MAHARAJA BHUPINDER SINGH PUNJAB SPORTS UNIVERSITY

(MBSPSU),PATIALA

ACADEMIC YEAR 2020-21, 2021-22

SYLLABUS
FOR
MASTER OF PHYSICAL EDUCATION (M.P.Ed) TWO YEARS COURSE

SEMESTER SYSTEM

OUTLINES OF TESTS, SYLLABI AND COURSES FOR THE MASTER OF PHYSICAL EDUCATION (M. P. Ed.) EXAMINATION FOR THE SESSION

2020-2021

The Master of Physical Education (M. P. Ed.) two years (Four Semesters, Choice Based Credit System) programme is a professional programme meant for preparing Physical Education Teachers for senior secondary (Class XI and XII) level as well as Assistant Professor/Directors/Sports Officers in Colleges/Universities and teacher educators in College of Physical Education. The M. P. Ed. programme is designed to integrate the study of childhood, social context of Physical Education, subject knowledge, pedagogical knowledge, aim of Physical Education and communication skills. The programme comprise of compulsory and optional theory as well as practical courses and compulsory school internship in School/ College/Sports Organizations/Sports Academy/Sports Club.

1. **Eligibility:**

The Intake, Eligibility and Admission Procedure is as per the NCTE/UGC/State Government.

Bachelor of Physical Education (B.P.Ed) Four years Integrated Program after 10+2 with at least 50% marks.
Or

Bachelor of Physical Education (B.P.Ed.) Two Years after graduation from this University or any other statutory University.

Or
Bachelor of Science (B.Sc.) in Physical Education with at least 50% marks.

2. **Number of Seats:**

As prescribed by the NCTE, the basic unit will be forty (40) students each year.

3. The reservation in seats and relaxation in the qualifying marks for SC/ST/OBC/PWD and other categories shall be as per the rules of the Central Government/State-Government. Whichever is applicable.

4. **Duration:**

The M. P. Ed. programme is of a duration of two academic years, that is, four semesters. However, the students shall be permitted to complete the programme requirements within a maximum of three years from the date of admission to the programme.

5. **Admission procedure:**
    1) Admission shall be made on merit on the basis of marks obtained in the entrance test (Physical efficiency test, marks obtained in the qualifying examination and students must produce the sports gradation certificate recognized by AIU/IOA at the time of admission otherwise his /her candidature will not be considered.
    2) To get the benefits of sports certificate a candidate must get the sports gradation certificate from the concerned department. If in the case a certificate of sports gradation is not issued by the concerned department of particular state. A candidate must bring the team list of their game/ Athletics certificate with duly attested form authorized official.
    3) The College shall constitute a three-member admission committee to look after the whole admission procedure and Head of the concerned institute/college should get nominated an observer from Maharaja Bhupinder Singh Sports University, Patiala to supervise the admission process of the affiliated colleges. Norms and standards prescribed by NCTE /UGC/State Government or any other competent body for admission to M.P.Ed. Course shall be followed.
6. **Working Days:**
   As per the norms of the N.C.T.E., U.G.C .
7. **Medium of Examination:** The medium of instruction and examination shall be English. However, a student may opt for writing answer books in Punjabi or Hindi by opting the language in the examination form submitted by the candidate for the respective examination.
    1) The title of the research has to be approved by the Board of Sports Studies in Physical Education on the recommendation of the Principal/Head of the Department 2 weeks before the start of the 4th Semester.
    2) Submission of the dissertation in the office must be 2 weeks before the examinations the commencement of the theory examination; in exceptional cases, the Vice Chancellor shall have the power to extend on the recommendation of the Principal/Head of the Department the last date for receipt of thesis.
8. **The CBCS System:**

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

9. **Courses of Programme:**

   The M.P.Ed. programme consists of a number of courses, the term 'Course' applied to indicate a logical part of subject matter of the programme and is invariably equivalent to the subject matter of a "paper" in the conventional sense. They are comprising of compulsory and elective subjects All courses will carry same weightage of marks.

The following are the various categories of courses suggested for the M.P.Ed. Programme.

PART – I

Theory: Core Course, Elective Course

The theory courses are comprising of the courses related with the physical education, understanding of research understanding, applied sciences and statistics in physical education (Table of course Pg. 9) related with semester wise papers to be taught through class room teaching, assignments /seminars, group discussions, Lab work, field work, project works.

PART-II

1) **Practical Course (Skill and Prowess):-** The practicum course will the field-based course that is designed to give opportunity to the students to acquire professional skills and capacities in various sports and games, physical activities and yogic practices.
2) **Compulsory Course (Track and Field):-** Track and field events are inseparable part of the any physical education programme hence, it is made compulsory course.
3) **Elective Course:**

   Teaching/Coaching Practices: The activities include teaching, coaching, and officiating includes track and fields, and games and sports.

   - **Gymnastics:** Aerobics / rhythmic gymnastics
   - **Racket games:** Badminton, Lawn Tennis, Table Tennis
   - **Ball Games:** Hand Ball, Volley Ball, Basket Ball, Football, Net Ball, Hockey
   - **Combat Sports:** Boxing, Fencing, Wrestling
   - **Indigenous sports:** Kabaddi, Kho-Kho

4) **Recreational sports:** Minor games, Lead-up games.
5) **Mass activities:** Dumb Bell, Mass Demonstration, Tipri, Lazium, Umbrella. free arms drill, folk dances, etc. (Students are expected to learn and organize mass drill in school situation) Apparatus/ Light apparatus Grip, Attention with apparatus/ Light apparatus, stand – at – ease with apparatus/ light apparatus, Exercise with verbal command, drum, whistle and music – Two count, four count, eight count and Sixteen count, Standing Exercise, Jumping Exercise, Moving Exercise, Combination of above all.
6) **Yoga and Aerobics/ Self Defense activities like** Judo/ Martial Arts/ Taekwondo/Archery/ Shooting.
7) **Laboratory Practicals:** Exercise Physiology, sports Medicine, Sports Psychology, Sports Biomechanics and Kinesiology, Yogic Science, Athletic Care and Rehabilitation, Sports Journalism and Mass Media, Information & Communication and Technology (ICT) in Physical Education, Anthropometry (**Two practicals for each subject must be conducted and Practical file must be made and kept for the record).**

PART -III Practice of Teaching and Coaching:- The students have to submit minimum of 10 lessons each of teaching, coaching and officiating in the college/ school/ university.

PART- IV Projects and outreach activities:-The students will use information and Communication Technology along with the traditional ways .

1) **M.P.Ed (1st)**

- **Community Sports event:** Conduct of any fitness event for Children/Women/Veteran Sports/ sports for differently abled people on National Sports Day/ Children's Day or any other day.
- **National Flag**: Meaning, concept and significance of National Flag, Symbolism of Tri-color and Wheel. Codes of National flag, Code of hoisting or lowering of Flag, Dimensions of the Flag & tri-color proportions. Honor of the Flag and its use. Penalty of misusing or dishonoring the Flag.
- **Preparation of Project file.**

2) **M.P.Ed (2nd)**

Organization of Annual Athletic Meet (Institutional sports event) 4th Sem.

- **Opening and Closing Ceremonies**: Schedule and formality of Opening Ceremony- Unfurling of Flag, Flame igniting, Oath, March-Past of players/teams, Salutation, Declaration of Opening of the Meet. Brief address by the guests, announcement of beginning of competition Victory & Prize distribution Ceremony- Planning of schedule for victory ceremony.

- **Closing Ceremony**: Assembly of sports-persons, March-Past, Salutation, re-assembly, brief address of the guests, Declaration of results and distribution of Prizes/ Certificates, Vote of thanks, Ceremonial Flag-lowering, Flame extinguishing, Declaration of Closing of the Meet.

- Practical of the organization of Sports / Athletic Meet during Intramural Programme should be arranged as a project by the students under the supervision of the faculty. Organization of Sports Festival, Play Day, Social Party games, etc. should be encouraged.
- **Preparation of Project file**

10. **Semesters:**

An academic year is divided into two semesters. Each semester will consist of 17-20 weeks of academic work equivalent to 100 actual teaching days. The odd semester may be scheduled from May/June to November/December and even semester from November / December to May/June. The institution shall work for a minimum of 36 working hours in a week (five or six days a week).

11. **Attendance**

1) Every student shall be required to attend a minimum of each 75% theory classes and practical sessions for each subject of the course to be eligible for taking end semester examinations
2) A student who has attended the prescribed number of classes but did not appear in the examination or failed in the examination may be allowed to appear at any subsequent examination within two years without attending classes afresh.
3) If any student falls short of attendance he/she shall not be allowed to appear in the end semester examination. Such student may be allowed to appear in the examination on attending deficit lectures or training sessions through special classes arranged for detained students on payment of prescribed fee.
4) In case of late admission the attendance shall be counted as under:
    (a) From the date of admission for the first year class.
    (b) For other classes a student shall be deemed to have been admitted from the scheduled date of commencement of classes or one week of the date when he/she becomes eligible for admission, whichever is later.
5) In case a student does not join the course after taking admission within seven days of the start of academic session / date of admission whichever is later, his or her candidature shall be cancelled and the vacant seat shall be offered to the next candidate in the order of merit.
6) In case a student remains absent from classes for ten consecutive days without leave his/her name shall be struck off the rolls. However, a student may be readmitted within fifteen days, if there was any genuine cause, with the approval of the Registrar/Dean Academic Affairs/Vice-Chancellor.
7) Benefit of additional lectures may be given to the students participating in sports events /competitions or other co-curricular activities representing the University.
   Provided that such students must have actually attended minimum 50% of lectures delivered or training sessions held, to that class.
8) In case of serious ailments when a student is admitted as an in-patient in a clinic/hospital or otherwise confined to bed, the number of classes or training sessions missed may be deducted from the total number of classes held and his/her attendance shall be calculated accordingly.
   Provided such student must have actually attended at least 50% of the lectures delivered or training sessions held for that class without the aforesaid relaxation.
9) A student is required to submit his/her medical certificates, issued by a qualified doctor who administrated the treatment, immediately on joining University after his or her illness/confinement, to be duly countersigned by the University Medical Officer. Subsequent submission of medical certificate shall not be considered for medical leave.
10) The Vice-Chancellor shall constitute a Condonation Committee to recommend condonation/ addition of attendance as per rules.

11) A student who has 50% or above attendance but less than 75% may be allowed to appear in the examination by the Vice-Chancellor on the recommendation of the aforesaid Committee.
12) Subject to the aforesaid provisions, a student with less than 50% of attendance shall not be allowed to appear in the End-Term Examination.
Provided that the Vice-Chancellor may consider extreme cases of hardship on the recommendation of the Condonation Committee referred above and may allow a student to appear in the examination. Cases so allowed are to be put before the Academic and Activity Council at its next meeting for information.
13) In exceptional cases, where the hospitalization is not necessary, the Condonation Committee may accept Medical Certificate from a qualified Medical Practitioner, and the same must be endorsed by the Medical Officer of the University.
14) In case it is found that any medical certificate submitted is false disciplinary action shall be initiated.

12. **Credits:**

The term 'Credit' refers to a unit by which the programme is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or one and half / two hours of practical work/field work per week. The term 'Credit' refers to the weight given to a course, usually in relation to the instructional hours assigned to it. The total minimum credits, required for completing M.P.Ed. programme is 90 credits and for each semester 20 credits.

Table – 1: Semester wise distribution of hours per week

Semester	***Theory***	***Practicum***	***Teaching practice***	***Total***
I	*12*	*18*	*6*	*36*
II	*12*	*12*	*12*	*36*
III	*12*	*12*	*12*	*36*
IV	*12*	*12*	*12*	*36*
Total	*48*	*54*	*42*	*144*
Minimum of 36 teaching hours per week is required in five or six days in a week				

Table – 2: Number of credits per semester

Semester	***Theory***	***Practicum***	***Teaching practice***	***Total***
I	*12*	*09*	*03*	*24*
II	*12*	*06*	*06*	*24*
III	*12*	*06*	*06*	*24*
IV	*12*	*06*	*06*	*24*
Total	*48*	*27*	*21*	*96*
Minimum of 36 teaching hours per week is required in five or six days in a week				

Provision of Bonus Credits Maximum 06 Credits in each Semester

Sr. No.	Special Credits forte Extra Co-curricular Activities	Credit
1	Sports Achievement at State level Competition (Medal Winner) Sports Achievement National level Competition (Medal Winner) Sports participation International level Competition	1 2 4
2	Inter Uni. Participation (Any one game)	2
3	Inter College Participation (min. two games)	1
4	National Cadet Corps / National Service Scheme	2
5	Blood donation / Cleanliness drive / Community services /	2
6	Mountaineering – Basic Camp, Advance Camp / Adventure Activities	2
8	News Reporting / Article Writing / Book writing / progress report writing	1

12. Grading of students

(I) University Graduation Norms on percentage performance bases are as under:

a) First Division with Distinction - 75% & Above
b) First Division - 60% & Above
c) Second Division - 50% to 59.99%
d) Third Division - below 50 %

(II) Grade Scheme and Important Information

Letter Grade is awarded to the students. Each letter grade indicates the level of the performance in the course and had grade point for the purpose of computing the Cumulative Grade Points Average (CGPA) as given below:

Letter Grade		Marks	Grade Point
O	Outstanding (O)	91-100	10
A+	Excellent (E)	81-90	9
A	Distinction (D)	71-80	8
B+	High First Class (A+)	61-70	7
B	First Class (A)	51-60	6
C	High Second Class (B+)	41-50	5
P	Second Class (B)	40-40.99	4
E	Fail (F)		0
D	Detained		0

(III) SGPA and CGPA

Procedure to Computation of the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) as approved by the UGC:

1) The SGPA is the ratio of the sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e.
2)

$$\textbf{SGPA } (Si) = \Sigma (C_i \times G_i) / \Sigma C_i$$

Where Ci is the number of crdits of the with course, and Gi is the grade point scored by the student in the ith course

3) The CGPA is also calculated in the sme manner taking into account all the courses undergone by a student overall the semesters of the performance i.e.

$$\textbf{CGPA} = \Sigma (C_i \times G_i) / \Sigma C$$

Where Si is the SGPA of the ith semester and CI is the total number of the credit Semester.

4) The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.
5) The SGPA is the ratio of the sum of is the product of the number of credits with the grade points scored by a student in all the course.

Classification of Division the division obtained by each student is classified on the following basis

	Division	CGPA
a)	1st with Distinction	7.5 or more
b)	1st	6.0 or more but less than 7.5
c)	2nd	5.0 or more but less than 7.5
d)	To compare the student of this university vis-à-vis other universities where percentage of marks is shown in the final result, the following conversion formula will be percentage of marks obtained by a student = (CGPA X 10)	

13. Modification of result

1) The Vice Chancellor shall have power to quash the declared result of a candidate if:
   a. The candidate is disqualified for using any type of unfair means in the examination
   b. He/She is found ineligible to appear in the exam.
2) The Vice-Chancellor also has the power to modify the result if any error is detected in the preparation or compiling of the result.

14. Promotion to the next class

1) Promotion from the odd semester to even semester shall be automatic.
2) The candidate shall be promoted from 3rd to 4th semester if he/she clears 50% papers of first two semesters.
3) The candidate shall be promoted to 5th semester if he/ she all the papers of 1st and 2nd semesters and at least 50% papers of the 3rdand4th Semesters in Bachelor Degree Course.
4) A Candidate shall be promoted to 3rd Semester of Master Degree Course if he/she clears 50% papers of the 1st and 2nd Semesters.
5) A student shall have to complete the three Bachelor Degree Course in maximum period of 06 years and two years of Master Degree course in maximum in four years and one-year Diploma Course in a period of three years from the date of his/her admission.

15. Award of degrees, diplomas, and Certificates

1) The student shall be issued detailed marks card after the declaration of the result of each semester, which shall include marks secured in mid semester and end semester examination and practical in each subject.
1) On successful completion of all semesters of the graduation and post-graduation, the students shall be awarded respective degrees after the approval of the result by the Academic and Activities Council.
2) On the successful completion of all the semesters of Diploma course, the students shall be awarded certificates after the approval of the result by the Academic and Activities Council.

16. Distinction and Merit Certificates

Distinctions, merit Certificates, and Medals shall be awarded to the meritorious students as per the policy and norms approved by the Academic and Activities Council.

17. Grievance Redressal Committee:

The college/department shall form a Grievance Redressal Committee for each course in each college/department with the course teacher / Principal / Director and the HOD of the faculty as the members. This Committee shall solve all grievances of the students.

18. Revision of Syllabi:

1) Syllabi of every course should be revised according to the NCTE.
2) Revised Syllabi of each semester should be implemented in a sequential way.
3) In courses, where units / topics related to governmental provisions, regulations or laws, that change to accommodate the latest developments, changes or corrections are to be made consequentially as recommended by the Academic Council.
4) All formalities for revisions in the syllabi should be completed before the end of the semester for implementation of the revised syllabi in the next academic year.
5) During every revision, up to twenty percent of the syllabi of each course should be changed so as to ensure the appearance of the students who have studied the old (unrevised) syllabi without any difficulties in the examinations of revised syllabi.
6) In case, the syllabus of any course is carried forward without any revision, it shall also be counted as revised in the revised syllabi.

19. The course of instruction for the M.P.Ed Examination consists of four parts as under:

PART – I	Theory Papers	1600 Marks
PART – II	Practical Course (Skill and Prowess)	800 Marks
PART – III	Practice of Teaching and Coaching	800 Marks
PART - IV	Project and Out-Reach Activities	200 Marks
		Total: 3400 Marks

Successful candidate shall be classified as follows:

PART – I	Theory	40%	<50%	<50%	<60%	75%
PART – II	Practical course (Skill and Prowess)	40%	<50%	<50%	<60%	75%
PART – III	Practice of Teaching and Coaching	40%	<50%	<50%	<60%	75%
PART - IV	Project and Out Reach Activities	40%	<50%	<50%	<60%	75%

Note I:

- Part-I will be evaluated externally.
- Part-II will be evaluated by a panel of three internal examiners appointed by the Chairman/Principal of the Institution.
- Part-III will be evaluated with one external and one internal examiner.
- Part –IV will be evaluated by a panel of three internal examiners appointed by the Chairman/Principal of the Institution.

Note II:

1. Each student is required to undertake 10 supervised lessons (each semester) in the above mentioned areas. Out of 10 lessons at least five lessons shall be taken in the schools and five lessons in class itself. In addition, each student shall complete five (05) officiating lessons/ projects (each semester) in different games/track and field as identified by the Chairman/Head. The Chairman/Head will certify on the candidate's notebook that all requirements pertaining to teaching practice, projects and officiating have been fulfilled by him/her.

   Since this is a professional course aimed at improving the standard of games and sports, it is essential that special attention be given to the practical aspect of Track and Field, Games and Sports. Therefore, specified 20 hours per week must be devoted to the practical teaching.

2. Teaching (Skill and Prowess) activities for each game or athletics events will be of 21 days each.

SEMESTER-I PART–I: THEORY PAPERS

Semester - I

Part-I :Theoretical Course							
Course Code	**Title of the Papers**		**Total Hours**	**Credit**	**Internal Marks**	**External Marks**	**Total Marks**
Core Course							
MPCC- 101	Research Process in Physical Education & Sports Sciences		3	3	30	70	100
MPCC- 102	Exercise Physiology		3	3	30	70	100
MPCC- 103	Sports Biomechanics & Kinesiology		3	3	30	70	100
Elective Course (Anyone)							
MPEC- 101	Tests, Measurement and Evaluation in Physical Education		3	3	30	70	100
MPEC- 102	Sports Technology						
Part– II Practical Course (Skill and Prowess)					**200**		
		Content			Internal		
MPPC- 101	Track and Field Running Events (Sprits, Middle and long distance events)	Teaching of fundamentals, Rules, Regulations and measurements of the field	**6**	**3**	100		100
MPPC- 102	Mass demonstration Activities				100		100
PART –III Practice of Teaching and Officiating lessons					**200**		
MPPC- 103	1. Teaching Lessons of Athletics 5 Lessons(4 Internal & 1 External)		**6**	**3**	40	60	100
MPPC- 104	2. Teaching Lessons of Indigenous Activities and Sports 5 Lessons(4 Internal & 1 External)		**6**	**3**	40	60	100
PART- IV Project and Out-Reach Activities					**50**		
		Content			Internal		
MPPOC- 101	Organization of Community Sports Event	Conduct of any fitness event for Children/ Women/ Veteran Sports/ sports for differently abled people on National Sports Day/ Children's Day or any other day	**6**	**3**	50		50
Total			36	24	450	400	850

<u>Note:</u> Total number of hours required to earn 3 credits for each theory course are 51-60 hours per semester whereas 102-120 hours for each practicum course

SEMESTER II

Part A: Theoretical Course						400
Course Code	**Title of the Papers**	**Total Hours**	**Credit**	**Internal Marks**	**External Marks**	**Total Marks**
Core Course						
MPCC-201	Applied Statistics in Physical Education & Sports	3	3	30	70	100
MPCC- 202	Yogic Sciences	3	3	30	70	100
MPCC- 203	Sports Management and Curriculum Designs in Physical Education	3	3	30	70	100
Elective Course (Anyone)						
MPEC- 201	Athletic Care and Rehabilitation	3	3	30	70	100
MPEC- 202	Sports Journalism and Mass Media					
Part– II Practical Course (Skill and Prowess)						**200**
MPPC- 201	Track and Field II: Jumping events (Long Jump, High Jump, Triple Jump, Hurdles)	**6**	**3**	100		100
MPPC- 202	Yoga *Aerobics/ Self Defense Techniques- Martial Arts, Taek-won-do/ Shooting/ Archery – (*Any One activity with Yoga)	**6**	**3**	100		100
Part– III Practice of Teaching and Officiating Lesson						**200**
MPPC- 203	Teaching Lessons of Athletic Events 5 Lessons (4 Internal & 1 External)	**6**	**3**	40	60	100
MPPC- 204	Teaching Lessons on theory of different Yoga and Self Defense Activity 5 Lessons (4 Internal & 1 External)	**6**	**3**	40	60	100
PART- IV Project and Out-Reach Activities						**50**
		Content			Internal	
MPPOC- 201	**Green Practices**	Maintaining and uplifting of fauna and flora of the University/ College, energy conservation, waste management	**6**	**3**	50	50
Total			36	24	450	400	850

<u>Note:</u> Total number of hours required to earn 3 credits for each theory course are 51-60 hours per semester whereas 102-120 hours for each practicum course.

SEMESTER III

Part- I Theoretical Course							400
Course Code	**Title of the Papers**	**Total Hours**	**Credit**	**Internal Marks**	**Practical**	**External Marks**	**Total Marks**
Core Course							
MPCC- 301	Scientific Principles of Sports Training	3	3	30	-	70	100
MPCC- 302	Sports Medicine	3	3	-	30	70	100
MPCC- 303	Sports Psychology	3	3	-	30	70	100
Elective Course (Anyone)							
MPEC- 301	Education Technology in Physical Education	3	3	30		70	100
MPEC- 302	Physical Fitness and Wellness						

Part– II	**Practical Course (Skill and Prowess)**					**200**	
		Content				**Internal Marks**	
MPPC- 301	Track and Field III: Throwing Events (Shot Put, Discus Throw, Javelin Throw)Introduction to Heptathlon event	Teaching of fundamentals, Rules, Regulations and measurements of the field	6	**3**		100	100
MPPC- 302	Games Specialization- III Gymnastics/Cricket/ Hockey/ Kabaddi/ Kho-Kho/ Badminton/ Table Tennis/ Tennis/ Squash/ (Any One)		6	**3**		100	100

Part– III	**Practice of Teaching and Officiating Lesson**				**200**		
MPPC- 303	Coaching Lessons of Track and Field 5 Lessons (4 Internal & 1 External)	6	**3**	40		60	100
MPPC- 304	Coaching Lessons Games 5 Lessons (4 Internal & 1 External)	6	**3**	40		60	100

	PART- IV	**Project and Out-Reach Activities**				**50**	
		Content				**Internal**	
MPPC- 304	**National Flag**	Codes of National flag, Code of hoisting or lowering of Flag, Honor of the Flag and its use. Penalty of misusing or dishonoring the National Flag	6	**3**		50	50
Total			**36**	**24**	**450**		**400**	**850**

Note: Total number of hours required to earn 3 credits for each theory course are 51-60 hours per semester whereas 102-120 hours for each practicum course.

SEMESTER- IV

	Part I: Theoretical Course					**400**	
Course Code	**Title of the Papers**	**Total Hours**	**Credit**	**Internal Marks**	**Practical**	**External Marks**	**Total Marks**
	Core Course						
MPCC- 401	Information & Communication Technology (ICT) in Physical Education	3	3	-	30	70	100
MPCC- 402	Health Education and Sports Nutrition	3	3	30		70	100
MPCC- 403	Anthropometry	3	3	-	30	70	100
	Elective Course (Anyone)						
MPEC- 401	Dissertation	3	3	30	-	70 (50 research Report & 20 Viva)	100
MPEC- 402	Sports Engineering						
	Part– II Practical Course (Skill and Prowess)					**200**	
					Internal		
MPPC- 401	Track and Field Introduction to Decathlon event	**6**	**3**		100		100
MPPC- 402	Games Specialization- Baseball/ Volleyball/ Basketball/ Football/ Handball/ Netball/ Softball /Boxing/ Fencing/ Judo/ Karate/ Wrestling/ Wushu (any one)	**6**	**3**		100		100
	Part– III Practice of Teaching and Officiating Lesson					**200**	
MPPC- 403	Officiating Lessons of Track and Field 5 Lessons (4 Internal & 1 External)	**6**	3	40		60	100
MPPC- 403	Officiating Lessons Game 5 Lessons (4 Internal & 1 External)	**6**	3	40		60	100
	PART- IV Project and Out-Reach Activities					**50**	
	Content				**Internal**		
MPPC- 404	**Green Practices** Maintaining and uplifting of fauna and flora of the University/ College, energy conservation, Waste Management	6	**3**		50		100
Total		36	24	450		400	850
		144	96	1040		1960	3400

Note: Total number of hours required to earn 3 credits for each theory course are 51-60 hours per semester whereas 102-120 hours for each practicum course.

SEMESTE- I
THEORY COURSES

MPCC-101
RESEARCH PROCESS IN PHYSICAL EDUCATION AND SPORTS SCIENCES

UNIT I

Definition of Research, Need, Nature and Scope of research in Physical Education. Qualities of a good researcher. Classification of Research .

Research Problem: Identification, Location, and Formulation of Research Problem, Criteria for selection of a problem.

Hypothesis: Definition, importance, types, characteristics, formulation, stating and testing of hypothesis.

UNIT II

Sampling: Defining population and its types. Sample, sampling, importance and types of sampling.

Design and Sampling Techniques: Sample size, Sampling design and techniques.

Review to related Literature: Purpose and importance of literature review; steps in literature search and writing literature review.

UNIT III

Descriptive Methods of Research: Meaning, importance and types of survey method; Case study.

Historical Research: Introduction, Sources of Historical Research, Historical Criticism.

Experimental Research – Meaning, Nature and Importance, Meaning of Variable, Types of Variables. Types of Experimental Design .

UNIT IV

Data Collection tools: Questionnaire, Interview and observation.

Writing Research proposal and report, Chapterization, Precautions for writing research reports,

Method of writing abstract and full paper for presenting in a conference and to publish in journals, Footnote and Bibliography writing.

REFERENCE:

Author's Guide: *Research methods Applied to Health Physical Education and Recreation,* Washington, D.C.,1991.

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Best J.W., *Research in Education*, Prentice Hall, New Delhi 1982.

Clarke David. H & Clarke H, Harrison (1984*) Research processes in Physical Education*, New Jersey; Prentice Hall Inc.
Craig Williams and Chris Wragg (2006) *Data Analysis and Research for Sport and Exercise Science,* Londonl Routledge Press
Jerry R Thomas & Jack K Nelson (2000) *Research Methods in Physical Activities;* Illonosis; Human Kinetics;
Kamlesh, M. L. (1999) *Research Methodology in Physical Education and Sports*, New Delhi Moses, A. K. (1995) *Thesis Writing Format,* Chennai; Poompugar Pathippagam

Rothstain, A (1985) *Research Design and Statistics for Physical Education*, Englewood Cliffs: Prentice Hall, Inc
Subramanian, R, Thirumalai Kumar S & Arumugam C (2010) *Research Methods in Health, Physical Education and Sports,* New Delhi; Friends Publication
Moorthy A. M. *Research Processes in Physical Education* (2010); Friend Publication, New Delhi

SEMESTER-I
THEORY COURSES
MPCC-102

EXERCISE PHYSIOLOGY

UNIT I

Skeletal Muscles and Exercise

Macro & Micro Structure of the Skeletal Muscle, Chemical Composition. Sliding Filament theory of Muscular Contraction. Types of Muscle fiber. Muscle Tone, Chemistry of Muscular Contraction.

Effect of exercises and training on the muscular system. Variation in Temperature and Humidity, Thermoregulation, Sports performance in hot climate, Cool Climate, high altitude.

UNIT II

Cardiovascular System and Exercise

Heart Valves and Direction of the Blood Flow – Conduction System of the Heart – Blood Supply to the Heart – Cardiac Cycle – Stroke Volume – Cardiac Output – Heart Rate – Factors Affecting Heart Rate – Cardiac Hypertrophy – Effect of exercises and training on the Cardio vascular system.

UNIT III

Respiratory System and Exercise

Mechanics of Breathing – Respiratory Muscles, Minute Ventilation – Ventilation at Rest and During Exercise. Diffusion of Gases – Exchange of Gases in the Lungs –Exchange of Gases in the Tissues – Control of Ventilation – Ventilation and the Anaerobic Threshold. Oxygen Debt – Lung Volumes and Capacities – Effect of exercises and training on the respiratory system.

UNIT IV

Metabolism and Energy Transfer

Metabolism– ATP – PC or Phosphagen System – Anaerobic Metabolism – Aerobic Metabolism – Aerobic and Anaerobic Systems during Rest and Exercise. Short Duration High Intensity Exercises – High Intensity Exercise Lasting Several Minutes – Long Duration Exercises.

Stimulants and sports performance: Influence of: Amphetamine, Anabolic steroids, Androstenedione, Beta Blocker, Choline, Creatine, Human growth hormone on sports performance. Narcotic, Stimulants: Amphetamines, Caffeine, Ephedrine, Sympathomimetic amines.

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Amrit Kumar, R, Moses. (1995). *Introduction to Exercise Physiology.* Madras: Poompugar Pathipagam.

Beotra Alka, (2000) *Drug Education Handbook on Drug Abuse in Sports:* Sports Authority of India Delhi.

Clarke, D.H. (1975). *Exercise Physiology*. New Jersey: Prentice Hall Inc., Englewood Cliffs.

David, L Costill. (2004). *Physiology of Sports and Exercise.* Human Kinetics.

Fox, E.L., and Mathews, D.K. (1981). *The Physiological Basis of Physical Education and Athletics.* Philadelphia: Sanders College Publishing.

Guyton, A.C. (1976). *Textbook of Medical Physiology.* Philadelphia: W.B. Sanders co. Richard, W. Bowers. (1989). *Sports Physiology*. WMC: Brown Publishers.

Sandhya Tiwaji. (1999). *Exercise Physiology.* Sports Publishers.

Shaver, L. (1981). *Essentials of Exercise Physiology*. New Delhi: Subject Publications. Vincent, T. Murche. (2007). *Elementary Physiology.* Hyderabad: Sports Publication.

William, D. Mc Aradle. (1996). *Exercise Physiology, Energy, Nutrition and Human Performance.* Philadelphia: Lippincott Williams and Wilkins Company.

SEMESTER- I
THEORY COURSES
MPCC-103

SPORTS BIOMECHANICS AND KINSESIOLOGY

UNIT I

Introduction

Meaning, nature, role and scope of Applied kinesiology and Sports Biomechanics.

Meaning of Axis and Planes, Dynamics, Kinematics, Kinetics, Statics Centre of gravity -Line of gravity plane of the body and axis of motion, Vectors and Scalars.

UNIT II

Muscle Action

Origin, Insertion and action of muscles: Pectoralis major and minor, Deltoid, Biceps, Triceps (Anterior and Posterior), Trapezius, serratus, Sartorius, Rectus femoris, Abdominis, Quadriceps, Hamstring, Gastrocnemius.

UNIT III

Motion and Force

Meaning and definition of Motion. Types of Motion: Linear motion, angular motion, circular motion, uniform motion. Principals related to the law of Inertia, Law of acceleration, and law of counter force. Meaning and definition of force- Sources of force -Force components. Force applied at an angle - pressure -friction -Buoyancy, Spin - Centripetal force - Centrifugal force. Analysis of Movement: Types of analysis of movements: Kinesiological, Biomechanical. Cinematographic. Methods of analysis – Qualitative, Quantitative, Predictive

UNIT IV

Projectile and Lever

Freely falling bodies, Projectiles -Equation of projectiles stability Factors influencing equilibrium –

Guiding principles for stability -static and dynamic stability. Meaning of work, power, energy, kinetic energy and potential energy.

Leverage -classes of lever - practical application. Water resistance - Air resistance -Aerodynamics.

REFERENCE:

Deshpande S.H.(2002*). Manav Kriya Vigyan – Kinesiology (Hindi Edition)* Amravati :Hanuman Vyayam Prasarak Mandal.

Hoffman S.J. *Introduction to Kinesiology (Human Kinesiology publication I*n.2005. Steven Roy, & Richard Irvin. (1983). *Sports Medicine.* New Jersery: Prentice hall. Thomas. (2001). *Manual of structural Kinesiology*, New York: Me Graw Hill.

Uppal A.K. Lawrence Mamta MP *Kinesiology*(Friends Publication India 2004)

Uppal, A (2004), *Kinesiology in Physical Education and Exercise Science,* Delhi Friends publications.

Williams M (1982) *Biomechanics of Human Motion*, Philadelphia; Saunders Co.

SEMESTER I THEORY COURSES
MPEC-104

TEST, MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION

(ELECTIVE)

UNIT I

Introduction

Meaning and Definition of Test, Measurement and Evaluation. Need and Importance of Measurement and Evaluation. Criteria for Test Selection – Scientific Authenticity. Meaning, definition and establishing Validity, Reliability, Objectivity. Norms, Administrative Considerations.

UNIT II

Physical Fitness Tests and Motor Fitness Tests

Physical Fitness Test: AAHPERD Health Related Fitness Battery (revised in 1984), ACSM Health Related Physical Fitness Test, Roger's physical fitness Index. Cardio vascular test; Harvard step test, 12 minutes run / walk test

Meaning and Definition of Motor Fitness. Test for Motor Fitness; Indiana Motor Fitness Test (for elementary and high school boys, girls and College Men) Oregon Motor Fitness Test (Separately for boys and girls) - JCR test. Motor Ability; Barrow Motor Ability Test, Barrow Motor Ability Test.

UNIT III

Anthropometric and Aerobic-Anaerobic Tests

Physiological Testing: Aerobic Capacity: The Bruce Treadmill Test Protocol, 1.5 Mile Run test for college age males and females. Anaerobic Capacity: Margaria-Kalamen test, Wingate Anaerobic Test, Anthropometric Measurements: Method of Measuring Height: Standing Height, Sitting Height. Method of measuring Circumference: Arm, Waist, Hip, Thigh. Method of Measuring Skin folds: Triceps, Sub scapular, Suprailiac.

UNIT IV

Skill Tests

Specific Spots Skill Test: Badminton: Miller Wall Volley Test. Basketball: Johnson Basketball Test. Cricket: Sutcliff Cricket test. Hockey: Friendel Field Hockey Test. Volleyball, Russel Lange Volleyball Test. Football: Mor-Christian General Soccer Ability Skill Test Battery, Johnson Soccer Test, Mc-Donald Volley Soccer Test. Tennis: Dyer Tennis Test.

Note: Practical of indoor and out-door tests be designed and arranged internally.

REFERENCES:

Authors Guide (2013) ACSM's *Health Related Physical Fitness Assessment Manual*, USA: ACSM Publications

Collins, R.D., & Hodges P.B. (2001) *A Comprehensive Guide to Sports Skills Tests and Measurement* (2nd edition) Lanham: Scarecrow Press

Cureton T.K. (1947) *Physical Fitness Appraisal and Guidance*, St. Louis: The C. Mosby Company

Getchell B (1979) *Physical Fitness A Way of Life*, 2nd Edition New York, John Wiley and Sons, Inc

Jenson, Clayne R and Cynt ha, C. Hirst (1980) *Measurement in Physical Education and Athletics*, New York, Macmillan Publising Co. Inc

Kansal D.K. (1996), *"Test and Measurement in Sports and Physical Education,* New Delhi: DVS Publications

Krishnamurthy (2007) *Evaluation in Physical Education and Sports*, New Delhi; Ajay Verma Publication

Vivian H. Heyward (2005) *Advance Fitness Assessment and Exercise Prescription*, 3rd Edition, Dallas TX: The Cooper Institute for Aerobics Research

Wilmore JH and Costill DL. (2005) *Physiology of Sport and Exercise*: 3rd Edition. Champaigm IL: Human Kinetics

Yobu, A (2010), *Test, Measurement and Evaluation in Physical Education in Physical Education and Sports.* New Delhi; Friends Publications

SEMESTER I THEORY COURSES
MPEC-105

SPORTS TECHNOLOGY

UNIT I

Sports Technology

Meaning, definition, purpose, advantages and applications, General Principles and purpose of instrumentation in sports, Workflow of instrumentation and business aspects, Technological impacts on sports. Science of Sports Materials: Adhesives- Nano glue, nano moulding technology, Nano turf. Foot wear production, Factors and application in sports, constraints. Foams- Polyurethane, Polystyrene, Styrofoam, closed- cell and open-cell foams, Neoprene, Foam. Smart Materials – Shape Memory Alloy (SMA), Thermo chromic film, High-density modelling foam.

UNIT II

Surfaces of Playfields

Modern surfaces for playfields, construction and installation of sports surfaces. Types of materials – synthetic, wood, polyurethane. Artificial turf. Modern technology in the construction of indoor and outdoor facilities. Technology in manufacture of modern play equipments. Use of computer and software in Match Analysis and Coaching.

UNIT III

Modern equipment

Playing Equipments: Balls: Types, Materials and Advantages, Bat/Stick/ Racquets: Types, Materials and Advantages. Clothing and shoes: Types, Materials and Advantages. Measuring equipments: Throwing and Jumping Events. Protective equipments: Types, Materials and Advantages. Sports equipment with nano technology, Advantages.

UNIT IV

Training Gadgets

Basketball: Ball Feeder, Mechanism and Advantages. Cricket: Bowling Machine, Mechanism and Advantages, Tennis: Serving Machine, Mechanism and Advantages, Volleyball: Serving Machine Mechanism and Advantages. Lighting Facilities: Method of erecting Flood Light and measuring luminous. Video Coverage: Types, Size, Capacity, Place and Position of Camera in Live coverage of sporting events.

Note: Students should be encouraged to design and manufacture improvised sports testing equipment in the laboratory/workshop and visit sports technology factory/ sports goods manufacturers.

REFERENCE:

Charles J.A. Crane, F.A.A. and Furness, J.A.G. (1987) *"Selection of Engineering Materials"* UK: Butterworth Heiremann.

Finn, R.A. and Trojan P.K. (1999) *"Engineering Materials and their Applications"* UK: Jaico Publisher.

John Mongilo, (2001), *"Nano Technology 101 "New York: Green wood publishing group.*

Walia, J.S. *Principles and Methods of Education* (Paul Publishers, Jullandhar), 1999.

Kochar, S.K. *Methods and Techniques of Teaching* (New Delhi, Jullandhar, Sterling Publishers Pvt. Ltd.), 1982

Kozman, Cassidy and Jackson. *Methods in Physical Education* (W.B. Saunders Company, Philadelphia and London), 1952.

SEMESTER-II

THEORY COURSES

MPCC-201

APPLIED STATICTICS IN PHYSICAL EDUCATION AND SPORTS

UNIT I

Introduction

Meaning and Definition of Statistics. Function, need and importance of Statistics. Types of Statistics.

Meaning of the terms, Population, Sample, Data, types of data. Variables; Discrete, Continuous. Parametric and non-parametric statistics.

UNIT II

Data Classification, Tabulation and Measures of Central Tendency

Meaning, uses and construction of frequency table.

Meaning, Purpose, Calculation and advantages of Measures of central tendency – Mean, median and mode.

UNIT III

Measures of Dispersions and Scales

Meaning, Purpose, Calculation and advances of Range, Quartile, Deviation, Mean Deviation, Standard Deviation, Probable Error. Meaning, Purpose, advantages of scoring scales; Sigma scale, Z Scale, Hull scale

UNIT IV

Inferential and Comparative Statistics

Tests of significance; Independent "t" test, Dependent "t" test; chi – square test, level of confidence and interpretation of data.

Meaning of correlation, co-efficient of correlation, calculation of co-efficient of correlation by the product moment method. Concept of ANOVA and ANCOVA.

Note : It is recommended that the theory topics be accompanied with practical, based on computer software of statistics.

REFERENCE

Best J. W (1971) *Research in Education,* New Jersey; Prentice Hall, Inc

Clark D.H. (1999) *Research Problem in Physical Education* 2nd edition, Eaglewood Cliffs, Prentice Hall, Inc.

Jerry R Thomas & Jack K Nelson (2000) *Research Methods in Physical Activities;* Illonosis; Human Kinetics;

Kamlesh, M. L. (1999) *Research Methodology in Physical Education and Sports*, New Delhi

Rothstain A (1985) Research Design and Statistics for Physical Education, Englewood Cliffs:Prentice Hall, Inc

Sivaramakrishnan. S. (2006) *Statistics for Physical Education*, Delhi; Friends Publication

Thirumalaisamy (1998),*Statistics in Physical Education,* Kara ikudi, Senthil kumar Publications.

SEMESTER-II THEORY COURSES

MPCC-202

YOGIC SCIENCES

UNIT I

Introduction

Meaning and Definition of Yoga. Astanga Yoga: Yama, Niyama, Aasna, Pranayama, Prathyahara, Dharana, Dhyana, Samadhi,

Role of Yoga in Psychological Preparation of athlete: Mental Wellbeing, Anxiety, Depression Concentration, Self-Actualization.

Effect of Yoga on Physiological System: Circulatory, Skeletal, Digestive, Nervous, Respiratory, Excretory System.

Concept of Yogic Practices; Yoga Supplemental Exercise; Yoga Compensation Exercise; Yoga Regeneration Exercise; Power Yoga.

UNIT II

Aasanas and Pranayam

Loosening exercise: Techniques and benefits.

Asanas: Types, Techniques and Benefits

Surya Namaskar: Methods and benefits.

Pranayama: Types- Methods and benefits. Principles of Breathing Awareness,

UNIT III

Nadis and Kriyas

Nadis: Meaning, methods and benefits, Chakras: Major Chakaras- Benefits of clearing and balancing Chakras.

Shat Kriyas- Meaning, Techniques and Benefits of Neti – Dhati – Kapalapathi- Trataka – Nauli – Basti, Bandhas: Meaning, Techniques and Benefits of Jalendra Bandha, Jihva Bandha, Uddiyana Bandha, Mula Bandha.

UNIT IV

Mudras

Meaning, Techniques and Benefits of Hasta Mudras, Asamyukta hastam, Samyukta hastam , Mana Mudra, Kaya Mudra, Banda Mudra, Adhara Mudra. Meditation: Meaning, Techiques and Benefits of Meditation – Passive and active, Saguna Meditation and Nirguna Meditation. Relaxation, Sequence, Counter pose, Time, Place, Clothes, Bathing, Emptying the bowels, Stomach, Diet, Sunbathing.

Note: Laboratory Practicals be designed and arranged internally.

REFERENCE:

George Feuerstein, (1975). *Text Book of Yoga.* London: Motilal Bansaridass Publishers (P) Ltd.

Gore, (1990), *Anatomy and Physiology of Yogac Practices*. Lonavata: Kanchan Prkashan.

Helen Purperhart (2004), *The Yoga Adventure for Children.* Netherlands: A Hunter House book.

Iyengar, B.K.S. (2000), *Light on Yoga*. New Delhi: Harper Collins Publishers.

Karbelkar N.V.(1993) *Patanjal Yogasutra Bhashya (Marathi Edition*) Amravati: Hanuman Vyayam Prasarak Mandal

Kenghe. C.T. (1976). *Yoga as Depth-Psychology and Para-Psychology* (Vol-I): Historical Background, Varanasi: Bharata Manishai.

Kuvalyananada Swami & S.L. Vinekar, (1963), *Yogic Therapy – Basic Principles and Methods.* New Delhi: Govt. of India, Central Health Education and Bureau.

Moorthy A.M. & Alagesan. S. (2004) *Yoga Therapy.* Coimbatore: Teachers Publication House.

Swami Kuvalayanda, (1998), *Asanas. Lonavala: Kaivalyadhama*.

Swami Satyananada Sarasvati. (1989), *Asana Pranayama Mudra Bandha*. Munger: Bihar School of Yoga.

Swami Satyananda Saraswathi. (1984), *Kundalini and Tantra, Bihar: Yoga Publications* Trust.

Swami Sivananda, (1971), *The Science of Pranayama. Chennai: A Divine Life Society* Publication.

Thirumalai Kumar. S and Indira. S (2011) *Yoga in Your Life, Chennai:* The Parkar Publication.

Tiwari O.P. (1998), *Asanas-Why and How*. Lonavala: Kaivalyadham.

SEMESTER- II THEORY COURSES
MPCC-203
SPORTS MANAGEMENT AND CURRICULUM DESIGN IN PHYSICAL EDUCATION

UNIT I

Introduction to Sports Management

Definition, Importance. Basic Principles and Procedures of Sports Management. Functions of Sports Management. Personal Management: Objectives of Personal Management, Personal Policies, Role of Personal Manager in an organization, Personnel recruitment and selection.

UNIT II

Program Management

Importance of Programme development and the role of management, Factors influencing programme development. Steps in programme development, Competitive Sports Programs, Benefits, Management Guidelines for School, Colleges Sports Programs, Management Problems in instruction programme, Community Based Physical Education and Sports program.

UNIT III

Equipments and Public Relation

Purchase and Care of Supplies of Equipment, Guidelines for selection of Equipment and Supplies, Purchase of equipment and supplies, Equipment Room, Equipment and supply Manager. Guidelines for checking, storing, issuing, care and maintenance of supplies and equipment. Public Relations in Sports: Planning the Public Relation Program – Principles of Public Relation – Public Relations in School and Communities – Public Relation and the Media.

UNIT IV

Curriculum

Meaning and Definition of Curriculum. Principles and approaches of Curriculum Construction: Students centered, Activity centered, Community centered, forward looking principle, Principles of integration, Theories of curriculum development, Conservative (Preservation of Culture), Relevance, flexibility, quality, contextually and plurality.

Factors that affecting curriculum: Sources of Curriculum materials – text books – Journals – Dictionaries, Encyclopedias, Magazines, Internet. Integration of Physical Education with other Sports Sciences – Curriculum research, Objectives of Curriculum research – Importance of Curriculum research. Evaluation of Curriculum, Methods of evaluation.

Reference:

Aggarwal, J.C (1990). *Curriculum Reform in India – World overviews, Doaba World Education Series* – 3 Delhi: Doaba House, Book seller and Publisher.

Arora, G.L. (1984): *Reflections on Curriculum*, New Delhi: NCERT.

Bonnie, L. (1991). *The Management of Sports*. St. Louis: Mosby Publishing Company, Park House.

Bucher A. Charles, (1993) *Management of Physical Education and Sports* (10th ed.,) St. Louis: Mobsy Publishing Company.

Carl, E, Willgoose. (1982. *Curriculum in Physical Education*, London: Prentice Hall.

Chakraborthy & Samiran. (1998). *Sports Management*. New Delhi: Sports Publication.

Charles, A, Bucher & March, L, Krotee. (1993). *Management of Physical Education and Sports.* St. Louis: Mosby Publishing Company.

Chelladurai, P. (1999). *Human Resources Management in Sports and Recreation. Human Kinetics.*

John, E, Nixon & Ann, E, Jewett. (1964). *Physical Education Curriculum,* New York: The Ronald Press Company.

McKernan, James (2007) *Curriculum and Imagination: Process, Theory, Pedagogy and Action Research,*. U.K. Routledge

NCERT (2000). *National Curriculum Framework for School Education*, New Delhi: NCERT.

NCERT (2005). *National Curriculum Framework,* New Delhi: NCERT.

Williams, J.F. (2003). *Principles of Physical Education.* Meerut: College Book House.

Yadvnider Singh. Sports Management, New Delhi: Lakshay Publication.

SEMESTER- II THEORY COURSES

MPEC-204

ATHLETIC CARE AND REHABILITATION

UNIT I

Corrective Physical Education

Definition and objectives of corrective physical Education. Posture and body mechanics, Standards of Standing Posture. Value of good posture, Drawbacks and causes of bed posture. Posture test – Examination of the spine.

UNIT II

Posture

Normal curve of the spine and its utility, Deviations in posture: Kyphosis, lordosis, flat back, Scoliosis, round shoulders, Knock Knee, Bow leg, Flat foot. Causes for deviations and treatment including exercises.

UNIT III

Sports Injuries Care, Treatment and Support

Principles pertaining to the prevention of Sports injuries – care and treatment of exposed and unexposed injuries in sports – Principles of apply cold and heat, infrared rays – Ultrasonic, Therapy – Short wave diathermy therapy. Strapping/Tapping: Definition, Principles Precautions and techniques of Strapping and Bandages.

Rehabilitation Exercises

Passive, Active, Assisted, Resisted exercise for Rehabilitation, Stretching, PNF techniques and principles.

UNIT IV

Massage

Brief history of massage – Massage as an aid for relaxation – Points to be considered in giving massage – Physiological , Chemical, Psychological effects of massage – Indication / Contra indication of Massage –

Classification of the manipulation used massage and their specific uses in the human body – Stroking manipulation: Effleurage, Pressure manipulation: Petrissage Kneading (Finger, Kneading, Circular) ironing Skin Rolling

Percussion manipulation: Tapotement, Hacking, Clapping, Beating, Pounding, Slapping, Cupping, Poking, Shaking Manipulation, Deep massage.

Note: Each student shall submit Physiotherapy record file of major sports injuries, its care and rehabilitation. The students must be carried to visit nearby physiotherapy center/NIS Physiotherapy center (To be assessed internally)

REFERENCES:

Dohenty. J. Meno.Wetb, Moder D (2000) Track & Field, Englewood Cliffs, Prentice Hal Inc. Lace, M. V. (1951) *Massage and Medical Gymnastics,* London: J & A Churchill Ltd.

Mc Ooyand Young (1954) *Tests and Measurement*, New York: Appleton Century. Naro, C. L. (1967) *Manual of Massage and, Movement*, London: Febra and Febra Ltd.

Rathbome, J.l. (1965) *Corrective Physical education*, London: W.B. Saunders & Co.

Stafford and Kelly, (1968) *Preventive and Corrective Physical Education*, New York.

SEMESTER- II THEORY COURSES

MPEC-205

SPORTS JOURNALISM AND MASS MEDIA

UNIT I

Introduction

Meaning and Definition of Journalism, Ethics of Journalism – Canons of journalism- Sports Ethics and Sportsmanship – Reporting Sports Events. National and International Sports News Agencies.

Concept of Sports Bulletin: Types of bulletin, Journalism and sports education, Structure of sports bulletin, Compiling a bulletin

UNIT II

Role of Journalism in the Field of Physical Education: Sports as an integral part of Physical Education and Sports organization and sports journalism, General news reporting and sports reporting.

Mass Media in Journalism: Radio and T.V. Commentary, Running commentary on the radio, Sports expert's comments. Role of Advertisement in Journalism. Sports Photography: Equipment- Editing – Publishing.

UNIT III

Report Writing on Sports

Brief review of Olympic Games, Asian Games, Common Wealth Games World Cup, National Games and Indian Traditional Games. Preparing report of an Annual Sports Meet for Publication in Newspaper. Organization of Press Meet.

UNIT IV

Journalism

Sports organization and Sports Journalism – General news reporting and sports reporting. Methods of editing a Sports report. Evaluation of Reported News. Interview with and elite Player and Coach.

Note: Practical assignments to observe the matches and prepare report and news of the same; visit to News Paper office and TV Centre to know various departments and their working. Collection of Album of newspaper cuttings of sports news. (To be observed internally)

REFERENCE:

Ahiya B.N. (1988) *Theory and Practice of Journalism*: Set to Indian context Ed3. Delhi : Surjeet Publications

Ahiya B.N. Chobra S.S.A. (1990*) Concise Course in Reporting. New* Delhi: Surjeet Publication

Bhatt S.C. (1993) *Broadcast Journalism Basic Principles.* New Delhi. Haranand Publication

Dhananjay Joshi (2010) *Value Education in Global Perspective*. New Delhi: Lotus Press.

Kannan K (2009) Soft Skills, *Madurai: Madurai*: Yadava College Publication

Mohit Chakrabarti (2008): *Value Education*: Changing Perspective, New Delhi: Kanishka Publication,.

Padmanabhan. A & Perumal A (2009), *Science and Art of Living,* Madurai: Pakavathi Publication

Shiv Khera (2002), *You Can Win*, New Delhi: Macmillan India Limited.

Varma A.K. (1993) *Journalism in India from Earliest Times to the Present Period.* Sterling publication Pvt. Ltd.

Venkataiah. N (2009) *Value Education*,- New Delhi: APH Publishing Corporation. 43

SEMESTER- III THEORY COURSES

MPCC-301

SCIENTIFIC PRINCIPLES OF SPORTS TRAINING

UNIT I

Introduction

Sports training: Definition – Aim, Characteristics, Principles of Sports Training, Over Load: Definition, Causes of Over Load, Symptoms of Overload, Remedial Measures – Super Compensation – Altitude Training – Cross Training

UNIT II

Components of Physical Fitness

Strength: Methods to improve Strength: Weight Training, Isometric, Isotonic, Circuit Training,

Speed: Methods to Develop Speed: Repetition Method, Downhill Run, Parachute Running, Wind Sprints, Endurance, Methods to Improve

Endurance: Continuous Method, Interval Method, Repetition Method, Cross Country, Fartlek Training

UNIT III

Flexibility

Flexibility: Methods to Improve the Flexibility- Stretch and Hold Method, Ballistic Method,

Special Type Training: Plyometric Training.

Training for Coordinative abilities: Methods to improve Coordinative abilities: Sensory Method, Variation in Movement Execution Method, Variation in External Condition Method, Combination of Movement Method, Types of Stretching Exercises.

UNIT IV

Training Plan and Doping

Training Plan: Macro Cycle, Meso-Cycle. Short Term Plan and Long Term Plans Periodisation: Meaning, Single, Double and Multiple Periodisation, Preparatory Period, Competition Period and Transition Period.

Definition of Doping – Side effects of drugs – Dietary supplements – IOC list of doping classes and methods. Blood Doping, Problems in drug detection, Problems with the supply of medicines Subject to IOC regulations: over- the- counter drugs (OTC) – prescription only

medicines (POMs) – Controlled drugs (CDs). Reporting test results – Education

REFERENCES :

Beotra Alka, (2000), *Drug Education Handbook on Drug Abuse in Sports*. Delhi: Sports Authority of India.

Bunn, J.N. (1998) *Scientific Principles of Coaching,* New Jersey Engle Wood Cliffs, Prentice Hall Inc.

Cart, E. Klafs &Daniel, D. Arnheim (1999) *Modern Principles of Athletic Training* St. Louis C. V. Mosphy Company

Daniel, D. Arnheim (1991) *Principles of Athletic Training*, St. Luis, Mosby Year Book

David R. Mottram (1996) *Drugs in Sport, School of Pharmacy*, Liverpool: John Moore University

Gary, T. Moran (1997) – *Cross Training for Sports*, *Canada : Human Kinetics Hardayal Singh (1991) Science of Sports Training,* New Delhi, DVS Publications

Jensen, C.R. & Fisher A.G. (2000) *Scientific Basic of Athletic Conditioning, Philadelphia*

Ronald, P. Pfeiffer (1998) *Concepts of Athletics Training* 2nd Edition, London: Jones and Bartlett Publications

Yograj Thani (2003), *Sports Training*, Delhi : Sports Publications

SEMESTER- III THEORY COURSES

MPCC-302

SPORTS MEDICINE

UNIT I

Introduction

Meaning, definition and importance of Sports Medicine, Definition and Principles of therapeutic exercises. Coordination exercise, Balance training exercise, Strengthening exercise, Mobilization exercise, Gait training, Gym ball exercise Injuries: acute, sub-acute, chronic. Advantages and Disadvantages of PRICE, PRINCE therapy, Aquatic therapy.

Basic Rehabilitation

Basic Rehabilitation: Proprioceptive neuromuscular facilitation: Definition hold, relax, repeated contractions. Show reversal technique exercises. Isotonic, Isokinetic, isometric stretching. Definition. Types of stretching, Advantages, dangers of stretching, Manual muscle grading.

UNIT II

Spine Injuries and Exercise

Head, Neck and Spine injuries: Causes, Presentational of Spinal anomalies, Flexion, Compression, Hyperextension, Rotation injuries. Spinal range of motion. Free hand exercises, stretching and strengthening exercise for head neck, spine. Supporting and aiding techniques and equipment for Head, Neck and Spine injuries.

UNIT III

Upper Extremity Injuries and Exercise

Upper Limb and Thorax Injuries: Shoulder: Sprain, Strain, Dislocation, and Strapping. Elbow: Sprain, Strain, Strapping. Wrist and Fingers: Sprain Strain, Strapping. Thorax, Rib fracture. Breathing exercises, Relaxation techniques, Free hand exercise, Stretching and strengthening exercise for shoulder, Elbow, Wrist and Hand. Supporting and aiding techniques and equipment for Upper Limb and Thorax Injuries.

UNIT IV

Lower Extremity Injuries and Exercise

Lower Limb and Abdomen Injuries: Hip: Adductor strain, Dislocation, Strapping. Knee: Sprain, Strain, Strain, Strapping. Ankle: Sprain, Strain, Strapping. Abdomen: Abdominal wall, Contusion, Abdominal muscle strain. Free exercises – Stretching and strengthening exercise for Hip, knee, ankle and Foot. Supporting and aiding techniques and equipment for Lower limb and Abdomen injures.

Note: Must visit to Physiotherapy Centre or NIS Physiotherapy Centre to observe and record treatment procedure of sports injuries related to track and field events, data collection of sports injury incidences, should be planned internally.

REFERENCES:

Christopher M. Norris. (1993). *Sports Injures Diagnosis and Management for Physiotherapists*. East Kilbride: Thomson Litho Ltd.

James, A. Gould & George J. Davies. (1985). *Physical Physical Therapy*. Toronto: C.V. Mosby Company.

Morris B. Million (1984) *Sports Injuries and Athletic Problem*. New Delhi: Surjeet Publication.

Pande. (1998). *Sports Medicine.* New delhi: Khel Shitya Kendra

The Encyclopedia of Sports Medicine. (1998). *The Olympic Book of Sports Medicine,* Australia: Tittel Blackwell Scientific publications.

Practical: Anthropometric Measurements,

SEMESTER III THEORY COURSES

MPCC-303

SPORTS PSYCHOLOGY

UNIT I

Introduction

Meaning, Definition, History, Need and Importance of Sports Psychology. Present Status of Sports Psychology in India.

Motor Learning: Basic Considerations in Motor Learning, Motor Perception, Factors Affecting Perception, Perceptual Mechanism.

Personality: Meaning, Definition, Structure – Measuring Personality Traits. Effects of Personality on Sports Performance.

Leadership: Meaning, Definition, types. Leadership and Sports Performance.

UNIT II

Motivation

Meaning and Definition, Types of Motivation: Intrinsic, Extrinsic.

Achievement Motivation: Meaning, Measuring of Achievement Motivation.

Group: Definition and Meaning, Group Size, Groups on Composition, Group Cohesion, Group Interaction, Group Dynamics.

Meaning and Definition, Process of Goal Setting in Physical Education and Sports.

UNIT III

Stress: Meaning and Definition, Causes. Stress and Sports Performance.

Anxiety: Meaning and Definition, Nature, Causes, Method of Measuring Anxiety. Competitive Anxiety and Sports Performance.

Aggression: Meaning and Definition, Method of Measurement. Aggression and Sports Performance.

Relaxation: Meaning and Definition, types and methods of psychological relaxation

UNIT IV

Psychological Tests: Types of Psychological Test: Instrument based tests: Pass-along test – Tachistoscope – Reaction timer – Finger dexterity board – Depth perception box – Kinesthesiometer board. Questionnaire: Sports Achievement Motivation, Sports Competition Anxiety.

Note: Prepare a notebook of at least five experiments related to the topics listed in the Units above should be conducted by the students in the psychological laboratory. (Internal assessment.)

REFERENCES:

Authors Guide (2013) *National Library of Educational and Psychological Test (NLEPT) Catalogue of Tests,* New Delhi: National Council of Educational Research and Training Publication.

Authors Guide (2013) *National Library of Educational and Psychological Test (NLEPT) Catalogue of Test*, New Delhi: National Council of Educational Research and Training Publication.

Jain. (2002), *Sports Sociology,* Heal Sahety Kendre Publishers.

Jay Coakley. (2001) *Sports in Society – Issues and Controversies in International Education,* Mc-Craw Seventh Ed.

John D Lauther (2000) *Psychology of Coaching*. Ner Jersy: Prenticce Hall Inc. John D. Lauther (1998) *Sports Psychology.* Englewood, Prentice Hall Inc.

Miroslaw Vauks & Bryant Cratty (1999). *Psychology and the Superior Athlete.* London: The Macmillan Co.

Richard, J. Crisp. (2000). *Essential Social Psychology. Sage Publications.*

Robert N. Singer (2001). *Motor Learning and Human Performance.* New York: The Macmillan Co.

Robert N. Singer. (1989) *The Psychology Domain Movement Behaviors.* Philadelphia: Lea and Febiger.

Thelma Horn. (2002). *Advances in Sports Psychology*. Human Kinetic.

Whiting, K, Karman.,. Hendry L.B & Jones M.G. (1999) *Personality and Performance in Physical Education and Sports.* London: Hendry Kimpton Publishers.

SEMESTER III THEORY COURSES

MPEC-304

EDUCATION TECHNOLOGY IN PHYSICAL EDUCATION AND SPORTS

UNIT I

Nature and Scope

Educational technology-concept, Nature and Scope. Forms of educational technology: teaching technology, instructional technology, and behaviour technology; Transactional usage of educational technology: integrated, complementary, supplementary stand-alone (independent); programmed learning stage; media application stage and computer application stage.

UNIT II

Systems Approach to Physical Education and Communication

Systems Approach to Education and its Components: Goal Setting, Task Analysis, Content Analysis, Context Analysis and Evaluation Strategies; Instructional Strategies and Media for Instruction. Effectiveness of Communication in instructional system; Communication - Modes, Barriers and Process of Communication.

Instructional Design: Concept, Views. Process and stages of Development of Instructional Design. Overview of Models of Instructional Design; Instructional Design for Competency Based Teaching: Models for Development of Self Learning Material.

UNIT III

Audio Visual Media in Physical Education

Audio-visual media - meaning, importance and various forms Audio/Radio: Broadcast and audio recordings - strengths and Limitations, criteria for selection of instructional units, script writing, pre-production, post-production process and practices, Audio Conferencing and Interactive Radio Conference. Video/Educational Television: Telecast and Video Recordings Strengths and limitations, Use of Television and CCTV in instruction and Training, Video Conferencing, SITE experiment, countrywide classroom project and Satellite based instructions. Use of animation films for the development of children's imagination.

UNIT IV

New Horizons of Educational Technology

Recent innovations in the area of ET interactive video - Hypertext, video-texts, optical fiber technology - laser disk, computer conferencing. etc. Procedure and organization of Teleconferencing/Interactive video-experiences of institutions, schools and universities. Recent experiments in the third world countries and pointers for, India with reference to Physical education. Recent trends of Research in Educational Technology and its future with reference to education.

REFERENCE:

Amita Bhardwaj, *New Media of Educational Planning".*Sarup of Sons, New Delhi-2003

Bhatia and Bhatia. *The Principles and Methods of Teaching* (New Delhi : Doaba House), 1959.

Communication and Education, D. N. Dasgupta, Pointer Publishers *Education and Communication for development*, O. P. Dahama, O. P. Bhatnagar, Oxford Page 68 of 71 IBH Publishing company, New Delhi

Essentials of Educational Technology, Madan Lal, Anmol Publications

K. Sampath, A. Pannirselvam and S. Santhanam. I*ntroduction to Educational Technology* (New Delhi: Sterling Publishers Pvt. Ltd.) : 1981.

Kochar, S.K. *Methods and Techniques of Teaching* (New Delhi, Jalandhar, Sterling Publishers Pvt. Ltd.), 1982

Kozman, Cassidy and kJackson. *Methods in Physical Education* (W.B. Saunders Company,Philadelphia and London), 1952

SEMESTER III THEORY COURSES

MPEC-305

PHYSICAL FITNESS AND WELLNESS

UNIT I

Introduction

Meaning and Definition" of Physical Fitness, Physical Fitness Concepts and Techniques, Principles of physical fitness, Physiological principles involved in human movement. Components of Physical Fitness.
Leisure time physical activity and identify opportunities in the community to participate in this activity. Current trends in fitness and conditioning, components of total health fitness and the relationship between physical activity and lifelong wellness.

UNIT II

Nutrition
Nutrients; Nutrition labelling information, Food Choices, Food Guide Pyramid, Influences on food choices-social, economic, cultural, food sources, Comparison of food values. Weight Management-proper practices to maintain, lose and gain. Eating Disorders, Proper hydration, the effects of performance enhancement drugs

UNIT III

Aerobic Exercise
Cardio respiratory Endurance Training; proper movement forms, i.e., correct stride, arm movements, body alignment; proper warm-up, cool down, and stretching, monitoring heart rates during activity. Assessment of cardio respiratory fitness and set goals to maintain or improve fitness levels. Cardio respiratory activities including i.e. power walking, pacer test, interval training, incline running, distance running, aerobics and circuits.

UNIT IV

Anaerobic Exercise
Resistance Training for Muscular Strength and Endurance; principles of resistance training, Safety techniques (spotting, proper body alignment, lifting techniques, spatial, awareness. and proper breathing techniques). Weight training principles and concepts; basic resistance exercises (including free hand exercise, free weight exercise, weight machines, exercise bands and tubing. medicine balls, fit balls) Advanced techniques of weight training

Reference:

David K. Miller & T. Earl Allen, Fitness, *A life time commitment,* Surjeet Publication Delhi 1989.

Dificore Judy, the *complete guide to the postnatal fitness,* A & C Black Publishers Ltd. 35 Bedford row, London 1998

Dr. A.K. Uppal, *Physical Fitness,* Friends Publications (India), 1992. Warner W.K. Oeger & Sharon A. *Hoeger, Fitness and Wellness*, Morton Publishing Company, 1990.

Elizabeth & Ken day, *Sports fitness for women*, B.T. Batsford Ltd, London, 1986.

Emily R. Foster, Karyn Hartiger & Katherine A. *Smith, Fitness Fun, Human Kinetics* Publishers 2002.

Lawrence, Debbie, *Exercise to Music*. A & C Black Publishers Ltd. 37, Sohe Square, London 1999

Robert Malt. 90 day fitness plan, D.K. publishing, Inc. 95, Madison Avenue, New York 2001

SEMESTER-IV THEORY COURSES

MPCC-401

INFORMATION & COMMUNICATION TECHNOLOGY (ICT) IN PHYSICAL EDUCATION

UNIT I

Communication & Classroom Interaction

Concept, Elements, Process & Types of Communication Barriers & Facilitators of communication

Communicative skills of English - Listening, Speaking, Reading & Writing Concept & Importance of ICT Need of

ICT in Education

Scope of ICT: Teaching Learning Process, Publication Evaluation, Research and Administration

Challenges in Integrating ICT in Physical Education

UNIT II

Fundamentals of Computers

Characteristics, Types & Applications of Computers Hardware of Computer: Input, Output & Storage Devices Software of Computer: Concept & Types

Computer Memory: Concept & Types Viruses & its Management

Concept, Types & Functions of Computer Networks Internet and its Applications Web Browsers & Search Engines Legal & Ethical Issues

UNIT III

MS Office Applications

MS Word: Main Features & its Uses in Physical Education

MS Excel: Main Features & its Applications in Physical Education MS Access: Creating a Database, Creating a Table, Queries, Forms & Reports on Tables and its Uses in Physical Education

MS Power Point: Preparation of Slides with Multimedia Effects MS Publisher: Newsletter & Brochure

UNIT IV

ICT Integration in Teaching Learning Process Approaches to Integrating ICT in Teaching Learning Process Project Based Learning (PBL)

Co-Operative Learning Collaborative Learning

ICT and Constructivism: A Pedagogical Dimension, E-Learning, Web Based Learning Visual Classroom

Note: Prepare a notebook of related topics listed in the Units above should be conducted by the students in the ICT laboratory. (Internal assessment.)

REFERENCES:

B. Ram, New Age International Publication, *Computer Fundamental*, Third Edition-2006
Brain under IDG Book. India (p) Ltd Teach Yourself Office 2000, Fourth Edition-2001
Douglas E. Comer, *The Internet Book*, Purdue University, West Lafayette in 2005
Heidi Steel Low price Edition, *Microsoft Office Word 2003- 2004*
ITL Education Solution Ltd. *Introduction to information Technology, Research and Development Wing-2006*

Pradeep K. Sinha & Priti; Sinha, *Foundations computing BPB Publications -2006*. Rebecca Bridges Altman Peach pit Press, *Power point for window, 1999*
Sanjay Saxena, Vikas Publication House, Pvt. Ltd. *Microsoft Office for ever one, Second Edition-2006*

SEMESTER IV THEORY COURSES

MPCC-402

HEALTH EDUCATION AND SPORTS NURTITION

UNIT I

Health Education

Concept, Dimensions, Spectrum and Determinants of Health
Definition of Health, Health Education, Health Instruction, Health Supervision Aim, objective and Principles of Health Education
Health Service and guidance instruction in personal hygiene

UNIT II

Health Problems in India
Communicable and Non Communicable Diseases
Obesity, Malnutrition, Adulteration in food, Environmental sanitation, Explosive, Population,
Personal and Environmental Hygiene for schools
Objective of school health service, Role of health education in schools
Health Services - Care of skin, Nails, Eye health service, Nutritional service, Health appraisal, Health record, Healthful school environment, first- aid and emergency care etc.

Obesity and its hazard, dieting versus exercise for weight control Maintaining a Healthy Lifestyle

UNIT III

Hygiene and Health

Meaning of Hygiene, Type of Hygiene, dental Hygiene, Effect of Alcohol on Health, Effect of Tobacco on Health, Life Style Management, Management of Hypertension, Management of Obesity, Management of Stress

UNIT IV

Introduction to Sports Nutrition

Meaning and Definition of Sports Nutrition, Role of nutrition in sports, Basic Nutrition guidelines, Nutrients: Ingestion to energy metabolism (Carbohydrate, Protein and Fat), Role of carbohydrates, Fat and protein during exercise.

References:

Bucher, Charles A. "*Administration of Health and Physical Education Programme".* Delbert, Oberteuffer, et. al." The School Health Education".

Ghosh, B.N. *"Treaties of Hygiene and Public Health".*

Hanlon, John J. *"Principles of Public Health Administration" 2003.* Turner, C.E. "The School Health and Health Education".

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Boyd-Eaton S. et al (1989) *The Stone Age Health Programme: Diet and Exercise as Nature Intended. Angus and Robertson.*

Terras S. (1994) Stress, *How Your Diet can Help: The Practical Guide to Positive Health Using Diet, Vitamins, Minerals, Herbs and Amino Acids, Thorons*.

SEMESTER -IV THEORY COURSES
MPCC-403

ANTHROPOMTERY

UNIT - I

1 **Anthropometry:** Meaning, Classification, Working and Utility of Anthropometric Instrument, Location of different Land Marks on the Body.
2 **Anthropometric Measurement**: Skill for Anthropometry Measurement, Tolerance Limit, Measurement of Girth.
3 **Kinanthropometry**: Meaning, Importance and application of Kinanthropometry data in sports.

UNIT - II

1 **Growth:** Meaning, Importance, Physical Growth, Normal Growth in adolescence, Growth and Motor Performance.
2 **Maturation:** Meaning, Importance and Scope, Measurement of Maturity and Assessment of Skeletal Maturity.
3 **Physique:** Meaning, Types and Role in Sports.

UNIT – III

1 **Body Proportion**: Meaning, Importance and Sports Specific Body Proportion and Indices.
2 **Body Mass Index**: Meaning, Method of Determination and Importance in Sports.
3 **Phantom stratagem**: Proportional, Z-Scores in Sports, O-scale System

UNIT-IV

1 **Body composition**: Meaning, Importance, Scope in Sports
2 **Somatotyping:** Meaning, Importance & Scope in Sports, Sheldon's & Heath and Carter Method of Somatotyping and Classification of Somatotype, Somato-chart and Somatoplot.
3 **Determination of body composition**: Muscle mass, bone mass and fat mass.

Practical **(20 Marks External)**

Body measurements

- Head
- Face
- Trunk
- Upper & Lower Extremities
- BMI
- Body Composition

References

- Sodhi,S. (1991).*Sports Anthropometry:*Anova Publication.
- Sodhi,S.(1984).*Physique and Selection of sportsmen*:Anova Publication
- Singh,S & Malthotra,P.(1971).*Kinanthropometry* Patiala,Punjab:Lunar Publication.
- Eston,R and Reilly,T.(1977).*Kinanthropometry*. London,England:E. & FN SPON.
- Singh*,S.(1992).Skeletal Maturity.*Human Biology.patiala,Punjab: Publication Society, Punjabi University, Patiala.
- Garry,G.(1975).*Genetic and Anthropological studies of Olympic Athletes*:Academic Press, London.
- Harrison et-al.*(1995).Human Biology*: Oxford University Press, Oxford.

SEMESTER IV THEORY COURSES
MPEC-404

DISSERTATION

1. A candidate shall have dissertation for M.P.Ed. – IV Semester and must submit his/her Synopsis and get it approved by the Head of Department on the recommendation of D.R.C. (Departmental Research Committee).
2. A candidate selecting dissertation must submit his/her proposal two week before the beginning of the IVth Semester Examination.
3. The candidate has to face the Viva-Voce conducted by DRC**.**
4. The dissertation writing must be:.
    a) **CHAPTER-I:** Introduction of the Problem, Statement of the Problem, Objectives of the Study, Hypothesis, Delimitations of the Study, Limitation of the Study, Significance of the Study, Definition and Explanation of Terms.
    b) **CHAPTER-II:** Review of the Literature
    c) **CHAPTER-III**: Methodology And Procedure: Selection of subjects, Reliability of Data, Selection of Variables, Collection of Data, Statistical Computation.
    d) **CHAPTER- IV:** Analysis of data, Discussion and Findings, Discussion of Hypothesis.
    e) **CHAPTER-V:** Summary, Conclusion and Recommendations

    - Bibliography
    - Appendix

SEMESTER IV THEORY COURSES

MPEC-405

SPORTS ENGINEERING

UNIT I

Introduction to sports engineering and Technology

Meaning of sports engineering, human motion detection and recording, human performance, assessment, equipment and facility designing and sports related instrumentation and measurement.

UNIT II

Mechanics of engineering materials

Concept of internal force, axial force, shear force, bending movement, torsion, energy method to find displacement of structure, strain energy. Biomechanics of daily and common activities –Gait, Posture, Body levers, ergonomics, Mechanical principles in movements such as lifting, walking, running, throwing, jumping, pulling, pushing etc.

UNIT III

Sports Dynamics

Introduction to Dynamics, Kinematics to particles – rectilinear and plane curvilinear motion coordinate system. Kinetics of particles – Newton's laws of Motion, Work, Energy, Impulse and momentum.

UNIT IV

Building and Maintenance:

Sports Infrastructure- Gymnasium, Pavilion, Swimming Pool, Indoor Stadium, Out-door Stadium, Play Park, Academic Block, Administrative Block, Research Block, Library, Sports Hostels, etc.

Requirements: Air ventilation, Day light, Lighting arrangement, Galleries, Store rooms, Office, Toilet Blocks (M/F), Drinking Water, Sewage and Waste Water disposal system, Changing Rooms (M/F), Sound System (echo-free), Internal arrangement according to need and nature of activity to be performed, Corridors and Gates for free movement of people, Emergency provisions of lighting, fire and exits, Eco-friendly outer surrounding. Maintenance staff, financial consideration.

Note : Student must prepare notebook related with the building process that include design phase (including brief documentation), construction phase functional (occupational) life, Re-evaluation, refurnish, demolish. preventive maintenance, corrective maintenance, record and register for maintenance. (Internal assessment.)

Reference

Franz K. F. et. al., Editor, *Routledge Handbook of Sports Technology and Engineering* (Routledge, 2013)

Steve Hake, Editor, *The Engineering of Sport* (CRC Press, 1996)

Franz K. F. et. al., Editor *The Impact of Technology on Sports II* (CRC Press, 2007) Helge N., *Sports Aerodynamics* (Springer Science & Business Media, 2009)

Youlin Hong, Editor *Routledge Handbook of Ergonomics in Sport and Exercise* (Routledge, 2013)

Jenkins M., Editor *Materials in Sports Equipment,* Volume I (Elsevier, 2003) Colin White, *Projectile Dynamics in Sport: Principles and Applications.*

Eric C. et al., Editor *Sports Facility Operations Management* (Routledge, 2010)