDUCATION**
   a. **Concept of Teaching and Learning**
      i. Meaning and scope of Educational Psychology.
      ii. Meaning and Relationship between teaching and learning.
      iii. Learning Theories.
      iv. Dynamics of behavior.
      v. Individual Meaning and concept.

   b. **Principles and Methods of Teaching**
      i. Bloom's taxonomy of instructional objectives.
      ii. Writing instructional objectives in behavioral terms.
      iii. Unit planning, Lesson planning.
      iv. Lecture, Demonstration Discussion, Seminar, Assignment.
      v. Types of teaching aids.
      vi. Principles of selection, preparation and use of audio-visual aids.

   c. **Guidance and counselling and Awareness Programme**
      i. Meaning & concepts of guidance and counselling.
      ii. Principles of guidance and counselling.
      iii. Awareness and guidance to the common people about health and diseases.

3. **PHYSIOTHERAPY MANAGEMENT**
   a. **Introduction**
      i. Introduction, Evolution of management, Functions of management.
      ii. Management process – planning, organization, direction, controlling .Decision-

making.

iii. Quantitative methods of management**:** relevance of statistical and/ or techniques in management.

b. **Personal Management**

i. Staffing Recruitment selection.
ii. Performance analysis and appraisal, Collective bargaining.
iii. Job satisfaction Discipline.

c. **Total Quality Management**

i. Basis of quality management, quality assurance program in hospitals.
ii. Medical audit and international quality system.

d. **Hospital Management**

i. Introduction: Branches of administration, Nature and scope of administration, How to be an effective administrator, Planning hospital administration as part of a balanced health care program.
ii. Principles of hospital administration and its applications to physiotherapy. Planning and organization: Planning cycle, Principles of organizational charts, Resource and quality management, Planning change –innovation.
iii. Financial issues including budget and income generation.
iv. Hospital administration: Organization, Staffing, Information, Communication, Coordination, Cost of services, Monitoring and evaluation.
v. Organization of physiotherapy department: Planning, Space, Manpower, Other basic resources.
vi. Material management: Pharmacy, Hospital waste disposal.
vii. Quality assurance: Hospital acquired infection, Quality assurance through record review and medical audit.
viii. Public relations in hospital and human resource management.

e. **Physiotherapy profession and staff roles**

i. Physiotherapy: Definition and Development.
ii. Physiotherapy practice in India and their demands. Physiotherapy services in rural and urban areas.
iii. History taking, assessment, tests, Patient communication, documentation of findings, treatment organization and planning/execution for intervention.
iv. Documentation of rehabilitation assessment and management using International Classification of Functioning Disability and Health (ICF).
v. Standardized tests and scales used in various types of cases for assessment and interpretation in Physiotherapy practice.
vi. Roles of Physiotherapy Director, Physiotherapy Supervisor, Physiotherapy Assistant, Physiotherapy, Occupational therapist, Home Health Aide and Volunteer.

4. **PSYCHOSOCIAL SCIENCES:**

a. **PSYCHOLOGY INCLUDING COGNITIVE AND BEHAVIOURAL SCIENCES AND PSYCHO-SOCIAL SCIENCES-**

- Cognitive sciences e.g. learning, memory, perception, coping, self-efficacy, attention/motivation
- Behavioural sciences e.g. related to change (health behaviours), social participation, communication
- Interaction between psycho-social development, physical therapy and the most common indicator conditions pertinent to PT practice e.g. pain

b. SOCIAL SCIENCE- • Quality of life, social determinants of health, support systems, social policy, disability and function, community participation, culture, impact of client role/occupation on therapeutic interaction and social theories related to change

c. PSYCHOSOCIAL THEORIES OF LIFESPAN DEVELOPMENT-
- Theories of psychological development and aging
- Relationship with health, injury, disease and disablement across the lifespan
- End of Life

d. LEARNING AND EDUCATION- Learning principles informed by cognitive and behavioural psychology and the social sciences, Education principles related to the role of PT as educator of clients/patients, families, other professionals and students

RECOMMENDED BOOKS:

1. Communication Skills in Clinical Practice - Sethuraman K. R.
2. Developing a Pedagogy of Teacher education: Understanding teaching and learning about teaching.
3. Hospital administration and human resource management by R.C.Goyal, 4th edition.
4. Handbook of Educational Technology - Elington Henry, Kogan Page.
5. Physical Therapy Administration & Management - Hickok, Robert J, Williams & Wilkins.
6. Clinical Decision making in Rehabilitation - Basmajian, John V, Churchill Livingstone.

7. Handbook of Clinical Teaching - Watts Nancy, Churchill Livingstone.

8. Physical Therapy Ethics by Gabard and Martin (Sep 2, 2010)

9. Management in Physical Therapy Practices by Catherine G. Page (Sep 23, 2009)

10. Physical Rehabilitation: Evidence-Based Examination, Evaluation, and Intervention by Michelle H. Cameron and Linda Monroe (Apr 5, 2007)

11. Physical Therapy Management by Ronald W. Scott and Christopher L Petrosino (Sep 1, 2007)

12. Physical Therapy Ethics by Donald L.Gabard, Mike W.Martin, F.A. Davis, 2003.

13. Physical Therapy Administration & Management by Hickik Robert J

PHYSIOTHERAPY MOVEMENT SCIENCES

1. **BIOMECHANICAL APPLICATIONS TO JOINT STRUCTURE AND FUNCTION**
   - **a.** Forces, Equilibrium, Levers: laws & mechanical advantage.
   - **b.** Material properties of bones and connective tissue, visco-elasticity, creep and stress relaxation, rate dependent properties, stress and strain curves.

2. **SKELETAL CONSIDERATION OF MOVEMENT**
   - **a.** Functions of skeletal system.
   - **b.** Types of bones.
   - **c.** Biomechanical Characteristics of bones: Bone tissue, architecture of bone, strength and stiffness of bone, Types of load, Bony articulations, Types of joints in detail.

3. **NEURO - MUSCULAR CONSIDERATION OF MOVEMENT**
   - **a.** Basic nerve structure, Motor unit, Receptors & Synapse, Reflex movement & Volitional movement, Reciprocal innervations & Inhibition.
   - **b.** Structure and function of muscle, physical properties of muscle, muscle attachment, functional characteristics of muscles, muscle fibre potential, mechanical components in the muscle.
   - **c.** Muscle action and factors influencing muscle force.
   - **d.** Action potential, Evoke potential, Kinetic potential, Torque, Power, Strength & Endurance.

4. **KINETICS & KINEMATICS**
   - a. Biomechanics of joints of extremities.
   - b. Biomechanics of Thoracic cage, Biomechanics of Respiration & Circulation.
   - c. Biomechanics of upper and lower spine with respective girdle.
   - d. Kinetics / Kinematics of extremity & spinal joints including jogging, running, climbing up and down & other activities like squatting, throwing, swimming,
   - e. Methods of kinetic and kinematic Investigations.
   - f. Kinetics and kinematic analysis of normal gait and Posture.

5. **PATHOMECHANICS**
   - a. Regional dysfunctions: Muscle dysfunctions, Joint dysfunctions, Nerve dysfunctions.
   - b. Pathological posture & Pathological gait.

6. **ERGONOMICS-** Anthropometrics; Principles of Ergonomics (Force, Frequency, Posture and Exposure); Ergonomic Approach to lifting and handling, workspace and Environment

7. **APPLIED MECHANICS** in the application of prosthesis, orthosis and mobility aids – materials, designs and bio-mechanical compatibility

8. **MOTOR CONTROL AND MOTOR LEARNING:**
   - **a.** Motor control:• Models and theories of motor control e.g. reflex, distributed, systems and dynamics Neurophysiological basis for motor control and motor

learning mechanisms, theories and principles of neuroplasticity e.g.: • Injury induced vs practice induced neuroplasticity • Contextual factors that affect neuroplasticity (environmental, experiential, chemical, genetic and physical factors)

b. Motor Learning**:** • Theories and models of motor learning: principles of skill acquisition, such as role of practice; performance-learning distinction and the role of feedback • Relationship between motor development across the lifespan and motor learning • Effects of cognition and diseases on motor learning

c. Motor Development: • Theories and models of motor development across the lifespan • Effects of injury and/or illness, disease on motor development • Effects of environment, experience and pharmacological agents on development

9. PRINCIPLES OF EXERCISE PHYSIOLOGY

a. Role of Aerobic and Anaerobic mechanism during exercises.

b. Acute effects of High, Burst and Short duration exercises.

c. Acute effect of Steady level exercise on following parameters – Blood flow, Heart rate,

d. Blood Pressure, Pulse Rate, Respiration Rate, Acid Base Balance, Body Temperature,

e. Fluid-Electrolyte Balance and Substrate Utilization.

f. Aging and physiologic function, physical activity in the different types of population.

g. Clinical exercise physiology for cancer, cardiovascular and pulmonary rehabilitation.

10. EXERCISE TESTING AND PLANNING

a. Definition of exercise testing, the need for exercise testing, clinical assessment of exercise tolerance, factors affecting exercise tolerance, diagnostic use of exercise testing, indications of exercise testing, exclusion criteria, Clinical values of exercise testing.

b. Objective assessment of exercise- related symptoms. Muscles fatigue and weakness, dyspnea, exertional chest pain, Applications in cardiac disorders, coronary artery disease, congenital heart disease, valvular disease, pulmonary vascular disease, peripheral vascular disease.

c. Low Level Exercise Testing: Purpose, Contra - indications, Termination points.

d. Maximal Exercise Testing: Purpose, Guidelines, Exercise test protocols, Contraindications and Precautions, Criteria for termination of test, Prognostic implications from exercise testing.

e. Exercise electrocardiogram. The normal ECG. Normal response disease, changes associated with coronary disease. Changes in the ST segment and T waves, Effects of drugs, cardiac arrhythmias in exercise, abnormalities of conduction, the ECG in athletes.

f. Approaches to clinical exercise testing, master step test, the balke protocol, the Bruce protocol, Scandinavian protocol, triangular protocol, walking protocol, Wingate test, maximal oxygen uptake, the stage I test, stage 2,3 and 4 tests, indications and contraindications to exercise testing.

g. Exercise tolerance test or stress test METS and their use in evaluation.

h. Principles of fitness assessment:

i. risk factor screening
ii. energy/work/power, body composition, aerobic/anaerobic fitness, muscular strength and endurance, flexibility, balance and coordination

11. APPLIED EXERCISE PHYSIOLOGY: Determinants of health and exercise behaviour • Responses of the major physiological systems (cardio-respiratory, neuromuscular and neurological) systems, from cellular to whole organ level, to exercise and occupation-related physical activity (work) at the:

- acute or immediate level
- chronic adaptation level that occurs as a result of exercise

• In the context of disability, physiological responses to:

i. immobilization and inactivity
- stretching of soft tissue
- muscle strengthening and endurance training

ii. cardiovascular endurance training
iii. disease/injury

• Impact on these responses related to a wide range of factors e.g. age, gender, initial fitness level, type, duration and intensity of exercise/work, environment, nutrition, illness/disease/impaired function, medication and ergogenic aids, pregnancy, psychosocial

• Integration of exercise physiology with illness/disease/impaired functions in special populations e.g. the central neural vs. peripheral limitations to exercise or occupation-related performance in individuals with coronary artery disease, stroke, spinal cord injury, hip fracture, anterior cruciate ligament injury etc.

12. NUTRITION

a. Nutritional status in India, RDA by ICMR, basic five food groups, Principles of Menu planning, Nutritional deficiencies- protein calorie malnutrition
b. Diet – for Growing Age, Pregnancy, Lactation, Acute Illness, Convalescent Period, High level of Physical Activity, Aging & Sports, Obesity – prescription of Diet & its modification.

13. ENERGY TRANSFER/DELIVERY SYSTEM

a. Introduction to energy transfer, energy transfer in the body-phosphate bond energy, energy released from food, energy transfer in exercise.
b. Systems of energy delivered and utilization:
i. Cardiovascular system: cardiovascular regulation, integration and functional capacity.
ii. Pulmonary System: Dynamics of pulmonary ventilation, regulation of pulmonary ventilation, pulmonary ventilation during exercise, acid-base regulation.
iii. Endocrine system: organization, acute and chronic response to exercise.
iv. Role of Musculoskeletal system & Nervous System

14. ENERGY EXPENDITURE

a. Expenditure during rest, confinement during illness and various levels of Physical

Exercises, factors influencing energy uptake and substrate utilization.

b. Measurement of Human energy expenditure, individual differences and measurement of energy capacities.

c. Energy expenditure during walking, jogging, running and swimming.

15. MEASUREMENT AND ASSESSMENT

a. Body composition assessment, physique, performance, and physical activity, over-weight, obesity and weight control.

b. Lab Investigations - blood glucose, lipid profile, electrolytes, haemoglobin.

RECOMMENDED BOOKS:

1. Clinical Kinesiology for the Physical therapist Assistants - Lippert L, Jaypee.
2. Brunnstrom's Clinical Kinesiology - Letimkuni W, Jaypee.
3. Clinical Kinesiology - Laura Weiss, Jaypee.
4. Joint Structure & Function - Levangie P, Norkin C, Jaypee.
5. Basic Biomechanics of the musculoskeletal system - Nordin M, Lippincot Williams.
6. Biomechanical Basis of Movement - Hamill J & Krutzen K M, Lippincot Williams.
7. Measurements of Joint Motion - Norkin C, F. A. Davis.
8. Principles of Mechanics & Biomechanics - Bell, Frank, Stanley Thornes Pvt. Ltd.
9. Basic Biomechanics - Hall, Susan J, McGraw hill.
10. Kinesiology - Oatis, Carol A, Lippincot Williams.
11. Applied Kinesiology - Robert Frost, North Atlantic Books.
12. Biomechanics of Spine - White and Punjabi, Lippincot Williams
13. Exercise Physiology, energy, nutrition and human performance - McArdle, Katch & Katch, Lippincot Williams.
14. Illustrated principles of exercise physiology - Axen. K, Kathleen. V, Prentice Hall.
15. Essentials of Exercise Physiology - Shaver Larry. G, Surjeet Publications.
16. Theory and application to fitness and performance by Scott K Powers.
17. Exercise physiology for health care professionals by Frank.
18. Exercise physiology – a thematic approach by Tudor Hale.
19. Exercise physiology -Human bioenergetics and its application by George Brooks.
20. Physiology of Sports and Exercise - Majumdar. P, New Central Book.
21. Exercise and the Heart - Froliecher, Victor. F, Elsevier.
22. Textbook of Work Physiology - Astrand and Rodahl, McGraw Hill.
23. Kinanthropometry and Exercise Physiology Laboratory manual tests, procedures and data-Erston, Reilly, F & FN Spon.
24. Electro-diagnosis in disease of nerve and muscle - Kimura J, F.A. Davis
25. Clinical Electromyography and Nerve Conduction Studies - Shin J.OH, Williams & Wilkins.
26. Clinical Neurophysiology - Nerve conduction, Electromyography and Evoked Potentials – Mishra & Kalita, Churchill Livingstone.

27. A Practical Treatise On Electro-Diagnosis in Diseases of the Nervous System by Alexander Hughes Bennet (Jan 10, 2010)
28. Introduction to Surface Electromyography, Second Edition by Jeffrey R. Cram (Mar 16, 2010)
29. Physiology of sport and exercise: Kenny Wilmore, costin, Human Kinetics.
30. Exercise Physiology: Nutrition, Energy and Human Performance Mc Cardle, Katch and Katch
31. Motor Control: Translating research into clinical practice, Ann Shumway Cook, 3rd Edition,(2007) lipincott, Willaims and wilkins.
32. Industrian Therapy Glenda. L Key (1995)
33. Biomechanics and Ergonomics by Shravankumar CRC Press (1999)
34. Exercise Prescription :Skinner
35. Easy to read ECG: John Hempton
36. Ergonomics in sports and physical activity : Enhancing performance and improving safety : Thomas reilly Human Kinetics.
37. Physiology of Sports and Exercise : Jack Wilmore David Costill.

PHYSICAL AND FUNCTIONAL DIAGNOSIS AND CLINICAL DECISION MAKING -

1. Clinical examination in general and detection of movement dysfunction.
2. Principles of pathological investigations and imaging techniques related to neuromuscular, skeletal and cardiopulmonary disorders with interpretation.
3. Developmental screening, motor learning –motor control assessment.
4. Anthropometric measurements.
5. Physical fitness assessment by Range of motion, Muscle strength, endurance and skills, Body consumption, Fitness test for sports.
6. Evaluation Methods, Special tests and Scales used in Musculoskeletal, Neurological and Cardiopulmonary disorders.
7. Electrophysiology and Electrodiagnosis
    - **a.** Characteristics and components of Electro therapeutic stimulation systems and Electro physiological assessment devices.
    - **b.** Instrumentation for neuromuscular electrical stimulation.
    - **c.** Anatomy and physiology of peripheral nerve, muscle and neuromuscular junction.
    - **d.** Electrical properties of muscle and nerve.
    - **e.** Muscles plasticity in response to electrical stimulation.
    - **f.** Electrical stimulation and its effects on various systems.
    - **g.** Safety considerations in electrotherapy
    - **h.** Concepts of electro-physiological testing in Neuro-muscular diseases as a diagnostic and therapeutic tool. Instruments, Techniques and Interpretations of -
        - **i.** Nerve conduction velocity including Repetitive Nerve Stimulation (RNS)
        - **ii.** Electromyography
        - **iii.** Bio-feedback technique.
        - **iv.** Late responses
        - **v.** Evoked potentials – VEP, SSEP, MEP, BAEP
8. Biophysical measurements, physiotherapy modalities, techniques and approaches.
9. Evaluation of aging.
10. Exercise ECG testing and monitoring.
11. Pulmonary function tests and Spirometry.
12. Physical disability evaluation and disability diagnosis.
13. Gait analysis and diagnosis.
14. Disability Evaluation: Introduction, What, Why and How to evaluate, Quantitative versus Qualitative data, Uses of evaluation findings, Percentage of disability (temporary and permanent), Models of disability- Medical and Social model, International Classification of Functioning, Disability, and Health (ICF) and Documentation based on ICF.
15. Functional evaluation.

    a. The concepts of health status impairment; functional limitations; disability and handicap; definition of functional activity and the purposes and components of the functional assessment; selection of activity and roles for an individual based on his or her capabilities and functional limitations.

    b. Various forms of functional tests; physical function test and multi dimensional functional assessment instrument, identification of instrument for testing function.

c. Various scoring methods used in functional assessment; d. Reliability and validity of various functional assessments

PRACTICAL -

1. Introduction to Screening For Referral In Physiotherapy
    a. Reasons to Screen
    b. Diagnosis by the Physiotherapist
    c. Decision-Making Process Case Examples and Case Studies.
2. Introduction to the interviewing process
3. Overview of the physiology of pain and systemic causes of pain
    a. Mechanisms of Referred Visceral Pain
    b. Multisegmental Innervations
    c. Assessment of Pain and Symptoms
    d. Sources of Pain
    e. Types of Pain
    f. Comparison of Systemic Versus Musculoskeletal Pain
    g. Patterns of pain
    h. Characteristics of Viscerogenic Pain,
    i. Screening for Emotional and Psychologic Overlay
    j. Screening for Systemic Versus Psychogenic Symptoms
4. Physical assessment as a screening tool
    a. General Survey
    b. Techniques of Physical Examination
    c. Integumentary Screening Examination
    d. Nail Bed Assessment
    e. Lymph Node Palpation
    f. Musculoskeletal Screening Examination
    g. Neurologic Screening Examination
    h. Cardiovascular and Pulmonary screening examination
    i. Regional Screening Examination j. Systems Review

RECOMMENDED BOOKS:

1. Manual of nerve conduction velocity techniques - De Lisa, Raven Press.
2. Electro-diagnosis in disease of nerve and muscle - Kimura J, F.A. Davis
3. Clinical Electromyography and Nerve Conduction Studies - Shin J.OH, Williams & Wilkins.
4. Clinical Neurophysiology - Nerve conduction, Electromyography and Evoked Potentials – Mishra & Kalita, Churchill Livingstone.
5. A Practical Treatise On Electro-Diagnosis in Diseases of the Nervous System by Alexander Hughes Bennet (Jan 10, 2010)
6. Introduction to Surface Electromyography, Second Edition by Jeffrey R. Cram (Mar 16, 2010)
7. X-rays, their origin, dosage as practical application - Sehall, W.E, John Wright & Sons.
8. Diagnostic Radiography - Bryan G. J, Churchill Livingstone.
9. Cross Section Anatomy & Atlas of Computerized Tomography - Ledley, Robert Steven & Huang H. K, Lea & Febiger, Philadelphia.
10. Helical Spiral CT – A practical Approach - Zeman, Robert K, McGraw Hill.
11. Digital Radiography – A Focus on clinical utility - Price Ronald R, Rollo F David, Grune & Stration.
12. Fundamentals of Musculoskeletal Imaging - Mckinnis Lynn N, F. A. Davis.
13. Diagnostic Imaging for Physiotherapists - Swain James Bush, Reed Elsiever.
14. The Neural Basis of Motor ControL - Black I, Churchill Livingstone.
15. Gait Analysis - Perry J. Black Thorofare, Newjersy.
16. Kinanthropometry - Singh and Malhotra, Lunar Publications.
17. Sports Anthropometry - A Kinanthropometric approach - H. S. Sodhi, Anova Publications.
18. Perspectives in Kinanthropometry - James A.P.Day, Human Kinetics.
19. Writing SOAP notes - Kettenbach Ginge, F. A. Davis.
20. Clinical Decision making in Rehabilitation - Basmajian, John V, Churchill Livingstone.
21. Neurological Rehabilitation: Sixth edition : Darcy A Umphred, Elseivier
22. Exercise testing and prescription David Nieman
23. Clinical Electrophysiology : Andrew J. Robinson, lynn synder-Mackler
24. Orthopaedic Physical Assessment David J. Magee
25. Bickerstaff's Neurological Examination in clinical practice: 6th edition
26. De Jong's : The Neurological Examination : William W. Cambell
27. Essential of Cardiopulmonary physical therapy :Ellen Hillegass
28. Physiotherapy for respiratory and cardiac function: Pryor and webber 4th edition
29. Easy to read Electro cardiogarphy :John Hampton
30. American thoracic society of sports physiology
31. Muscle testing and testing with posture and pain: E.P.Kendall.

ADVANCE PHYSIO-THERAPEUTICS:

1. **Maximizing ventilation and perfusion- Cardiorespiratory:**
    a. Strategies to clear airway secretions
    b. Strategies to improve gas exchange and manage low lung volumes
    c. Strategies to manage dyspnea
    d. Effect of aerobic, anaerobic as well as Isometric and Isokinetic exercises on cardiac function

    Skill- Implementation of techniques e.g.:
    a. Suctioning, use of mechanical assistive devices (e.g. Positive Expiratory Pressure, Flutter, Vest, etc.), postural drainage and percussions, coughing manoeuvres, medication delivery e.g. oxygen
    b. Positioning, breathing control strategies (e.g. Pursed Lip Breathing, Sustained Maximal Inspiration, deep breathing), movement
    c. Relaxation training, positioning, aerobic, anaerobic, Isometric and Isokinetic exercises

2. **Superficial soft tissue (primarily skin) management**- Stages of healing Physiological impact and clinical management of:
    a. Wounds (including ulcers)
    b. Skin conditions (e.g. infectious, mechanical [e.g. contact dermatitis])
    c. Oedema (including lymphedema)
    d. Burns (including radiation)
    e. Amputations
    f. Bracing e.g. effects on skin integrity

    Clinical management best practices e.g.:
    a. Universal health precautions
    b. Role of collaborative teams in skin care, prevention of skin damage and management of wounds
    c. Skin integrity supportive measures (breakdown prevention) e.g. positioning in bed, wheelchair etc
    d. Role of physical and electrical agents in wound care and healing
    e. Wound care e.g. cleansing, debriding, dressing
    f. Chemical debridement (knowledge only)
    g. Blister and scar management

    Therapeutic interventions e.g.:
    a. Compression garments (e.g. TEDS)
    b. Hydrotherapy and cryotherapy in the management of oedema
    c. Bandaging/tensor techniques for amputations
    d. Splinting (e.g. adaptive, assistive, protective, supportive and prosthetic devices) and implications for skin health
    e. Taping and wrapping techniques

Skill- Assessment of body structure and functions related to the integumentary/skin system using best practice techniques and tools Implementation of the clinical management best practices (excluding chemical debridement) Implementation of therapeutic interventions noted ensuring best practice application techniques regarding e.g.: • Universal health precautions (e.g. hand washing, gloving, sterile field, etc.) Physical handling (e.g. positioning and donning, doffing, fitting and adjusting Thrombo-Embolism Deterrent Stockings [TEDS], prosthetic devices, splints and orthotics)

3. **Soft tissue mobilization techniques –**
    a. Soft tissue physiology, stages of healing and the effects of patho-physiology on movement and function
    b. Biomechanics and the osteo- and arthro- kinematics of joint movements
    c. Functional anatomy, static and dynamic posture
    d. Theory, foundation and evidence regarding manual therapy including contraindications (red flags)
    e. Principles of stretching, range of motion, therapeutic massage, joint and soft tissue mobilization, traction and other manual therapy and manipulation techniques
    f. Principles of safe handling and the prevention of adverse effects

    Skill- Performance of best practice neuro-musculoskeletal examination e.g.:
    a. Active and passive physiological movements
    b. Muscle function i.e. strength, recruitment, length
    c. Contraindications or preventable adverse effects

    Appropriate use of mobilization and manual therapy techniques in the establishment of a physical diagnosis and treatment strategy Implementation of best practice manual therapy and manipulation interventions

4. **Electrophysical Agents** e.g. Electrical, Light, Thermal, Hydrotherapy, Mechanical, energy-Examples of modalities:
    a. Transcutaneous electrical nerve stimulation (TENS)
    b. Interferential current (IFC)
    c. Neuromuscular electric stimulation (NMES)
    d. High voltage pulsed current (HVPC)
    e. Direct current (iontophoresis)
    f. EMG biofeedback
    g. LASER
    h. Hot packs
    i. Paraffin wax
    j. Cryotherapy
    k. Ultrasound
    l. Shortwave Diathermy
    m. Long Wave Diathermy
    n. Whirlpool
    o. Contrast baths
    p. Ultrasound (pulsed)

Clinical decision making, Indications, contraindications and precautions of electrophysical agents

Skill- Selection of appropriate modality to facilitate therapeutic outcomes based on evidence regarding indications, effectiveness, contraindications, precautions
Demonstrates safe and effective use of physical and electrical agents including appropriate dosage selection and progression of dosage
Responsible for calibration and routine maintenance of selected modalities

5. **Movement Interventions and Therapeutic Exercise**: Immobility: Implications, Evaluation, and Interventions
    a. Physiological effects of bed rest and immobility
    b. Therapeutic strategies to prevent immobility and its sequel
    c. Clinical strategies to redress the effects of immobility
    d. Therapeutic exercise in the context of the client's environment (e.g. home) and a range of therapeutic environments (e.g. home, gymnasium, pool/hydrotherapy, out-patient clinic, hospital ward/corridor etc.):
    e. Best practice guidelines for therapeutic exercise prescription (e.g. ACSM Guidelines):
        – Prevention and health promotion
        – Special populations
    f. Best practice for skills training

Skill- Assessment of body structure and functions related to:
    a. Bed rest & immobility e.g. range of motion/contracture status, BP, HR during position changes, muscle strength etc.
    b. Posture and gait Implementation of movement interventions including prescription, instruction, client education and monitoring e.g.:Bed-exercises, use of a tilt- table
    c. Assistive mobility devices such as walkers, crutches, wheelchairs

6. EXERCISE PRESCRIPTION & TRAINING
    a. Introduction to exercise prescription, the individual approach, the aerobic session, frequency, time, mode of exercise, rate of progression, musculoskeletal conditioning, static stretching, systems of muscular strength and endurance training, Recommendation based on maximal exercise test results, interpretation of maximal exercise test results.
    b. Conditioning effects of various levels of Sub-Maximal Exercises. Considerations of age and sex in exercise and training.
    c. Exercise prescription for health and fitness with special emphasis to cardiovascular disease, Obesity and Diabetes, Fatigue – Types, Relevance with Exercise Tolerance tests & Training.
    d. Principles of health promotion for Growing Children, Healthy Adults, Pregnant/Lactating females, Elderly, Sports person.
    e. Special aids to exercise training and performance.
    f. Exercise prescription guidelines
        - For healthy populations
        - For Special populations e.g. Children, Older adults, Diabetes, Chronic lung

disease, Cardiac pathologies, Stroke, Obesity, etc
- Components include: Aerobic and Anaerobic, Flexibility and Range of motion, Resistance (Strength, Endurance and Power), Balance, Trunk stabilization
- Functional training Principles

7. **Physical Handling techniques-**
    a. The physiological, psychological and biomechanical (static and dynamic) effects of handling on the client and physiotherapist
    b. Functional anatomy and the effects of handling and positioning on muscle activation
    c. Principles of neuromotor control and the effects of handling/positioning
    d. Principles of sensitive practice as they relate to patient handling e.g. role of draping and hand placement
    e. Principles of safety that apply to the physical handling of patients with a full range of dependencies e.g.:
        – Impact of different environmental conditions on safety outcomes
        – Availability and accessibility of resources on safety outcomes

Skill: Selection of appropriate technique(s) to facilitate safety, sensitive practice, client comfort and effectiveness

Demonstrates safe, respectful and effective performance of physical handling techniques taking into account the patient's clinical condition, the need for privacy, the physiotherapist, the resources available and the environment e.g.:

a. Use of draping
b. Hand placement for assessment and treatment techniques (e.g. manual therapy)
c. Body (-part) positioning
d. Range of motion (e.g. passive, assisted, resisted) and other manual techniques
e. Lifting and transfer techniques

8. General Guidelines to be followed in Cardiac Rehabilitation, Pulmonary Rehabilitation, Burns Rehabilitation and Cancer Rehabilitation Protocol.
9. Basics of different assessment and treatment systems, principles of PNF, NDT, SI, Brunnstrom, MRP, Rood etc.
10. Basics of different schools of manual therapy- Maitland, Kaltenborn, Mckenzie, Mulligan, Neural Mobilisation- Michael Shacklock and David Butler, Cyriax, Craniosacral Therapy, Taping, Muscle Energy Technique, Myofascial Release.

11. Yoga
    a. The Principles and Techniques of Yoga- Basic yogic postures and their physiological effects and therapeutic uses. Psychophysical Posture.
    b. Biomechanics in Yoga
    c. Concept of Yogic Practices and Types of Yoga. Patanjali's Ashtang Yoga. Kinds of Yogic Practices- Asana, Pranayama, Kriya, Mudra, Bandha, Dhyana.
    d. Asana: Definition, Scope and Limitations of Asanas – Classification of Asanas –Safety Measures and Precautions while performing Asanas
    e. Pranayama: Meaning – Different Phases in Pranayama. Practice & Safety Measures and Precautions.
    f. Meaning & benefits of Bandha – Types of Bandhas.

g. Meaning of Mudra – Types of Mudra - Significance
h. Practicing methods and benefits of Kriyas – Meaning – Types of Kriyas – Shatkarma
i. The Yogic wheels of Consciousness - Shatchakras
j. Meaning & concept of Meditation
k. The Yogic Physiotherapy – The integrated approach. Yogic practices and physical exercise. Yoga Practices and Other Systems of Exercises – Asanas Vs. Muscular Exercises – Pranayama Vs Deep Breathing Exercises
l. Applications of Yoga:
    i. Personality development
    ii. Stress management
    iii. Complete Health and Wellness
    iv. Disease prevention and Management

RECOMMENDED BOOKS:

1. Rehabilitation Specialist Hand Book - Rothstein, Hales M, F. A. Davis Company.
2. Clinical Electrotherapy - Nelson &Currier, Appleton & Lange.
3. Electrotherapy Explained - Low J & Ann Reed, Butterworth Heinemann.
4. Electrotherapy - Kitchen. S, Churchill Livingstone.
5. Maitland's Vertebral Manipulation - Maitland. G. D, Butterworth Heinemann.
6. Maitland's Peripheral Manipulation - Maitland. G. D, Butterworth Heinemann.
7. Principles of Manual Therapy - Sebastian. D.
8. Rehabilitation of movement: Theoretical Basis of Clinical Practice - Pitt Brooke. J, Harcourt-brace.
9. Manipulation & Mobilization: Extremity & Spinal Techniques - Edmond. S, Mosby.
10. Hydrotherapy in Pediatrics - Campion. C. R, William Heinemann.
11. PNF in Practice - Adler. S & Becker D, Springer.
12. Facilitated Stretching - 3rd Edition by Robert McAtee and Jeff Charland (Feb 21, 2007)
13. Clinical Electrophysiology: Electrotherapy and Electrophysiologic Testing by Andrew J. Robinson and Lynn Snyder-Mackler (Sep 28, 2007)
14. Yoga and Rehabilitation, Patel Nilima, Jaypee Publications, 2008
15. Yoga for common ailments and IAYT for different diseases, Dr R Nägarthna, Dr H R Nägendra and Dr Shamanthakamni, Swami Vivekananda Yoga Prakashana, Bangalore, 2002.
16. Alternative Therapies by Swati Bhagat. 1st Edition. Jaypee Publications.
17. Yogic Exercises by Datta Ray. 1st Edition. Jaypee Publications.
18. The Program for Reversing Heart Disease – The Ornish Spectrum by Dean Ornish
19. Back Health Through Yoga, Ramesh Bijlan, Rupa Publications India Pvt. Ltd, 2011.
20. Yoga Therapy Series, MDNIY Publications, MDNIY Publications: 10 Booklets, New

Delhi, 2009.
21. Yogic Therapy, Reddy M Venkata& others: Sri M.S.R Memorial Yoga Series Arthamuru A.P. 2005
22. Yogic Therapy, Swami Kuvalayananda& SL Vinekar: 1963
23. Discovering Human Potential energy: A Physiologycal Approch to Yoga, Rai, Lajpat: Anubhava Rai Publications, 1998.
24. Physical medicine and rehabilitation: Randall (Bradom) 5th edition.
25. Treat your own back :Robin Mckenzie.
26. Muscle energy technique :Leon Chaitow.
27. Motor Relearning program : Carr and Shepherd.
28. Cardiopulmonary physical therapy: Dean & Donna.
29. Exercise prescription :Skinner.
30. Essential cardiopulmonary physical therapy and weber and pryor.
31. The illustrated light on Yoga:B.K.SIyengar.

MPT Part –II

In MPT Part II the professional is expected to work and contribute in the physiotherapy unit of various departments.

Third & Fourth Semester Combined for Elective Subject

Elective Subjects

PHYSIOTHERAPY IN MUSCULOSKELETAL DISORDERS AND SPORTS

1. Applied anatomy with emphasis on Biomechanics & Kinesiology of Human motion and Work Physiology
2. Clinical assessment and rationale of Laboratory investigations along with differential diagnoses.
3. Clinical Symptomatology, Pathophysiology and Patho-mechanics of musculoskeletal conditions
4. Physiotherapy management following fractures, dislocations and their complications, Amputations, cumulative trauma disorders and Burns.
5. Physiotherapy management in degenerative disorders and allied conditions.
6. Physiotherapy in post-operative management of metabolic, hormonal, neoplastic and infective conditions of bones and joints.
7. Physiotherapy following arthroplasty, implants and soft tissue repairs.
8. Pre & post-operative physiotherapy in tendon transfer. Electrical stimulation and biofeedback procedures.
9. Kinetic and kinematics analysis for various functional activities.
10. Functional assessment (Hand function, Gait, Posture A.D.L; occupational work).
11. Physiotherapy management in Hand Rehabilitation.
12. Assessment of locomotor impairments, disabilities and disability evaluation.
13. Physiotherapy management of locomotor disorder, principles of medical and surgical aspects, sports psychology and retraining.
14. Neurological complications of locomotor disorders.
15. Analysis and classification of sports and sports specific injuries and its Physiotherapy management.
16. Physiotherapy management of sport injuries, sports fitness
17. Principles of Injury Prevention
18. Medico legal issues in sports, Sports Psychology, Sports Nutrition and Sports pharmacology.
19. Physiotherapy management of paediatric musculoskeletal disorders.
20. Orthopaedic implants-designs, materials, indications, post-operative assessment and training.
21. External aids, appliances, adaptive self-help devices; prescription, biomechanical compatibility, check-out and training.
22. Manual therapy: soft tissue manipulations and mobilization, neural mobilization,

acupressure. (Maitland, Kaltenborn, Mckenzie, Mulligan, Neural Mobilisation-Michael Shacklock and David Butler, Cyriax, Craniosacral Therapy, Muscle Energy Technique, Myofascial Release.)

23. Pilates-school of thought, Chiropractic school of thought, Osteopathic school of thought, Craniosacral Therapy
24. Myofascial Release technique and Muscle Energy technique
25. Joint manipulation – peripheral joints and vertebral joints.
26. Neuromuscular Taping Techniques
27. Concepts of electro physiological studies in neuro muscular diseases as a diagnostic and therapeutic tool. Electro diagnosis: Electromyography, Nerve conduction studies and evoked potential studies.
28. Community based rehabilitation in musculoskeletal disorders.
29. Yoga in Musculoskeletal Disorders and Sports.
30. Recent Advances in Musculoskeletal Disorders and Sports Physiotherapy.

RECOMMENDED BOOKS:

1. Treatment of Fractures in Practice - Page. C, Henry Frowle.
2. Outline of Fractures - Adams. J, Churchill Livingstone.
3. Joint and Soft Tissue Injuries - Pfizer.
4. Outline of Orthopedics - Adams, Hamblen, Churchill Livingstone.
5. Apley's system of Orthopedics and Fracture - Solomon. A, ARN.
6. Physical signs in Orthopedics - Walsh, Henry. J, Jaypee.
7. Management of common musculoskeletal disorders - Hertliny. K, Lippincott.
8. Clinical Orthopedic Diagnosis - Pandey. S, Pandey. A, Jaypee.
9. Clinical Assessment and Examination in Orthopedics - Rex.
10. Orthopedic Physical Assessment - Magee, Jaypee.
11. Clinical Orthopedic Examination - Mcrae. R, Churchill Livingstone.
12. Campbell's Operative Orthopedics - Speed. J.S, Mosby.
13. Orthopedic Rehabilitation Assessment - David. I. P, Springer.
14. Illustrated Orthopedic Physical Assessment - Evans. R, Mosby.
15. Outline of Orthopedics — John Crawford Adams.
16. Physical Agents in Rehabilitation: From Research to Practice by Cameron.
17. Apley's textbook of orthopedics and fractures by Apley's 7th edition B/H publications.
18. Physical Therapy of the Shoulder by Donatelli R.
19. Managing low back pain, Kirkaldy- Willis
20. Maitland's Vertebral Manipulation.
21. Musculoskeletal intervention Techniques for Therapeutic Exercise - Voight. M, McGraw Hill.
22. Rehabilitation for the Post surgical Orthopedics - Maxey. L, Mosby.
23. Clinical Orthopedic Physical Therapy - Richardson. J, W. B. Saunders.
24. Orthopedic Rehabilitation Science - Loudon, Kalte, Butterworth.
25. Therapy for Amputees - Engstorm. B, Churchill Livingstone.
26. Musculoskeletal Physiotherapy: Clinical Science and Evidence Based Practice - Refschugae. K, Butterworth Heinnemann.
27. Orthopedic Examination, Evaluation and Intervention - Dutton. M, McGraw Hill.
28. Inpatient Physiotherapy management of Orthopedic Surgery - Chipchase,

Butterworth Heinemann.
29. Physiotherapy in Orthopedics: A Problem solving Approach - Atkinson, Elsevier.
30. Handbook of Orthopedic Rehabilitation - Brotzman. B, Mosby.
31. Orthopedic Physiotherapy - Tidswell. M, Mosby.
32. Treatment and Rehabilitation of Fractures - Hoppenfeld, Lippincott Williams.
33. Orthopedic Physical Assessment by David J. Magee (Dec 10, 2007)
34. Orthopedic Manual Therapy: An Evidence-Based Approach by Chad Cook (Aug 18, 2006)
35. Pocketbook of Taping Techniques by Rose Macdonald BA FCSP (Aug 27, 2009)
36. Principles of Neuromusculoskeletal Treatment and Management: A Guide for Therapists by Nicola J. Petty (Oct 2, 2004)
37. Differential Diagnosis for the Orthopedic Physical Therapist by James Meadows (Jan 1, 1999)
38. Orthopaedic Examination, Evaluation, and Intervention, 2nd Edition (Book & DVD) by Mark Dutton (Feb 19, 2008)
39. A System of Orthopaedic Medicine by Ludwig Ombregt (Dec 23, 2002).
40. Hand and Upper Extremity Splinting: Principles and Methods by Elaine Ewing Fess, Karan Gettle, Cynthia Philips and Robin Janson (Aug 4, 2004)
41. Principles of Assessment and Outcome Measurement for Occupational Therapists and Physiotherapists: Theory, Skills and Application by Alison J. Laver Fawcett (May 8, 2007)
42. Pocket Guide to Musculoskeletal Assessment by Richard Baxter (Jul 3, 2003)
43. Critical Pathways in Therapeutic Intervention: Extremities and Spine by David C. Saidoff BS PT and Andrew L. McDonough EdD PT (Jan 15, 2002)
44. Rehabilitation of the Spine: A Practitioner's Manual by Craig Liebenson (Mar 3, 2006)
45. Clinical Orthopaedic Rehabilitation by S. Brent Brotzman MD and Kevin E. Wilk PT DPT (Jan 24, 2003)
46. Macnab's Backache by David A. Wong and Ensor Transfeldt (Oct 30, 2006)
47. Orthopaedic Physical Therapy by Robert A. Donatelli PhD PT OCS and Michael J. Wooden MS PT OCS (Jul 27, 2009)
48. The Swiss Ball: Theory, Basic Exercises and Clinical Applications by Beate Carrière, V. Janda and R. Tanzberger (Nov 28, 2000)
49. Neck Pain: Medical Diagnosis and Comprehensive Management by David G. Borenstein MD, Sam W. Wiesel MD and Scott D. Boden MD (Aug 15, 1996)
50. Rehabilitation techniques - William Prentice, Mosby.
51. Physical therapy for Sports - Werner Kuprian, WB Saunders.
52. Orthopedic and Sports Physical Therapy - Malone, Mosby.
53. Sports Injuries: Diagnosis and Management by Christopher M. Norris (Sep 17, 2004)
54. Functional Movement in Orthopaedic and Sports Physical Therapy: Evaluation, Treatment, and Outcomes by Bruce Brownstein and Shaw Bronner (Jan 15, 1997)
55. Therapeutic modalities in Sports Medicine - William Prentice, Mosby.
56. Sports Physiotherapy - Zuluaga, WB Saunders.
57. Orthopedic Sports Physical Therapy - Gould, Mosby.
58. Orthopedic taping, wrapping, bracing and padding - Beam, Joel. W, Jaypee.
59. Exercise and Sports in Diabetes by Dinesh Nagi and Bill Burr (Dec 21, 1999)
60. Pilates for core strength: Step by step - Keane. S, Chrysalis Building.
61. Functional Movement in Orthopedic and Sports Physical Therapy - Brownstein. B, Bronner. S, Churchill Livingstone.
62. Sports-Specific Rehabilitation by Robert A. Donatelli PhD PT OCS (Oct 11, 2006)

63. ACSM's resource manual for guidelines for exercise testing and prescription - ACSM, Lippincot Williams.
64. Musculoskeletal and Sports Injuries by Brian Corrigan and Geoff D. Maitland (Jun 27, 1994)
65. Physical Therapies in Sports and Exercise by Gregory S. Kolt, Lynn Snyder-Mackler and Alex R. Hoen (Feb 7, 2003)
66. Physiology of Sports and Exercise - Majumdar. P, New Central Book.
67. Clinical Sports Medicine - Brukner. P, Mc Graw hill.
68. Sports Injuries: Mechanism, prevention and treatment - Fu and Stone, Williams and Wilkins.
69. Functional Rehabilitation of Sports and Musculoskeletal Injuries by W. Ben Kibler, Stanley A. Herring and Joel M. Press (Jan 15, 1998)
70. Sports Injuries: Their prevention and treatment - Lars Peterson, Per Renstron, Dunitz.
71. Sports Injuries - Assessment and Rehabilitation - Reed, WB Saunders.
72. Clinical Sports medicine - Brukner and Kahn, McGraw Hill.
73. Sports Injuries: A Unique Guide to Self-Diagnosis and Rehabilitation by Malcolm T. F. Read and Paul Wade (Mar 23, 2009)
74. Biomechanics of Sports Techniques - James G Hay, Prentice Hall.

PHYSIOTHERAPY IN NEUROLOGICAL AND PSYCHOSOMATIC DISORDERS

1. Anatomy and Physiology of Nervous System.
2. Normal sequential behavioral and Physiological changes throughout the developmental arc.
3. Neurophysiology of balance, coordination and locomotion.
4. Clinical symptomatology and Pathophysiology of the neurological disorders
5. Principles of clinical neuro diagnosis and investigation.
6. Various Evaluation Scales and Assessment methods used in neurological rehabilitation.
7. Electrodiagnosis:
    a. Neurophysiology of Nerve conduction studies and Electromyography.
    b. Instrumentation of Electrical stimulator, EMG, SFEMG, NCS (Nerve Conduction Studies).
    c. Electrical study of reflexes (H- reflex, Axon reflex, F- response, Blink reflex, Jaw jerk, Tonic Vibration Reflex).
    d. Repetitive nerve stimulation.
    e. Evoked potentials (SSEP, MEP, BAERA, and VER).
    f. Interpretation of neurophysiologic responses in Neuropathy, myopathy and neuromuscular disorders.
8. Evaluation of A.N.S dysfunction with reference to psycho-physiological testing. Biofeedback training
9. Neuro-psychological functions. Perception testing and training.
10. Theories of motor control and theories of motor learning, its application in physiotherapy.
11. Common facilitatory and inhibitory techniques.
12. Treatment approaches in neurological rehabilitation: Bobath, NDT, SI, Brunnstrom, Roods, PNF, Vojta, MRP, MFR
13. Musculoskeletal treatment concept applied to neurology: Adverse neural tissue tension tests in upper limb and lower limb.
14. Pathophysiology and Management of tonal abnormalities (Spasticity, Rigidity, Hypotonia, and Dystonia)
15. Medical and Physiotherapy management following Cerebrovascular accidents.
16. Disorders of movements including lesions in lower and upper motor neuron, Cerebellum and Basal Ganglia.
17. Traumatic Brain Injury. (ICU management, Coma stimulation, Restoration of motor control, Rehabilitation and community integration)
18. Traumatic spinal cord injuries. (ICU management, Coma stimulation, Restoration of motor control, Rehabilitation and community integration)
19. Physiotherapy management of demyelinating, inflammatory, infectious, degenerative and metabolic diseases of the nervous system.
20. Physiotherapy management of Motor neuron diseases, neuromuscular junction disorders, Brain tumor, and Neuro cutaneas disorders.

21. Diseases of spinal cord, peripheral nerves and cranial nerves
22. Physiotherapy management for neuromuscular disorders.
23. Physiotherapy management in Paediatric neurology (Cerebral Palsy, Developmental disorders, Neuropsychiatric disorders, Cerebral & Craniovertebral anomalies & metabolic disorders of nervous system).
23. Cognitive disorders and its Physiotherapy management.
24. Physiotherapy management in Oromotor dysfunction.
25. Pain management-Physiotherapeutic interventions for relief of pain and loss of function.
26. Vestibular disorders and its Physiotherapy management.
27. Bladder and Bowel dysfunction and its Physiotherapy management.
28. Assessment and management of various neurological gaits.
29. Physiotherapy management in disorders of Special Senses, Speech, Language and Perception.
30. Associated functional disturbances of higher functions and their testing and training.
31. Application of Functional electrical stimulation and Bio-feedback in neurological conditions.
32. Learning skills, A.D.L and functional activities.
33. Orthosis/Splinting/Wheelchair in Neurology (Planning) mainly in CVA, PNI, CP, SCI.
34. Basic knowledge of drugs used for neurological conditions.
35. Assessment of fitness and exercise prescription for special neurological population – Stroke, Paraplegia, TBI, Multiple Sclerosis, MND, Parkinsonism, & Ataxia.
36. Community based rehabilitation for neurological dysfunction. Disability evaluation and management.
37. Stem cell therapy in neurological disorders and Physiotherapy management.
38. Yoga in Neuromuscular and Psychosomatic Disorders.
39. Recent Advances in Neuromuscular and Psychosomatic Disorders.

RECOMMENDED BOOKS:

1. Goodman; pathology implications for the physical therapist
2. Barbara; muscles, nerves and movement kinesiology in daily living.
3. Greame; clinical neurology
4. Brandt; neurological disorders course and treatment
5. Brains; Disease of the nervous system
6. Shirley; diagnosis , treatment of movement impairment syndromes
7. Richard; neurological rehabilitation
8. Susan; neurological physiotherapy
9. Helen; Neuroscience of rehabilitation
10. Wade DT 1992 , assessment in neurological rehabilitation, oxford press
11. Omer; management of peripheral nerve problems
12. Darcy; neurological rehabilitation
13. Gerald; evaluation and treatment of chronic pain

14. Alfred; Early diagnosis and therapy in cerebral palsy
15. Charles; The neuroscience of human movement
16. Traumatic brain injury rehabilitation
17. Neurological Physiotherapy - Susan Edward.
18. Stroke Patient - Principles of Rehabilitation - John Stone (Churchill Livingstone).
19. Motor Relearning Programme for Stroke - Carr & Shephered.
20. Adult Hemiplegia: Evaluation and Treatment - Bobath & Bobath.
21. Neuro Rehabilitation - Farber, WB Saunders, Philadelphia.
22. The Neural Basis of Motor Control - Black I, Churchill Livingstone.
23. Tetraplegia & Paraplegia - Ida Bromley, Churchill Livingstone.
24. Proprioceptive Neuro Muscular Facilitation Techniques Knot M. and Voss, Harper and Row.
25. De Jong's the Neurological Examination, Armin F. Haerer Lippoincott - Raven.
26. Abnormal Postural Reflex Activity caused by Brain Lesions. Bobath B. Aspen, Publications Rockville.
27. Spinal Cord Injuries - Orthopaedic & Neurological Aspects A.G. Hardy & Rossier A.B.
28. Physical Rehabilitation (O'Sullivan, Physical Rehabilitation) by Susan B. O'Sullivan and Thomas J. Schmitz (Aug 4, 2006)
29. Rehabilitation for Traumatic Brain Injury by Walter M. High, Angelle M. Sander, Margaret Struchen and Karin A. Hart (Jul 7, 2005)
30. Neurological Rehabilitation by Darcy Ann Umphred PT PhD FAPTA (Nov 10, 2006)
31. Neurological Physiotherapy: Bases of Evidence for Practice, Treatment and Management of Patients Described by Specialist Clinicians by Cecily Partridge (May 15, 2002)
32. Motor Control and Learning by Markus Latash and Francis Lestienne (Feb 7, 2006)
33. Physical Management for Neurological Conditions: by Maria Stokes and Emma Stack (Apr 25, 2011)
34. Neuro-developmental Treatment Approach: Theoretical Foundations & Principles by Janet M. Howle (Jan 2002)
35. Guide to Evidenced-Based Physical Therapist Practice, Second Edition by Dianne V. Jewell (Aug 23, 2010)
36. Physical Therapy for Children by Suzann K. Campbell, Robert J. Palisano PT ScD and Margo Orlin (Jan 24, 2011).
37. Improving Functional Outcomes in Physical Rehabilitation by O'Sullivan and Schmitz (Dec 9, 2009)

PHYSIOTHERAPY IN CARDIOVASCULAR AND RESPIRATORY DISORDERS

1. Anatomy and physiology of cardio-vascular and respiratory systems.
2. Biomechanics of respiration.
3. Intrauterine development of cardiopulmonary system and difference between the adult and pediatric cardiopulmonary system.
4. Epidemiology, Symptomatology and pathophysiology of the cardio-respiratory disorders.
5. Clinical assessment, rationale of laboratory investigations and differential diagnosis,
6. Evaluation of respiratory dysfunctions, lung function tests – volumetric, analysis of blood gases, X-ray chest.
7. Evaluation cardiac dysfunction. [ECG, exercise ECG testing, Holter monitoring etc., Echo-cardiogram, X-Ray, Imaging techniques, lipid profile, serum enzymes, electrolytes.]
8. Evaluation of peripheral vascular disorders: clinical, blood flow studies, temperature plethysmography. A.N.S dysfunction testing.
9. Risk factors and preventive measures in cardio respiratory conditions
10. Cardio-respiratory emergencies and management principles – medication, critical care, indications of surgical intervention, stabilization of vital functions defibrillation.
11. Intensive care unit – Concept and set-up, equipment for advanced methods of resuscitation, monitoring and patent management: artificial airways, ventilators, pulse – oxymetry etc
12. Oxygen therapy.
13. Cardio-pulmonary resuscitation.
14. Respiratory physiotherapy techniques – Techniques to improve lung volume; techniques to reduce the work of breathing and techniques to clear secretions.
15. Physiotherapy management for common conditions in the ICU
16. Physiotherapy management in Poisoning, Drug overdose, and Drowning.
17. Physiotherapy management following general Medical & Surgical conditions
18. Physiotherapy management of peripheral vascular disorders
19. Clinical exercise testing & training (physiology of exercise testing, types of testing, MET values for common activities, indications and contraindications, interpretation, prescription, & clinical implication, aerobic & anaerobic exercise training)
20. Respiratory Pharmacology
21. Physiotherapy management in Obstructive and restrictive lung disorders
22. Pulmonary Rehabilitation
23. Physiotherapy management following congenital and acquired heart diseases
24. Cardiac rehabilitation – Conservative and post-operative management.
25. Physiotherapy modalities used for wound healing
26. Exercise Prescription for health promotion and fitness for special populations- DM, Obesity, IHD, COPD, HTN
27. Physiological changes of cardio pulmonary systems in various positioning.
28. Management of hyperventilation syndrome.
29. Respiratory management following neurological & spinal cord injuries

30. Paediatric cardio respiratory assessment & care
31. Aging & exercise for cardio pulmonary conditions.
32. Physiotherapy management in Cardiac transplantation.
33. Physiotherapy management in Lung transplantation.
34. C.B.R in Cardio-vascular and respiratory Disorders.
35. Yoga in Cardio-vascular and respiratory Disorders.
36. Recent advances in Cardiovascular and respiratory physiotherapy.

RECOMMENDED BOOKS:

1. Cardiopulmonary Physical Therapy - Irwin & Tecklin (Mosby).
2. Cardiopulmonary Rehabilitation - Barbara.
3. Cardiopulmonary Rehabilitation: Basic Theory and Application (Contemporary Perspectives in Rehabilitation) by Brannon, Foley, Saul and Starr (Sep 15, 1997)
4. Chest Physiotherapy in Intensive Care Unit - Mackezie, Williams & Wilkins, Baltimore.
5. Cardiopulmonary symptoms in Physiotherapy - Cohen M, Churchill, Livingstone.
6. A Manual of Neonatal Intensive Care - Robert NRC, Edward Arnold.
7. Cardiopulmonary Equipments - David Eubanks & Bone.
8. Clinical application of Ventilator support - Kinby, Churchill Livingstone.
9. Cardiac Rehabilitation - Amundsen, Churchill Livingstone.
10. Mechanical Ventilation by Irwin R.S. Beamers
11. ECG by Schamroth
12. Interpretation of Pulmonary Function Tests: A Practical Guide by Hyatt, Robert E.; Scanlon, Paul D
13. Principles of Exercise Testing and Interpretation: Including Pathophysiology and
14. Egan's Fundamentals of Respiratory care by Robert Wilkins
15. Harrison's Textbook of medicine
16. API's Text book of Medicine
17. Advancing the Frontiers of Cardioplumonary Rehabilitation by Jean Jobin, Francois Maltais, Paul Poirier and Clermont Simard (May 20, 2002)
18. Cardiopulmonary Physical Therapy: A Guide to Practice by Scot Irwin MS PT DPT and Jan S. Tecklin MS PT (Apr 9, 2004)
19. Physiotherapy for Respiratory and Cardiac Problems: Adults and Paediatrics by Ammani S Prasad and Jennifer A. Pryor (2008)
20. Cardiopulmonary Physical Therapy: A Clinical Manual by Joanne Watchie.
21. Cardiopulmonary Physical Therapy: A Clinical Manual by Sadowsky.
22. Cardiovascular and Pulmonary Physical Therapy : An Evidence-based Approach by William DeTurk and Lawrence Cahalin (Mar 12, 2004)
23. Cardiovascular and Pulmonary Physical Therapy: Evidence and Practice by Donna Frownfelter PT DPT MA CCS RRT FCCP and Elizabeth Dean PhD PT (Dec 5, 2005)
24. Essentials of Cardiopulmonary Physical Therapy by Ellen Hillegass EdD PT CCS FAACVPR and H. Steven Sadowsky MS RRT PT CCS (May 11, 2001)
25. Cardiopulmonary Physiotherapy by M. Jones and F Moffatt (Jan 2003)
26. Clinical Management Notes and Case Histories in Cardiopulmonary Physical Therapy by W. Darlene Reid BMR(PT) PhD and Frank Chung BSc(PT) MSc (Jun 23, 2004)

27. Advances in Cardiopulmonary Rehabilitation by Jean Jobin, Francois Maltais, Pierre LeBlanc and Clermont Simard (May 15, 2000)

PHYSIOTHERAPY IN PREVENTIVE AND COMMUNITY HEALTH

(HEALTH PROMOTION, GERIATRIC HEALTH, INDUSTRIAL HEALTH AND WOMEN'S HEALTH PHYSIOTHERAPY)

1. Health and Illness; Levels of Healthcare & Fitness
2. Basic Concepts of rehabilitation and foundations of rehabilitation
3. Institute based rehabilitation services and multi-disciplinary approach.
4. Methodology of CBR with reference to National Health Delivery system.
5. Role of National Institutes, District Rehabilitation Centre and Primary Health Centre (with appropriate exposure).
6. Role of Government in CBR, inter-sectoral programs and co-ordination.
7. Role of Non-Government organizations in CBR.
8. Scope of physiotherapy in Preventive and community Health.
9. Disability detection and early intervention.
10. Physical fitness, stress management through yoga and psychosomatic approaches.
11. Home exercise programs for various classifications of disabilities.
12. Physiotherapist as a Master Trainer in CBR.
13. Natural calamity or disaster management – Role of Physiotherapist in disaster management team
14. Barriers in Community: Definition, Types and Guidelines for Modification of Architectural Barriers
15. Community Based Rehabilitation in chronic neurological, musculoskeletal and cardio-respiratory disorders
    i. Degenerative arthritis
    ii. Osteoporosis (including stress fracture)
    iii. Urinary and faecal Incontinence
    iv. Parkinson's disease
    v. Motor neurone diseases
    vi. Stroke, Spinal Cord Injury
    vi. Leprosy, PPRP, PPS, CTEV, CDH and Spina-bifida
16. Health promotion, fitness, and wellness issues during childhood, adolescence, adults and elderly.
17. Physiological effects of aerobic exercise – clinical reasoning for advocating aerobic exercise as preventive measure in obesity & its related conditions / in cardio-respiratory conditions / Aging / deconditioning effect after prolonged bed rest / Diabetes.
18. Theoretical and Practical Perspectives of Health Promotion of Community in Non-Communicable Diseases like Diabetes, Obesity, Hypertension, Cancers, etc.
19. Preventive physiotherapy for individuals with developmental disabilities.
20. Health Promotion in Schools: Regular and Special Schools
21. Evaluation and Assessment of the elderly; Theories of aging; Physiological changes due to Aging; Management of Balance and Fall in elderly; Principles of Geriatric Physiotherapy; Exercise prescription for the elderly; Psychosocial and safety issues in elderly and Physiotherapy management.
22. Physiotherapy management for the frail and institutionalized elderly

23. Aging with disability and Adaptations to Chronic Illness and Physiotherapy management.
24. Preventive and Holistic physiotherapy for the elderly.
25. Geriatric Trauma and Physiotherapy management
26. Occupational Health, Occupational Hazards, Industrial Hygiene, Vulnerable workers group.
27. Industrial therapy, Injury prevention and returning the worker to productivity
28. Industrial Health & Ergonomics –
    i. Ability Management: - Job analysis, Job description, Job demand Analysis, Task Analysis, Ergonomic Evaluation including Anthropometric data collection, Injury Prevention, Employee Fitness Programme
    ii. Disability Management: - Acute care, Concept of Functional Capacity, Assessment, Work Conditioning, Work Hardening
29. Ergonomics, Principles, Issues related to hand tools, posture, material handling and lifting
30. Work related Musculoskeletal disorders: Definition, classification, risk factors, clinical presentation, evaluation and Physiotherapy management
31. Prevention of work related Injuries and redesigning workspace, Occupational stress; Environmental Pollution – noise, vibration etc.
32. Occupational Hazards in the industrial area -- Accidents due to
    i. Physical agents-e.g.-Heat/cold, light, noise, Vibration, U.V. radiation, Ionizing radiation,
    ii. Chemical agents-Inhalation, local action, ingestion,
    iii. Mechanical hazards-overuse/fatigue injuries due to ergonomic alteration & ergonomic evaluation of work place-mechanical stresses per hierarchy –
        a. sedentary table work –executives, clerk,
        b. inappropriate seating arrangement- vehicle drivers
        c. constant standing- watchman- Defense forces, surgeons,
        d. Over-exertion in laborers, Common accidents
    iv. Psychological hazards- e.g.-executives, monotonicity & dissatisfaction in job, anxiety of work completion with quality, Role of P.T. in Industrial setup & Stress management relaxation modes.
    v. Biological Hazards
33. Physiotherapy role in industry – preventive, intervention, ergonomic and rehabilitative.
34. Women's, Health: Women's reproductive health and health care; Exercise prescription in pre and post- natal stage; Diagnosis and treatment of musculoskeletal pain and dysfunction during pregnancy and post menopause. Physiotherapy in maternal and child health care. Early intervention in High Risk children 0-5 years
35. Uro-genital dysfunctions like organ Prolapse, PID, Incontinence, etc. and its Physiotherapy management; Pelvic floor dysfunction its Physiotherapy management.
36. Common Gynaecological surgeries and its Physiotherapy management
37. Evaluation and Physiotherapy management for Osteoporosis, breast oncology and lymphoedema.
38. Application of Yoga in preventive and Community health management.
39. Recent Advances in Physiotherapy in Health Promotion, Geriatric health, Industrial health and Women's health.

RECOMMENDED BOOKS:

1. Textbook of community medicine and community health-by Bhaskar Rao
2. Industrial therapy—Glenda Key
3. Community based rehabilitation for person with disability- S. Pruthuvish
4. Community based rehabilitation for person with disability- Malcolm Peat
5. Developing cultural competence in physical therapy practice, Jill black lattanzi, Larry D. Purnell (2006 F.A. Davis).
6. Disability 2000- RCI
7. Physiotherapy in the community , Gibson, Ann. 1988, Woodhead-Faulkner 72 (Cambridge, Wolfeboro, N.H., USA)
8. Community Rehabilitation in Neurology, Michael P. Barnes, Harriet Radermacher, Cambridge University Press 2009
9. Community Care for Health Professionals, Ann Crompton and Mary Ashwin, (Butterworth – Heinemann 2000)
10. Legal rights of disabled in India- Gautam Banerjee
11. Disabled village children by David Werner
12. Physical rehabilitation- Sussan O Sullivan
13. ICF- WHO 2001 publications
14. Preventive and social medicine- K.Park
15. Mural K F –Ergonomics: Man in his working environment
16. Exercise Physiology-by McArdle
17. Musculoskeletal Disorders in work place: Principle & Practice-by Nordin Andersons Pope
18. Chorin C& M Desai, C Gonsalves, 1999, Women & the Law, Vol. I & II Socio - legal Information Centre Mumbai
19. Geriatrics Physiotherapy – By Andrew Guccione,2nd Edition (Mosby 2000)
20. Physical Therapy of the geriatric patient by Jackson Osa. Churchill Livingstone. New York.
21. Geriatric Physical Therapy: A Clinical Approach by Carole B. Lewis and Jennifer Bottomley (1993)
22. Training in the Community for the people with disability –by Hallender Padmini Mendes
23. Occupational Therapy and Physical disfunction: Principles, Skills & Practices – Turner, Foster & Johnson - Churchill Livingstone
24. Orthotics and Prosthetics in Rehabilitation by Michelle M. Lusardi PhD PT and Caroline C. Nielsen PhD (Jun 30, 2006)
25. Prosthetics and Orthotics: Lower Limb and Spine by Ron Seymour PhD (Feb 14, 2002)
26. Lower-Limb Prosthetics and Orthotics: Clinical Concepts by Joan Edelstein and Alex Moroz (Dec 15, 2010)
27. Orthotics: A Comprehensive Clinical Approach by Joan Edelstein MA PT FISPO and Jan Bruckner PhD PT (Jan 1, 2002)
28. Orthotics in Functional Rehabilitation of the Lower Limb by Deborah A. Nawoczenski PhD PT and Marcia E. Epler PhD PT ATC (Jan 15, 1997)

29. Ergonomics for Beginners: A Quick Reference Guide, Third Edition by Jan Dul and Bernard Weerdmeester (May 28, 2008)
30. Ergonomic Living : How to Create a User-Friendly Home & Office by Gordon Inkeles and Iris Schencke (Nov 1, 1994)
31. Ergonomics for Therapists by Karen Jacobs EdD OTR/L CPE FAOTA (Jul 30, 2007)
32. Ergonomics In Computerized Offices by E. Grandjean (Dec 18, 1986)
33. Action Plan for Community-Based Rehabilitation (CBR) in India:: focus on Culture and Participation by Kamaraj
34. Physiotherapy in Obstetrics & Gynaecology - Polden & Mantle, Jaypee Brothers.
35. Obstetrics & Gynaecologic Physical Therapy - Wilder Elaine, Churchill Livingstone.
36. Therapeutic Management of Incontinence and Pelvic Pain by J. Laycock and J. Haslam (Jun 20, 2002)
37. Physiotherapy of the cancer patient - McGaryex, Churchill Livingstone.

38. Women's Health in Physical Therapy by Jean M. Irion and Glenn L. Irion (May 27, 2009)

39. Women's Health: A Textbook for Physiotherapists by Ruth Sapsford, Joanne Bullock-Saxton and Sue Markwell Bphty (Dec 1, 1997)
40. Obstetric and Gynecologic Care in Physical Therapy by Linda J. O'Connor and Rebecca J. Gourley (Jul 1990)
41. Evidence-Based Physical Therapy for the Pelvic Floor: Bridging Science and Clinical Practice by Kari Bo, Bary Berghmans, Siv Morkved and Marijke Van Kampen (Jul 27, 2007)
42. Obstetric and Gynaecologic Physical Therapy by E. Wilder (Oct 1988)
43. Female Genital Prolapse and Urinary Incontinence (Vol 4) by Victor Gomel and Bruno van Herendael (Nov 19, 2007)
44. Physiotherapy in Obstetrics and Gynaecology by Jill Mantle, Jeanette Haslam and Sue Barton (May 3, 2004)
45. Obstetric and Gynecologic Care in Physical Therapy, 2E by Rebecca G. Stephenson and Linda J. O'Connor (Jan 1, 2000)
46. Physiotherapy in Pregnancy: Antenatal, Postnatal and Baby Care by Balaji Hiranandani (Dec 1, 2007)

PHYSIOTHERAPY IN PAEDIATRICS

1. Normal development (development during prenatal/infancy/childhood)
2. Reflex maturation
3. Neuro developmental assessment and diagnosis, developmental diagnostic scales
4. Genetic basis of paediatric disorders and genetic counselling.
5. Maturation , pathophysiological and recovery process in the CNS
6. Growth and development of child and its disorders
7. **Physiotherapy assessment and management in Paediatric neurological conditions**,
    - Cerebral palsy
    - Developmental delay
    - Down's syndrome
    - Obstetric brachial plexus injury
    - Gullain barre syndrome
    - Traumatic brain injury
    - Neuromuscular disease
    - Minimal brain dysfunction : learning disability, Attention deficit disorder, clumsiness
    - Neural tube defects
    - Seizure disorder
    - Infectious diseases
8. **Fitness and exercise prescription for special paediatric population:**
    - cerebral palsy
    - down syndrome
    - polio
    - muscular dystrophies
    - obesity
9. Physiotherapy in Pediatric surgeries and its post operative management
10. The high risk infant including neonatal assessments and development & intervention
11. Sensory Processing disorders and their management - Sensory integration
12. Physiotherapy in Hypotonic child
13. Physiotherapy in autism and pervasive developmental disorder
14. **Pediatric cardio respiratory care:**
    - Growth and development of cardio respiratory system
    - Chest PT technique and adjunct to Chest PT
    - Physiotherapy in common neonatal disorder
    - Physiotherapy following paediatric cardiac surgery
    - Physiotherapy in neurological intensive conditions – head injury and head trauma
    - Physiotherapy in respiratory track disorder
    - Physiotherapy in child with respiratory failure
    - Physiotherapy in Cystic fibrosis

15. **Physiotherapy assessment and management in Paediatric musculoskeletal disorders**
    - Idiopathic scoliosis
    - Congenital muscular torticollis
    - Juvenile rheumatic arthritis
    - Congenital dislocation/dysplasia of hip
    - Congenial limb deficiency
    - osteogenesis imperfect
    - rickets
    - Talipus equinovaras, flat feet
    - Talipus calcaneovalgus
16. Physiotherapy in Oncology and palliative care
17. Integrated approach in the management of pediatric disorder
18. Physiotherapy in Pediatric surgeries and its post operative Management
19. Adaptive equipment for physically challenged children
20. Sports in children
21. CBR in paediatrics
22. Physiotherapy in public schools
23. Principles of laboratory investigations for differential diagnosis in Paediatric Physiotherapy management.
24. Recent advances in the paediatric physiotherapy

RECOMMENDED BOOKS:

1. Charles; The neuroscience of human movement
2. Management Principles for physiotherapists – Nosse Lorry J.
3. Human neuroanatomy – Carpenter M.B, Williams & Wilkins, Baltimore,
4. Physical therapy Assessment in Early Infancy –Wilhelm Churchill Liningstone, New York
5. Physical therapy for children – Campbell Suzann K, W.B Saunders, Philadelphia
6. Physical management of Multiple Handicapped – Freser, William & Wilkins, Baltimore.
7. Elements of paediatric physiotherapy- Eckerley P, Churchill Liningstone, Edingburgh
8. Physiotherapy in pediatrics – Shepherd R. Heinmann, London
9. The Growth chart – WHO, Geneva
10. Physical therapy for children-4th edition. Campbell SK; Palisano RJ. Saunders Publication 2011
11. Pediatric Rehabilitation- 4th edition. Alexander MA, Mathews DJ. Demos Medical Publishing 2009
12. From birth to five year by Mary Sheridan- 4th edition. Sharma A; Cockerill H . Routledge 2014
13. Understanding regulation disorders of sensory processing in children- 1st edition. Staker A. Jessica Kingsley Publications 2007
14. Understanding the nature of Autism and Aspergers disorder- 1st edition. Edward R; Ritvo MD. Jessica Kingsley Publications 2005

15. Physical therapy of cerebral Palsy- 1st edition. Miller F. Springer Publication 2007
16. Treatment of Cerebral Palsy and Motor delay- 5th edition. Levitt S. Wiley- Blackwell Publication 2010 Alfred; Early diagnosis and therapy in cerebral palsy
17. Physical Therapy for Children by Suzann K. Campbell, Robert J. Palisano PT ScD and Margo Orlin (Jan 24, 2011).
18. Goodman; pathology implications for the physical therapist
19. Barbara; muscles, nerves and movement kinesiology in daily living.
20. Greame; clinical neurology
21. Brandt; neurological disorders course and treatment
22. Brains; Disease of the nervous system
23. Shirley; diagnosis , treatment of movement impairment syndromes
24. Richard; neurological rehabilitation
25. Susan; neurological physiotherapy
26. Helen; Neuroscience of rehabilitation
27. Wade DT 1992 , assessment in neurological rehabilitation, oxford press
28. Darcy; neurological rehabilitation

PHYSIOTHERAPY IN WOMEN'S HEALTH

1. Anatomy and Physiology of female reproductive system.
2. Biomechanics and Patho-mechanics of spine, female pelvis, posture, movement and gait.
3. The Adolescence Female-. Puberty and menarche.
4. Menstruation, Physiology of Pregnancy, preconception assessment and diagnostic test during Pregnancy, types of delivery, infertility and abortion.
5. Evaluation of maternal musculoskeletal disorders and adaptation of the mother to the changes.
6. Physical fitness assessment - Anthropometrics measurements, range of motion, muscle strength, endurance and skills, body composition, cardiac efficiency tests and spirometry.
7. Posture and postural assessment during pregnancy.
8. Antenatal physiotherapy management –Assessment, exercise protocol, health promotion.
9. Guidelines for Exercise therapy, Manual therapy, Breathing exercises, Core stability training, Trigger point release, Pain management, Pilates, Aerobics, Massage therapy during pregnancy.
10. Physiotherapy assessment and management for women with special needs like adolescent mothers, older primipera, auto immune disease, multiple sclerosis.
11. Physiotherapy management for labour.
12. Physiotherapy management of Gestational Diabetes Mellitus and High risk Pregnancy.
13. Stress and relaxation during pregnancy, relaxation techniques, visualization, imagery, massage, breathing etc.
14. Physiotherapy assessment and treatment of specific musculo-skeletal conditions- Neck & upper back strain, TMJ pain, Thoracic outlet syndrome, costal rib pain, Carpal tunnel syndrome, Dequervain's disease, Diastasis recti-abdominis, Sacroiliac joint dysfunction, Symphysis pubis dysfunction, Low back pain, Piriformis syndrome, coccyx pain, Knee & patella dysfunction, Nerve palsies, muscle & tendon injuries.
15. Physiotherapy management in psychological and emotional changes through antenatal period, childbirth, and postnatal period.
16. Physiotherapy management in postnatal period –Vaginal and Caesarian delivery.
17. Physiotherapy management for Breast engorgement and episiotomy.
18. Neonate handling assessment and physiotherapy management of congenital dislocation of the hip, Talipes equinovarus, Brachial plexus injuries, sudden infant death syndrome .
19. Physiotherapy management for Gynecological disorders-Infective conditions, Cysts and new growths, displacements, endometriosis, genital prolapse, dysmenorrhea, premenstrual dysphoric disorder and psychosexual problem, Fitness testing and exercise prescription in gynecological conditions (infertility, PCOD, Obesity), Electrotherapeutic modalities in Gynaecological conditions.
20. Evaluation and physiotherapy management for women with physical disabilities and psychological effects of disability and gynaecologic problems in Female athletes.
21. Pre-operative and postoperative physiotherapy management for Gynaecological

Surgeries.

22. Normal urinary tract and bowel function, urinary incontinence-types, Principles of urodynamic, radiological and electro-myographical investigations, physiotherapy management,, Bowel and Anorectal Dysfunction, Levator-ani-syndrome, coccydynia , Vulvodynia, vaginismus, Dyspareunia.
23. Evaluation and Physiotherapy management for Osteoporosis, breast oncology and lymphoedema.
24. Yoga in obstetrics and gynecology physiotherapy.
25. Recent Advances in women's health physiotherapy.

RECOMMENDED BOOKS:

1. Physiotherapy in Obstetrics & Gynaecology - Polden & Mantle, Jaypee Brothers.
2. Obstetrics & Gynaecologic Physical Therapy - Wilder Elaine, Churchill Livingstone.
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13. Physiotherapy in Pregnancy: Antenatal, Postnatal and Baby Care by Balaji Hiranandani (Dec 1, 2007)

RECOMMENDED JOURNALS:

1. Physical therapy - APTA, USA
2. Physiotherapy - CSP, London
3. Physiotherapy - Canada
4. Australian Journal of Physiotherapy
5. American Journal of Physical Medicine and Rehabilitation
6. Archives of Physical Medicine and Rehabilitation
7. Clinical Kinesiology
8. Journal of Biomechanics
9. American Journal of Sports Medicine
10. Journal of Sports Physiotherapy
11. British Journal of Sports Medicine
12. Spine
13. Journal of Neurological Sciences
14. IJPOT, India
15. Manual Therapy
16. Advances in Physiotherapy
17. Physiotherapy Review
18. Hong Kong Physiotherapy Journal
19. Journal of Manual and Manipulative Therapy
20. Journal of Neurologic Physical Therapy
21. Journal of Orthopedic and Sports Physical Therapy
22. Journal of Physical Therapy Science - English version
23. Journal of Sports Science and Medicine
24. Journal of Women's Health Physical Therapy
25. Rheumatology
26. Physical Therapy Reviews
27. Physiotherapy Singapore
28. Physiotherapy Theory and Practice

LIST OF THE COMPLETELY OPEN ACCESS JOURNALS IN PHYSIOTHERAPY AND REHABILITATION:

1. International Journal of Physiotherapy and Rehabilitation
2. Journal of Physical Therapy
3. Asian Journal of Sports Medicine
4. Human Movement
5. Journal of Foot and Ankle Research
6. Journal of Human Sport and Exercise
7. Motricidad. European Journal of Human Movement
8. Open Access Journal of Sports Medicine
9. The Open Sports Medicine Journal
10. Indian Journal of Physical Medicine and Rehabilitation
11. Journal of Rehabilitation Research and Development
12. Rehabilitation Research and Practice
13. BMC Cardiovascular Disorders
14. International Journal of Exercise Science
15. Journal of Exercise Physiology
16. Archives of Exercise in Health and Disease
17. Arthritis Research and Therapy
18. BMC Musculoskeletal Disorders
19. Paediatric Rheumatology
20. Sports Medicine, Arthroscopy, Rehabilitation, Therapy and Technology
21. European Journal of Physical and Rehabilitation Medicine
22. Journal of Physical Therapy Science

CHECK LISTS
TABLE - 1

MODEL CHECK-LIST FOR EVALUATION OF JOURNAL REVIEW PRESENTATIONS

Name of the Student : …….

Name of Faculty / Observer : …….

Date : …….

Sl.No	Items for observation during presentation	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Article chosen was					
2.	Extent of understanding the scope & objectives of the paper by the candidate					
3.	Whether cross references have been consulted					
4.	Whether other relevant publications consulted					
5.	Ability to respond to questions on the paper / subject					
6.	Audio – Visual aids used					
7.	Ability to defend the paper					
8.	Clarity of presentation					
9.	Any other observation					
	Total Score					

TABLE - 2

MODEL CHECK-LIST FOR EVALUATION OF SEMINAR PRESENTATIONS

Name of the Student : …….

Name of Faculty / Observer : …….

Date : …….

Sl.No	Items for observation during presentation	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Whether other relevant publications consulted					
2.	Whether cross references have been consulted					
3.	Completeness of preparation					
4.	Clarity of presentation					
5.	Understanding of subject					
6.	Ability of answer questions					
7.	Time scheduling					
8.	Appropriate use of Audio – Visual aids					
9.	Overall performance					
10.	Any other observations					
	Total Score					

TABLE - 3

MODEL CHECK-LIST FOR EVALUATION OF CLINICAL WORK

Name of the Student : …….

Name of Faculty / Observer :…….

Date : …….

Sl.No	Points to be considered	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Regularity of attendance					
2.	Punctuality					
3.	Interaction with colleagues and supportive staff					
4.	Maintenance of case records					
5.	Presentation of cases during rounds					
6.	Investigations of work up					
7.	Beside manners					
8.	Rapport with patients					
9.	Treatment approaches & techniques					
10.	Overall quality of ward work					
	Total Score					

TABLE - 4

EVALUATION FOR CLINICAL PRESENTATION

Name of the Student : …….

Name of Faculty / Observer : …….

Date : …….

Sl.No	Points to be considered	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Completeness of History					
2.	Whether all relevant points elicited					
3.	Clarity of presentation					
4.	Logical order					
5.	Mentioned all positive and negative points of importance					
6.	Accuracy of general physical examination					
7.	Whether all physical signs missed or misinterpreted					
8.	Whether any major signs missed or misinterpreted					
9.	Diagnosis – Whether it follows logically from history & findings					
10.	Investigations required Special investigation					
11.	AIMS					
12.	MEANS					
13.	Treatment Techniques					
14.	Others					
	Grand Total					

TABLE - 5

MODEL CHECK-LIST FOR EVALUATION OF TEACHING SKILL PRACTICE

Name of the Student : …….

Name of Faculty / Observer : …….

Date : …….

Sl.No.	Details	Strong Point	Weak Point
1.	Communication of the purpose of the talk		
2.	Evokes audience interest in the subject		
3.	The introduction		
4.	The sequence of ideas		
5.	The use of practical examples & / or illustrations		
6.	Speaking style (enjoyable, monotonous, etc., -Specify)		
7	Attempts audience participation		
8.	Summary of the main points at the end		
9	Asks questions		
10.	Answer questions asked by the audience		
11	Rapport of speaker with his audience		
12.	Effectiveness of the talk		
13.	Uses Audio visual aids appropriately		

TABLE - 6

MODEL CHECK LIST FOR DISSERTATION PRESENTATION

Name of the Student : …….

Name of Faculty / Observer : …….

Date : …….

Sl.No	Points to be considered	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Interest shown in selecting a topic					
2.	Appropriate review of literature					
3.	Discussion with guide & other faculty					
4.	Quality of protocol					
5.	Preparation of proforma					
6.	**Grand Total**					

TABLE - 7

CONTINUOUS EVALUATION OF DISSERTATION WORK BY GUIDE

Name of the Student : …….

Name of Faculty / Observer :…….

Date : …….

Sl.No	Items for observation during presentation	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Periodic consultation with guide					
2.	Regular collection of case material					
3.	Depth of analysis / discussion					
4.	Departmental presentation of findings					
5.	Quality of final output					
6.	Others					
7.	**Total Score**					