



MGM INSTITUTE OF HEALTH SCIENCES

(Deemed University u/s 3 of UGC Act, 1956)

Grade 'A' Accredited by NAAC

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CHOICE BASED CREDIT SYSTEM (CBCS)

(With effect from 2019-20 Batches)

Curriculum for Master of Physiotherapy (Musculoskeletal Physiotherapy)

(Amended upto BOM 63/2021, dated 17/02/2021)


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Amended History

1. Approved as per Resolution No. 3.2.2.11 (i), BOM – 57/2019, dated 26/04/2019
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VISION AND MISSION OF MGM SCHOOL OF PHYSIOTHERAPY

Vision

MGM Institute of Health Sciences aims to be a top ranking centre of Excellence in Health Science Education, Health Care and Research.

Mission

- Students graduating from the Institute will have the required skills to deliver the quality health care to all the sections of the society with compassion and benevolence, without prejudice or discrimination at an affordable cost.
- As a Research Centre, it shall focus on finding better, safer and affordable ways of diagnosing, treating and preventing diseases. In doing so, it will maintain highest ethical standard.

Name of the Degree Offered: Master of Physiotherapy (MPT)

Duration of Program: 2 years (4 Semesters).

Program pattern:

First Semester	August
Second Semester	February
Third Semester	August
Fourth Semester	February

Eligibility Criteria:

- He/she has passed the Bachelor in Physiotherapy program recognized by any Indian University or a duly constituted Board
- Minimum percentage of marks: 50% aggregate.

Medium of Instruction:

English will be the medium of instruction for all the subjects of study and for examinations.

I. Preamble

Physiotherapy or Physical Therapy (PT) is a **Movement Science** with an established theoretical and scientific base and widespread clinical applications in the **Prevention, Restoration & Rehabilitation, Maintenance and Promotion of optimal physical function**. Physiotherapists **diagnose and manage movement dysfunction** and enhance physical and functional abilities. This physical dysfunction may be the sequelae of involvement of any of the systems like Musculoskeletal, Neurological, Cardiovascular, Respiratory or other body systems.

These practitioners contribute to society and the profession through practice, teaching, administration, and the discovery and application of new knowledge about physiotherapy experiences of sufficient excellence and breadth by research to allow the acquisition and application of essential knowledge, skills, and behaviors as applied to the practice of physiotherapy. Physiotherapist (PT) are autonomous, effective and compassionate professionals, who practice collaboratively in a variety of healthcare set ups such as neonatal to geriatric, from critical care to community fitness to sports training. Emerging graduate and post graduate students are required to demonstrate a substantial knowledge base, possess skills related to Physiotherapy practices, possess high emotional quotient to address family health and meet community responsibilities, demonstrate gender sensitivity and socio-culturally relevant competence. They should be aware of legal issues governing professional practice and follow evidence based clinical practices.

The Chairman, University Grants Commission (UGC) via letter D.O.No.F.1- 1/2015 (CM) dated 8th January, 2015, communicated the decision of the Ministry of Human Resources Development to implement Choice Based Credit System (CBCS) from the academic session 2015-2016 in all Indian Universities to enhance academic standards and quality in higher education through innovation and improvements in curriculum, teaching- learning process, examination and evaluation systems.

Diversity in the system of higher education, and multiple approaches followed by universities towards curriculum, examination, evaluation and grading system has led to the lack of uniformity. While the Universities must have the flexibility and freedom in designing the examination and evaluation methods that best fits the curriculum, syllabi and teaching– learning methods, there is a need to devise a sensible system for awarding the grades based on the performance of students. Presently the performance of the students is reported using the conventional system of marks secured in the examinations or grades or both. The conversion from marks to letter grades and the letter grades used

vary widely across the Universities in the country. This creates difficulty for the academia and the employers to understand and infer the relative performance of the students graduating from different universities and colleges in the country. Hence the UGC has recommended the implementation of CBCS in Universities.

The grading system is considered to be better than the conventional marks system and hence it has been followed in the top institutions in India and abroad. Introduction of a uniform grading system will facilitate student mobility across institutions within and across countries and also enable potential employers to assess the performance of students. To bring in the desired uniformity, in grading system and method for computing the cumulative grade point average (CGPA) based on the performance of students in the examinations, the UGC has formulated the guidelines and communicated it to all Universities for adoption.

UGC, subsequently, in its notification No.F.1-1/2015 (Sec.) dated 10/4/15 has provided a set of model curricula and syllabi for CBCS program under the Faculties of Arts, Humanities and Sciences providing the academic flexibility for Universities to make changes/ innovation upto 20% in the syllabi of these program. It has also specified that all UG program should be for a minimum of three years duration. UG Program with 120-140 credits in the 180 annual teaching days system being designated as regular B.A/B.Sc./B.Com., B.B.A etc., Those UG programs with 140-160 credits or more with fully supported higher number of annual teaching days can be designated as B.A (Hons)/ B.Sc.(Hons) /B.B.A(Hons)/B.Com(Hons) etc.,

Further , the University Grants Commission encourages higher education institutes to integrate learning outcome based framework into the curriculum for undergraduate education which is considered critical for enabling effective participation of young people in knowledge production , participation in knowledge economy, improving national competitiveness in a globalised world and equipping young people with skills relevant to global and national standards. Outcome oriented curriculum enhances employability of graduates and enables translation of academic research into innovations for practical use in society and economy.

Learning outcomes-based approach specifies what graduates and post graduates are expected to know, understand and able to do after completing the program. The MPT degree is awarded based on demonstration of achievement of outcomes in terms of knowledge, skills, attitudes and values and academic standards expected of the post graduate. The expected learning outcomes help define the post

graduate attributes, qualification descriptors, program learning outcomes , course learning outcomes, curriculum planning, design, delivery and review of the academic program. Practical hours will include hand-on training in evaluation and management of musculoskeletal conditions on patient population and healthy individuals.

MGM Institute of Health Sciences, accredited A grade, has taken a proactive step in adopting the CBCS system for Physiotherapy programs implemented by its constituent unit, MGM School of Physiotherapy. The duration of Master of Physiotherapy (MPT) program is two years offering 90 credits with well defined learning outcomes. The MPT CBCS Curriculum has been designed with reference to existing curriculum of state Universities within the country, generic guidelines of University Grant Commission, global guidelines for curriculum, input from experts in the field of Physiotherapy and feedback from stakeholders namely students, teachers, alumni, employers and professionals to remain in consonance with the spirit of choice based credit system and learning objective based curriculum.

II. Introduction : Physiotherapy is a branch of modern medical science which includes examination, assessment, interpretation, physical diagnosis, planning and execution of treatment and advice to any person for the purpose of preventing, correcting, alleviating and limiting dysfunction, acute and chronic bodily malfunction including life saving measures via chest physiotherapy in the intensive care unit, curing physical disorders or disability, promoting physical fitness, facilitating healing and pain relief and treatment of physical and psychological disorders through modulating psychological and physical response using physical agents, activities and devices including exercise, mobilization, manipulations, therapeutic ultrasound, electrical and thermal agents and electrotherapy for diagnosis, treatment and prevention.

(Definition as per the Maharashtra State Council for Occupational therapy & Physiotherapy, 2004)

'Physiotherapist' is a qualified professional who has acquired all the above mentioned knowledge and skills for entry into practice after being awarded a bachelor degree in the subject of " Physiotherapy" from a recognised institute affiliated to the University conducting a fulltime course not less than four years and six months of internship. Students who have passed BPT are eligible to pursue MPT program at MGM in specialty areas such as Cardiovascular Pulmonary Physiotherapy and Fitness, Neurological Physiotherapy, Musculoskeletal Physiotherapy and Sports Physiotherapy.

III. Objectives of the Master of Physiotherapy (MPT) program:

This program is formulated to enable student to gain adequate knowledge, skills and clinical hands on experience leading to an ability to establish independent professional practice in the specialized areas of interest. The overall content of the curriculum focuses on learning experiences and clinical education

experiences for each student that encompasses the following.

1. Ethical, evidence-based, efficient Physiotherapy treatment of adult as well as pediatric patients/clients with an array of conditions (e.g. musculoskeletal, neuromuscular, cardiovascular/pulmonary, integumentary etc) across the lifespan and the continuum of care, to all people irrespective of gender, caste, nation, states and territories, region, minority groups or other groups.
2. Ability to prevent movement disorders or maintain/restore optimal function and quality of life in individuals with movement disorders.
3. Ability to operate as independent practitioners, as well as members of health service provider teams, act as first contact practitioners, from whom patients/clients may seek direct services without referral from another health care professional.
4. Ability to promote the health and wellbeing of individuals and the general public/society, emphasizing the importance of physical activity and exercise.
5. Prevent impairments, activity limitations, participatory restrictions and disabilities in individuals at risk of altered movement behaviors due to health factors, socio-economic stressors, environmental factors and lifestyle factors.
6. Provide interventions/treatment to restore integrity of body systems essential for movement, maximize function and recuperation, minimize incapacity, and enhance the quality of life, independent living and workability in individuals and groups of individuals with altered movement behaviors resulting from impairments, activity limitations, participatory restrictions and disabilities.
7. Ability to modify environmental, home and work access and barriers to ensure full participation in one's normal and expected societal roles.
8. Become an essential part of the health and community/welfare services delivery systems, practice independently of other health care/service providers and also within interdisciplinary rehabilitation/habilitation programs, independent professional practice in self employed set up or employment at the multiple settings such as hospitals, nursing homes, institutions catering services to specific conditions (like paraplegic /geriatric homes), primary as well as rural & urban health care set up, community health , domiciliary practice like residential areas, education & research centers, fitness /wellness centers like health clubs, occupational health centers g]- Schools including special schools, geriatric care units, and others.
9. Ability to carry out research projects

IV. Physiotherapy Post-Graduate Attributes:

The following post graduate attributes are considered as “essential requirements” to strengthen abilities of a Physiotherapist for widening knowledge, skills and abilities through meaningful learning experiences, and critical thinking. These attributes are necessary for completing the professional education enabling each post graduate to develop expertise in the specialty area and offer exclusive services in clinical practice. The purpose of this curriculum is to delineate the cognitive, affective and psychomotor skills deemed essential for completion of this program and to perform as a competent physiotherapist who will be able to evaluate, plan & execute physiotherapy treatment independently. Some of the characteristic attributes that a post graduate should demonstrate are as follows:

- 1. Disciplinary knowledge:** The student must demonstrate comprehensive knowledge and understanding of curricular content over and above that of a graduate. The student must demonstrate enhanced cognitive learning skills, ability to receive, interpret, remember, reproduce and use information in the cognitive, psychomotor, and affective domains of learning to solve problems, evaluate work, and generate new ways of processing or categorizing similar information listed in course objectives. Students will undergo clinical “Hands on Training” with focus on rotational clinical assignments in specialty subject throughout the course which enable the student to develop expert clinical reasoning and be able to function as a consultant as well as expert clinician in the specialty. In addition to the didactic /laboratory and clinical “hands on” training, the program includes seminars, case presentations, journal article reading and appraisal and administrative work under the supervision of faculty members. During the program the student is expected to prepare and submit a dissertation based on research in a selected specialty.
- 2. Psychomotor Skills:** Physiotherapy post graduate students must demonstrate psychomotor skills of locomotor ability to access lecture halls, practical laboratory and clinics.
 - a. They must possess ability to move with reasonable swiftness in emergency situations to protect the patient (e.g. from falling).
 - b. They should be competent to perform physical tasks such as positioning patients to effectively perform evaluation, manipulate assessment tools used for evaluation of joint mobility, muscle strength, testing musculoskeletal, neurological and cardiorespiratory systems.
 - c. Students should be competent to perform risk assessment, safely and effectively guide, facilitate, inhibit, and resist movement and motor patterns through physical facilitation and inhibition techniques (including ability to give timely urgent verbal feedback), perform transfers, positioning, exercise, mobilization techniques and use assistive devices and perform

- cardiopulmonary resuscitation.
- d. Students must possess fine motor skills to legibly record thoughts for written assignments (including diagrams) and tests, document evaluations, patient care notes, referrals, etc. in standard medical charts in hospital/clinical settings in a timely manner and consistent with the acceptable norms of clinical settings and safely use electrotherapy modalities and fine mobilisation techniques.
- e. Students must possess visual acuity to read patient's treatment chart, observe demonstrations, visual training, receive visual information from patients, treatment environment and clues of treatment tolerance. Auditory acuity to distinguish between normal and abnormal sounds, engage in conversation with patients and retrieve meaningful information relevant to patient care.
- 3. Communication skills :** The student must be able to express thoughts and ideas effectively in writing and verbally, communicate with others using appropriate media, share views, demonstrate ability to listen carefully, write analytically, present complex information in a clear, and concise manner. Student must be able to effectively communicate information and safety concerns with other students, teachers, patients, peers, undergraduate students, staff and personnel by asking questions, giving information, explaining conditions and procedures, or teaching home programs. They should be able to receive and send verbal communication in life threatening situations in a timely manner within the acceptable norms of clinical settings. Physiotherapy education presents exceptional challenges in the volume and breadth of required reading and the necessity to impart information to others. Students must be able to communicate quickly, effectively and efficiently in oral and written English with all members of the health care team.
- 4. Critical thinking :** Post graduate student should be able to apply analytical thought to a body of knowledge, analyze based on empirical evidence, draw relevant assumptions or implications, formulate arguments, critically evaluate policies and theoretical framework and formulate a scientific approach to knowledge development. They should be able to identify structural and functional impairments, identify contextual factors influencing function, critically appraise treatment options and implement care that is socio-culturally relevant to each patient.
- 5. Problem Solving:** Students must demonstrate capacity to extrapolate theoretical knowledge and apply competencies gained to solve non-familiar problems, complex problems and real life situations.

- 6. Analytical reasoning:** Post graduate students should be able to evaluate reliability and relevance of evidence, synthesize data, assess validity of arguments supporting hypothesis, debate theoretical frameworks, draw valid conclusions and support them with evidence.
- 7. Research – Related Skills:** Post graduate students should be able to define research problem, formulate hypothesis, manage resources, analyze and interpret data, explore cause – effect relationships, plan and execute a report, present results of the experiment in form of scientific peer reviewed publications and demonstrate a sense of scientific enquiry, reflective thinking, self directed learning and creativity.
- 8. Co-operation /Team Work:** Students should demonstrate the ability to work effectively and respectfully with a multi disciplinary team, facilitate co-operative and co-ordinated effort for the common cause in various clinical settings.
- 9. Socio-cultural and multicultural competency:** Knowledge of socio-cultural values, attitudes and beliefs relevant to a particular society, nation and global perspectives must be present to effectively engage and identify with diverse groups.
- 10. Awareness of moral, ethical and legal issues:** Students must demonstrate moral /ethical values in conduct, awareness of ethical issues related to patient care, work practices, refraining from malpractice, unethical behaviour, falsification, plagiarism, misinterpretation of data, non adherence to intellectual property rights, adhering to truthful, unbiased actions in all aspects of work without discrimination based on age, race, gender, sexual preference, disease, mental status, lifestyle, opinions or personal values.
- 11. Leadership qualities:** Students must demonstrate ability for task allocation, organization of task elements, setting direction, formulating an inspiring vision, team building, to achieve a vision, engaging, knowledge and respect individual values and opinions in order to foster harmonious working relationships with colleagues, peers, under graduate students and patients.
- 12. Ongoing Learning:** Students must demonstrate ability to acquire knowledge and skills through ongoing learning, participation in continuous education programs, engaging in self-paced, self-directed learning aimed at personal development, meeting social and cultural objectives, skill development, adapting to changing environment and workplace requirements and challenges.

V. Qualification Descriptors for Master of Physiotherapy (MPT) program:

Students who complete the 2 years Master of Physiotherapy program will be awarded a Master's degree. Expected outcomes that a student must demonstrate include:

1. Systematic, extensive and coherent knowledge and skill in Physiotherapy and its

applications including critical understanding of established theories, principles and concepts, knowledge of advanced and emerging issues in Physiotherapy, skills in Musculoskeletal Physiotherapy, recent advances and research in Physiotherapy evaluation and treatment procedures.

2. Comprehensive information regarding appropriate use of electrotherapy modalities, exercise equipment, advanced learning material, skills and techniques as indicated.
3. Skill in collecting quantitative and qualitative data, analysis and interpretation of data using appropriate methodology and communicating results to scientific community and beneficiaries for formulating appropriate evidence based health care solutions.
4. Address self-learning needs related to current and emerging areas of study, use research and professional material, apply knowledge to new concepts and unfamiliar areas and seek solutions in real life situations.
5. Demonstrate profession related transferable skills relevant to patient care and employment opportunities.

VI. Program Outcomes for Master of Physiotherapy Program

Students who complete 2 years postgraduate program in Physiotherapy would earn a Master of Physiotherapy (MPT) specialty degree. The learning outcomes that a student should be able to demonstrate on completion of a degree level program include academic, personal, behavioral, entrepreneurial and social competencies. It is expected that a student completing a particular course must have a level of understanding of the subject and its sub-areas in consonance with the learning outcomes mentioned at the end of that course. Program learning outcomes include Physiotherapy specific skills, generic skills, transferable global skills and competencies that prepare the student for employment, higher education, research and develop them as contributing members for overall development of the society. The program learning outcomes relating to MPT degree program Specialty –Musculoskeletal Physiotherapy, are summarized below:

PO 1	Professional ethic towards client respect, dignity and confidential responsibility.
PO 2	To practice communication skills with patient, caregiver and interdisciplinary relations.
PO 3	To identify the biopsychosocial component of pain and dysfunction.
PO 4	To have knowledge of basic sciences pertaining to musculoskeletal system with sound clinical reasoning
PO 5	To have detailed knowledge of musculoskeletal injury rehabilitation
PO 6	To understand the pathomechanics of musculoskeletal injuries
PO 7	To know evidence based practice and advances in clinical reasoning

PO 8	To understand the mechanism of pain and dysfunction
PO 9	To formulate hypothesis and clinical decision-making skills to assess and manage all musculoskeletal conditions
PO10	To perform disability evaluation of patients pertinent to musculoskeletal conditions and to be able to prescribe exercises based on dosimetry.

VII. Program Specific Outcomes for Master of Physiotherapy Program Specialty –Musculoskeletal Physiotherapy

Graduates of the Master of Physiotherapy program will be proficient in skills imbibed in the undergraduate program and in addition demonstrate skills to:

PSO 1	Critically evaluate, prioritize and apply physiotherapy approaches, paradigms and techniques and utilize appropriate, evidence-based skills, techniques and practice in managing and treating people with injury, disability or illness in a range of health care and/or rehabilitation settings.
PSO 2	Identify, analyze and respond appropriately to ethical dilemmas and challenges, and ethical implications of patient/client presentations.
PSO 3	Develop a reasoned rationale for clinical evidence-based physiotherapy intervention and design appropriate treatment/management plans to meet the needs of patients/clients within legislative, policy, ethical, funding and other constraint.
PSO 4	Acquire and utilize new knowledge, research, technologies and other appropriate resources and methods to optimize, and to ensure cost-effectiveness, quality and continuous improvement of health care delivery and outcomes.
PSO 5	Prepare students for professional practice as Physiotherapists. Graduates will be able to practice across a range of settings, including rural and remote areas. Emphasis will be placed on preparing a contemporary health professional to be client-centered and to work effectively within an interdisciplinary team.
PSO 6	Work creatively and effectively whilst upholding professional standards and relationships with a range of stakeholders (including clients, colleagues, careers, families, employers, insurers and others whose presence impacts on the patient/client, and other treatment providers and team members) with different understandings, perspectives and priorities influencing physiotherapy practice.
PSO 7	Adapt communication styles recognizing cultural safety, cultural and linguistic diversity

VIII. Course learning outcomes: are defined within the course content that makes up the program. The courses are structured such that learning is vertically and horizontally integrated into the curriculum. The CBCS curriculum offers a certain degree of flexibility in taking courses. Course learning is aligned to the

program learning outcomes and graduate attributes. The MPT program is inclusive of 4 semesters inclusive of 12 core courses, (35 Credits), 6 ability enhancement compulsory courses (AECC- 14 credits), 6 ability enhancement elective courses (AEEC – 6 credits) and 3 discipline specific skill electives (SEC – 4 credits) and 2 generic electives (GEC – 2 credits). Clinical training (CLT) is included in each semester (22 credits). Research project will be submitted as a mandatory requirement for award of Master's degree (7 credits). Evaluation of the courses vary as appropriate to the subject area, inclusive of formative and summative assessment, ongoing comprehensive assessment in the form of closed and open book tests, objectively structured practical examination OSPE, objectively structured clinical examination OSCE, problem based assignments, practical assignments, observation of practical skills, project reports, case reports, viva, seminars, essays, and others.

IX. CBCS DEFINITION AND BENEFITS:

Choice Based Credit System is a flexible system of learning. The distinguishing features of CBCS are the following:

- It permits students to learn at their own pace.
- The electives are selected from a wide range of elective courses offered by the other University Departments.
- Undergo additional courses and acquire more than the required number of credits.
- Adopt an inter-disciplinary and intra-disciplinary approach in learning.
- Make best use of the available expertise of the faculty across the departments or disciplines
- Has an inbuilt evaluation system to assess the analytical and creativity skills of students in addition to the conventional domain knowledge assessment pattern.

1. Definitions of Key Words:

- i. **Academic Year:** Two consecutive (one odd + one even) semesters constitute one academic year.
- ii. The CBCS provides choice for students to select from the prescribed courses (core, elective or minor or soft skill courses).
- iii. **Course:** Usually referred to, as “papers” is a component of a programme. All courses need not carry the same weight. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/ tutorials/ laboratory work/ outreach activities/

- project work/ viva/ seminars/ term papers/assignments/ presentations/ self-study etc. or a combination of some of these.
- iv. **Credit Based Semester System (CBSS):** Under the CBSS, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be completed by the students.
 - v. **Credit:** A unit by which the course work is interpreted. It functions the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week.
 - vi. **Cumulative Grade Point Average (CGPA):** It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the sum total of the credit points obtained by the student in various courses in all semesters and the sum of the total credits of all courses in all the semesters.
 - vii. **Grade Point:** It is a numerical marking allotted to each letter grade on a 10-point scale.
 - viii. **Letter Grade:** It is an appreciated point of the student's performance in a selected course. Grades are denoted by letters O, A+, A, B, C and RA x. Programme: An educational programme leading to award of a Degree certificate.
 - ix. **Semester Grade Point Average (SGPA):** It is index of performance of all performance of work in a semester. Its total credit points obtained by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.
 - x. **Semester:** Each semester will extend for 6 months and will consist of minimum of 130 teaching/learning days, exclusive of examinations and holidays. The odd semesters will be scheduled from July to December and even semesters from January to June.
 - xi. **Transcript or Grade Card or Certificate:** Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester and CGPA earned till that semester.

X. SEMESTER SYSTEM AND CHOICE BASED CREDIT SYSTEM

The semester system accelerates the teaching-learning process and enables vertical and horizontal mobility of students in learning. The credit based semester system provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching. The choice based credit system enables students to take courses of their choice, learn at their own pace, undergo additional courses and acquire more than the required credits, and adopt an interdisciplinary approach to learning.

2.1. Semesters:

An academic year consists of two semesters:

Semesters	PG
Odd Semesters 1 st , 3 rd ,	August – January
Even Semesters 2 nd , 4 th	February – July

2.2 Credits:

Credit defines the coefficient of contents/syllabus prescribed for a course and determines the number of hours of instruction required per week. Credits will be assigned in each course on the basis of number of lectures/ practical/tutorial/ laboratory work and other forms of learning required, to complete the course contents in a 15-20 week schedule:

- a. **1 credit** = 1 hour of lecture per week
- b. **3 credits** = 3 hours of instruction per week

- ✓ Credits will be assigned on the basis of the lectures (L) / tutorials (T) / Clinical Training (CR) / laboratory work (P) / Research Project (RP) and other forms of learning in a 15-20 week schedule L - One credit for one hour lecture per week
- c. **P/T** - One credit for every two hours of laboratory or practical
- d. **CR** - One credit for every three hours of Clinical training/Clinical rotation/posting
- e. **RP** - One credit for every two hours of Research Project per week – Maximum Credit 20- 25

	Lecture - L	Tutorial - T	Practical - P	Clinical Training/ Rotation– CT/CR	Research Project– RP*
1 Credit	1 Hour	2 Hours	2 Hours	3 Hours	2 Hours
RP*	Maximum Credit 20 – 25 / Semester				

a. **Types of Courses:** Courses in the programme are of three kinds:

- **Core Course**
- **Elective Course**
- **Ability Enhancement Course**

1. Core Course: A course, which should compulsorily be studied by a candidate as a basic requirement to complete the program, is termed as a Core course. There are Core Courses in every semester.

2. Elective Course: A course which can be chosen from a very specific or advanced subject of study or which provides an extended scope or which enables exposure to some other domain or expertise, is called an Elective Course. Elective courses may be of two types

2a. Discipline Specific Skill Elective (SEC) Course: Elective courses offered by the main subject of study are referred to as Discipline Specific Elective. The Institute may also offer discipline related Elective courses of interdisciplinary nature. An elective may be “Discipline Specific Electives (DSE)” gazing on those courses which add intellectual efficiency to the students.

2b. Generic Elective (GE) Course: An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.

Dissertation / Project: An Elective/Core course designed to acquire special / advanced knowledge, such as supplement study / support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher / faculty member is called dissertation / project.

3. Ability Enhancement Courses (AEC): The Ability Enhancement (AE) Courses may be of two kinds: Ability Enhancement Compulsory Courses (AECC) and Skill Enhancement Courses (SEC).

Ability Enhancement Compulsory Courses (AECC) :“AECC” courses are the courses based upon the content that leads to Knowledge enhancement.

Skill Enhancement Courses (SEC): SEC courses are value-based and/or skill-based and are aimed at providing hands-on-training, competencies, skills, Indian and foreign languages etc. These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based knowledge.

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

- All core courses will be restricted to a maximum of 4 credits
- All electives will be restricted to a maximum of 3 credits
- All ability enhancement courses will be restricted to a maximum of 2 credits
- Projects will be restricted to a maximum of 20-25 credits

Any course requiring more than 4 credit hours for covering the syllabus content will be divided into two courses i.e., 6 Credits Course 1 - 3 credits + Course 2 – 3 credits or 6 Credits Course 1 Theory - 4 credits + Course 2 Lab – 2 credits.

2.5 Assigning total Credits for a Program: The UGC, in its notification No.F.1-1/2015 (Sec.) dated 10/4/15 has provided a set of Model curricula and syllabi for CBCS programs. In conformation with this notification, the MPT program credits for 2 years duration will be 94 credits in total, inclusive of clinical

rotation/clinical training and research project training.

XI. CREDIT VALUE PER COURSE & STRUCTURE OF SYLLABUS:

To ensure uniformity in assigning the credits to a course, a structured and unitized syllabus shall be observed. For PG Programs each course will be provided a structured syllabus in the following format:

- a) Title of the Course
- b) Learning Objectives
- c) Units for syllabus Content
- d) Learning Outcomes
- e) References
 - a. Text Books – 2
 - b. Reference Books – 2
 - c. Web Resources – 2 Web Portals

Minimum credit allocation will be as per requirements of each course curriculum.

**Structure of CBCS MPT Curriculum
Musculoskeletal Physiotherapy**

Semester I		Semester II	
Course Code	Core Course	Course Code	Core Course
MPT043	Musculoskeletal Anatomy - Theory	MPT048	Musculoskeletal Diagnosis (Upper Quadrant including Cervical Spine) - Theory
MPT044	Musculoskeletal Anatomy - Practical	MPT049	Musculoskeletal Diagnosis (Upper Quadrant including Cervical Spine) - Practical
MPT045	Clinical Biomechanics - Theory	MPT050	Musculoskeletal Physiotherapy (Upper Quadrant including Cervical Spine) - Theory
MPT046	Clinical Biomechanics - Practical	MPT051	Musculoskeletal Physiotherapy (Upper Quadrant including Cervical Spine) - Practical
MPT047	Exercise Physiology	MPT052	Clinical Reasoning in Physiotherapy
Semester III		Semester IV	
Course Code	Core Course	Course Code	Core Course
MPT053	Musculoskeletal Diagnosis (Lower Quadrant including Lumbosacral Spine) - Theory	MPT059	Pain Science - Theory
MPT054	Musculoskeletal Diagnosis (Lower Quadrant including Lumbosacral Spine) - Practical	MPT060	Pain Science - Practical
MPT055	Musculoskeletal Physiotherapy (Lower Quadrant including Lumbosacral Spine) - Theory	MPT061	Physiotherapy in Family and Community health - Theory
MPT056	Musculoskeletal Physiotherapy (Lower Quadrant including Lumbosacral Spine) - Practical	MPT062	Physiotherapy in Family and Community health - Practical
MPT057	Disability and Rehabilitation	MPT063	Exercise Prescription
MPT058	Geriatric Physiotherapy		

XII. SELECTION OF ABILITY ENHANCEMENT ELECTIVE AND SKILLS ENHANCEMENT COURSES:

The students should apply in the prescribed format and should reach the CBCS coordinator before the start of the semester. All candidates must register for the courses of the said semester.

List of Ability Enhancement Compulsory Courses AECC				
Sr. No	Elective Code	Title	Credits	Semester
1	MPTAECC001	Cardiopulmonary Resuscitation	2	1
2	MPTAECC002	Research methods	2	1
3	MPTAECC003	Bioethics, Health management and Administration	3	1
4	MPTAECC004	Teaching technology	3	1
5	MPTAECC005	Legal issues and professional ethics	2	2
6	MPTAECC006	Intellectual property rights and publication ethics	2	4

List of Ability Enhancement Elective Courses				
Sr. No	Elective Code	Title	Credits	Semester
1	MPTAECC005	Women's Health	3	3
2	MPTAECC001	Exercise Psychology	3	3
3	MPTAECC002	Mind and Body Techniques	3	3
3	MPTAECC006	Sports for Fitness	2	4
4	MPTAECC007	Prosthetics and Orthotics	2	4

List of Skill Enhancement Elective Courses				
SrNo	Elective Code	Title	Credits	Semester
1	MPTSEC004	Kinesiotaping	2	2
2	MPTSEC005	Pilates	2	2
3	MPTSEC003	Applications of Yoga in Physiotherapy	2	3

List of Generic Elective Courses				
SrNo	Elective Code	Title	Credits	Semester
1	MPTGEC001	Medical Device Innovation	2	2
2	MPTGEC002	Scientific Writing	2	2

Elective courses from Swayam/ NPTEL platform [[www. https://swayam.gov.in](http://www.swayam.gov.in) & <http://nptel.ac.in>] maybe included in the above pool as and when needed.

XIII. Framework of Curriculum

Semester I

Master of Physiotherapy - Musculoskeletal Physiotherapy																					
Semester I (20 weeks teaching: 40 hours per week)																					
Code	Course	Description	Credits per week					Hours per week				Hours per semester					Marks				
			L/S	P	RP	CT	Total Credits	L/S	P	RP	CT	L/S	P	RP	CT	Total Hours	IA Theory	Semester Exam Theory	IA Practical	Semester Exam Practical	Total
MPT043	Musculoskeletal Anatomy - Theory	Core Theory	1				1	1						20					40 #		40
MPT044	Musculoskeletal Anatomy - Practical	Core Practical		2			2		4					80						40 #	40
MPT045	Clinical Biomechanics - Theory	Core Theory	1				1	1						20	20*	80				100	
MPT046	Clinical Biomechanics - Practical	Core Practical		2			2		4					80				20*	80	100	
MPT047	Exercise Physiology	Core Theory	1				1	1						20	20*	80				100	
MPTAECC001	Cardio-Pulmonary Resuscitation	Ability Enhancement and compulsory course	1	1			2	1	2					20	40				40#	20 #	60
MPTAECC002	Research methods	Ability Enhancement and compulsory course	2				2	2						40					40#		40
MPTAECC003	Bioethics, Health management and Administration	Ability Enhancement and compulsory course	3				3	3						60					40#		40
MPTAECC004	Teaching Technology	Ability Enhancement and compulsory course	2	1			3	2	2					40	40				40#	20 #	60
MPTCLT001	Clinical Training I					5	5					15				300	300			40 #	40
MPTRP001	Research Protocol				1		1		2						40					20 #	20
	Total		11	6	1	5	23	11	12	2	15	220	240	40	300	800					640

*Internal Assessment Examination will be conducted for 40 marks and be calculated out of 20 for inclusion in Semester Examination
Examination will be conducted at constituent unit level

Semester II

Master of Physiotherapy - Musculoskeletal Physiotherapy																					
Semester II (20 weeks teaching: 40 hours per week)																					
Code	Course	Description	Credits per week					Hours per week				Hours per semester					Marks				
			L/S	P	RP	CT	Total Credits	L/S	P	RP	CT	L/S	P	RP	CT	Total Hours	IA Theory	Semester Exam Theory	IA Practical	Semester Exam Practical	Total
MPT048	Musculoskeletal Diagnosis (Upper Quadrant including Cervical Spine) - Theory	Core Theory	1				1	1						20	20*	80					100
MPT049	Musculoskeletal Diagnosis (Upper Quadrant including Cervical Spine) - Practical	Core Practical		2			2		4					80						40 #	40
MPT050	Musculoskeletal Physiotherapy (Upper Quadrant including Cervical Spine) - Theory	Core Theory	1				1	1						20	20*	80					100
MPT051	Musculoskeletal Physiotherapy (Upper Quadrant including Cervical Spine) - Practical	Core Practical		2			2		4					80				20*	80		100
MPT052	Clinical Reasoning in Physiotherapy	Core Theory	2				2	2						40					40#		40
MPTAECC005	Legal issues and Professional ethics	Ability Enhancement compulsory course	2				2	2						40					40 #		40
MPTGEC001/002	Medical Device Innovation/ Scientific writing	General Elective Course	2				2	2						40					40 #		40
MPTSEC004/005	Kinesiotaping/ Pilates	Skill Enhancement Elective Course	1	1			2	1	2					20	40				40 #	40 #	80
MPTRP002	Research Project				2		2		5					100						20 #	20
MPTCLT002	Clinical Training II					5	5					15			300	300				40 #	40
	Total		9	5	2	5	21	9	10	5	15	180	200	400	0	800					600

*Internal Assessment Examination will be conducted for 40 marks and be calculated out of 20 for inclusion in Semester Examination
Examination will be conducted at constituent unit level

Curriculum for Master of Physiotherapy (Specialty-Musculoskeletal Physiotherapy)

Semester III

Master of Physiotherapy - Musculoskeletal Physiotherapy																										
Semester III (20 weeks teaching; 40 hours per week)																										
Code	Course	Description	Credits per week				Total Credits	Hours per week				Hours per semester				Total Hours	Marks				Total					
			L/S	P	RP	CT		L/S	P	RP	CT	L/S	P	RP	CT		IA Theory	Semester Exam Theory	IA Practical	Semester Exam Practical						
MPT053	Musculoskeletal Diagnosis (Lower Quadrant including Lumbosacral Spine) - Theory	Core Theory	1				1					4				20				20	20*	80				100
MPT054	Musculoskeletal Diagnosis (Lower Quadrant including Lumbosacral Spine) - Practical	Core Practical		2			2					4				80				80				40 #		40
MPT055	Musculoskeletal Physiotherapy (Lower Quadrant including Lumbosacral Spine) - Theory	Core Theory	1				1	1								20				20	20*	80				100
MPT056	Musculoskeletal Physiotherapy (Lower Quadrant including Lumbosacral Spine) - Practical	Core Practical		2			2					4				80				80			20*	80		100
MPT057	Disability and Rehabilitation	Core Theory	2				2	2								40				40		40#				40
MPT058	Geriatric Physiotherapy	Core Theory	2				2									40				40		40 #				40
MPTAEEC005/001/002	Women's Health/Exercise Psychology/Mind and Body Techniques	Ability Enhancement Elective course	2	1			3	2	2							20	40			60		40#		40 #		80
MPTSEC003	Application of Yoga in Physiotherapy	Skill Enhancement course	1	1			2	1	2							20	40			60		40#		20 #		60
MPTRP003	Research Data Collection and Analysis				2		2				4						80			80				40 #		40
MPTCLT003	Clinical Training III					5	5					16						320	320					40 #		40
	Total		9	6	2	5	22	6	16	4	16	160	240	80	320	800										640

*Internal Assessment Examination will be conducted for 40 marks and be calculated out of 20 for inclusion in Semester Examination

Examination will be conducted at constituent unit level

Semester IV

Master of Physiotherapy - Musculoskeletal Physiotherapy																										
Semester III (20 weeks teaching; 40 hours per week)																										
Code	Course	Description	Credits per week				Total Credits	Hours per week				Hours per semester				Total Hours	Marks				Total					
			L/S	P	RP	CT		L/S	P	RP	CT	L/S	P	RP	CT		IA Theory	Semester Exam Theory	IA Practical	Semester Exam Practical						
MPT053	Musculoskeletal Diagnosis (Lower Quadrant including Lumbosacral Spine) - Theory	Core Theory	1				1					4				20				20	20*	80				100
MPT054	Musculoskeletal Diagnosis (Lower Quadrant including Lumbosacral Spine) - Practical	Core Practical		2			2					4				80				80				40 #		40
MPT055	Musculoskeletal Physiotherapy (Lower Quadrant including Lumbosacral Spine) - Theory	Core Theory	1				1	1								20				20	20*	80				100
MPT056	Musculoskeletal Physiotherapy (Lower Quadrant including Lumbosacral Spine) - Practical	Core Practical		2			2					4				80				80			20*	80		100
MPT057	Disability and Rehabilitation	Core Theory	2				2	2								40				40		40#				40
MPT058	Geriatric Physiotherapy	Core Theory	2				2									40				40		40 #				40
MPTAEEC005/001/002	Women's Health/Exercise Psychology/Mind and Body Techniques	Ability Enhancement Elective course	2	1			3	2	2							20	40			60		40#		40 #		80
MPTSEC003	Application of Yoga in Physiotherapy	Skill Enhancement course	1	1			2	1	2							20	40			60		40#		20 #		60
MPTRP003	Research Data Collection and Analysis				2		2				4						80			80				40 #		40
MPTCLT003	Clinical Training III					5	5					16						320	320					40 #		40
	Total		9	6	2	5	22	6	16	4	16	160	240	80	320	800										640

*Internal Assessment Examination will be conducted for 40 marks and be calculated out of 20 for inclusion in Semester Examination

Examination will be conducted at constituent unit level

XIV. RULES AND REGULATION FOR EXAMINATION OF MASTER OF PHYSIOTHERAPY PROGRAM UNDER MGM SCHOOL OF PHYSIOTHERAPY OFFERING CBCS PATTERN

- 1. Title of the courses offered: Master of Physiotherapy –Musculoskeletal Physiotherapy**
- 2. Duration of the course:** Two years
- 3. Medium of instruction:** The medium of instruction and examination shall be in English
- 4. Letter Grades And Grade Points:**

MGMSOP has adopted the UGC recommended system of awarding grades and CGPA under Choice Based Credit Semester System for all the UG/PG courses.

4.1 MGMSOP would be following the absolute grading system, where the marks are compounded to grades based on pre-determined class intervals.

4.2 The UGC recommended 10-point grading system with the following letter grades will be followed:

Table 1: Grades and Grade Points:

Letter Grade	Grade Point
O (Outstanding)	10
A+ (Excellent)	9
A (Very Good)	8
B (Good)	7
C (Above Average)	6
F (Fail)/ RA (Reappear)	0
Ab (Absent)	0
Not Completed (NC)	0
RC (<50% in attendance or in Internal Assessment)	

4.3 A student obtaining Grade F/RA will be considered failed and will require reappearing in the examination.

4.4 Candidates with NC grading are those detained in a course (s); while RC indicate student not fulfilling the minimum criteria for academic progress or less than 50% attendance or less than 50% in internal assessments (IA). Registrations of such students for the respective courses shall be treated as cancelled. If the course is a core course, the candidate has to re-register and repeat the course when it is offered next time.

5. CBCS Grading System - Marks Equivalence Table

5.1 Table 2: Grades and Grade Points

Letter Grade	Grade Point	% of Marks
O (Outstanding)	10	86-100
A+ (Excellent)	9	70-85
A (Very Good)	8	60 -69
B (Good)	7	55 -59
C (Above Average) – Passing criteria for MPT	6	50- 54
F (Fail))/ RA (Reappear)	0	Less than 50
Ab (Absent)	0	-
NC- not completed	0	-
RC- Repeat the Course	0	0

5.2 Table 3: Cummulative Grades and Grade Points

Letter Grade	Grade Point	CGPA
O (Outstanding)	10	9.01 - 10.00
A+ (Excellent)	9	8.01 – 9.00
A (Very Good)	8	7.01 – 8.00
B (Good)	7	6.00 - 7.00
C (Above Average)	6	5.01 - 6.00

6. Assessment of a Course: Evaluation for a course shall be done on a continuous basis. Uniform procedure will be adopted under the CBCS to conduct internal assessments (IA), followed by one end-semester university examination (ES) for each course.

6.1 For all category of courses offered (Theory, Practical, Ability Enhancement Courses [AE]; Skills Enhancement Courses [SE] Theory or P (Practical) & RP(Research Project), assessment will comprise of Internal Assessment (IA) and the end–semester (ES) examination as applicable.

6.2 Courses in programs wherein Theory and Practical/Clinical are assessed jointly, the minimum passing head has to be 50% Grade each for theory and practical's separately. RA grade in any one of the components will amount to reappearing in both components. i.e. theory and practical.

6.3 Evaluation for a course with clinical rotation or clinical training will be done on a continuous basis.

7. Eligibility to appear for the end-semester examinations for a course includes:

7.1 Candidates having $\geq 75\%$ attendance and obtaining the minimum 40% in internal assessment in each course to qualify for appearing in the end-semester university examinations.

7.2 The students desirous of appearing for university examination shall submit the application form duly filled along with the prescribed examination fee.

7.3 Incomplete application forms or application forms submitted without prescribed fee or application form submitted after due date will be rejected and student shall not be allowed to appear for examination.

8. Passing Heads

8.1 Courses where theory and practical are involved, the minimum passing head shall be 50% in total including the internal assessment.

8.2 Elective subjects – the minimum prescribed marks for a pass in elective subject should be 50%. The marks obtained in elective subjects should be communicated to the university before the commencement of the university examination.

9 **Detention:** A student not meeting any of the above criteria maybe detained (NC) in that particular course for the semester. In the subsequent semester, such a candidate requires improvement in all, including attendance and/or IA minimum to become eligible for the next end-semester examination.

10 The maximum duration for completing the program will be 4 years (minimum duration of program x 2) i.e. (2x2) = 4 years for PG program, failing which his/her registration will be cancelled. Full fees of entire program of 2 years as the case may be liable to be paid by the students.

11 Carry over benefit:

11.1 A student will be allowed to keep term for Semester II irrespective of number of heads of failure in Semester I.

11.2 A student will be allowed to keep term for Semester III if she/he passes each Semester I and II OR fails in not more than 2 courses combined in semester I and II.

11.3 Student will be allowed to keep term for Semester IV irrespective of number of heads of failure in Semester III. However, student must mandatorily have passed each course of Semester I and II in order to appear for Semester IV exam.

12 University End-Semester Examination

12.1 There will be one final university examination at the end of every semester.

12.2 A student must have minimum 75% attendance (Irrespective of the type of absence) in theory and practical in each subject to be eligible for appearing the University examination.

12.3 The Principal / Director shall send to the university a certificate of completion of required attendance and other requirements of the applicant as prescribed by the university, two weeks before the date of commencement of the written examination.

12.4 A student shall be eligible to sit for the examination only, if she / he has secured minimum 40% in internal assessment (individually in theory and practical as applicable) of that subject. The internal examinations will be conducted at college/ department level.

12.5 Notwithstanding any circumstances, a deficiency of attendance at lectures or practical maximum to the extent of 10% - may be condoned by the principal / dean /director.

12.6 If a student fails either in theory or in practical, he/ she have to re-appear for both.

12.7 There shall be no provision of re-evaluation of answer sheets. Student may apply to the university following due procedure for recounting of theory marks in the presence of the subject experts.

12.8 Internal assessment shall be submitted by the Head of the Department to the University through Director of MGMSOP at least two weeks before commencement of University theory examination.

13. Supplementary examination: The supplementary examination will be held in the next semester. Eligibility to appear for supplementary examination will be as per rule number 11.1, 11.2 and 11.3.

14. Re-Verification

There shall be provision of re-totaling of the answer sheets; candidate shall be permitted to apply for recounting/re-totaling of theory papers within 8 days from the date of declaration of results.

15. Scheme of University Exam Theory PG Program: General structure / patterns for setting up question papers for Theory / Practical courses, for PG program of MGMSOP are given in the following tables. Changes may be incorporated as per requirements of specific courses.

15.1 : Theory Question Paper Pattern For Core Subjects in University Examinations Under CBCS - 80 Marks

Question type	No. of questions	Marks/ question	Question X marks	Total marks
Section 1				
Short answer questions	4	10	4 x 10	40
Section 2				
Long answer question	2	20	2 x 20	40

	Total= 80
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15.2 University Examination Pattern (Practical): 80 Marks

Long Case	40
OSCE station (4)	40
	Total = 80 M

15.3 Internal examination**Mid Semester Examination pattern (Theory) : 40marks**

Question type	No. of questions	Marks/question	Question X marks	Total marks
Long essays	2	10	2x10	20 marks
Short answers	4	5	4x5	20 marks
Total				40 marks

Note – Internal assessment marks will include continuous comprehensive evaluation inclusive of seminars, case presentations, essays, open book exams, summative evaluation (and others) and mid semester examination marks and will be converted to as per weightage.

15.4 Internal Examination**Mid Semester Examination Pattern (Practical): 40 Marks**

Short Case	20
OSCE station (2)	20
	Total = 40 M

15.5 Assessment of Seminar (100 Marks)

Description	Marks
Submission of seminar report	50
Subject knowledge	10
Concept and Methodology	10
Presentation	10
VIVA	20
	Total = 100

15.6 Clinical Evaluation:

- Students will be placed in clinical areas based on specialty on a rotator basis. Each clinical posting will be of 6 weeks' duration with a minimum of 3 postings in each semester.

- Presentation of minimum 2 cases to the respective clinical supervisors and documentation in the Log book for each posting is mandatory, failing which the particular posting will be repeated.
- Attendance is mandatory at all clinical postings.

Clinical competency

Students should demonstrate clinical competency in assessment, functional diagnosis on ICF basis, plan of care and therapeutic interventions relating to the specific dysfunctions, in all settings (inpatient and outpatient) , on all types of conditions (surgical, non-surgical, paediatric and geriatric). They should be able to document their findings in an efficient and organized manner .

During clinical practice, student should be able to demonstrate competency

A. Competency in Assessment and Clinical Reasoning:

Student should be able to apply the ICF framework in selecting measurement tools to ensure a holistic approach to evaluation of body structure and function, activities , participation; and select and administer assessment/evaluation tools and techniques suitable for the patients problems and condition(s) based on the best available evidence and interpret the information obtained demonstrating evidence-based decision-making and safe handling technique such as:

1. Risk factor screening (Red flags & Yellow flags).
2. Assessment of dysfunction.
3. Interpretation of Radiological, Electrophysiological, Haematological and Biochemical investigations.
4. Fitness and Functional performance testing as appropriate
5. Identification and quantification of environmental and home barriers and facilitators
6. Identification and analysis of body mechanics during self-care, home management, work, community, tasks, or leisure activities.
7. Identification and analysis of ergonomic performance during work /school/play)
8. Assessment of Quality of Life through use of appropriate questionnaire and generic or disease-specific scales (nice to know)
9. Identification and prioritization of impairments in body functions and structures, and activity limitations and participation restrictions to determine specific body function and structure, and activities and participation towards which the intervention will be directed
10. State the evidence (patient/client history, lab diagnostics, tests and measures and scientific literature) to support a clinical decision.
11. Determine the predicted level of optimal functioning and the time required to achieve that level.
12. Recognize barriers that may impact the achievement of optimal functioning within a predicted time frame and ways to overcome them when possible.

B. Competency In Developing Plan Of Care:

Student should be able to:

1. Identify patient goals and expectations.
2. Design a Plan of Care with measurable functional goals (short-term and long-term) that are prioritized and time bound.
3. Consult patient and/or caregivers to develop a mutual agreement regarding the plan of care.
4. Identify indications/ additional needs for consultation with other professionals & appropriate referrals.
5. Select the interventions that are safe, realistic and meet the specified functional goals and outcomes in the plan of care: (a) identify precautions and contraindications, (b) provide evidence for patient-centered interventions that are identified and selected, (c) define the specificity of the intervention (time, intensity, duration, and frequency).
6. Measure and monitor patient response to intervention and modify elements of the plan of care and goals in response to changing patient/client status, as needed.
7. Establish criteria for discharge based on patient goals and current functioning and disability.

C. Competency in Physiotherapy Intervention:

Important influences on Physiotherapy management choices may include but not limited to:

1. Diverse settings of care including critical, acute, long term, rehabilitation, and community care;
2. Lifespan issues ranging from the neonatal stage to those associated with aging
3. Life style modification for diseases and for prevention
4. Skill of application of physical and electrical agents
5. Facilitation, re-education and training of mobility, strength, endurance, motor control, posture, gait, balance, fitness through skillful use of various therapeutic exercise techniques with appropriate manual treatment techniques or therapeutic gymnasium equipment.
6. Functional training in self care, home, work (job, school and play), community and leisure activities

15.7 Performance Evaluation:

An end semester performance report will be submitted to the Head of Department as per format provided.

15.8 Research Project report :-

MPT student should submit a suitable research project topic forwarded by the guide to MGM School of Physiotherapy by November in semester I. Following approval of ethics & scientific committee, work should be carried out in subsequent semesters. Completed dissertation, checked for plagiarism, accepted & signed by the guide should be submitted to MGMIHS as a mandatory requirement for completion of MPT program in Semester IV (January).

16. Research Project report Evaluation Guidelines for MPT program:

The research project report allows the student to develop and display in-depth understanding of a theme in International Studies, as well as an in-depth understanding of the appropriate research tools, approaches and theories applicable to that theme. The dissertation should be based on a well-defined and clear research question of scholarly significance, and that the dissertation develops a theoretically and methodologically informed and evidence-based answer to that question.

Criteria for evaluating a research project report: The following guidelines and criteria should be applied when assessing a dissertation.

Guidelines to Prepare Research Proposal

1. Selection of Research Problem:

Select your interest area of research, based on felt need, issues, social concern.

- a. State the problem in brief, concise, clear.
- b. State the purpose of selected study & topic.
- c. State the objectives of proposal/project.
- d. Prepare conceptual framework based on operational definition.
- e. Write scope of research proposal/project.

2. Organizing Review of Literature

- a. Study related and relevant literature which helps to decide conceptual framework and research design to be selected for the study.
- b. Add specific books, bulletins, periodicals, reports, published dissertations, encyclopedia and text books.
- c. Organize literature as per operational definition.
- d. Prepare summary table for review of literature.

3. Research Methodology: To determine logical structure & methodology for research project.

- a. Decide and state approach of study i.e. experimental or non-experimental.
- b. Define/find out variables to observe effects on decided items & procedure.
- c. Prepare simple tool or questionnaire or observational checklist to collect data.
- d. Determined sample and sampling method
- e. Mode of selection ii) Criteria iii) Size of sample iv) Plan when, where and how will be collected.
- f. Test validity of constructed tool.
- g. Check reliability by implementing tool before pilot study(10% of sample size)
- h. Conduct pilot study by using constructed tool for 10% selected sample size.

4. Data collection: To implement prepared tool

- a. Decide location.
- b. Time

- c. Write additional information in separate exercise book to support inferences and interpretation.

5. Data analysis and processing presentation

- a. Use appropriate method of statistical analysis i.e. frequency and percentage.
- b. Use clear frequency tables, appropriate tables, graphs and figures.
- c. Interpretation of data:
- d. In relation to objectives
- e. Hypothesis
- f. Variable of study or project
- g. Writing concise report

6. Writing Research Report

a. Aims:

- i. To organize materials to write project report
- ii. To make comprehensive full factual information
- iii. To make appropriate language and style of writing
- iv. To make authoritative documentation by checking footnotes, references & bibliography
- v. To use computers & appropriate software

b. Points to remember

- i. Develop thinking to write research report
- ii. Divide narration of nursing research report
- iii. Use present tense and active voice
- iv. Minimize use of technical language
- v. Use simple, straightforward, clear & concise language
- vi. Use visual aids in form of table, graphs & figures
- vii. Treat data confidentially
- viii. Review & rewrite if necessary

Evaluation Criteria for Project Report

Sr. No	Criteria	Rating					Remark
		1	2	3	4	5	
I	Statement of the problem						
	1. Significance of the problem selected						
	2. Framing of title and objectives						
II	Literature Review						
	1. Inclusion of related studies on the topic and its relevance						
	2. Operational definition						

III	Research Design						
	1. Use of appropriate research design						
	2. Usefulness of the research design to draw the inferences among study variables/ conclusion						
IV	Sampling Design						
	1. Identification & description of the target population						
	2. Specification of the inclusion & exclusion criteria						
	3. Adequate sample size, justifying the study design to draw conclusions						
V	Data Collection Procedure						
	1. Preparation of appropriate tool						
	2. Pilot study including validity & reliability of tool						
	3. Use of appropriate procedure/ method for data collection						
VI	Analysis of Data & Interpretation						
	1. Clear & logical organization of the finding						
	2. Clear presentation of tables(title, table & column heading)						
	3. Selection of appropriate statistical tests						
VII	Ethical Aspects						
	1. Use of appropriate consent process						
	2. Use of appropriate steps to maintain ethical aspects & principles						
VIII	Interpretation of the finding						
	& appropriate discussion of the results						
IX	Conclusion						
	Summary & recommendations						
X	Presentation/ Report Writing						
	Organization of the project work including language & style of presentation						

Signature of the Evaluator

XV. Eligibility for award of degree

1. A candidate shall have passed in all the subjects of all semester's I-IV, completed and submitted dissertation to be eligible for award of Masters degree.
2. The performance of a candidate in a course will be indicated as a letter grade, whereas grade point will indicate the position of the candidate in that batch of candidates. A student is considered to have completed a course successfully and earned the prescribed credits if he/she secures a letter grade other than F/RA. A letter grade RA in any course implies he/she has to re-appear for the examination to complete the course.
3. The RA grade once awarded in the grade card of the student is not deleted even when he/she completes the course successfully later. The grade acquired later by the student will be indicated in the grade sheet of the subsequent semester in which the candidate has appeared for clearance in supplementary exams
4. If a student secures RA grade in the Project Work/Dissertation, he/she shall improve it and resubmit it, if it involves only rewriting / incorporating the revisions suggested by the evaluators. If the assessment indicates lack of student performance or data collection then the student maybe permitted to re-register by paying the prescribed re-registration fee and complete the same in the subsequent semesters.

A candidate shall be declared to have passed the examination if he/she obtains the following minimum qualifying grade / marks:-

- (a) For Core courses CT (Core Theory) and CP (Core Practical), student shall obtain Grade C (50 % of marks) in the University End Semester Examination (ES) and in aggregate in each course which includes both Internal Assessment and End Semester Examination.
- (b) For Elective Courses student shall obtain minimum Grade C (50 % of marks) in the college examination, clinical rotation, case studies, seminars, journal clubs, microteaching and research work.

VIII. COMPUTATION OF SGPA AND CGPA

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

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

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

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

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

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

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

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

Illustration of Computation of SGPA and CGPA

Course	Credit	Grade Letter	Grade Point	Credit Point (Credit x Grade)
Course 1	3	A	8	3 X 8 = 24
Course 2	4	B+	7	4 X 7 = 28
Course 3	3	B	6	3 X 6 = 18
Course 4	3	O	10	3 X 10 = 30
Course 5	3	C	5	3 X 5 = 15
Course 6	4	B	6	4 X 6 = 24
	20			139

Illustration for SGPA
Thus, $SGPA = 139/20 = 6.95$

Semester 1	Semester 2	Semester 3	Semester 4
Credit : 20	Credit : 22	Credit : 25	Credit : 26
SGPA : 6.9	SGPA : 6.8	SGPA : 6.6	SGPA : 6.0
Semester 5	Semester 6		
Credit : 26	Credit : 25		
SGPA : 6.3	SGPA : 8.0		

Illustration for CGPA

Thus,

$$20 \times 6.9 + 22 \times 6.8 + 25 \times 6.6 + 26 \times 6.0 + 26 \times 6.3 + 25 \times 8.0$$

$$CGPA = \frac{\quad}{\quad} = 6.75/B+$$

- ii. Transcript : Based on the above recommendations on Letter grades, grade points and SGPA and CGPA, the transcript for each semester and a consolidated transcript indicating the performance in all semesters may be issued.

IX. COURSE REGISTRATION

9.1. After admission to a Program, a student identity number is generated .This PRN number maybe used in the process of registration for a course.

9.2 The registration process is a registration for the courses in a semester. The registration card is generated after a student completes the choice of electives. Every student shall register for the stipulated number of Courses/Credits semester wise even if electives are not prescribed in their regulations for the said semester. Every student must register for Elective/Ability Enhancement Courses semester-wise for the courses he/she intends to undergo in that semester within two weeks of commencement of the semester.

The list of students registered for each elective will be communicated to the HoDs/ Course Chairpersons. Students will be requested to authenticate the chosen electives by appending their signature in acceptance with approval by the HoDs/ Course Chairpersons. A soft copy of the registered students will be submitted to the elective course offering departments for their official use.

X. RE - ENTRY AFTER BREAK OF STUDY:

The University regulations for readmission are applicable for a candidate seeking re-entry to a program.

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

XI. RANKING

The first two ranks of the programme will be decided on the basis of grades of CGPA in the courses (core and DE courses only). In case of a tie, marks % [of core and DE courses only] will be taken into account.

XII. CLASSIFICATION OF SUCCESSFUL CANDIDATES

Overall Performance in a Program and Ranking of a candidate is in accordance with the University regulations.

Consolidated Grade Card		
Letter Grade	CLASSIFICATION	CGPA RANGE
O	First Class with Distinction	9.01 – 10
A+	First Class	8.01 - 9.00
A	First Class	7.01 - 8.00
B+	First Class	6.01 - 7.00
B	Second Class	5.01- 6.00

A successful candidate will be:

- (i) Who secures not less than O grade with a CGPA of 9.01 – 10.00 shall be declared to have secured 'OUTSTANDING' provided he/she passes the whole examination in the FIRST ATTEMPT;
- (ii) Who secures not less than A+ grade with a CGPA of 8.01 – 9.00 shall be declared to have secured 'EXCELLENT' provided he/she passes the whole examination in the FIRST ATTEMPT;
- (iii) Who secures not less than A grade with a CGPA of 7.01 –8.00 and completes the course within the stipulated course period shall be declared to have passed the examinations with 'Very Good'
- iv) All other candidates (with grade B and above) shall be declared to have passed the examinations.

Master of Physiotherapy (MPT)
Specialty - Musculoskeletal Physiotherapy
Semester-I (0-6 months)

Course Code	Course Title	Course Description	Theory/ Seminar Hours	Practical	Research Hours	Clinical Hours
MPT043	Musculoskeletal Anatomy - Theory	Core Theory	20			
MPT044	Musculoskeletal Anatomy - Practical/Clinical	Core Practical		80		
MPT045	Clinical Biomechanics - Theory	Core Theory	20			
MPT046	Clinical Biomechanics - Practical/Clinical	Core Practical		80		
MPT047	Exercise Physiology	Core Theory	20			
MPTAECC001	Cardio-Pulmonary Resuscitation	Ability Enhancement and compulsory course	20	40		
MPTAECC002	Research methods	Ability Enhancement and compulsory course	40			
MPTAECC003	Bioethics, Health management and Administration	Ability Enhancement and compulsory course	60			
MPTAECC004	Teaching Technology	Ability Enhancement and compulsory course	40	40		
MPTCLT001	Clinical Training I					300
MPTRP001	Research Protocol				40	

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Musculoskeletal Anatomy - Theory
Course Code	MPT043
Credit per Semester	1 credit
Hours per Semester	20 hours
Name of the Course	Musculoskeletal Anatomy – Practical
Course Code	MPT044
Credit per Semester	2 credits
Hours per Semester	80 hours

Course Outcomes	
Student will be able to	
CO 1	Develop an in depth knowledge of musculoskeletal system to help assess and manage musculoskeletal impairments.
CO 2	Ability to predict and prevent secondary impairments and/or pathologies across systems.
CO 3	Ability to diagnose the “root cause” of impairments in musculoskeletal conditions

Unit	Topics	No. of Hrs.
1	Overview of the musculoskeletal system: <ul style="list-style-type: none"> • Histology of bone, muscle, cartilage, and fibrous connective tissues • Axial and appendicular skeleton • Joints: classification and accessory structures (ligaments, menisci, bursae) • Muscles of the axial and appendicular skeleton • Principle of muscular antagonism • Functions • Origins and insertions • Prime movers for various action 	3
2	Somatosensory systems- Sensory, Neuromuscular and Visual systems	3
3	Upper extremity (applied anatomy of contractile and non-contractile structures)	4
4	Lower extremity (applied anatomy of contractile and non-contractile structures)	4
5	Spine(applied anatomy of contractile and non-contractile structures)	4
6	Functional integration of the musculoskeletal System	2
	Practical : Lab activities: <ul style="list-style-type: none"> • Visual inspection and palpation of surface anatomical markings on self and peers. 	80

	<ul style="list-style-type: none"> • Identification of musculoskeletal structures and organs in anatomical models and/or plastinated specimens 	
Total		100

EXAMINATION SCHEME

Internal examination pattern (Theory): 40marks

Question type	No. of questions	Marks/question	Question X marks	Total marks
Short answers	8	5	8 X 5	40
Total				40

Internal Examination Pattern (Practical): 40 Marks

Short Case (Emphasis on Emphasis on assessment and outcome measures)	20
OSCE station (2)	20
Total = 40 M	

RECOMMENDED TEXT BOOKS

Gray's Anatomy: The Anatomical Basis of Clinical Practice, 3rd Edition
 Richard S. Snell- Clinical Anatomy by Regions, 3rd Edition
 White and Punjabi – Clinical Biomechanics of Spine – Lippincott, 4th Edition
 Lynn S. Lippert- Clinical Kinesiology and Anatomy, 2nd Edition
 Carolyn Oatis- Kinesiology of musculoskeletal system, 1st Edition

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Clinical Biomechanics - Theory
Course Code	MPT045
Credit per Semester	1 credit
Hours per Semester	20 hours
Name of the Course	Clinical Biomechanics – Practical
Course Code	MPT046
Credit per Semester	2 credits
Hours per Semester	80 hours

Course Outcomes	
Student will be able to	
CO 1	Advocate the role of understanding applied mechanics as an essential skill for Physiotherapist
CO 2	Understand and apply the applications of movement dysfunction into therapeutic exercise prescription
CO 3	Ability to predict and prevent secondary impairments and/or pathologies across systems.
CO 4	Ability to diagnose the “root cause” of biomechanical impairments and activity limitations

Unit	Topics	No. of Hrs.
1	Biomechanical Changes to musculoskeletal system with growth ,ageing, injury and diseases	2
2	Basic Biomechanics: Forces, Equilibrium, levers – laws – mechanical advantage, Material properties of bones and soft tissues. Gravity, balance & equilibrium	2
3	Biophysics of ligament, Cartilage, tendon, muscle, neural tissues, response to mechanical loading Material properties of bones, tendons and ligaments: Viscoelasticity, elastic properties, Stress, Strain , force and torque, muscle length tension relationships, factors affecting force production	2
4	Muscular System <ul style="list-style-type: none"> • Muscle Fibre Arrangement • Functional Characteristics of Muscle Tissue • Length-Tension Relationship in Muscle Tissue • Types of Muscle Contraction affecting force production • Angle of Pull • Kinetic Chains 	2

5	Arthrokinematics a. Osteokinematic Motion b. End Feel c. Arthrokinematic Motion d. Accessory Motion Terminology e. Joint Surface Shape f. Types of Arthrokinematic Motion g. Convex-Concave Law h. Joint Surface Positions (Joint Congruency) i. Accessory Motion Forces	2
6	Application of Pathokinesiologic model to common musculoskeletal impairments <ul style="list-style-type: none"> • Movement impairments of Lumbar Spine: Flexion-Extension syndrome, rotation, rotation with flexion, rotation with extension, • Movement impairments of Hip: Femoral Anterior Glide Syndrome, Femoral Anterior Glide with medial and lateral rotation, Hip medial and lateral rotation • Movement impairments of Shoulder girdle: Scapular dyskinesia and akinesia, Shoulder medial and lateral rotation syndrome, Glenohumeral Hypomobility Syndrome • Movement impairments of Patellofemoral joint dysfunction 	5
7	Activity limitations and participation restriction to common activities like squatting, staircase ascent and descent, cross leg sitting. Corrective exercises: Purpose and special considerations, Impairment based approach to exercise	5
	Practical: Surface anatomy landmarks, ROM assessment, posture and 2 D and 3 D gait analysis, measurement techniques of Spatiotemporal parameters, clinical case presentations emphasizing on screening of muscular, neural and biomechanical impairments	80
Total		100

EXAMINATION SCHEME

Theory question paper pattern for University Semester Examination under CBCS - 80 marks

Question type	No. of questions	Marks/ question	Question X marks	Total marks
Section 1				
Short answer questions	4 out of 5	10	4 x 10	40
Section 2				
Long answer question	2 out of 3	20	2 x 20	40
Total				80

Internal examination pattern (Theory): 40marks

Question type	No. of questions	Marks/question	Question X marks	Total marks
Short answers	4	5	4x5	20
Long answers	2	10	2x 10	20
Total				40

Practical question paper pattern for University Semester Examinations under CBCS - 80 marks

Exercise	Description	Marks
Q No 1	Long Case (Emphasis on assessment and outcome measures)	40
Q No 2	OSCE station (4)	40
Total		80

Internal Examination Pattern (Practical): 40 Marks

Short Case(Emphasis on Emphasis on assessment and outcome measures)	20
OSCE station (2)	20
Total	40

Internal Assessment marks will be weighted out of 20 marks for theory and practical, respectively

RECOMMENDED TEXT BOOKS

- Sahrman, S. (2001). Diagnosis and treatment of movement impairment syndromes. Elsevier Health Sciences. 2nd Edition
- Magee, D. J. (2013). Orthopedic physical assessment. Elsevier Health Sciences. 3rd Edition
- Carol A. Oatis, Kinesiology: The Mechanics and Pathomechanics of Human Movement, 4th Edition

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Exercise Physiology
Course Code	MPT047
Credit per Semester	1 credit
Hours per Semester	20 hours

Course Outcomes	
Student will be able to	
CO 1	Advocate the role of different metabolic pathways during exercises
CO 2	Understand difference between aerobic and anaerobic pathways with different types of exercises.
CO 3	Understand the process of recovery from exercise

Unit	Topics	No. of Hrs.
1	Bioenergetics and Muscle Metabolism <ul style="list-style-type: none"> • Energy Substrates • Factors affecting energy production 	5
2	The Basic Energy Systems <ul style="list-style-type: none"> • ATP-PCr System • Glycolytic System • Oxidative System 	5
3	The Oxidative Capacity of Muscle <ul style="list-style-type: none"> • Enzyme Activity • Fiber Type Composition and Endurance Training • Oxygen Needs 	5
4	Systemic adaptation to exercise <ul style="list-style-type: none"> • Cardiovascular responses to exercise • Neural responses to exercise • Musculoskeletal responses to exercise • Hormonal responses to exercise • Management of infectious diseases as COVID 19, Severe Acute respiratory syndrome, Middle East Respiratory syndrome and others 	10
Total		20

EXAMINATION SCHEME

Theory question paper pattern for University Semester Examination under CBCS - 80 marks

Question type	No. of questions	Marks/question	Question X marks	Total marks
Section 1				
Short answer questions	4 out of 5	10	4 x 10	40
Section 2				
Long answer question	2 out of 3	20	2 x 20	40
Total				80

Internal examination pattern (Theory): 40marks

Question type	No. of questions	Marks/question	Question X marks	Total marks
Short answers	4	5	4x5	20
Long answers	2	10	2x 10	20
Total				40

Internal Assessment marks will be weighted out of 20 marks for theory

RECOMMENDED TEXT BOOKS

1. William D. McArdle, Frank I. Katch, Victor L. Katch- Exercise Physiology: Nutrition, Energy, and Human Performance, 3rd Edition
2. William D. McArdle, Frank I. Katch, Victor L. Katch-Essentials of Exercise Physiology, 3rd Edition
3. Kenney, W. L., Wilmore, J. H., &Costill, D. L. (2015). Physiology of sport and exercise. Human kinetic, 3rd Edition

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Cardiopulmonary Resuscitation
Course Code	MPTAECC-001
Credit per Semester	2 credits
Hours per Semester	60 hours

Course Outcomes Student should be able to	
CO 1	To describe the importance of high quality CPR and its impact on survival
CO 2	To Describe all steps of chain of survival
CO 3	To apply BLS concepts of chain of survival
CO 4	To Recognize signs of someone needing CPR
CO 5	To Perform high quality CPR for an adult/ child/ infant
CO6	To Describe the importance of early use of Automated external defibrillator (AED)
CO7	To demonstrate appropriate use of an AED
CO8	To Provide effective ventilations by using a barrier device
CO9	To describe the importance of teams in multi- rescuer resuscitation
CO10	Describe techniques of relief of foreign-body airway obstruction for an adult/child/infant

Unit	Topic	Hours
1	Course Introduction	2
2	Adult BLS, Adult chain of survival Scene safety and assessment Adult compressions, AED and Bag Mask Device	5
4	Successful Resuscitation teams	3
5	Infant and Child BLS, Pediatric chain of survival, AED for Infants and children less than 8 years age	3
6	Special considerations: Mouth to mouth breaths Breaths with an advanced airway	3

	Opioid associated life- threatening emergency	
7	Adult, infant and child choking Relief of choking in a responsive adult or child Relief of choking in a unresponsive adult or child	4
	Practical- Skills Practice on mannequin: Adult and child CPR	40
	Total	60

EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Internal examination pattern (Theory): 40marks

Question type	No. of questions	Marks/question	Question X marks	Total marks
Short answers	8	5	8x5	40
Total				40

Internal Examination Pattern (Practical): 20 Marks

Question Type	Marks
Short Case	20
Total	20

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Research methods
Course Code	MPTAECC002
Credit per Semester	2 credits
Hours per Semester	40 hours

Teaching Objective	To introduce the students to the concepts related to research and dissertation.
Learning Outcomes	<ul style="list-style-type: none"> • To understand the how to apply basic concepts of statistics & principles of scientific enquiry in planning and evaluating the results. • To be able to understand the ethical issues in research and research process. • To be able to work on review of literature, research design, research processes, sampling, data collection and analysis, interpretation and presentation of data, biostatistics, correlation, statistical significance, • Practical/seminars: To be able to participate in or conduct descriptive, explorative, survey studies in PT practice. Present data in appropriate methods.

Course Outcomes	
Student will be able to	
CO 1	understand basic concept of research, design, problems & sampling techniques of research.
CO 2	gain knowledge of various types of study designs and planning for the same
CO 3	plan for a research study
CO 4	understand various methods of quantitative and qualitative data analyses
CO 5	describe the terminology in research, ethical issues and research process.
CO 6	describe important sources, and steps in reviewing of literature.
CO 7	understand sampling technique, research process, data collection, biostatics, correlation and statistical significance tests.
CO 8	identify and to be able to participate in or conduct descriptive, explorative, survey studies in physical therapy practice with statistics.

Unit	Topics	No. of Hrs.
1	Introduction Terminology in research, ethical issues in research, research process, importance, sources & steps in reviewing the literature Basic probability distribution and sampling distribution Standard error and confidence interval Skewness and Kurtosis	5
2	Research design Type of research – qualitative & quantitative. Experimental & non experimental, survey – advantages & disadvantages	5
3	Research process and sampling <ol style="list-style-type: none"> Research question, aim & objectives, assumptions, limitations & delimitations, variables, hypothesis – formation & testing Sampling technique, population, sample, sample size & determination, sampling methods, sampling error. 	10
4	Data collection and analysis and interpretation & presentation of data, statistical analysis, tests of significance <ol style="list-style-type: none"> Data sources, technique of data collection, tools, reliability & validity, process of data collection, pilot study-method, Quantitative & qualitative analysis Graphical representation of data Conclusion & discussion Testing of hypothesis - Parametric tests-‘t’ tests, Tukeys following Oneway ANOVA, ANOVA (One way, two way – for parametric & nonparametric), ANCOVA, Multistage ANOVA Nonparametric tests-Chi-square test, Mann Witney U test, ‘Z’ test Wilcoxon’s matched pairs test. Correlation and regression analysis 	10
5	Writing a research proposal Defining a problem , review of literature, formulating a question , inclusion exclusion criteria, operational definitions, methodology, forming groups , data collection, data analysis, informed consent	10
	Total	40

EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Internal examination pattern (Theory): 40marks

Question type	No. of questions	Marks/question	Question X marks	Total marks
Short answers	8	5	8x5	40
Total				40

Recommended books-

Jyotikumar Biostatistics, 1st Edition
Research Methodology- Kothari, 3rd Edition
Biostatistics -with Latest Mcqs - Negi, K.s, 1st Edition
Methods Of Biostatistics- Rao T Bhaskara, 2nd Edition

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Bioethics, Health management and Administration
Course Code	MPTAECC-003
Credit per Semester	3 credits
Hours per Semester	60 hours

Course Outcomes	
CO 1	To describe the nature, meaning and principals of bioethics.
CO 2	To describe human dignity and human rights.
CO 3	To describe the benefit and harm of patient's right & dignity in Health care settings.
CO 4	To understand the role of constitutions and functions of W.H.O. and W.C.P.T and IAP.
CO 5	To be able to understand regarding management and administration, budget planning, leadership and teamwork.

Unit	Topics	No. of Hrs.
1	Introduction a. Meaning and nature of ethics, b. Concept of morality, Ethics & Legality, confidentiality and responsibility	10
2	Laws and responsibilities a. Councils for regulation of professional practice b. Constitution of India, & Rights of a citizen, c. responsibilities of the Therapist, & status in health care d. Self-regulatory role of Professional Association e. Consumer protection act f. Persons with Disability Act	10
3	Human dignity and human rights and benefit and harm of patient's right & dignity in health care settings a. Human dignity as an intrinsic value, respect ,care and Equality in dignity of all human beings, human dignity in different cultural and moral traditions. b. The WHO definition,health benefit by physiotherapy,possible harm for a patient during physiotherapy.	15
4	Role of W.C.P.T. IAP and W.H.O. a. Constitution & Functions of I.A.P. Role of W.C.P.T. and W.H.O.	10
5	Administration, management and marketing a. Management theories and their application to physiotherapy practice, service	15

	<p>quality at various levels of the health delivery system, teaching institution & self-employment and principles and concepts.</p> <p>b. Personal policies – Communication & Contact, administration principles based on goal & functions at large hospital / domiciliary set up / private clinical / academic institution.</p> <p>c. Methods of maintaining records – Budget planning</p> <p>d. Quality control</p> <p>e. Budget planning</p>	
	Total	60

EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Theory question paper pattern for College Examination under CBCS - 40 marks

Question type	No. of questions	Marks/ question	Question X marks	Total marks
Short answer questions	8	5	8 x 5	40
				Total= 40

Recommended books-

Pedagogy Physiotherapy Education –C S Ram, 3rd Edition
 Physical Therapy Ethics: Gabard Donald L, 2nd Edition

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Teaching Technology
Course Code	MPTAECC-004
Credit per Semester	3 credits
Hours per Semester	80 hours

Course Outcomes	
Student will be able to	
CO 1	Describe the philosophies of education.
CO 2	Describe the role of education philosophies.
CO 3	Describe recent new trends and issues regarding education.
CO 4	Understand the concepts of teaching and learning with curriculum formation.
CO 5	Describe methods of teaching, and conduct educational seminars and microteachings using new trends in education.

Unit	Topics	No. of Hrs.
1	Introduction Aims, agencies, formal and in-formal education, philosophies of education (past, present & future)	5
2	Role of education philosophies with current new trends and issues in education	5
3	Concepts of teaching and learning a. Theories of teaching b. Relation between teaching and learning c. Dynamics of behavior d. Learning perception e. Individual differences	5
4	Curriculum formation, principles and methods of teaching a. Development & types of curriculum b. Formation of philosophy & course objectives c. Master plans of courses d. Strategies and planning e. Organization and teaching methods - micro teaching f. Measurement and evaluation with steps of constructing test measurements,	5

	standard tools.	
5	Role of an educator the environment, student teacher relationship	5
6	Teaching methods Educational objectives, Teaching learning media, Micro & small group teaching, integrated teaching, Skills in various types of teaching (including didactic, clinical etc), Learning methods of learning, problem based learning, motivation & learning	5
7	Evaluation methods mechanics of paper setting, M.C.Q's S.A.Q's, viva, O.S.C.E & O.S.P.E	10
	Practical- Microteaching seminars which include didactic sessions using PowerPoint presentation and supervised hands on assessment & management session for undergraduate students.	40
	Total	80

EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Theory question paper pattern for College Examination under CBCS - 40 marks

Question type	No. of questions	Marks/ question	Question X marks	Total marks
Short answer questions	8	5	8 x 5	40
Total= 40				

Internal Examination Pattern (Practical): 20 Marks

Question Type	Marks
Short Case	20
Total	20

Recommended books-

1. Pedagogy Physiotherapy Education –C S Ram
2. Physical Therapy Ethics: Gabard Donald L
3. Ethics, Injuries &The Law in Sports Medicine: Grayson Edward

Semester-II (7-12 months)

Course Code	Course Title	Course Description	Theory / Seminar Hours	Practical	Research Hours	Clinical Hours
MPT048	Musculoskeletal Diagnosis (Upper Quadrant including Cervical Spine) - Theory	Core Theory	20			
MPT049	Musculoskeletal Diagnosis (Upper Quadrant including Cervical Spine) - Practical	Core Practical		80		
MPT050	Musculoskeletal Physiotherapy (Upper Quadrant including Cervical Spine) - Theory	Core Theory	20			
MPT051	Musculoskeletal Physiotherapy (Upper Quadrant including Cervical Spine) - Practical	Core Practical		80		
MPT052	Clinical Reasoning in Physiotherapy	Core Theory	40			
MPTAECC005	Legal issues and Professional ethics	Ability Enhancement compulsory course	40			
MPTGEC001/002	Medical Device Innovation/ Scientific Writing	General Elective Course	40			
MPTSEC004/005	Kinesiotaping/ Pilates	Skill Enhancement Elective Course	20	40		
MPTRP002	Research Project				40	
MPTCLT002	Clinical Training II					300

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Musculoskeletal Diagnosis (Upper Quadrant including Cervical Spine) - Theory
Course Code	MPT048
Credit per Semester	1 credit
Hours per Semester	20 hours
Name of the Course	Musculoskeletal Diagnosis (Upper Quadrant including Cervical Spine) - Practical
Course Code	MPT049
Credit per Semester	2 credits
Hours per Semester	80 hours

Course Outcomes	
CO 1	To perform a comprehensive and complete Physiotherapy assessment of various musculoskeletal conditions affecting upper quadrant and cervical spine.
CO 2	To screen out Red and Yellow flags in patients.
CO 3	To document systematic, meaningful, accurate written records of the patient.
CO 4	To formulate hypothesis based on history and confirm the diagnosis from clinical examination and formulate tissue specific diagnosis.
CO 5	To correlate clinical findings with radiological findings.

Unit	Topics	No. of Hrs.
1	Review of History taking and General Assessment	2
2	Joint Assessment techniques specific to cervical spine and upper quadrant	3
3	Motor Assessment- Muscle strength, Flexibility	1
4	Neurological screening- Dermatomes, Myotomes, Reflexes	1
5	Special tests for Upper quadrant and cervical spine- Specific and sensitive tests pertinent to particular condition	3
6	Balance, Coordination, Posture assessment	5
7	Functional Assessment and 2D Video motion analysis, outcome measures	5
8	Practical: Case presentations/Demo: <ul style="list-style-type: none"> • Performing assessment of Shoulder, Elbow, Wrist/Hand and Cervical spine on patients. • Interpreting radiological findings and correlating them with clinical findings 	80
Total		100

EXAMINATION SCHEME**Theory question paper pattern for University Semester Examination under CBCS - 80 marks**

Question type	No. of questions	Marks/question	Question X marks	Total marks
Section 1				
Short answer questions	4 out of 5	10	4 x 10	40
Section 2				
Long answer question	2 out of 3	20	2 x 20	40
				Total= 80

Internal examination pattern (Theory): 40marks

Question type	No. of questions	Marks/question	Question X marks	Total marks
Short answers	4	5	4x5	20
Long answers	2	10	2x 10	20
Total				Total= 40

Internal Assessment marks will be weighted out of 20 marks for theory

Internal College Exam Pattern (Practical): 40 Marks

Question type	Marks
OSCE 1	20
OSCE 2	20
Total	40

Recommended books-

1. David J Magee. Orthopaedic Physical Assessment. 3rd Edition
2. Dutton- Orthopaedic Examination, Evaluation and Intervention. 2nd Edition

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Musculoskeletal Physiotherapy (Upper Quadrant & Cervical Spine)
Course Code	MPT050
Credit per Semester	1 credit
Hours per Semester	20 hours
Name of the Course	Musculoskeletal Physiotherapy (Upper Quadrant & Cervical Spine)
Course Code	MPT051
Credit per Semester	2 credits
Hours per Semester	40 hours

Course Outcomes	
CO 1	To formulate treatment strategies for management of musculoskeletal impairments of upper quadrant and cervical spine.
CO 2	To develop customized treatment protocol pertinent to the condition
CO 3	To develop Hands-on skills in management of various conditions of upper quadrant and cervical spine.
CO 4	To understand and critique evidence based practice and be updated about the recent trends/advances in management of various conditions of upper quadrant and cervical spine.

Unit	Topics	No. of Hrs.
1	Review of Treatment protocol designing and goal formation	1
2	Review of treatment techniques in management of musculoskeletal impairments of upper quadrant and cervical spine.	3
3	Management of Cervical Spine Dysfunctions- Spondylosis, Mechanical Neck pain, Disc bulge, Stenosis, Cervical instability, Cervical Myelopathy	3
4	Management of shoulder dysfunctions- Frozen shoulder, AC joint dysfunction, Impingement syndrome, Rotator cuff pathologies, Fractures around shoulder, Post surgical shoulder rehabilitation	3
5	Management of Elbow Dysfunctions- Tennis elbow, Golfer's elbow, Fractures around elbow, Pronator Syndrome, Post surgical elbow rehabilitation	3
6	Management of Wrist/Hand dysfunctions- Carpal Tunnel Syndrome, Dequervian's syndrome, Flexor tendon/Extensor tendon injuries of wrist and hand, Fractures around wrist and hand, Post surgical rehabilitation	3
7	Evidence based practice and recent advances in management of upper quadrant and cervical spine impairments.	4
8	Practical's through case presentations and hands on demo of skills	80
	Total	100

EXAMINATION SCHEME**Theory question paper pattern for University Semester Examination under CBCS - 80 marks**

Question type	No. of questions	Marks/question	Question X marks	Total marks
Section 1				
Short answer questions	4 out of 5	10	4 x 10	40
Section 2				
Long answer question	2 out of 3	20	2 x 20	40
Total				80

Internal examination pattern (Theory): 40marks

Question type	No. of questions	Marks/question	Question X marks	Total marks
Short answers	4	5	4x5	20
Long answers	2	10	2x 10	20
Total				40

Practical question paper pattern for University Semester Examinations under CBCS - 80 marks

Exercise	Description	Marks
Q No 1	Long Case (Emphasis on identification of structural and functional impairment and management approach)	40
Q No 2	OSCE station (4)	40
Total		=80

Internal Examination Pattern (Practical): 40 Marks

Short Case1(Emphasis on identification of structural and functional impairment)	20
OSCE station (2)	20
Total	40 M

Internal Assessment marks will be weighted out of 20 marks, for theory and practical, respectively
Recommended books-

1. Dutton - Orthopaedic Examination, Evaluation and Intervention. 2nd Edition
2. Brotzman's Clinical Orthopaedic Rehabilitation. 4th Edition
3. Turek's Orthopaedics Principles and Their Applications. 3rd Edition

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Clinical Reasoning in Musculoskeletal Physiotherapy
Course Code	MPT052
Credit per Semester	2 credits
Hours per Semester	40 hours

Course Outcomes

CO 1	Outline contemporary biopsychosocial approaches for management of musculoskeletal disorders.
CO 2	Formulate differential diagnoses of musculoskeletal disorders and evaluate the most likely diagnosis.
CO 3	Rationalize and prioritize treatment selections for effective management of musculoskeletal disorders
CO 4	Demonstrate successful integration of current evidence when applying safe and effective musculoskeletal physiotherapy

Unit	Topics	No. of Hrs.
1	Development of Clinical Reasoning in Physiotherapy <ul style="list-style-type: none"> Historical development of clinical reasoning in health sciences Theories of clinical reasoning 	10
2	Clinical Reasoning in a Biopsychosocial Framework	10
3	Clinical Reasoning Strategies, Pattern recognition and illness scripts, factors influencing clinical reasoning	10
4	Clinical Prediction Rules: Diagnostic, Prognostic and Prescriptive CPRs, Application of CPRs in musculoskeletal practice	10
	Total	40

EXAMINATION SCHEME**Theory question paper pattern for College Examination under CBCS - 40 marks**

Question type	No. of questions	Marks/ question	Question marks X	Total marks
Short answer questions	8 out of 9	5	8 x 5	40
				Total= 80

Recommended books-

1. Mark Jones - Clinical reasoning in Physiotherapy- Elsevier. 2nd Edition
2. Joy Higgs, Gail Jensen, Stephen Loftus, Nicole Christensen.-Clinical Reasoning in the Health Professions- Elsevier. 3rd Edition

Name of the Programme	Master of Physiotherapy (MPT) Specialty – Musculoskeletal Physiotherapy
Name of the Course	Legal issues and Professional ethics
Course Code	MPTAECC005
Credit per Semester	2 credits
Hours per Semester	40 hours

Course Outcomes	
CO 1	To provide the basis for participation in clinical risk management, risk management and patient safety committees and for further training as a risk / patient safety
CO 2	To ensure improvement of patient safety and care, to the prevention and management of legal claims and to healthcare delivery in general
CO 3	To understand the professional ethics and responsibility as a therapist.

Unit	Topics	No. of Hrs.
1	Healthcare Delivery System In India <ul style="list-style-type: none"> • Healthcare delivery system in India at Primary, Secondary and Tertiary level • Community participation in healthcare delivery system • Health system in Private Sector • National Health Mission • National Health Policy • National Five year plans • Issues in Health Care Delivery System in India 	5
2	Professional Issues <ul style="list-style-type: none"> • Registration and the Role of the Statutory Bodies(WCPT, State Council, IAP) • Professional Conduct and Ethics • Education and the Physiotherapist 	10
3	Patient-Centred Care <ul style="list-style-type: none"> • Rights of Patients • Consent and Information Giving • Confidentiality and Privacy • Access to Records and Information 	10
4	Professional Accountability <ul style="list-style-type: none"> • Direction and supervision • Liability, Negligence, Malpractice 	10
5	Legal Framework <ul style="list-style-type: none"> • Definition and approach to Medico legal case • Medical Litigation Issues: Plaintiff and Defendant perspectives • Professional Indemnity for Physiotherapy Practitioners 	5
	Total	40

EXAMINATION SCHEME

Theory question paper pattern for College Examination under CBCS - 40 marks

Question type	No. of questions	Marks/ question	Question marks X	Total marks
Short answer questions	8 out of 9	5	8 x 5	40

Recommended books-

1. Scott, Ronald. Jones & Bartlett - Legal aspects of documenting: 2nd edition. Learning publication.
2. Peter Wilenski. Hale & Iremonger - Public Power & Administration. 1st edition.
3. APTA guidelines for standards of physical therapy practice. Available from: URL:
http://www.apta.org/uploadedFiles/APTAorg/About_Us/Policies/Practice/StandardsPractice.pdf.

Name of the Programme	Master of Physiotherapy (MPT) Specialty - Musculoskeletal Physiotherapy
Name of the Course	Medical Device Innovation
Course Code	MPTGEC-001
Credit per Semester	2 credits
Hours per Semester	40 hours

Course Outcomes Students will be able to	
CO 1	Understand phases of device innovation
CO 2	Understand unmet health needs, inventing and evaluating a new technology
CO 3	Understand risks and challenges that are unique to medical device innovation

Unit	Topics	No. of Hrs.
1	Introduction to Medical Device Innovation <ul style="list-style-type: none"> • Orientation to the curriculum • Approaches in Device Innovation • Future scope 	2
2	Clinical Foundations of Medical Device Innovation <ul style="list-style-type: none"> • Identifying need for device innovation: A problem-solution based approach to understand unmet healthcare needs 	2
3	Product Innovation and Development Management <ul style="list-style-type: none"> • Concept of prototype and design development • Framework for conceptualization, design, development and the commercialization process for medical products, with a survey of key steps in innovation from an engineering and business perspective. 	4
4	Quality, Regulatory, and Manufacturing Management <ul style="list-style-type: none"> • Examine process validations, Good Laboratory Practice (GLP), Good Manufacturing Practice (GMP), appropriate management of Standard Operating Procedures (SOPs) and knowledge sharing across the value chain. 	4
5	Role of IPR in device innovation <ul style="list-style-type: none"> • Understanding various policies and steps for safeguarding newly designed devices through filing of copyright and patent 	4
6	Technical Writing <ul style="list-style-type: none"> • Develop the professional skills required to communicate technical information to a broad audience in an effective manner 	4
7	Visit to Healthcare centers <ul style="list-style-type: none"> • Interviews, Surveys among clinicians to identify problem 	5
8	Visit to Macro environment of Technology incubation centers: <ul style="list-style-type: none"> • Understanding basics of mechanics, availability, functioning and cost of resources 	5
9	Development of Product design	10

	<ul style="list-style-type: none"> Multi-disciplinary team building to develop prototype, work on fabrication, making of final product and plan for commercialization 	
	Total	40

EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Theory question paper pattern for College Examination under CBCS - 40 marks

Question type	No. of questions	Marks/ question	Question X marks	Total marks
Short answer questions	8 out of 9	5	8 x 5	40
Total				40

Recommended books-

1. Yock, P. G., Zenios, S., Makower, J., Brinton, T. J., Kumar, U. N., Watkins, F. J., ... & Kurihara, C. Q. (2015). *Biodesign: the process of innovating medical technologies*. Cambridge University Press. 2nd Edition
2. Timmermann, C., & Anderson, J. (Eds.). (2006). *Devices and designs: medical technologies in historical perspective*. Springer. 3rd Edition
3. Ogradnik, P. (2012). *Medical Device Design, Innovation from concept to market*. Academic Press/Elsevier. 2nd Edition
4. Dr. Jagdish Chaturvedi. *Medical device innovation- Perspective from India*. 2018. Notion press. 3rd Edition

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Scientific Writing
Course Code	MPTGEC-002
Credits per semester	2 credits
Hours per semester	40 hours

Course Outcomes Students will be able to	
CO 1	Understand scientific writing process, components of a research paper
CO 2	Methods of literature search
CO 3	Attain skills of organizing and composing a scientific paper
CO4	Analyze and review scientific papers
CO5	comprehend ethics of scientific writing
CO6	understand the editorial process for publication

Sr. No.	Topics	No. of Hrs.
1	Introduction to medical writing	3
2	Overview of types of articles	3
3	Methods of literature search and Pubmed search	3
4	Concept of understanding research problem, article writing and editorial process	3
5	Journal Selection	3
6	Reviewing, Editing and Publishing	3
7	Software used in Medical writing a. Referencing software b. Plagiarism Software	4
8	Guidelines for scientific writing Duties of Author, Authorship dispute, Editor, Reviewer, etc. • Guidelines of ICMJE and other bodies • Guidelines and Checklists of relevant to medical writing in diverse medical fraternities • Publication Ethics • Journal quality and impact assessment of article	4
9	Documents in Clinical Research • Clinical study report • Grant proposal writing	14
		40

EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Theory question paper pattern for internal assessment under CBCS - 40 Marks

Question type	No. of questions	Marks/ question	Question X marks	Total marks
Section 1				
Short answer questions	8 out of 10	5	8x5	40
Total				40

Reference Books:

1. Day, R.A. and Gastel, B. 2006. How to write and publish a scientific paper. 6th edition. Cambridge University Press, Cambridge.
2. American Psychological Association, 2009. Publication Manual of the American Psychological Association, 6th ed. American Psychological Association, Washington, DC.

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Kinesiotaping
Course Code	MPTSEC-004
Credits per semester	2 credits
Hours per semester	60 hours

Course Outcomes Students will be able to	
CO 1	Understand rationale for use of kinesiotaping as a clinical adjunct in practice
CO 2	Review muscular anatomy as it is related to Kinesio Taping
CO 3	Attain skills of assessing the need for kinesiotaping in clinical practice
CO4	Apply the corrective and therapeutic techniques of kinesiotaping in musculoskeletal conditions.

Sr. No.	Topics	No. of Hrs.
1	Introduction to K-taping method <ul style="list-style-type: none"> • Therapeutic concepts of K-Taping in clinical practice • Indications of inadequate tape quality • User and areas of applications • Basic Functions and effects of K-tapes 	10
2	The Four Application Techniques <ul style="list-style-type: none"> • Muscle applications: Muscle action, Mode of action of K-taping, Executing the application • Ligament applications: Mode of action of K-taping, Executing the application • Corrective Applications: Functional correction, Fascia correction • Lymphatic Applications: Causes of lymphostasis, Mode of action of lymphatic applications 	10
3	Muscle Applications of Upper and Lower Extremity, Spine	10
4	Ligament Applications: Collateral ligaments of the knee Patellar ligament, Achilles tendon, Lateral collateral ligaments of the ankle joint Spacetape form of Ligament application for Pain and Trigger point release	10
5	Corrective Applications: Patella correction, Scoliosis	5
6	Therapeutic Applications in specific conditions <ul style="list-style-type: none"> • Impingement syndrome • Biceps tendonitis 	15

<ul style="list-style-type: none"> • Epicondylitis • Carpal tunnel syndrome • Wrist stabilization • Finger contusion • Hip problems • Torn muscle fibers • Osteoarthritis of the knee joint • Achillodynia • Ankle joint distortion • Splayfoot, fallen arch, and flatfoot 	60
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EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Theory question paper pattern for internal assessment under CBCS - 40 Marks

Question type	No. of questions	Marks/ question	Question X marks	Total marks
Section 1				
Short answer questions	8 out of 10	5	8x5	40
				Total= 40

Recommended Books:

1. Kumbrink, B. (2014). K-taping: an illustrated guide-basics-techniques-indications. Springer.

Name of the Programme	Master Of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Pilates
Course Code	MPTSEC-005
Credits per semester	2 credits
Hours per semester	60 hours

Course Outcomes Students will be able to	
CO 1	Understand rationale for use of pilates for core muscle conditioning in clinical practice
CO 2	Prepare personal workout session using Pilates
CO 3	Attain skills of assessing the core muscle work in clinical practice
CO4	Apply the corrective and therapeutic pilates conditioning exercises

Sr. No.	Topics	No. of Hrs.
1	Introduction to Pilates <ul style="list-style-type: none"> • Principal Concepts of the Pilates Method • Concentration/Control/Centering • Precision • Flow/fluidity of movement • Breathing/imprinting 	15
2	Fundamentals of Pre-Pilates exercises <ul style="list-style-type: none"> • Pre exercise requisites • Alignment techniques and neutral spine 	15
3	Apparatus vs Mat based pilates <ul style="list-style-type: none"> • Sequencing of exercises • Progression and applications 	10
4	Special Populations <ul style="list-style-type: none"> • Pilates in children • Pilates in Elderly 	10

	<ul style="list-style-type: none"> Pilates in pregnant females 	
	Practicals focused on : Core strength evaluation, exercise programming using Pilates concepts and applications in musculoskeletal practice	10
		60

EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Theory question paper pattern for internal assessment under CBCS - 40 Marks

Question type	No. of questions	Marks/ question	Question X marks	Total marks
Section 1				
Short answer questions	8 out of 10	5	8x5	40
				Total= 40

Recommended Books:

1. Amy Lademann.- Pilates and Conditioning for Athletes: An Integrated Approach to Performance and Recovery- Human Kinetics
2. Katherine Corp- Pilates for Beginners: Core Pilates Exercises and Easy Sequences to Practice at Home

Semester-III (13-18 months)

Course Code	Course Title	Course Description	Theory/ Seminar Hours	Practical	Research Hours	Clinical Hours
MPT053	Musculoskeletal Diagnosis (Lower Quadrant including Lumbosacral Spine) - Theory	Core Theory	20			
MPT054	Musculoskeletal Diagnosis (Lower Quadrant including Lumbosacral Spine) - Practical	Core Practical		80		
MPT055	Musculoskeletal Physiotherapy (Lower Quadrant including Lumbosacral Spine) - Theory	Core Theory	20			
MPT056	Musculoskeletal Physiotherapy (Lower Quadrant including Lumbosacral Spine) - Practical	Core Practical		80		
MPT057	Disability and Rehabilitation	Core Theory	40			
MPT058	Geriatric Physiotherapy	Core Theory	40			
MPTAEEC005/001 /002	Women's Health/Exercise Psychology/Mind and Body Techniques	Ability Enhanceme nt Elective course	20	40		
MPTSEC003	Application of Yoga in Physiotherapy	Skill Enhanceme nt course	20	40		
MPTRP003	Research Data Collection and Analysis				300	
MPTCLT003	Clinical Training III					40

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Musculoskeletal Diagnosis (Lower Quadrant including Lumbosacral Spine) - Theory
Course Code	MPT054
Credit per Semester	1 credit
Hours per Semester	20 hours
Name of the Course	Musculoskeletal Diagnosis (Lower Quadrant including Lumbosacral Spine) - Practical
Course Code	MPT055
Credit per Semester	2 credits
Hours per Semester	80 hours

Course Outcomes	
CO 1	To perform a comprehensive and complete Physiotherapy assessment of various musculoskeletal conditions affecting lower quadrant and lumbar spine.
CO 2	To screen out Red and Yellow flags in patients.
CO 3	To document systematic, meaningful, and accurate written records of the patient.
CO 4	To formulate hypothesis based on history and confirm the diagnosis from clinical examination and formulate tissue specific diagnosis.
CO 5	To correlate clinical findings with radiological findings.

Unit	Topics	No. of Hrs.
1	Review of History taking and General Assessment	2
2	Joint Assessment techniques specific to lumbar spine and lower quadrant	3
3	Motor Assessment- Muscle strength, Flexibility	1
4	Neurological screening- Dermatomes, Myotomes, Reflexes	1
5	Special tests for Lower quadrant and lumbar spine- Specific and sensitive tests pertinent to particular condition	3
6	Balance, Coordination, Posture and Gait assessment	5
7	Functional Assessment and 2D Video motion analysis, outcome measures	5
8	Practical: Case presentations/Demo: <ul style="list-style-type: none"> Performing assessment of Hip, Knee, Ankle/Foot and Lumbosacral spine on patients. Interpreting radiological findings and correlating them with clinical findings 	80
Total		100

EXAMINATION SCHEME**Theory question paper pattern for University Semester Examination under CBCS - 80 marks**

Question type	No. of questions	Marks/question	Question X marks	Total marks
Section 1				
Short answer questions	4 out of 5	10	4 x 10	40
Section 2				
Long answer question	2 out of 3	20	2 x 20	40
Total				80

Internal examination pattern (Theory): 40marks

Question type	No. of questions	Marks/question	Question X marks	Total marks
Short answers	4	5	4x5	20
Long answers	2	10	2x 10	20
Total				Total= 40

Internal Assessment marks will be weighted out of 20 marks for theory

Internal Examination Pattern (Practical): 40 Marks

Question Type	Marks
OSCE 1	20
OSCE 2	20
	40 Marks

Recommended books-

1. Dutton - Orthopaedic Examination, Evaluation and Intervention.
2. Brotzman's Clinical Orthopaedic Rehabilitation.
3. Turek's Orthopaedics Principles and Their Applications

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Musculoskeletal Physiotherapy (Lower Quadrant & Lumbar Spine) – Theory
Course Code	MPT056
Credit per Semester	1 credit
Hours per Semester	20 hours
Name of the Course	Musculoskeletal Physiotherapy (Lower Quadrant & Lumbar Spine) - Practical
Course Code	MPT057
Credit per Semester	2 credits
Hours per Semester	80 hours

Course Outcomes	
CO 1	To formulate treatment strategies for management of musculoskeletal impairments of Lower quadrant and Lumbo-sacral spine.
CO 2	To develop customized treatment protocol pertinent to the condition
CO 3	To develop Hands-on skills in management of various conditions of Lower quadrant and Lumbo-sacral spine.
CO 4	To understand and critique evidence based practice and be updated about the recent trends/advances in management of various conditions of Lower quadrant and Lumbo-sacral spine.

Unit	Topics	No. of Hrs.
1	Review of Treatment protocol designing and goal formation specific to Lower quadrant and Lumbosacral spine.	1
2	Review of treatment techniques in management of musculoskeletal impairments of Lower quadrant and Lumbo-sacral spine.	3
3	Management of Lumbosacral Spine Dysfunctions- Spondylosis, Mechanical Low pain, Disc bulge, Stenosis, Lumbar Myelopathy, SI Joint Dysfunctions	3
4	Management of Hip dysfunctions- Total hip replacements, fractures around hip, Cold conditions of hip- Trochanteric bursitis, ITB syndrome, etc.	3
5	Management of Knee Dysfunctions- OA knees, Cold conditions of knee- chondromalacia patella, bursitis, tendinitis, etc., fractures around knee, Total knee replacement and other post surgical rehabilitation.	3
6	Management of Ankle/Foot dysfunctions-Chronic and Acute ankle instabilities, Fractures around ankle and foot, cold conditions of ankle and foot- Metatarsalgia, Hammer toe, Bunion, Hallux valgus, heel spurs, plantar fasciitis, etc.	3
7	Evidence based practice and recent advances in management of Lower quadrant and Lumbo-sacral spine.	4

8	Practicals through case presentations and hands on demo of skills	80
	Total	100

EXAMINATION SCHEME**Theory question paper pattern for University Semester Examination under CBCS - 80 marks**

Question type	No. of questions	Marks/question	Question X marks	Total marks
Section 1				
Short answer questions	4 out of 5	10	4 x 10	40
Section 2				
Long answer question	2 out of 3	20	2 x 20	40
Total				80

Internal examination pattern (Theory): 40marks

Question type	No. of questions	Marks/question	Question X marks	Total marks
Short answers	4	5	4x5	20
Long answers	2	10	2x 10	20
Total				40

Practical question paper pattern for University Semester Examinations under CBCS - 80 marks

Exercise	Description	Marks
Q No 1	Long Case (Emphasis on identification of structural and functional impairment and management approach)	40
Q No 2	OSCE station (4)	40
Total		80

Internal Examination Pattern (Practical): 40 Marks

Short Case1(Emphasis on identification of structural and functional impairment)	20
OSCE station (2)	20
Total	40 M

Internal Assessment marks will be weighted out of 20 marks, for theory and practical, respectively

Recommended books-

1. Dutton - Orthopaedic Examination, Evaluation and Intervention. 2nd Edition
2. Brotzman's Clinical Orthopaedic Rehabilitation. 3rd Edition
3. Turek's Orthopaedics Principles and Their Applications. 2nd Edition.

Name of the Programme	Master of Physiotherapy (MPT) Specialty – Musculoskeletal Physiotherapy
Name of the Course	Disability and Rehabilitation
Course Code	MPT057
Credit per Semester	2 credits
Hours per Semester	40 hours

Course Learning Outcomes Student should be able to	
CO 1	Define Disability holistically and understand the various components of disability.
CO 2	Define Rehabilitation and apply the concept of rehabilitation to various forms of disabilities.
CO 3	Understand the importance and contribution of each team member in the rehabilitation of a disability- Medical social worker, Nurse, Occupational therapist, Speech therapist, Lawyer, etc.
CO 4	Understand the legal aspects of Disability.

Unit	Topic	Hours
1	Understanding Disability: Definition, Causes, Types, magnitude of disability, Prevention of disability.	5
2	People with disabilities and their environment- Societal influences and pressures, role of medical social worker, care taker and Rehabilitation team members in the management of disabilities.	10
3	Approaches to disability rehabilitation- conservative, surgical and palliative care.	10
4	Role of governmental and Non-governmental organizations in rehabilitation and community based rehabilitation.	5
5	Society and legislation for persons with disabilities: Legislative and constitutional provisions for PWDs- an overview , The Rehabilitation Council of India Act, 1992, Strengths and limitations of such provisions, Government Resolutions and Government Order	10
Total		40

EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Theory question paper pattern for College Examination under CBCS - 40 marks

Question type	No. of questions	Marks/ question	Question marks X	Total marks
Short answer questions	8 out of 9	5	8 x 5	40

Recommended Text books-

1. Henry Harder, Liz Scott- Comprehensive Disability management, 1st Edition, 2005.
2. Dianne Dyck- Disability management- Theory, strategy and industry practice, 6th edition, 2017.

Name of the Programme	Master of Physiotherapy (MPT) Specialty – Musculoskeletal Physiotherapy
Name of the Course	Geriatric Physiotherapy
Course Code	MPT058
Credit per Semester	2 credits
Hours per Semester	40 hours

Course Learning Outcomes Student should be able to	
CO 1	Understand the Physiology and systemic changes of aging.
CO 2	Understand the various physical and psychological impairments associated with aging.
CO 3	Understand role of Physiotherapy in Geriatric Population
CO 4	Design customized Exercise program for Geriatric population.

Unit	Topic	Hours
1	Theories of Aging	2
2	Systemic changes of aging: Musculoskeletal, Cardiopulmonary and Neurological systems.	10
3	Assessment of Musculoskeletal impairments in Geriatrics.	8
4	Management of Musculoskeletal impairments in Geriatrics	10
5	Evidence based Physiotherapy Practices in Geriatrics.	10
	Total	40

EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Theory question paper pattern for College Examination under CBCS - 40 marks

Question type	No. of questions	Marks/ question	Question X marks	Total marks
Short answer questions	8 out of 9	5	8 x 5	40

Recommended Text books-

1. Andrew Guccione- Geriatric Physical Therapy, 2nd edition.
2. William Staples- Geriatric Physical Therapy, A case study approach.

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Body and Mind techniques
Course Code	MPTAEEC001
Credit per Semester	2 credits
Hours per Semester	60 hours

Course Learning Outcomes Student should be able to	
CO 1	Apply physical principles of various strengthening techniques like Pilates, resistant band, vestibular ball and relaxation exercises like Jacobson, Mitchell. Biofeedback, PNF.
CO 2	Analyze effects, advantages disadvantages of various strengthening and relaxation techniques.
CO 3	Apply and evaluate breathing movements for relaxation techniques and positions for strengthening different muscle groups.
CO 4	Design treatment programs using equipment like bands, tubes, mats, reformer, vestibular ball, and biofeedback.
CO5	Describe safety precautions while using various techniques and equipment
CO6	Describe and apply techniques used for recruitment of various muscle groups while strengthening and relaxation for respiratory, neurological, orthopedic conditions and for fitness training

Unit	Topic	Hours
1	Introduction of various mind and body techniques such as Pilates, Jacobson, Mitchell, biofeedback and PNF, Yoga, Tai Chi etc	2
2	Principles, effects and advantages of relaxation techniques	2
3	Cognitive Behavioral Therapy	2
4	Assessment of skills related to thoracic mobility, different breathing patterns and musculoskeletal disorders.	2
5	Application of exercises of Jacobson, Mitchell, PNF for relaxation and Thera bands, Pilates on mat and vestibular ball for strengthening of respiratory and musculoskeletal disorders.	4
6	Application of exercises of Therabands, Pilates on mat and vestibular ball for fitness.	4
7	Detailed Safety Precautions while using instruments	2

	Practical	40
	Total	60

EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Theory question paper pattern for College Examination under CBCS - 40 marks

Question type	No. of questions	Marks/ question	Question X marks	Total marks
Short answer questions	8 out of 9	5	8 x 5	40
				Total= 40

Internal Examination Pattern (Practical): 40 Marks

Short Case (fitness evaluation)	20
OSPE Stations (2)	20
Total = 40 M	

Recommended Text books-

1. Page, P., &Ellenbecker, T. S. (2019). *Strength band training*. Human Kinetics Publishers.
2. Spector-Flock, N. (2002). *Get Stronger by Stretching with Thera-Band*. Dance Horizons.

Name of the Programme	Master of Physiotherapy (MPT) Specialty – Musculoskeletal Physiotherapy
Name of the Course	Exercise Psychology
Course Code	MPTAEEC-002
Credit per Semester	2 credits
Hours per Semester	60 hours

Course Outcomes At the end of the course , the candidate will be able to	
CO 1	Discuss psychological aspects concerned with promotion of physical activity and exercise; psychological and emotional benefits linked with physical activity, exercise and sport and consequences of lack of exercise on behavior, inter personal skills and mental well-being, and discuss how psychological factors that influence exercise behavior.
CO 2	Describe factors influencing and serving as barriers to sustaining positive health behavior - self-esteem, depression, body image, anxiety, motivation, social support, and perceived control influence exercise behavior.
CO 3	Apply methods to encourage positive health behavior, importance of understanding psychology of a person in designing sustainable programs to initiate and maintain positive health behavior
CO 4	Discuss benefits of physical activity and exercise on mental health and well being
CO 5	Discuss psychological factors influencing high skill performance and sports engagement
CO6	Apply methods that can be used for psychological skills training

Unit	Topics	No. of Hrs.
1	Introduction to exercise psychology	5
2	Psychological issues affecting performance: anxiety, depression, self-esteem, motivation, body image	5
3	Barriers and facilitators for adherence to positive health behavior : social factors, cultural factors	5
4	Group dynamics	5
5	Psychological skills training – relaxation, yoga, positive reinforcement, mental imagery	20
6	Case studies	20
	Total	60

EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Theory question paper pattern for College Examination under CBCS - 40 marks

Question type	No. of questions	Marks/ question	Question X marks	Total marks
Short answer questions	8 out of 9	5	8 x 5	40
				Total= 40

Recommended books-

1. Buckworth, J., & Tomporowski, P. (2013). *Exercise psychology*. Human kinetics.
2. Willis, J. D., & Campbell, L. F. (1992). *Exercise psychology*. Human Kinetics Publishers.
3. Berger, B. G., Pargman, D., & Weinberg, R. S. (2002). *Foundations of exercise psychology*. Fitness Information Technology, Inc..
4. Van Raalte, J. L., & Brewer, B. W. (1996). *Exploring sport and exercise psychology* (pp. xxix-487). American Psychological Association.
5. Moran, A. (2013). *Sport and exercise psychology: A critical introduction*. Routledge.
6. Weinberg, R. S., & Gould, D. S. (2014). *Foundations of sport and exercise psychology*. Human Kinetics.

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Women’s Health
Course Code	MPTAEEC005
Credit per Semester	3 credits
Hours per Semester	60 hours

Teaching Objective	Women’s health course is designed to develop Physiotherapists with the knowledge and skills to facilitate the holistic management of women’s health issues. Emphasis is placed on the importance of the health needs of the individual, health promotion and empowerment of the woman.
Learning Outcomes	<ul style="list-style-type: none"> • Demonstrate a comprehensive and detailed knowledge of anatomy and physiology of the female reproductive system. • Demonstrate a comprehensive and detailed knowledge of altered physiology related to an aspect of women’s health. • Evaluate the principles underpinning approaches to assessment and management of different aspects of women’s health. • Synthesize, appraise and evaluate evidence from a range of sources to underpin the care and management of women’s health. • Evaluate information obtained during patient assessment that will identify women at risk of female-related disorders. • Develop and evaluate Physiotherapy strategies appropriate to the management of women’s health. • Plan, manage and evaluate an appropriate prescription of care according to the individual women’s health needs.

Course Outcomes	
CO 1	Develop an in depth knowledge of anatomy and physiology of female reproductive system to help assess and manage impairments related to women’s health.
CO 3	Ability to predict and prevent secondary impairments and/or pathologies across systems.
CO 4	Ability to design rehabilitation protocol and implement the same for improvement of impairments pertaining to women’s health.

Unit	Topics	No. of Hrs.
1	Women’s health and Physiotherapy: <ul style="list-style-type: none"> • Adolescence. Puberty and Menarche • Musculo-Skeletal System 	5

2	The Child Bearing Year: <ul style="list-style-type: none"> • Overview of Pregnancy and the Puerperium. • Pregnancy and the Puerperium: Physiological Changes. • The Psychological and Emotional Aspects of Childbearing. • Perinatal Sexuality. • Musculo-Skeletal Changes Associated with the Perinatal Period. • Ante-Natal Education. • Fitness in Childbearing Year. 	5
3	Labour and Physiotherapy: <ul style="list-style-type: none"> • Physiology of Labour. • Coping with Labour: What Are the Options? • Post-Natal Management. 	4
4	Menopause <ul style="list-style-type: none"> • Physiological and Endocrine Changes of Menopause. • Physical and Psychological Changes Related to Menopause. 	2
5	Women with Special Needs <ol style="list-style-type: none"> a. Physiotherapy Management of Pelvic Floor Dysfunction. b. Osteoporosis. c. Rehabilitation after Breast Cancer. d. Physiotherapy and Gynaecological Surgery. e. Physiotherapy Management of Lymph oedema. f. Women in the Workplace: Ergonomic Control of Musculo-Skeletal Injuries. g. The Aged. 	4
	Practicals/Seminars: Case presentations, Demonstration of exercises and treatment protocol in management of conditions affecting women's health	40
Total		60

EXAMINATION SCHEME

Internal examination pattern (Theory): 40marks

Question type	No. of questions	Marks/question	Question X marks	Total marks
Short answers	8	5	8x5	40
Total				Total= 40

Internal Examination Pattern (Practical): 40 Marks

Short Case (fitness evaluation)	20
OSPE Stations (2)	20
Total = 40 M	

RECOMMENDED TEXT BOOKS

1. Women's Health A Textbook for Physiotherapists- Ruth Sapsford Joanne Bullock-Saxton Sue Markwell.
2. Physiotherapy Care for Women's Health- Baranitharan.

Name of the Programme	Master of Physiotherapy (MPT) Specialty – Musculoskeletal Physiotherapy
Name of the Course	Application of Yoga in Physiotherapy
Course Code	MPTSEC003
Credit per Semester	2 credits
Hours per Semester	60 hours

Course Learning Outcomes Student should be able to	
CO 1	Describe origin of Yoga & its brief development and apply principles of Yoga for patient care in musculoskeletal, neurological and cardio-respiratory disorders
CO 2	Demonstrate effective communication skills for understanding effect of yoga on health condition
CO 3	Describe types of Yoga- Hatha Yoga , Raja Yoga, Laya Yoga, Bhakti Yoga, Gyan Yoga, Karma Yoga, compare and contrast differences in philosophies, plan appropriate program for patient care
CO 4	Demonstrate and apply pranayama, techniques for patients (Anulom-vilom, Bhastrika, Bhramri, Nadishuddhi, Kapalbharti, Omkar, Suryabhedana) , analyze difference between Pranayama and deep breathing and its implications, explain meaning of meditation and its types and principles.
CO 5	Demonstrate different types of asana, principles, effects . limitations to performing asanas, biomechanical implications of asanas and recommend modifications that can be used by patients
CO 6	Conduct basic yoga session for patients with musculoskeletal, neurological and cardio-respiratory disorders

Unit	Topic	Hours
1	<ul style="list-style-type: none"> • Origin of Yoga & its brief development. • Principles of Yogic Practices. • Meaning of meditation and its types and principles. • Classification of Yoga/Types of Yoga • Hatha Yoga, Raja Yoga, Laya Yoga, Bhakti Yoga, Gyan Yoga, Karma Yoga. 	3
2	Meaning of Pranayama, its types and principles. (Anulom-vilom Bhastrika, Bhramri, Nadishuddhi, Kapalbharti, Omkar, Suryabhedana), Difference between Pranayama and deep breathing	5

3	Yoga Asana- types, principles, muscle work and kinematics	5
4	Yogic Diet.	2
5	Yoga for musculoskeletal, neurological and cardio-respiratory and sports conditions	5
	Practical- application of yoga therapy in rehabilitation	40
	Total	60

EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Internal Examination Pattern (Theory): 20 Marks

Question type	No. of questions	Marks/question	Question X marks	Total marks
Short answers	4	5	4x5	20
Total				Total= 20

Internal Examination Pattern (Practical): 40 Marks

Short Case (fitness evaluation)	20
OSPE Stations (2)	20
	Total = 40 M

Recommended Text books-

1. Field, T. (2009). *Complementary and alternative therapies research*. American Psychological Association.
2. Mahajan, A. S., & Babbar, R. (2003). Yoga: A Scientific Lifestyle. *JOY: The Journal of Yoga*, 2(10).
3. [Dutta Ray](#), Yogic Exercises (2003). 1st Edition. Jaypee Publications.

Semester-IV (19-24 months)

Course Code	Course Title	Course Description	Theory/ Seminar Hours	Practical	Research Hours	Clinical Hours
MPT059	Pain Science - Theory	Core Theory	20			
MPT060	Pain Science - Practical	Core Practical		80		
MPT061	Physiotherapy in Family and Community health - Theory	Core Theory	20			
MPT062	Physiotherapy in Family and Community health - Practical	Core Practical		80		
MPT063	Exercise Prescription	Core Theory	40			
MPTAEEC006/007	Sports for Fitness/ Prosthetics and Orthotics	Ability Enhanceme nt Elective course	20	40		
MPTAECC006	Intellectual property rights and Publication ethics	Ability Enhanceme nt compulsory course	40			
MPTRP003	Research Dissertation submission and manuscript preparation				300	
MPTCLT003	Clinical Training IV					40

Name of the Programme	Master of Physiotherapy (MPT) Specialty - Musculoskeletal Physiotherapy
Name of the Course	Pain Sciences - Theory
Course Code	MPT059
Credit per Semester	1 credit
Hours per Semester	20 hours
Name of the Course	Pain Sciences - Practical
Course Code	MPT060
Credit per Semester	2 credits
Hours per Semester	80 hours

Course Outcomes**Student will be able to**

CO 1	Recognize and describe the mechanistic descriptors for the clinical classification of pain
CO 2	Characterize the central nervous system pathways that modulate nociceptive transmission and appraise how these systems may contribute to pain
CO 3	Discuss the complex changes that can occur in motor function in association with pain and describe how a plan of care would be individualized to address unhelpful movement behaviors (e.g., fear-avoidance)
CO 4	Use valid and reliable tools for measuring pain and associated symptoms to assess and reassess related outcomes as appropriate for the clinical context and population.

Unit	Topics	No. of Hrs.
1	Multidimensional Nature Of Pain <ul style="list-style-type: none"> Epidemiology of pain as a public health problem with social and ethical perspectives Definition of pain and the multidimensional nature of the pain experience. Impact of age, gender, family, culture, spirituality, and the environment on the pain experience 	20
2	Physiology of Pain <ul style="list-style-type: none"> Nociceptors in different tissue types (i.e. skin, muscle, joint, viscera). Afferent innervations of the spinal cord from different tissue types, and central processing of pain. Peripheral sensitization, central sensitization and changes associated with pain perception <p>Current theories of the anatomical, physiological, and psychological basis of pain and pain relief.</p>	10
2	Pain Assessment And Measurement	20

	<ul style="list-style-type: none"> Differences between acute and chronic pain and the implications for assessment Assessment measures for primary domains of pain: sensory, affective, cognitive, physiological and behavioural Strengths and limitations of commonly used measures for different pain dimensions 	
3	Management Of Pain <ul style="list-style-type: none"> Patient Education Behavioural Management Exercise 	25
	Practicals: Case presentations on pain assessment using biopsychosocial model of pain , use of questionnaires in pain assessment, impact of patient education on pain perception, behavioral modification to pain	25
Total		100

EXAMINATION SCHEME**Theory question paper pattern for University Semester Examination under CBCS - 80 marks**

Question type	No. of questions	Marks/question	Question X marks	Total marks
Section 1				
Short answer questions	4 out of 5	10	4 x 10	40
Section 2				
Long answer question	2 out of 3	20	2 x 20	40
				Total= 80

Internal examination pattern (Theory): 40marks

Question type	No. of questions	Marks/question	Question X marks	Total marks
Short answers	4	5	4x5	20
Long answers	2	10	2x 10	20
Total				Total= 40

Practical question paper pattern for University Semester Examinations under CBCS - 80 marks

Exercise	Description	Marks
Q No 1	Long Case (Emphasis on assessment and outcome measures)	40
Q No 2	OSCE station (4)	40
		Total = 80

Internal Examination Pattern (Practical): 40 Marks

Short Case(Emphasis on Emphasis on assessment and outcome measures)	20
OSCE station (2)	20
	Total = 40 M

Internal Assessment marks will be weighted out of 20 marks, for theory and practical, respectively

Recommended books

1. Mechanisms and Management of Pain for the Physical Therapist. Kathleen A. Sluka, Intl Assn for the Study of Pain; 2007, 1st edition.
2. Therapeutic Neuroscience Education: Teaching Patients about Pain; Adriaan Louw and Emilio Puentedura. Orthopedic Physical Therapy Products; 2013, 1st edition.
3. Explain Pain, David S Butler, Noi group Publications; 2013, 2nd edition.

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Physiotherapy in Family and Community health
Course Code	MPT061
Credit per Semester	1 credit
Hours per Semester	20 hours
Name of the Course	Physiotherapy in Family and Community health
Course Code	MPT062
Credit per Semester	2 credits
Hours per Semester	80 hours

Course Outcomes	
CO 1	Understand the scope of Physiotherapy in community rehabilitation.
CO 2	Integrate Physiotherapy in Primary health care.
CO 3	Understand professional issues for Physiotherapists in family centered and community based settings.

Unit	Topics	No. of Hrs.
1	Primary Health care centers: WHO guidelines for a Primary health care center	3
2	National Health programs and policies: Various programs, Implementations and benefits.	5
3	Role of Physiotherapy in Primary Health care centers: Holistic approach to treatment and management including Physical, Psychological, financial and social context; Treatment effectiveness including preventive strategies with patients and caregivers as primary decision makers.	5
4	Scope of Physiotherapy in Industrial based Rehabilitation: cumulative traumatic injuries, Injury prevention, Return to work and vocational training.	5
5	Ergonomics: Principles and Strategies	2
6	Practical: Case presentations, Ergonomic program design for various professionals, community rehabilitation program design for rural and urban areas.	80
	Total	100

EXAMINATION SCHEME**Theory question paper pattern for University Semester Examination under CBCS - 80 marks**

Question type	No. of questions	Marks/question	Question X marks	Total marks
Section 1				
Short answer questions	4 out of 5	10	4 x 10	40
Section 2				
Long answer question	2 out of 3	20	2 x 20	40
				Total= 80

Internal examination pattern (Theory): 40marks

Question type	No. of questions	Marks/question	Question X marks	Total marks
Short answers	4	5	4x5	20
Long answers	2	10	2x 10	20
Total				Total= 40

Practical question paper pattern for University Semester Examinations under CBCS - 80 marks

Exercise	Description	Marks
Q No 1	Long Case (Emphasis on identification of structural and functional impairment and management approach based on community and family rehab)	40
Q No 2	OSCE station (4)	40
		Total = 80

Internal Examination Pattern (Practical): 40 Marks

Short Case1(Emphasis on identification of structural and functional impairment and management approach based on community and family rehab)	20
OSCE station (2)	20
Total = 40 M	

Internal Assessment marks will be weighted out of 20 marks, for theory and practical, respectively
Recommended books-

1. Waqar Naqvi- Physiotherapy in community health and rehabilitation- Jaypee brothers.
2. Paul Kaplan- Industrial Rehabilitation, 3rd edition.

Name of the Programme	Master of Physiotherapy (MPT) Specialty - Musculoskeletal Physiotherapy
Name of the Course	Exercise Prescription
Course Code	MPT048
Credit per Semester	2 credits
Hours per Semester	40 hours

Course Outcomes**Student will be able to**

CO 1	Demonstrate the ability to obtain appropriate medical history, informed consent, and other pertinent information prior to exercise prescription.
CO 2	Demonstrate the ability to instruct the patients in the use of equipment and exercise procedures.
CO 3	Evaluate, design, and implement customized and group exercise programs based on history and fitness level of patients.
CO 4	Demonstrate the use of frequency, intensity, time and type of exercise in designing a protocol for patients.
CO 5	Demonstrate an understanding for components incorporated into an exercise session and their proper sequence

Unit	Topic	Hours
1	Assessment, Prescription and Exercise adherence: Assessment of various musculoskeletal impairments, dosimetry and progression of exercises, patient compliance.	10
2	Exercise prescription for Healthy individuals: FITT principle of exercise prescription, application and interpretation of FITT principle.	10
3	Pharmacological influences on exercise prescription: effects, side effects and interaction of the drugs prescribed with the body systems.	5
4	Home program: Prescription of home exercise program based on the resources available.	10
5	Deconditioning: Adverse effects of deconditioning, retraining time frame.	5
	Total	40

EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Internal Examination Pattern (Practical): 40 Marks

Short Case (exercise prescription for various conditions)	20
OSPE Stations (2)	20
	Total = 40 M

Recommended Text books-

1. Heyward V H (2010)- Advanced fitness assessment and exercise prescription (6th edition), Champaign, IL: Human kinetics.
2. American College of sports medicine (2013), ACSM guidelines for exercise testing and prescription (9th edition), Philadelphia, PA; Lippincott Williams and Wilkins.

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Sports for Fitness
Course Code	MPTAEEC006
Credits per semester	2 credits
Hours per semester	60 hours

Course Outcomes	
Student will be able to	
CO 1	Apply the concepts of exercise physiology and training methods to different population.
CO 2	Understand the training methodology for improving sports performance in particular domain of sports
CO 3	Select specific characteristics of sports potential and design an appropriate training plan

Sr. No.	Topics	No. of Hrs.
1	Principles of Training Methodology	2
2	Overtraining and Recovery Techniques	2
3	Periodization - Principles and guidelines, Developing the Yearly Plan	5
4	Methods of Programme Evaluation - Field Testing	5
5	Program Design- Resistance training, endurance training , plyometric, cross fit	6
Practicals: On filed assessment of sports injuries, Designing of rehabilitation program, case presentations.		40
Total		60

EXAMINATION SCHEME

Theory question paper pattern for College Examination under CBCS - 40 marks

Question type	No. of questions	Marks/ question	Question marks X	Total marks
Short answer questions	8 out of 9	5	8 x 5	40
				Total= 40

Internal Examination Pattern (Practical): 40 Marks

OSCE 1	20
OSCE 2	20
Total = 40 M	

Recommended books:

1. Arnheim DD, Prentice WE, Ingersoll CD. Principles of athletic training.
2. Bompa TO, Buzzichelli C. Periodization-: theory and methodology of training. Human kinetics; 2018 Jan 5.
3. Pfeiffer RP, Mangus BC, Trowbridge C. Concepts of athletic training. Jones & Bartlett Publishers; 2014 Mar 19.

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Prosthetics and Orthotics
Course Code	MPTAEEC007
Credits per semester	2 credits
Hours per semester	60 hours

Course Outcomes	
Student will be able to	
CO 1	Apply the concepts of exercise physiology and training methods to different population.
CO 2	Understand the training methodology for improving sports performance in particular domain of sports
CO 3	Select specific characteristics of sports potential and design an appropriate training plan

Sr. No.	Topics	No. of Hrs.
1	Introduction to Prosthetics and Orthotics: Types of Prosthetic and Orthotic devices, Indications, contraindications for Prosthetic and Orthotic.	5
2	Evaluation of Deformities- Upper limb, Lower limb and Spinal	5
3	Rationale for prescription of Prosthetic and Orthotic devices.	5
4	Recent advances in Prosthetic and Orthotic devices	5
5	Practical: Demonstration of moulding and fabrication of devices and splints for Upper limb, Lower limb and spine	40
Total		60

EXAMINATION SCHEME**Theory question****paper pattern for College Examination under CBCS - 40 marks**

Question type	No. of questions	Marks/ question	Question marks X	Total marks
Short answer questions	8 out of 9	5	8 x 5	40
				Total= 40

Internal Examination Pattern (Practical): 40 Marks

OSCE 1	20
OSCE 2	20
Total = 40 M	

Recommended books:

1. Basic Principles of designing Prosthesis and Orthosis; Miller; 4th Ed

Name of the Programme	Master of Physiotherapy (MPT) Specialty –Musculoskeletal Physiotherapy
Name of the Course	Intellectual property rights and publication ethics
Course Code	MPTAEEC005
Credits per semester	2 credit
Hours per semester	40 hours

Course Outcomes	
Student will be able to	
CO 1	Describe types of intellectual property, copyrights, patent, laws and rights based on intellectual property,
CO 2	Apply ethics of publication in journals, different methods of misconduct carried out during

Sr. No.	Topics	No. of Hrs.	No of practical hours
1	Introduction to Intellectual property rights	1	5
2	Patents and Trademarks	1	5
3	Copyright and related laws	1	5
4	Introduction to Publication ethics – Aim and Scope	2	5
5	Categories of publication / scientific misconduct – Falsification, Fabrication of data, Plagiarism, Unjustified authorship, Duplicate publication, Redundant publication.(Salami publication), Sanctions	2	5
6	Research ethics in journal articles – Human rights, privacy & confidentiality, Cultural heritage, Biosecurity	2	4
7	Ethical Standards and Process – Authorship, authorship disputes, Funding, Peer review, Conflicts of interest	2	5
8	Appeals and corrections	2	3
9	Data protection legislation	2	3
Total		15	40

EXAMINATION SCHEME

This course will not be assessed as Semester University Examination. Assessment will be conducted as Internal College Exam

Theory question paper pattern for internal assessment under CBCS - 40 Marks

Question type	No. of questions	Marks/ question	Question X marks	Total marks
Section 1				
Short answer questions	8 out of 10	5	8x5	40
				Total= 40

Reference Books:

1. Campbell, R., Pentz, E., & Borthwick, I. (Eds.). (2012). *Academic and professional publishing*. Elsevier.
2. Mayer, T., & Steneck, N. (2012). *Promoting research integrity in a global environment*. World Scientific.