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MGM INSTITUTE OF HEALTH SCIENCES

Accredited by NAAC with 'A' Grade

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

Sector-01, Kamothe, Navi Mumbai - 410 209

Tel 022-27432471, 022-27432994, Fax 022 - 27431094

E-mail : registrar@mgmuhs.com ; Website : www.mgmuhs.com

CHOICE BASED CREDIT SYSTEM (CBCS)

(With effect from 2019-20 Batches)

Curriculum for Master of Physiotherapy

(Sports Physiotherapy)

Approved as per BOM –57/2019, [Resolution No. 3.2.2.11 (i)], Dated 26/04/2019

Dr. Rajesh B. Goel
Registrar
MGM Institute of Health Sciences
(Deemed University u/s 3 of UGC Act, 1956)
Navi Mumbai- 410 209

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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.

1. Description of Degree

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 andteaching– 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 competiveness 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.

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 abovementioned knowledge and skills for entry into practice after being awarded a bachelor degree in the subject of " Physiotherapy" from a recognized 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.

II. 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

III. 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, under graduate 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 **s**tudent should be able to apply analytical thought to a body of knowledge, analyse 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 **s**tudents 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 cardiovascular and pulmonary Physiotherapy and Fitness, 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 learningoutcomes that a student should be able to demonstrate on completion of a degree levelprogram include academic, personal, behavioral, entrepreneurial andsocial competencies. It is expected that astudent completing a particular course must have a level of understanding of thesubject and its sub-areas in consonance with the learning outcomes mentionedat 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 programSpecialty - Sports Physiotherapyare summarized below:

PO 1	To develop skills in cardiopulmonary resuscitation and physiotherapy care of patient in critical care units
PO 2	To develop behavioral skills and humanitarian approach while communicating with patients, relatives, society at large and co-professionals
PO 3	To understand the moral, ethical values and legal aspects concerned with Physiotherapy management, demonstrate professional ethical behavior towards client and maintain respect, dignity and confidentiality of patients
PO 4	To demonstrate academic skills and knowledge related to understanding the structural and functional of human body, applied anatomy, physiology in physiotherapy practicepertaining to cardiovascular and pulmonary system with sound clinical reasoning, detailed knowledge of exercise physiology, cardio-pulmonary rehabilitation and fitness.
PO 5	To identify the biopsychosocial component of pain and dysfunction
PO 6	To gain knowledge of biomechanics of human movement and its applications in cardio-respiratory conditions and application inPhysiotherapy management.
PO 7	To integratePhysiotherapy evaluation skills to arrive at a Functional/ Physical Diagnosis in cardiovascular and pulmonary conditions, formulate treatment goals, and use sound clinical decision-making skills to assess and manage all cardiopulmonary conditions and improve fitness
PO 8	To be able to demonstrate skill in maneuvers of respiratory muscle strengthening, manual therapy techniques to improve lung hygiene, breathing control, ergonomics, cardiac and pulmonary rehabilitation,
PO 9	To demonstrate ability of critical thinking, scientific enquiry, experiential learning, personal finance, seek funding for research, entrepreneurship and managerial skills related to task in day-to-day work for personal & societal growth, develop innovative devices and techniques for treatment, produce intellectual property in specialized are of interest,
PO10	To develop and utilize basic computer applications for data management, data storage, generating data bases and for research purposes.

VII. Program Specific Outcomes for Master of Physiotherapy Program Specialty - Sports 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 techniquesand utilize appropriate, evidence-based skills, techniques and practice in managing andtreating 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 ethicalimplications 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

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VIII. Course learning outcomes:

Course Learning outcomes aredefined 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 gradecertificate 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 1st,3rd,	August – January
Even Semesters 2nd, 4th	February – July

2.2Credits:

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 Knowledgeenhancement.

   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 theCourse
b) LearningObjectives
c) Unitsfor syllabusContent
d) LearningOutcomes
e) References
    a. Text Books – 2
    b. Reference Books –2
    c. Web Resources – 2 WebPortals

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

Structure of CBCS MPT Curriculum
Sports Physiotherapy

Semester I		Semester II	
Course Code	**Core Course**	**Course Code**	**Core Course**
MPT049	**Musculoskeletal Anatomy and Soft Tissue Mechanics**	**MPT052**	**Regional Sports Injuries (Upper & Lower Extremity)**
MPT050	**Exercise and Sports Physiology**	**MPT053**	**Motor Control & Skill Acquisition**
MPT051	**Sports Biomechanics and Performance Assessment & Enhancement**		
Semester III		**Semester IV**	
Course Code	**Core Course**	**Course Code**	**Core Course**
MPT054	**Regional Sports Injuries (Head, Neck, Face & Spine)**	**MPT058**	**Clinical Sports Medicine**
MPT055	**Pediatric & Adolescent Sports**	**MPT059**	**Pain Science**
MPT056	**Geriatric and Female Athletes**	**MPT060**	**Sports Nutrition**
MPT057	**Sports Psychology**		

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 (Credits= 2/3)			
SrNo	Elective Code	Title	Semester
1	MPTAECC001	Cardiopulmonary Resuscitation	1
2	MPTAECC002	Research methods	1
3	MPTAECC003	Administration, management , professional ethics	1
4	MPTAECC004	Teaching technology	1
5	MPTAECC005	Legal issues and professional ethics	2
6	MPTAECC006	Intellectual property rights and publication ethics	4
7	MPTAECC007	Athletic Training	2

List of Ability Enhancement Elective Courses (Credits=2)			
SrNo	Elective Code	Title	Semester
1	MPTAEEC008	Kinanthropometry	4
2	MPTAEEC009	Physical activity & Public Health	4

List of Skill Enhancement Elective Courses (Credits=2)			
SrNo	Elective Code	Title	Semester
1	MPTSEC004	Kinesiotaping	2
2	MPTSEC005	Pilates	2
3	MPTSEC003	Applications of Yoga in Physiotherapy	3
List of Generic Elective Courses (Credits=2)			
SrNo	Elective Code	Title	Semester
1	MPTGEC001	Medical Device Innovation	2
2	MPTGEC002	Scientific Writing	2

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

XIII. Framework of Curriculum

Semester I

MPT - Sports Physiotherapy																			
Semester I (20 weeks teaching/ 40 hours/week)																			
			Credits per week				Hours per			Hours per semester				Marks					
Code	Course Title	Course Description	T/S	P/RP	CLT	Total Credits	T/S	P/RP	CLT	T/S	P/RP	CLT	Total hours	IA Theory	Semester Exam Theory	IA Practical	Semester Exam Practical	Total
MPT049	Musculoskeletal Anatomy and Soft Tissue Mechanics	Core Theory	2	1		3	2	2		40	40		80	40#				
MPT050	Exercise and Sports Physiology	Core Theory	3			3	3			60			60	20*	80			100
MPT051	Sports Biomechanics and Performance Assessment & Enhancement	Core Theory and practical	3	1		4	3	2		60	40		100	20*	80	20*	80	200
MPTAECC001	Cardiopulmonary resuscitation	Ability Enhancement Compulsory Course	1	1		2	1	2		20	40		60	40 #				
MPTAECC002	Research methods	Ability Enhancement Compulsory Course	2			2	2			40			40	40 #				
MPTAECC003	Bioethics, Health management and Administration	Ability Enhancement Compulsory Course	3			3	3			60			60	40 #				
MPTAECC004	Teaching Technology	Ability Enhancement Compulsory Course	2	1		3	2	2		40	40		80	40 #				
	Clinical training				5	5			15			300	300					
	Research Protocol			1		1		2			40		40					
	Total		15	5	5	26	15	10	15	300	200	300	800					300

*** Internal Assessment Exam will be conducted for 40 marks and be calculated out of 10/20 for inclusion in Semester Exam**
 # College Exam

Semester II

MPT - Sports Physiotherapy																		
Semester II (20 weeks teaching/ 40 hours/week)																		
			Credits per week				Hours per week			Hours per semester				Marks				
Code	Course Title	Course Description	T/S	P/RP	CLT	Total Credits	T/S	P/RP	CLT	T/S	P/RP	CLT	Total hours	IA Theory	Semester Exam Theory	IA Practical	Semester Exam Practical	Total
MPT052	Regional Sports Injuries (Upper & Lower Quadrant)	Core Theory &Practical	3	1		4	3	2		60	40		100	20*	80	20*	80	200
MPT053	Motor Control & Skill Acquisition	Core Theory &Practical	3	1		4	3	2		60	40		100	20*	80			100
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		60	40 #				
	Research Project			2		2		5			100		100					
	Clinical Training				6	6			18			360	360					
	Total		11	5	5	22	11	11	16	220	220	320	800					300

*** Internal Assessment Exam will be conducted for 40 marks and be calculated out of 10/20 for inclusion in Semester Exam**
 # College Exam

Semester III

MPT - Sports Physiotherapy																		
Semester III (20 weeks teaching/ 40 hours/week)																		
			Credits per week				Hours per week			Hours per semester				Marks				
Code	Course Title	Course Description	T/S	P/RP	CLT	Total Credits	T/S	P/RP	CLT	T/S	P/RP	CLT	Total hours	IA Theory	Semester Exam Theory	IA Practical	Semester Exam Practical	Total
MPT054	Regional Sports Injuries (Head, Neck, Face & Spine)	Core Theory and Practical	2	1		3	2	2		40	40		80	20*	80	20*	80	200
MPT055	Pediatric & Adolescent Sports	Core Theory and Practical	2	1		3	2	2		40	40		80	20*	80			100
MPT056	Geriatric and Female Atheletes	Core Theory and Practical	2	1		3	2	2		40	40		80	40#				
MPT057	Sports Psychology	Core Theory and Practical	2	1		3	2	2		20	40		60	40#				
MPTAECC009	Athletic Training	Ability Enhancement Compulsory Course	2			2	2			40			40	40#				
MPTSEC003	Application of Yoga in Physiotherapy	Skill Enhancement Course	1	1		2	1	2		20	40		60	40 #				
	Research Data Collection and Analysis			2		2		4			80		80					
	Clinics				5	5			16			320	320					
	Total		12	6	5	23	12	12	16	240	240	320	800					300

*** Internal Assessment Exam will be conducted for 40 marks and be calculated out of 10/20 for inclusion in Semester Exam**
 # College Exam

Semester IV

MPT - Sports Physiotherapy

Semester IV (20 weeks teaching/ 40 hours/week)

			Credits per week				Hours per week			Hours per semester				Marks				
Code	Course Title	Course Description	T/S	P/RP	CLT	Total Credits	T/S	P/RP	CLT	T/S	P/RP	CLT	Total hours	IA Theory	Semester Exam Theory	IA Practical	Semester Exam Practical	Total
MPT058	Clinical Sports Science	Core Theory and Practical	2	1		3	2	2		40	40		80	20*	80	20*	80	200
MPT059	Pain Science	Core Theory and Practical	1	2		3	1	4		20	80		100	20*	80	20*	80	200
MPT060	Sports Nutrition	Core Theory	3			3	3			60			60	40 #				
MPT061	Sports Pharmacology	Core Theory	3			3	3			20			20	40 #				
MPTAEEC008/009	Kinanthropometry/Physical activity & Public Health	Ability Enhancement Elective Course	2			2	2			40			40	40#				
MPTAEEC010/011	Ergonomics/Stress Management	Ability Enhancement Elective Course	1			1	1			20			20	40 #				
MPTAECC005	Intellectual Property Rights and publication ethics	Ability Enhancement Compulsory Course	2			2	2			40			40	40 #				
	Research Dissertation submission and manuscript preperation			2		2		4			80		80					
	Clinical Training				5	5			16			320	320					
	Total		11	5	6	24	11	10	19	240	200	380	760					400

*** Internal Assessment Exam will be conducted for 40 marks and be calculated out of 10/20 for inclusion in Semester Exam**
 # College Exam

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 -- Sports 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

5.2Table 3: Cumulative 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 ≥ 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: Astudent 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 be4 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 IIin 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 Universitythrough Director of MGMSOP at least two weeks before commencement of Universitytheory 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

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				**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.

15.4Internal Examination

Mid Semester Examination Pattern (Practical): 40 Marks

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

15.5Assessment 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.

15.8Research Project report:-

MPT student should submit a suitable research project topic forwarded by the guide toMGM 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 guideshould 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.

XVI. 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 (Si) = ∑(Ci x Gi) / ∑Ci

where Ci is the number of credits of the ith course and Gi is the grade point scored by the student in the ith 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 = ∑(Ci x Si) / ∑ Ci

where Si is the SGPA of the ith semester and Ci 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 SGPA : 6.9	Credit : 22 SGPA : 6.8	Credit : 25 SGPA : 6.6	Credit : 26 SGPA : 6.0
Semester 5	**Semester 6**		
Credit : 26 SGPA : 6.3	Credit : 25 SGPA : 8.0		
Illustration for CGPA			

Thus,

$$\text{CGPA} = \frac{20 \times 6.9 + 22 \times 6.8 + 25 \times 6.6 + 26 \times 6.0 + 26 \times 6.3 + 25 \times 8.0}{144} = 6.75/\text{B+}$$

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 semesterwithin 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	6.0 1- 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 - Sports Physiotherapy

Semester-I (0-6 months)

Course Code	Course Title	Course Description	Theory/ Seminar Hours	Practical/ Research Hours	Clinical Hours
MPT049	Musculoskeletal Anatomy and Soft Tissue Mechanics	Core Theory	40	40	
MPT050	Sports Physiology	Core Theory	60		
MPT051	Sports Biomechanics and Performance Assessment & Enhancement	Core Theory and practical	40	40	
MPTAECC001	Cardiopulmonary resuscitation	Ability Enhancement Compulsory Course	20	40	
MPTAECC002	Research methods	Ability Enhancement Compulsory Course	40		
MPTAECC003	Bioethics, Health management and Administration	Ability Enhancement Compulsory Course	60		
MPTAECC004	Teaching technology	Ability Enhancement Compulsory Course	40	40	
	Clinical Training				300
	Research Protocol			40	

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Musculoskeletal Anatomy and Soft Tissue Mechanics**
Course Code	**MPT049**
Credit per Semester	**3 credits**
Hours per Semester	**80 hours**

Learning Outcomes	• To impart detailed knowledge of anatomy and mechanics of the musculoskeletal system enabling students to discuss rationale of Physiotherapy management with respect to anatomical structures and pathomechanical dysfunction. • To revise concepts related to general anatomy based on musculoskeletal system and soft tissue behaviour to injury and exercise • To revise the anatomical structure of the musculoskeletal system. The student will be able to correlate structural impairment with functional impairment. To revise Basic Biomechanics of Upper Extremity, Lower extremity and Spine. • Pathomechanics: To be able to describe and interpret effects of injury and disease on working structure and function of bones, tendons and ligaments. • Practical/seminars : To be able to understand and apply the concepts of mechanical behaviour to dysfunctions and pathomechanial changes to soft tissues.

Course Outcomes	
Student will be able to	
CO 1	The student will be able to identify & describe anatomical aspects of bones, tendons and ligaments as it relates to injury.
CO 2	Application of knowledge of musculoskeletal system on functional impairment based on ICF model
CO 3	To understand the Anatomical basis of various musculoskeletal conditions.
CO 4	To identify and interpret general characteristics, material properties, appropriate constitutive model, and adaptation potential for tissue
	Expected Competencies : Student will be able to
EC 1	Correlate the anatomical and mechanical changes to soft tissues with loading
EC2	Examine the relationship between extent of soft tissue damage and mechanical dysfunctions
EC3	Assess and interpret the clinical findings into mechanical terms

Unit	Topics	No. of Hrs.
1	**Systemic Anatomy** Review of musculoskeletal anatomy of upper extremity, lower extremity and spine including their muscle actions and soft tissue relationships	**15**
2	Changes to musculoskeletal system occurring with growth ,ageing, injury and diseases	**15**
3	Material properties of bones, tendons and ligaments: Viscoelasticity, elastic properties, Stress, Strain , force and torque, muscle length tension relationships, factors affecting force production	**20**
4	**Muscular System** **a.** Muscle Fiber Arrangement **b.** Functional Characteristics of Muscle Tissue **c.** Length-Tension Relationship in Muscle Tissue **d.** Types of Muscle Contraction affecting force production **e.** Angle of Pull **f.** Kinetic Chains	**15**
5	**Arthrokinematics**– Regional biomechanics of upper extremity, lower extremity and Spine biomechanics 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	**15**
Total		**80**

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				**Total= 40**

RECOMMEMDED TEXT BOOKS

Snell's Anatomy
Textbook of physiology- Guyton
Clinical Kinesiology and Anatomy- Lynn S. Lippert
Basic Biomechanics- Susan J Hall
Kinesiology of musculoskeletal system- Carolyn Oatis

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Exercise and Sports Physiology**
Course Code	**MPT050**
Credit per Semester	**3credits**
Hours per Semester	**60 hours**

Learning Outcomes	• To impart detailed knowledge regarding physiological effects and adaptations to achieve optimal health and human performance efficiency in sports and exercise • To assess the main changes of cardio-circulatory, respiratory and metabolic parameters in athletes involved in aerobic and anaerobic sports • To apply and adopt experimental methods to gain new knowledge within Sports physiology, and have practical skills relevant to perform the tests • To understand the effects of aerobic and anaerobic sports on performance evaluation • Practical/seminars: To be able to perform basic physiological tests and interpret the findings in context of performance evaluation and enhancement

Course Outcomes	
Student will be able to	
CO 1	Identify and describe the limitations for the energy delivery and utilization, as well as the muscular and neural limitations for aerobic and anaerobic sports
CO 2	Apply application of system concepts behind sports performance.
CO 3	Understand the advancements in understanding human response to environmental stresses and associate factors for maximizing movement performance
CO 4	present, evaluate and discuss scientific results in domain areas of sports and exercise physiology
	Expected Competencies : Student will be able to
EC1	Evaluate and record physiological parameters pertaining to changes in systemic functions with exercises
EC2	Evaluate and record – general anthropometry and demographic characteristics, and correlate the systemic adaptations to different intensity of exercises

EC3	Record and interpret the basic physiological parameters like blood pressure, pulse, breath rate, and maximal oxygen uptake using direct and indirect methods
EC4	Interpret energy expenditure during rest and activity using direct and indirect methods
EC5	Interpret basic ECG characteristics in terms of exercise effort and changes to heart function

Unit	Topics	No. of Hrs.
1	**Sports Metabolism** a. Carbohydrate, Protein and Fat Metabolism b. Energy balance and transfer, calorimetry, Resting metabolism and metabolic activity, Oxidative processes. Steady state. c. Transient phases and oxygen deficit d. Lactate production. e. Alactacid anaerobic energy sources f. Maximal aerobic power and limiting factors g. Chronic fatigue in sportspersons	**15**
2	**Physiology of Endurance Performance** a. Cardio-vascular responses to physical exercise b. Respiratory response to physical exercise and training for aerobic sports c. Hormonal control of metabolic processes and circulation during exercise. Main hormonal response to physical exercise, their mechanism and physiological significance d. Functional modifications induced by training on the muscles: Nervous and hypertrophic factors and their combination. Changes in the muscle vessels. Effects of detraining and recovery after retraining **Physiology of Strength Performance** a. Types of muscle fibers, Generation of muscle force b. Factors influencing force generation, Strength curve and rate of force development for various muscles c. Measuring muscular performance, Muscle size, Muscle hypertrophy and hyperplasia d. Physiological adaptation in response to resistance training, Delayed Onset Muscle Soreness (DOMS)	**25**
3	**Special Considerations**: a. High Altitude: Physiological and metabolic responses to hypoxia, Short-term and long term changes to hypobaric hypoxia, acclimatization, acute mountain sickness, high-altitude pulmonary oedema (HAPE)	**20**

	b. Space Physiology & Health: Immune changes and environmental stress, effects of microgravity on muscle tendon unit, melatonin and sleep-unrelated functions c. Differently abled : Exercise adaptations and program design for Paralympic athletes	
Total		**60**

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.

Recommended books-

1. Exercise physiology nutrition, energy, and human performance
2. Text book of Work Physiology Physiological basis of exercise William D. McArdle, Frank I. Katch, Victor L. KatchAstrand, P.-O. and Rodahl, K

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Sports Biomechanics and Performance Assessment & Enhancement**
Course Code	**MPT053**
Credit per Semester	**4credits**
Hours per Semester	**100 hours**

Learning Outcomes	• To introduce the students about the concepts of biomechanics as it applies to sports technique and performance evaluation • To understand the different sports techniques and its mechanical understanding to enhance sports performance • To apply the acquired knowledge of sports mechanics into sports injury prevention and performance enhancement • Practical/seminars: To conduct sports techniques' assessment of sports like running, badminton, tennis, football.

Course Outcomes	
Student will be able to	
CO 1	To describe the biomechanical assessment of different sports
CO 2	To interpret biomechanical information related to technical fault as a risk factor for sports injury
CO 3	To be able to discuss and interpret mechanical faults in sports techniques towards injury prevention
CO 4	To Visualize and communicate sports performance to coaches
	Expected Competencies : Student will be able to
EC1	Conduct biomechanical assessment of sportsmen from different sports background
EC2	evaluate and record – general anthropometry and demographic characteristics, training history and plan clinical examination and field tests
EC3	Perform gait and technique analysis of sports like running, cricket and general technique analysis like squats, skipping and weightlifting
EC4	Perform strength and endurance testing in aerobic and anaerobic sports
EC5	Perform sports specific fitness tests with emphasis on testing and training performance indicators

Unit	Topics	No. of Hrs.
1	**Principles Of Assessment And Testing** • Purpose of assessment, formative and summative evaluations, factors that affect reliability and validity • Interview, Clinical Examination, Investigative Procedures and Field Tests	**10**
2	**Sports Performance Indicators** • Strength: Techniques of measurement (1RM, Multiple RM testing), Sources of measurement errors, Considerations for strength testing in anaerobic sports • Endurance: Static and dynamic muscle muscular endurance testing, Sources of measurement errors, Isometric and isotonic muscle testing using dynamometers, Cardiorespiratory fitness norms for athletes from aerobic energy dependent sports, field based tests for aerobic fitness • Plyometric, Agility, Speed and Quickness: Indications for testing, Safety considerations, field tests for ABQ(Agility, balance, Quickness)	**20**
3	**Biomechanical Analysis** • Fundamental concepts: Centre of gravity, Line of gravity, Axes and planes, Levers, force and its characteristics, Frictional forces • Impact, Elasticity, Principles of Spin and Rebound, Couple, moment, Principles of Lever, Rotator force, Gravity, Methods of finding Centre of Gravity, Principles of Equilibrium, • Fluid mechanics, principles of projectile Motion, Applications of Newton's Laws of motion, Units in linear and angular motion • Regional biomechanics: Upper extremity, Lower extremity and Spine Biomechanics	**15**
4	**Analytical Tools in Sports Biomechanics** • Force Platforms And Other Techniques Of Movement Analysis • Electromyography in Sports Movement Analysis: Equipment considerations, Experimental Procedures • Energy Cost analysis using Respiratory Gas analyser for evaluating Maximal Oxygen Uptake (VO_2 max.) • Videographic analysis of sports movements: Motion Capture technologies • Uses and application of Biomechanics in different sport like Football, cricket, Racquet sports, track and field	**15**
	Practicals: Biomechanical assessment of different sports movements including running, football, badminton, technique analysis for badminton serve, football kick to identify any trainable factors for injury prevention	**40**
	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. Brukner P. Brukner & Khan's clinical sports medicine. North Ryde: McGraw-Hill; 2012**.**
2. Bartlett R. Introduction to sports biomechanics: Analysing human movement patterns. Routledge; 2007 Oct 25.
3. Knudson D. Fundamentals of biomechanics. Springer Science & Business Media; 2007 May 28.

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

Learning Outcomes	• Successful completion of the course results in an AHA BLS Provider Card. • To learn skills of high quality cardiopulmonary resuscitation for victims of all ages • To practice delivery of the skills both as a single rescuer and a member of a multi rescuer team • To be able to recognize cardiac arrest, activate emergency response system early, and respond quickly and confidently

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, Life is Why activity	2
2	Adult BLS , Adult chain of survival Scene safety and assessment Adult compressions,AED and Bag Mask Device	3
4	Successful Resuscitation teams	2
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 Opioid associated life- threatening emergency	2
7	Adult, infant and child choking Relief of choking in a responsive adult or child Relief of choking in a unresponsive adult or child	3
8	Skills Practice on mannequin: Adult and child CPR	45
	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				**Total= 40**

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Research methods**
Course Code	**MPTAECC002**
Credit per Semester	**2 credits**
Hours per Semester	**40 hours**

Learning Outcomes	• To introduce the students to the concepts related to research and dissertation. • To understand thehow 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	To understand basic concept of research, design, problems & sampling techniques of research.
CO 2	To gain knowledge of various types of study designs and planning for the same
CO 3	Plan for a research study
CO 4	To 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	To understand sampling technique, research process, data collection, biostatics, correlation and statistical significance tests.
CO 8	To identify and to be able to participate in or conduct descriptive, explorative, survey studies in physical therapy practice with statistics.

	Expected Competencies : Student will be able to
EC1	Formulate a research proposal with a relevant research question, with definition of PICO-population /problem under study, intervention /exposure, comparison or control group and outcome measures. Identify study design and use appropriate guidelines like PRISMA, STROBE etc
EC2	To obtain ethical approval from designated ethics committee
EC3	To carry out a thorough review of literature using available search engines and other legitimate sources
EC4	To prepare a project budget and timeline
EC4	To identify reliable and valid outcome measures relevant to the project
EC5	To identify statistical methods to be employed in the project
EC6	To understand ethics of research and plagiarism

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** a. Research question, aim & objectives, assumptions, limitations & delimitations, variables, hypothesis – formation & testing b. 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** a. Data sources, technique of data collection, tools, reliability & validity, process of data collection, pilot study-method,Quantitative & qualitative analysis b. Graphical representation of data c. Conclusion & discussion d. Testing of hypothesis - Parametric tests-'t' tests, Tukeys following Oneway ANOVA,ANOVA (One way, two way – for parametric & nonparametric), ANCOVA, Multistage ANOVA	**10**

	e. Nonparametric tests-Chi-square test, Mann Witney U test, 'Z' testWilcoxon's matched pairs test. f. Correlation and regression analysis	
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				**Total= 40**

Recommended books-

1. Jyotikumar. Biostatistics.AITBS Publishers, India; 2010
2. Kothari CR. Research methodology: Methods and techniques. New Age International; 2004.
3. Negi K S. Biostatistics With Latest Mcqs. AITBS Publishers, India; 2002
4. Rao T Bhaskara. Methods Of Biostatistics. Paras Publishing

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Bioethics, Health management and Administration**
Course Code	**MPTAECC003**
Credit per Semester	**3 credits**
Hours per Semester	**60 hours**

Learning Outcomes	• To introduce the students to the concepts related to administration and management with professional ethics. • To understand theEthical codes of physical therapy practice as well as moral and legal aspects. • To be able to understand the constitutions and function of the Indian Association of Physiotherapy • To understand the role of W.H.O and W.C.P.T • Be able to impart the knowledge regarding the management skills in planning and implementing the administration in clinical practice • Acquire the knowledge regarding documentation & use of information technology in professional practice.

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 ofprofessional 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 quality at various levels of the health delivery system, teaching institution & self-employment and principles and concepts**.** b. Personal policies – Communication & Contact, administration principles based on goal & functions at large hospital / domiciliary set up / private clinical / academic institution. c. Methods of maintaining records – Budget planning d. Quality control **e.** Budget planning**.**	**15**
	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-

1. Ram C S. Pedagogy in Physiotherapy Education. AITBS Publishers.India.2013.
2. Gabard DL, Martin MW. Physical therapy ethics. FA Davis; 2010 Sep 2.

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Teaching Technology**
Course Code	**MPTAECC004**
Credit per Semester	**3 credits**
Hours per Semester	**80 hours**

Learning Outcomes	• To introduce the students to the concepts new trends, philosophies in teaching. • To understand theaims, philosophy and trend and issues in education. • To be able to understand the role of education philosophy, current issues and trends in education. • To be able to understand concepts of teaching and learning, curriculum formation. • To be able to describe the principals, measurement and evaluation in teaching. • Practical/seminars: To be able to conduct educational seminars and microteachings using new trends.

Course Outcomes	
Student will be able to	
CO 1	To describe the philosophies of education.
CO 2	To describe the role of education philosophies.
CO 3	To describe recent new trends and issues regarding education.
CO 4	To understand the concepts of teaching and learning with curriculum formation.
CO 5	To describe methods of teaching, and conduct educational seminars and microteachings using new trends in education.
	Expected Competencies : Student will be able to
EC1	To understand basic teaching methods and use them for conducting micro teaching session- didactic class, problem based learning session, experiential learning, on field learning
EC2	Formulate MCQs, prepare OSPE and OSCE stations,
EC3	To assist in conducting practical sessions for undergraduate students

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, standard tools.	**5**
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	**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

Recommended books-

1. Ram C S. Pedagogy in Physiotherapy Education. AITBS Publishers.India.2013.
2. Gabard DL, Martin MW. Physical therapy ethics. FA Davis; 2010 Sep 2.
3. Grayson E. Ethics, injuries and the law in sports medicine.

Semester-II (7-12 months)

Course Code	Course Title	Course Description	Theory/ Seminar Hours	Practical/ Research Hours	Clinical Hours
MPT052	Regional Sports Injuries (Upper & Lower Quadrant)	Core Theory &Practical	60	40	
MPT053	Motor Control and Skill Acquisition	Core Theory &Practical	60	40	
MPTAECC005	Legal issues and professional ethics	Ability Enhancement Compulsory Course	40		
MPTGEC001	Medical Device Innovation	Generic Elective Course	40		
MPTGEC002	Scientific Writing	Generic Elective Course	40		
MPTSEC004	Kinesiotaping	Skill Enhancement Elective Course	20	40	
MPTSEC005	Pilates	Skill Enhancement Elective Course	20	40	
	Research Project				100
	Clinical Training				360

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Regional Sports Injuries (Upper & Lower Quadrant)**
Course Code	**MPT052**
Credit per Semester	**4 credits**
Hours per Semester	**100 hours**

Learning Outcomes	• To impart detailed knowledge of upper extremity and lower extremity injuries in sports • To revise the concepts of anatomy and mechanics in understanding injury mechanisms • To revise the anatomical structure of the upper and lower extremity function in injury. The student will be able to correlate structural impairment with functional impairment • Mechanics and Pathomechanics: To be able to describe the normal biomechanics of sports injuries of upper and lower extremity. • To prepare a plan of care and injury prevention to enable safer and faster return to play following sports injuries. • Practical/seminars:To be able to perform the subjective and objective assessment and diagnose the condition with its ICF and pathophysiology.

Course Outcomes	
Student will be able to	
CO 1	Identify & describe anatomical aspects of sports injuries
CO 2	Apply knowledge of musculoskeletal system on functional impairment based on ICF model
CO 3	Understand the Anatomical basis of various musculoskeletal sports injuries
CO 4	Identify etiology of sports injuries of upper and lower extremity.
CO 5	Conduct sports specific musculoskeletal assessment and plan of care
	Expected Competencies: Student will be able to
EC1	Correlate structural and functional impairments to identify causes of increased work of breathing and reduced compliance of lung
EC2	Measure chest wall mobility , report pathomechanics

Unit	Topics	No. of Hrs.
1	Biomechanical techniques of Upper and lower extremity dependent sports: Throwing, Running, Swimming, Cycling, Lawn Tennis, Kabaddi, Football, Badminton.	**10**
2	Causes & Mechanism of Sports Injuries, prevention of sports injuries Pre-participation Screening And evaluation	**10**
3	**Upper Extremity Injuries:** **Mechanisms of injury, risk factors, assessment, diagnosis and management** • Common Fractures and dislocations of Upper extremity • Pathomechanics and risk factors of tendon and ligament injuries • Shoulder Joint Complex: Shoulder instability, Subacromial impingement syndrome, scuplar dyskinesia and akinesia, rotator cuff tears , labral tears • Elbow Joint: Proximal and distal radioulnar fracture, Monteggia Fracture, Galeazzi fracture, Medial Epicondylosis, Lateral epicondylosis, thrower's elbow, pulled elbow, elbow injuries in throwers, lawn tennis, cricket. • Hand and Wrist Complex: Carpal and metacarpal fractures, Proximal Interphalanegeal fractures, Jersey's finger, Ulnar Collateral Injuries, , Boutonniere deformity and Pseudo Boutonnaire Deformity, Proximal Interphalangeal Injuries, Keinbock disease, Tendinitis, Dequervein's Disease • Nerve Compression Syndromes: Median Nerve, Ulnar Nerve	**20**
4	**Lower Extremity Injuries:** **Mechanisms of injury, risk factors, assessment, diagnosis and management** • Hip, thigh and Pelvis: Hip fractures including acetabulum fractures, intertrochanteric and subtrochanteric fractures in contact sports, pelvic rim fractures, Apophyseal avulsion fractures and stress fractures in young athletes, Slipped Capital Femoral Epiphysis(SCFE), ITB Friction syndrome in runners, Hamstring and Quadriceps strain, groin pain, TFL Strain. • Knee Joint Complex: Knee Ligamentous injuries in contact sports like football, field hockey, patellar fractures, meniscal injuries, patellofemoral dysfunction and anterior knee pain in runners, Tibial Stress fractures • Foot and Ankle Complex: Achilles tendinosis in runners, footwear assessment and prescription, lateral ankle sprains, calcaneofibular sprain, Metatarsal Stress fracture in young athletes, plantar fasciitis, calcaneal spurs, Morton's neuroma, turf toe	**20**
Practical: Comprehensive athlete and sports specific objective assessment for sports injuries including pre-participation evaluation		**40**
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. Clinical Sports Medicine. Peter Brukner, Karim Khan
2. Athletic and Sport Issues in Musculoskeletal Rehabilitation. David Magee, Robert Manske, James E Zachazewski
3. Pathology and Intervention in Musculoskeletal Rehabilitation. David J. Magee, James E. Zachazewski.

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Motor Control & Skill Acquisition**
Course Code	**MPT051**
Credit per Semester	**3 credits**
Hours per Semester	**80 hours**

Learning Outcomes	• To introduce the students to the concepts related to motor control of movements and skill acquisition • Relate knowledge and understanding of anatomy and physiology to the control of movement • Apply knowledge of the basic mechanisms by which human movement is controlled by the central and peripheral nervous systems • Integrate practice of motor control with prerequisite knowledge of neuro-anatomy, neuro-physiology and biomechanics • Emphasize both basic and applied elements within the area of production of voluntary movements in exercise and sports

Course Outcomes	
Student will be able to	
CO 1	To describe the neuro-physiological changes associated with exercise/ training.
CO 2	To describe the role of central and peripheral nervous systems for an efficient human movement.
CO 3	To differentiate between skills of varying nature and contextualize based on population being exercised.
CO 4	To be able to prepare basic program for learners of different skillsets
	Expected Competencies: Student will be able to
EC1	Document the changes in movement errors in sports leading to sports injuries
EC2	Interpret the learning characteristics of amateur and professional sportsmen from different sports using skill level plots
EC3	Detect the changes in skill characteristics in different age groups by assessment of sports specific skill sets
EC4	Record and evaluate the fitness characteristics of school and college level athletes and comment on trainability of sportsmen

Unit	Topics	No. of Hrs.
1	**Neurological Basis of Movement** **a.** Muscle afferent contributions to motor control **b.** Skin, Vestibular and Visual Contributions to motor control **c.** Reflex Pathways, Sensory Integration in the Brain **d.** Control of Rhythmic Movement	**10**
2	**Motor Control: Issues And Theories** **a.** Mechanisms of motor control and learning from a neurophysiological perspective, Theories of motor control. **b.** Practical issues related to optimising motor skill acquisition **c.** Different types of learning - explicit and implicit memories. Procedural and declarative learning. **d.** Performance curves and measuring learning using spatial and temporal errors. Intra-individual variability of performance.	**10**
3	**Skill Acquisition** **a.** Characteristics of skilled performers. Learning new tasks - trial and error or reasoning (problem solving). **b.** Characteristics of the three major stages of learning. Differences in perception and decision-making in skilled versus novice athletes / performers **c.** Performance variability between novice and experts. Changes in attentional processes as movement skills are learnt, Kinematic changes that occur with skill acquisition	**10**
4	**Structuring Practice Sessions** **a.** Types of Practice Methods: Massed vs. distributed, blocked vs. random, constant vs. variable practice. Kinematic changes that occur with skill acquisition. **b.** Transfer of Motor Learning to different contexts related to sports and athletes **c.** Augmented Feedback in Motor Learning: Different type of feedback and their impact on movement learning including comparing extrinsic (augmented) feedback and intrinsic feedback	**10**
Practical – Comprehensive fitness evaluation of school and college level athletes and prepare programs for their sports and/or health specific fitness, effects of contextual motor tasks on skill acquisition and learning		**40**
Total		**80**

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

Recommended books-

1. Shumway-Cook A, Woollacott MH. Motor control: translating research into clinical practice. Lippincott Williams & Wilkins; 2007.
2. Williams AM, Hodges NJ, editors. Skill acquisition in sport: Research, theory and practice. Routledge; 2004 Jul 31.

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Legal issues and Professional ethics**
Course Code	**MPTAECC002**
Credit per Semester	**2 credits**
Hours per Semester	**40 hours**

Learning Outcomes	• This course will appraise the students about legal framework and professional ethics to Physiotherapy practice to ensure professional accountability and safety of patients and therapists. • To understand and abide by the professional ethics laid down by the statutory bodies in the field of Physiotherapy. • To understand clinical risk management and risk management in practice • To appraise Health & Safety Issues in Healthcare • To emphasize practical application of this knowledge and training into healthcare and medico-legal settings

Course Outcomes	
Students will be able to	
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** • 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**	**10**

	• Registration and the Role of the Statutory Bodies(WCPT, State Council, IAP) • Professional Conduct and Ethics • Education and the Physiotherapist	
3	**Patient-Centred Care** • Rights of Patients • Consent and Information Giving • Confidentiality and Privacy • Access to Records and Information	**10**
4	**Professional Accountability** • Direction and supervision • Liability, Negligence, Malpractice	**10**
5	**Legal Framework** • Definition and approach to Medicolegal 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 X marks	Total marks
Short answer questions	8 out of 9	5	8 x 5	40
				Total= 40

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

Recommended books-

1. Scott RW. Legal aspects of documenting patient care. Jones & Bartlett Learning; 2000..
2. McKinney JB, Howard LC. Public administration: Balancing power and accountability. ABC-CLIO; 1998.
3. Swisher LL, Hiller P, APTA Task Force to Revise the Core Ethics Documents. The revised APTA code of ethics for the physical therapist and standards of ethical conduct for the physical therapist assistant: theory, purpose, process, and significance. Physical therapy. 2010 May 1;90(5):803-24.
4. 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 - Sports Physiotherapy**
Name of the Course	**Medical Device Innovation**
Course Code	**MPTGEC001**
Credit per Semester	**2 credits**
Hours per Semester	**40 hours**

Learning Outcomes	• Understand technology innovation, product development, project and business management, intellectual property, regulatory affairs, clinical needs, entrepreneurship, emerging trends, globalization, reimbursement, and public policy. • Understand and apply a repeatable process for identifying and characterizing a significant unmet health need and inventing and evaluating a new technology to address it. • Gain exposure to the risks and challenges that are unique to medical device innovation and develop strategies for assessing and managing them. Work effectively in a multidisciplinary team.

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** • Orientation to the curriculum • Approaches in Device Innovation • Future scope	**2**
2	**Clinical Foundations of Medical Device Innovation** • Identifying need for device innovation: A problem-solution based approach to understand unmet healthcare needs	**2**
3	**Product Innovation and Development Management** • 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	**4**

	innovation from an engineering and business perspective.	
4	**Quality, Regulatory, and Manufacturing Management** • 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** • Understanding various policies and steps for safeguarding newly designed devices through filing of copyright and patent	**4**
6	**Technical Writing** • Develop the professional skills required to communicate technical information to a broad audience in an effective manner	**4**
7	**Visit to Healthcare centers** • Interviews, Surveys among clinicians to identify problem	**5**
8	**Visit to Macro environment of Technology incubation centers**: • Understanding basics of mechanics, availability, functioning and cost of resources	**5**
9	**Development of Product design** • Multi-disciplinary team building to develop prototype, work on fabrication, making of final product and plan for commercialization	**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
				Total= 40

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Scientific Writing**
Course Code	**MPTGEC002**
Credits per semester	**2 credits**
Hours per semester	**40 hours**

Learning Outcomes	• Describe the scientific writing process and its key stages • Reflect on what constitutes a research problem to be addressed in a scientific paper • Will be able to understand the types of articles and methods of literature search through Pubmed. • Will acquire skills of organising and composing a scientific paper, journal selection, use of software used in scientific writing. • Analyze and review scientific papers in terms of key message, consistency and justification; • Reflect on the benefits of working in teams in scientific writing and describe the rules of co-authorship; • Reflect on the ethics in scientific writing • Will be able to understand the editorial process for publication. • Develops skill to write a scientific proposal

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	**4**

	b. Plagiarism Software	
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

Semester-III (13-18 months)

Code	Course type	Title	Hours
MPT054	Regional Sports Injuries (Head, Neck, Face & Spine)	Core Theory and Practical	80
MPT055	Pediatric & Adolescent Sports	Core Theory and Practical	80
MPT056	Geriatric and Female Athletes	Core Theory and Practical	80
MPT057	Sports Psychology	Core Theory and Practical	60
MPTAECC009	Athletic Training	Ability Enhancement Compulsory Course	40
	Research Data collection and analysis		80
	Clinical training		360

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty –Sports Physiotherapy**
Name of the Course	**Regional Sports Injuries (Head, Neck, Face& Spine)**
Course Code	**MPT054**
Credits per semester	**3 credits**
Hours per semester	**80 hours**

Learning Outcomes	• Mechanics and Pathomechanics: To be able to describe the normal biomechanics of sports injuries of head, neck and spine. • To prepare a plan of care and injury prevention to enable safer and faster return to play following sports injuries. Practical/seminars: To be able to perform the subjective and objective assessment and diagnose the condition with its ICF and pathophysiology.

Course Outcomes	
Student will be able to	
CO 1	Identify & describe anatomical aspects of sports injuries involving head, neck, face and spine
CO 2	Apply knowledge of musculoskeletal system on functional impairment based on ICF model
CO 3	Have detailed knowledge regarding etiology of sports injuries involving head, neck, face and spine
	Expected Competencies : Student will be able to
EC 1	Assess , plan and implement management approach to injuries of head, neck, face and spine
EC2	Conduct an emergency assessment for injuries of head, neck, face and spine
EC3	Perform spine evaluation and identify red and yellow flag signs for referral

Sr. No.	**Topics**	**No. of Hrs.**
1	Causes & Mechanism of head, neck and spine injuries, prevention of sports injuries Pre-participation Screening And evaluation	**5**
2	**Head and Face** • Biomechanical basis of Traumatic Brain injuries Concussion Syndrome: Translational Acceleration and rotational acceleration theory	**30**

	• Incidence of TBI in Sports • Clinical Examination of head, neck and Face injuries: Injuries to the larynx, wounds to neck • Chest and Abdominal injuries: Fractured rib, ruptured spleen, liver, kidney, Retroperitoneal duodenal rupture, Injuries to the lower abdomen • Types of acute head and acute maxillofacial injuries: Fracture of the maxilla, zygomatic bone, mandible • Scalp injuries, focal brain injuries, diffuse brain injuries • Management guidelines for Concussion • Emergency Procedures for On-field Management of Head, neck and Face injuries • Preventive Approaches: Use of Protective equipments in sports, helmet fitting criteria, mouth guard prescription and protection, protective equipment maintenance	
3	**Neck and Spine** • Functional anatomy and biomechanics, pathomechanical risk factors for Spine injuries in Sports • Incidence of Spine injuries in Sports • Whiplash injuries, Cervical brachialgia, cervical rhizopathy, torticollis (wry neck), • Spinal Cord Injuries • Stable and unstable fractures: Fractures of thoracic and lumbar vertebrae • Neck Pain: Thoracic Cutlet Syndrome, Transient pain and paraesthesia ofthe upper extremity • Low back pain: Common mechanisms of back pain in sports, Red and yellow flags in the evaluation of back pain, Muscle contusion, muscle strain and ligament strainsSpondylolysis/spondylolisthesis in sports like wrestling, weightlifting, running, football, Non-specific low back pain	**30**
	Practicals: Evaluation of head, neck and spine injuries in contact sports like football, field hockey, boxing and wrestling.	**25**
	Total	**80**

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. Brukner P. Brukner & Khan's clinical sports medicine. North Ryde: McGraw-Hill; 2012**.**
2. DeLee J, Drez D, Miller MD. DeLee & Drez's orthopaedic sports medicine: principles and practice. Saunders/Elsevier; 2010.
3. American College of Sports Medicine. ACSM's primary care sports medicine. Lippincott Williams & Wilkins; 2007.

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty –Sports Physiotherapy**
Name of the Course	**Pediatric & Adolescent Sports**
Course Code	**MPT055**
Credits per semester	**3 credits**
Hours per semester	**80 hours**

Learning Outcomes	• To understand and evaluate the risk assessment procedures, clinical tests, investigations and interventions used in the assessment, diagnosis and management of sport/performance related injuries • To justify strategies and techniques for the prevention, assessment and management of selected injuries encountered by paediatric and adolescent athletes participating at different levels of participation Practical /seminars: • To be able to perform the subjective and objective assessment and comment on performance indicators in sports for pediatric and adolescent athletes

Course Outcomes	
Student will be able to	
CO 1	demonstrate advanced clinical reasoning skills in the assessment and management of the selected sports/performance injuries
CO 2	critically reflect on their scope of practice and their role within the multi-disciplinary team in the triage and management pathways of children and adolescents with selected athletic injuries and medical conditions
CO 3	understand and evaluate the risk assessment procedures, clinical tests, investigations and interventions used in the assessment, diagnosis and management of sport/performance related injuries
	Expected Competencies : Student will be able to
EC 1	Screen and analyzeinjury and health risk factors
EC 2	perform the subjective and objective assessment and comment on performance indicators in sports for pediatric and adolescent athletes
EC 3	Conduct evaluation and testing of sports performance indicators in young and adolescent athletes

Sr. No.	Topics	No. of Hrs.
1	**Historical Perspectives And Current Issues** • History of Youth Sports, Role of Athletic Activity • Maturation, Motivation, and Sport Readiness • Attrition, Overtraining, and Burnout	**5**
2	**Athletic Involvement** • The Pre-participation Evaluation: Purpose and goals, Timing and content, profiling young athletes on fitness parameters • Legal Considerations • Special Olympics	**10**
3	**Physical Conditioning of the Young Athlete** • Strength, endurance and flexibility: Factors affecting performance indicators • Physiological responses to exercises • Physiological adaptations to exercise training • Motor abilities and sports performance	**10**
4	**Injuries In Young Athletes** • Incidence of injuries in young athletes • Sports specific patterns in contact and non contact sports • Mechanical/Traumatic Back Pain in Children Scheuerman's Disease • Slipped Capital Femoral Epiphysis, Legg-Calve-Perthes Disease, Epiphyseal injuries • Overuse Syndromes: Stress fractures, Osgood-Schlatter's Disease, Osteochondritis Dessicans, Little League Elbow	**25**
	Practical: Fitness evaluation of biometric abilities, performance mapping, pre-adolescent and post adolescent injury assessment and management	**30**
	Total	**80**

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

Recommended Books

1. Brukner P. Brukner & Khan's clinical sports medicine. North Ryde: McGraw-Hill; 2012**.**
2. Hyde TE, Gengenbach MS, editors. Conservative management of sports injuries. Jones & Bartlett Learning; 2007.
3. American College of Sports Medicine. ACSM's primary care sports medicine. Lippincott Williams & Wilkins; 2007.
4. Caine D, Maffulli N, Caine C. Epidemiology of injury in child and adolescent sports: injury rates, risk factors, and prevention. Clinics in sports medicine. 2008 Jan 1;27(1):19-50

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty –Sports Physiotherapy**
Name of the Course	**Geriatric and Female Athletes**
Course Code	**MPT056**
Credits per semester	**3 credits**
Hours per semester	**80 hours**

Learning Outcomes	At the end of the course, the candidate shall be able to: • Understand and evaluate the risk assessment procedures, clinical tests, investigations and interventions used in the assessment, diagnosis and management of sport/performance related injuries • justify strategies and techniques for the prevention, assessment and management of selected injuries encountered by geriatric and female athletes participating at different levels of participation • Understand and appropriately adjust to the needs of this population with its high co-morbidities • Develop skills in adapting to the different communication needs and pace commonly found in older people • Practical /seminars: • To be able to perform the subjective and objective assessment and comment on performance indicators in sports for geriatric and female athletes

Course Outcomes	
Student will be able to	
CO 1	demonstrate advanced clinical reasoning skills in the assessment and management of the selected sports/performance injuries
CO 2	critically reflect on their scope of practice and their role within the multi-disciplinary team in the triage and management pathways of geriatric and female athletes with selected athletic injuries and medical conditions
CO 3	Understand particular factors including diet exercise and sleep which affect health and exercise performance
	Expected Competencies : Student will be able to
EC 1	Screen and analysesinjury and health risk factors
EC 2	perform the subjective and objective assessment and comment on performance indicators in sports for pediatric and adolescent athletes
EC 3	Conduct evaluation and testing of sports performance indicators in geriatric and female athletes

Sr. No.	Topics	No. of Hrs.
1	**Geriatric Athlete** • Geriatric participation trends in sports • Sports for life- Issues related to physical inactivity, falls risk, biological decline in health related measures • Needs analysis for geriatric sports: optimising biological changes with exercise • Physiological mechanisms with ageing and responses to acute exercise • Physiological adaptations to Acute Exercise • Strength training in healthy elderly	**5**
2	**Female Athlete** • Female participation trends in sports • Changes across a lifespan for female athletes: Developmental, Gynecologic Issues • Strength training in females • Needs analysis for geriatric sports: optimising biological changes with exercise • Physiological responses and adaptations to exercise	**10**
3	**Exercise Evaluation and Prescription in Female Athletes** • Exercise Evaluation And Prescription: Risk Factors and Stress Testing, testing of performance indicators • Common Concerns for Female Athletes by Age: heat-related illness and overuse injuries, Growth plate injuries, sacroiliac dysfunction, and anterior cruciate ligament (ACL) injury • Female athlete Triad: Exercise-Induced Menstrual Dysfunction, Diagnostic Evaluation of Amenorrhea, Iron Loss in the Female Athlete, Exercise During Pregnancy And Postpartum	**10**
4	**Exercise Evaluation and Prescription in Geriatric Athletes** • Exercise Evaluation And Prescription: Risk Factors and Stress Testing, testing of performance indicators • Common Concerns in geriatric athletes: Patellofemoral pain, Achilles tendinitis, Low back pain, rotator cuff tendinitis, nerve compression syndromes • Injury Prevention approaches in geriatric sports injuries	**25**
	Practical: Fitness evaluation of biometric abilities, performance mapping, pre-adolescent and post adolescent injury assessment and management	**30**
	Total	**80**

EXAMINATION SCHEME

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. Brukner P. Brukner & Khan's clinical sports medicine. North Ryde: McGraw-Hill; 2012**.**
2. Hyde TE, Gengenbach MS, editors. Conservative management of sports injuries. Jones & Bartlett Learning; 2007.
3. American College of Sports Medicine. ACSM's primary care sports medicine. Lippincott Williams & Wilkins; 2007.
4. Caine D, Maffulli N, Caine C. Epidemiology of injury in child and adolescent sports: injury rates, risk factors, and prevention. Clinics in sports medicine. 2008 Jan 1;27(1):19-50

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty –Sports Physiotherapy**
Name of the Course	**Sports Psychology**
Course Code	**MPT057**
Credits per semester	**3 credits**
Hours per semester	**60 hours**

Learning Outcomes	At the end of the course, the candidate shall be able to: • identify and describe a range of major psychological issues linked to optimal sport performance • demonstrate the capacity to describe and justify components of a mental training package to aid sports performance

Course Outcomes	
Student will be able to	
CO 1	Demonstrate advanced clinical reasoning skills for psychological aspects of sports injuries and performance
CO 2	Correlate the psychological concepts with the sports and athlete specific situations
CO 3	Integrate the knowledge about personality, motor learning for behavior modification of athletes
CO 4	List down the strategies for motivation utilized inthe field of sports
	Expected Competencies : Student will be able to
EC 1	Screen and analyzeinjury and health risk factors
EC 2	Counsel injured athletes during their rehabilitation
EC 3	Conduct evaluation and testing of psychological indicators of sports performance

Sr. No.	**Topics**	**No. of Hrs.**
1	Introduction • Meaning, Definition, Need and Importance of Sports Psychology. • Present Status of Sports Psychologyin India • Motor Perception – FactorsAffecting Perception – Perceptual Mechanism. • Personality: Meaning, Definition, Structure, Personality Traits. Effects of Personality on Sports Performance.	**10**
2	**Psychological aspects of Sports**	**10**

	• Achievement Motivation, Assessment of Achievement Motivation. • Imagery, Self-Efficacy, Anxiety,Aspiration, Stress, Aggression, Self-Concept	
3	**Goal Setting** • Meaning and Definition, Process of Goal Setting in Physical Education and Sports. 4cs (Concentration, Control, Confidence, Commitment) • Relaxation: Meaning and Definition, Types and Methods ofPsychological relaxation. Assessment of psychological aspects of sports	**10**
4	**Group Cohesion** • Group: Definition and Meaning, Group Size, Groups on Composition, Group Cohesion, GroupInteraction, Group Dynamics. • Current Problems in Sports and Future Directions • Women in Sports: Sports Women in our Society, Participation pattern among Women, Gender inequalities in Sports.	**10**
5	**Psychological aspects of sports injuries** • Application of anxiety, stress and motivation to injury rehabilitation • Stress reduction techniques in rehabilitation	**10**
	Practicals: Assessment of psychological indicators of sports performance using Stress inventory scales and achievement motivation scales	**10**
	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 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. Brukner P. Brukner & Khan's clinical sports medicine. North Ryde: McGraw-Hill; 2012
2. Weinberg RS, Gould D. Foundations of Sport and Exercise Psychology, 7E. Human Kinetics; 2018 Nov 16.
3. Andersen MB. Doing sport psychology. Human Kinetics; 2000.

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty –Sports Physiotherapy**
Name of the Course	**Athletic Training**
Course Code	**MPTAECC009**
Credits per semester	**2 credits**
Hours per semester	**40 hours**

Learning Outcomes	At the end of the course, the candidate shall be able to: • design and deliver sport specific training experiences and exercise sessions • apply training methodology to the practical sport training and exercise environment • design training programs that cater for the needs and goals of the individual

Course Outcomes	
Student will be able to	
CO 1	Apply the concepts of exercise physiology and training methods to different athletes
CO 2	Understand the training methodology for improving sports performance in particular domain of sports
CO 3	Select specific characteristics of athletic potential and design an appropriate training plan
	Expected Competencies : Student will be able to
EC 1	Screen and analyze training errors and other risk factors for sports performance
EC 2	Conduct evaluation and testing of sports performance indicators in sports
EC 3	Evaluate aspects of overtraining and take appropriate measures to manage and prevent overtraining and chronic fatigue in sports

Sr. No.	**Topics**	**No. of Hrs.**
1	Principles of Training Methodology	**5**
2	Overtraining and Recovery Techniques	**10**
3	Periodization - Principles and guidelines, Developing the Yearly Plan	**10**
4	Methods of Programme Evaluation - Field Testing	**5**
5	Program Design- Resistance training, endurance training , plyometric, cross fit	**10**
	Total	**40**

EXAMINATION SCHEME

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. 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.

Semester-IV (19-24 months)

Code	Course type	Title	Hours
MPT058	Core Theory and Practical	Clinical Sports Medicine	80
MPT059	Core Theory and Practical	Pain Science	80
MPT060	Core Theory	Sports Nutrition	60
MPT061	Core Theory	Sports Pharmacology	60
MPTAEEC008	Ability Enhancement Elective Course	Kinanthropometry	60
MPTAECC009	Ability Enhancement Elective Course	Physical activity & Public health	60
MPTAECC010	Ability Enhancement Elective Course	Ergonomics	60
MPTAECC011	Ability Enhancement Elective Course	Stress Management	60
MPTAEEC006	Ability Enhancement Compulsory Course	Intellectual property rights and publication ethics	40
	Research Dissertation submission and manuscript preparation		80
	Clinical training		320

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Clinical Sports Medicine**
Course Code	**MPT058**
Credit per Semester	**3 credits**
Hours per Semester	**80 hours**

Learning Outcomes	• Integrate basic sciences information pertaining to sports performance and athletic injuries into diagnosis, management and prognosis assessment of athletes. • Effectively and efficiently evaluate athletes using best practices strategies to establish differential diagnoses and diagnoses for the purpose of planning treatment for athletes. • Perform emergency management and triage of injured athletes on and off the field of competition

Course Outcomes	
Student will be able to	
CO 1	Understand pathology, pathophysiology, diagnosis and treatment of acute and chronic sports medicine
CO 2	Apply pathology and pathophysiology of acute and chronic medical illness in the active Population.
CO 3	Communicate effectively with physicians, staff, and patients concerning the evaluation and Management of orthopedic and sports medicine conditions.
CO 4	Accurately convey medical information to colleagues, specialists, athletic trainers and coaches
	Expected Competencies : Student will be able to
EC 1	Demonstrate understanding of the diagnosis and management of common orthopedic or sports medicine conditions
EC2	Demonstrate understanding of when operative versus non-operative therapy is indicated
EC3	Obtain an accurate history and perform an accurate physical examination of the athlete
EC 4	Demonstrate the development of differential diagnoses for sports injuries

Unit	Topics	No. of Hrs.
1	**Non Traumatic Medical Conditions** • Sporting emergencies & first aid • Emergency Situations, Primary and secondary emergency assessment, emergency plan, transportation of an injured participant • Treatment of collapsed athlete- Severe head injury, Athlete with spinal injury, Causes of Collapse, Cardio pulmonary Resuscitation;Management of Cardiac arrest, Acute asthma, epilepsy, drowning, burn, • Heat stroke and Heat illness • Skin Infections: Bacterial infection, Viral infection, Fungal infection • Female Specific: Sports Amenorrhoea, Injury to female reproductive tract, Menstrual Synchrony, Sex determination, Eating disorders in athletes. • Common diseases: Common Cold, Diarrhoea, Dysentery, Typhoid, Cholera, Amoebiasis, Food Poisoning, Tuberculosis, Malaria, Hepatitis etc	**20**
2	**Medical Aspects Of Sports Medicine** • Ischemic heart diseases in sports, cardiovascular disorder, diabetic athlete, Exercise induced bronchospasm. • Special population: Child, adolescent, geriatrics, specially abled athletes • Miscellaneous conditions: Hazards of cold water, Spinal deformity and sports, Time zone shift and sleep deprivation problems	**15**
3	**Sports Trauma And Surgical Principles** • Common sports injuries: Stress Fractures,Lateral Epicondylitis (Tennis Elbow), Rotator Cuff Tendinitis (Shoulder Bursitis) , Plantar Fasciitis (Heel Spur) , Patellar Overload Syndrome (Chondromalacia Patella) , Exercise Compartment Syndrome (Shin Splints) Sprains. Ankle Sprains Knee Ligament Sprains, Meniscal Injury. Acromioclavicular (Shoulder) Separation Gamekeeper's Thumb. Mallet (Baseball) Finger Boxer's FractureAchilles Tendon Rupture • Growth Plate Fractures- Salter-Harris type I-V	**20**
4	**Imaging of Sports injuries** • Radiological/US techniques used in making the diagnosis of orthopedic injuries • Basic X-ray and MRI interpretation techniques • Ultrasonic imaging of soft tissue injuries	**10**
	Practical: Assessment of sports injuries , case documentation and presentations on medical aspects of sports injuries	**15**
Total		**80**

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. Cleland J, Koppenhaver S, Su J. Netter's orthopaedic clinical examination: an evidence-based approach. Elsevier Health Sciences; 2015 Nov 4.
2. Madden C, Putukian M, McCarty E, Young C. Netter's Sports Medicine E-Book. Elsevier Health Sciences; 2013 Nov 25.
3. Brukner P. Brukner & Khan's clinical sports medicine. North Ryde: McGraw-Hill; 2012.

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Pain Sciences**
Course Code	**MPT059**
Credit per Semester	**3 credits**
Hours per Semester	**80 hours**

Learning Outcomes	• To understand and explain the biopsychosocial model and its relevance to pain, one's response to pain, and the impact of pain on one's life. • To promote health and well-being through reducing the impact of pain and disability • Develop an evidence-based management program in collaboration with the client/patient, directed at modifying pain and encouraging helpful behaviors, promoting tissue healing, improving function, reducing disability, and facilitating recovery.

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.
	Expected Competencies : Student will be able to
EC 1	Explain the complex, multidimensional, and individual-specific nature of pain
EC 2	Present theories and science for understanding pain
EC 3	Define terminology for describing pain and associated conditions
EC 4	Explain how cultural, institutional, societal, and regulatory influences affect assessment and management of pain.

Unit	Topics	No. of Hrs.
1	**Multidimensional Nature Of Pain** • 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** • 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 Current theories of the anatomical, physiological, and psychological basis of pain and pain relief.	**10**
2	**Pain Assessment And Measurement** • 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	**20**
3	**Management Of Pain** • 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; 2013,1 edition.
3. Explain Pain, David S Butler, Noi group Publications; 2013, 2nd edition.

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Sports Nutrition**
Course Code	**MPT060**
Credit per Semester	**3 credits**
Hours per Semester	**60 hours**

Learning Outcomes	• Understand and explain the biopsychosocial model and its relevance to pain, one's response to pain, and the impact of pain on one's life. • Promote health and well-being through reducing the impact of pain and disability • Develop an evidence-based management program in collaboration with the client/patient, directed at modifying pain and encouraging helpful behaviours, promoting tissue healing, improving function, reducing disability, and facilitating recovery.

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.
	Expected Competencies : Student will be able to
EC 1	Explain the complex, multidimensional, and individual-specific nature of pain
EC 2	Present theories and science for understanding pain
EC 3	Define terminology for describing pain and associated conditions
EC 4	Explain how cultural, institutional, societal, and regulatory influences affect assessment and management of pain.

Unit	Topics	No. of Hrs.
1	**Energy-Yielding Nutrients** • Utilization of Carbohydrates in Energy Production • Utilization of Fats in Energy Production • Utilization of Proteins in Energy Metabolism	**10**
2	**Physiological Aspects of Energy Metabolism** • Influence of Dietary Fibre on Body Weight Regulation • Nutritional Implications of Sex and Age Differencesin Energy Metabolism	**10**
3	Fluid and fuel intake during competition and training	**5**
4	Body Weight Regulation and Energy Needs	**5**
5	Dietary supplements and ergogenic aids	**10**
6	Sport-specific strategies to enhance performance: endurance and endurance trained sports, intermittent sports, strength and power sport, weight-restricted and weight-conscious sports	**20**
Total		**60**

EXAMINATION SCHEME

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. Nutrition for Athletics- A Practical Guide to Eating And Drinking ForHealth And PerformanceIn Track And Field. IAAF Athletics.2018.
2. Maughan RJ, Shirreffs SM. Nutrition for sports performance: issues and opportunities. Proceedings of the Nutrition Society. 2012 Feb;71(1):112-9.
3. Maughan RJ, editor. Sports nutrition. John Wiley & Sons; 2013 Sep 24.

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Sports Pharmacology**
Course Code	**MPT061**
Credit per Semester	**3 credits**
Hours per Semester	**20 hours**

Learning Outcomes	• Understand the mechanism of action of doping substances, the toxic effects and the health risk associated to doping • Appraise the relevance of drug abuse and its relationship to unethical means of sports performance maximization

Course Outcomes	
Student will be able to	
CO 1	Understand the mechanism of drug action on sports performance
CO 2	Apply the concepts of pharmacokinetic action of drugs on optimizing systemic responses
CO 3	Educate the athletes about ill effects of drug abuse on sports performance
	Expected Competencies : Student will be able to
EC 1	Explain the known usage patterns, general effects, and short- and long-term adverse effects for the commonly used dietary supplements performance enhancing drugs
EC 2	Identify which therapeutic drugs, supplements, and performance-enhancing substances are banned by sport and/or workplace organizations in order to properly advise clients/patients about possible disqualification and other consequences.
EC 3	Optimize therapeutic outcomes by communicating with patients and/or appropriate healthcare professionals regarding compliance issues, drug interactions, adverse drug reactions, and sub-optimal therapy.

Unit	Topics	No. of Hrs.
1	Basic principles of pharmacokinetics and pharmacodynamics, Adverse drug reactions	**06**
2	**Drug Abuse And Doping** • International regulatory aspects for doping : World Anti-Doping Code; • Medicinal products subject to restrictions and their prescription in case of therapeutic use; request for exemption for therapeutic purposes; declaration of therapeutic us • The doping controls	**06**
3	**Drug to performance** • Pharmaco-toxicological aspects of different classes of prohibited drugs • Anabolic agents, Peptide hormones • Beta 2-agonists, Hormonal and metabolic modulators,	**04**

	• Diuretics and masking agents, Stimulants • Narcotics, Cannabinoids, Gluco-corticosteroids	
4	**Doping Methods** • Prohibited methods: enhancement of oxygen transfer, chemical and physical manipulation, gene doping • Prohibited substances in some sports: Alcohols, beta blockers	**04**
	Total	**20**

EXAMINATION SCHEME

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. Thieme, D., & Hemmersbach, P. (Eds.). (2009). Doping in sports (Vol. 195). Springer Science & Business Media.
2. Brukner P. Brukner & Khan's clinical sports medicine. North Ryde: McGraw-Hill; 2012.
3. Somani SM. Pharmacology in exercise and sports. CRC Press; 1995 Dec 18.

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Kinanthropometry**
Course Code	**MPTAEEC 008**
Credit per Semester	**2 credits**
Hours per Semester	**40 hours**

Learning Outcomes	• Critically discuss fundamental aspects of anthropometry, somatotype and the phantom stratagem and the inter-relationship between them. • Critically discuss the kinesiological, biomechanical and nutritional implications derived from the study of anthropolometrical data

Course Outcomes	
Student will be able to	
CO 1	Appraise the importance of body types to sports performance
CO 2	Discuss the various models of body composition to classify somatotype into sports specialization
CO 3	Interpret the anthropometrical data to evaluate effectiveness of injury prevention plans

Unit	Topics	No. of Hrs.
1	**Human body composition** • Levels of approach • Simple indices of fatness, muscularity and fat distribution • Models of body composition: Anatomical model, chemical model	**10**
2	**Somatotyping** • Aims, History and relevance of Heath-Carter somatotype method • Calculation of anthropometric somatotypes • Comparison of somatotypes of different groups • Analysis of longitudinal somatotype series • Visual inspection of somatotype photographs: an introduction to photoscopic somatotyping	**10**
3	**Physical growth, maturation and performance** • Aims, Introduction, Reference values for normal growth • Biological maturation: sexual, morphological, dental maturation and skeletal age • Physical fitness • Special considerations for assessing performance in young people, Growth maturation and performance • Anthropometric tests (body composition) • General considerations when assessing performance in children	**20**

4	**Anthropometry And Body Image** • Aims, Historical Perspective, Theory and applications • Scaling: adjusting for differences in body size, The ratio standard: the traditional method • Regression standards and ANCOVA, Allometry and power function standards	**20**
	Total	**60**

EXAMINATION SCHEME

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. Eston R, Reilly T. Kinanthropometry and exercise physiology laboratory manual: tests, procedures and data: volume two: physiology. Routledge; 2013 Mar 1.
2. Åstrand PO, Rodahl K, Dahl HA, Strømme SB. Textbook of work physiology: physiological bases of exercise. Human Kinetics; 2003.

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Physical activity & Public health**
Course Code	**MPTAEEC 009**
Credit per Semester	**2 credits**
Hours per Semester	**60 hours**

Learning Outcomes	• To critically discuss fundamental aspects of anthropometry, somatotype and the phantom stratagem and the inter-relationship between them. • To critically discuss the kinesiological, biomechanical and nutritional implications derived from the study of anthropolometrical data

Course Outcomes	
Student will be able to	
CO 1	Appraise the importance of body types to sports performance
CO 2	Discuss the various models of body composition to classify somatotype into sports specialization
CO 3	Interpret the anthropometrical data to evaluate effectiveness of injury prevention plans

Unit	Topics	No. of Hrs.
1	**Introduction To Epidemilogy For Public Health** • Historical Evolution of Epidemiology, use of epidemiology in public health research • Public health surveillance: Purpose and Characteristics of Public Health Surveillance	**5**
2	**Physical Activity Taskforce** • History of Physical Activity and Public Health • Role of Physical Activity in Chronic Disease Development • Promoting Physical Activity for Health • Public Health Group: Practitioners of Physical Activity in Public Health	**5**
3	**Physical Activity Evaluation Methods** • Importance of Fitness Assessments • Caloric Expenditure Measures • Electronic Measures of Energy Expenditure • Direct Observation Techniques • Self-Report Instruments	**10**

4	**Health Effects Of Exercise On Non Communicable Diseases(NCDs)** • Impact of NCDs on health • Cancers: Prevalence and risk factors of Cancers, Physical Activity Among Cancer Survivors, Physical Activity Guidelines for Cancer Prevention. • Mental Health: Prevalence, Economic Costs and risk factors of Mental Health Disorders, Physical Activity, Exercise, and Mental Health, Exercise, Physical Activity, and Brain Function, Physical Activity Guidelines for Mental Health	**15**
5	**Physical Activity Promotion** • Informational Approaches for Promoting Physical Activity, Understanding the Community Guide, Rationale for Informational Approaches. • School-Based Approaches • Behavioral and Social Approaches to Promoting Physical Activity • Environmental and Policy Approaches to Promoting Physical Activity	**10**
6	**Sports Specific Rehabilitation:** Rehabilitation related to Sporting injuries	**35**
	Total	**80**

EXAMINATION SCHEME

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. Kohl III HW, Murray TD. Foundations of physical activity and public health. Human Kinetics; 2012 Mar 5.
2. Bouchard C, Blair SN, Haskell WL. Physical activity and health. Human Kinetics; 2012 Feb 29.

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Ergonomics**
Course Code	**MPTAEEC 010**
Credit per Semester	**1 credits**
Hours per Semester	**20 hours**

Learning Outcomes	• To apply ergonomic principles to the creation of safer, healthier and more efficient and effectiveactivities in the workplace • Conduct ergonomic risk assessments; • To develop appropriate control measures for ergonomic risk factors; • Describe work-related causes of musculo-skeletal disorders; • To design a workplace according to good ergonomic principles; • Assess ergonomic aspects of the working environment and work organisation.

Course Outcomes	
Student will be able to	
CO 1	Interpret the design of various workplace stations based on ergonomic principles
CO 2	Develop preventive aspects to work related musculoskeletal disorders(WRMSDs)
CO 3	Apply the ergonomic principles to workplace environment

Unit	Topics	No. of Hrs.
1	**Overview of Ergonomics** • Aims, objectives and benefits of ergonomics • Definition and scope of ergonomics and systems of work • The role of the ergonomist • Interface between job, person and environment	**5**
2	**Ergonomics Methods and Techniques** • Ergonomics Risk Assessment • Definitions of hazard and risk • Risk evaluation quantity and quality of risk • Assessment systems • Overall ergonomics approach • Control measures monitoring and feedback •	**5**

3	**Musculo-Skeletal Disorder** • The nature and causes of manual handling disorders • Risk assessment • Principles of handling and preventative and protective measures **Work Related Upper Limb Disorders (WRULD)** • The nature and causes of WRULD/ 'Repetitive Strain Injuries'/Cumulative Disorders • Risk assessment • Principles of control, preventive and protective measures	**5**
4	**Workplace Layout and Equipment Design** • Principles of workstation and system design • Space and workstation design principle	**5**
	Total	**20**

EXAMINATION SCHEME

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. Dul J, Weerdmeester B. Ergonomics for beginners: a quick reference guide. CRC press; 2003 Jul 13.
2. Bridger R. Introduction to ergonomics. CRC Press; 2008 Aug 14.
3. Grandjean E, Kroemer KH. Fitting the task to the human: a textbook of occupational ergonomics. CRC press; 1997 Jul 31.

Name of the Programme	**Master Of Physiotherapy (MPT) Specialty - Sports Physiotherapy**
Name of the Course	**Stress Management**
Course Code	**MPTAEEC 011**
Credit per Semester	**1 credit**
Hours per Semester	**20 hours**

Learning Outcomes	• Discuss the definition of stress and apply critical thinking to identify its causes and treatments • Identify common stressors inherent in today's global marketplace • Develop an understanding of the impact of stress on physiological, emotional and cognitive processes • Become familiar with stress management techniques pertinent to personal and professional functioning

Course Outcomes	
Student will be able to	
CO 1	Recognize the role of stress and coping in human wellbeing, communication, relationships, academic and work performance
CO 2	Explain the physiological dynamics involved with the stress response.
CO 3	Develop and evaluate intervention strategies for identified stressors

Unit	**Topics**	**No. of Hrs.**
1	**Introduction and Overview** • Eustress and distress • Psychology of Stress • Physiology of Stress • Sources of Stress Across the Lifespan • Adaptive and Maladaptive Behaviour	**5**
2	**Strategies Of Stress Management And Prevention** • Problem Solving and Time Management • Psychological and Spiritual Relaxation Methods • Physical Methods of Stress Reduction • Preparing for the Future: College and Occupational Stress	**5**
3	Stress assessment techniques: Use of stress inventories	**5**
4	Stress Coping techniques, Motivation and Personality traits	**5**
	Total	**20**

EXAMINATION SCHEME

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. Seaward BL. Managing stress: Principles and strategies for health and wellbeing. Jones & Bartlett Pub; 1999 Mar 27.
2. National Institute of Mental Health. (2004). What do these students have in common?
3. Moran A. Sport and exercise psychology: A critical introduction. Routledge; 2013 Mar 1.