



**Sri Ramakrishna Mission Vidyalaya  
Maruthi College of Physical Education**

(An Autonomous College Re-accredited with 'B' by NAAC,  
Affiliated to the Tamil Nadu Physical Education &  
Sports University, Chennai)

**COIMBATORE - 641 020.**



**SYLLABUS**

**Master of Physical Education (MPed)  
2016-2018**



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**MASTER OF PHYSICAL EDUCATION (MPEd)  
Syllabus 2016-2018**

**Duration: Two Years**

**REGULATIONS:**

**I Eligibility for admission**

1. The Candidate for admission to the Master of Physical Education (M.P.Ed.,) degree programme should have passed B.P.Ed., examination from any recognized University with minimum of 50%marks and it should be approved by the syndicate of Tamilnadu Physical Education and Sports University, Chennai.
2. Age limit:
  - a. The candidates should not have completed 35 years age as on 1<sup>st</sup> July however, relaxation of three years may be given for SC/ ST.
  - b. Ex – Service man / Experienced Physical Education Teachers shall be given relaxation of six years of age.
3. The candidate should be medically fit and free from any physical deformities. They should submit application form along with medical certificate issued by a Government Doctor not below the rank of Civil Surgeon to the effect that the candidate is fit to undergo strenuous activities.
4. Admission is made based on the following:

Qualifying Examination (B.P.Ed.)	- 25 Marks
Games and Sports Participation	- 25 Marks
* Games and Sports Skill Test	- 50 Marks
Written Test	- 35 Marks
Personal Interview	- 15 Marks
Total	- 150 Marks

\*(The candidate has to perform skill tests in any one of the following games or athletic events. Badminton, Basketball, Cricket, Football, Handball, Hockey, Kabaddi, Kho - Kho, Tennis and Volleyball)

5. The candidates will be selected on the basis of merit following the reservation of seats as prescribed by the Government of Tamil Nadu.

## II. COURSE OF STUDY

- a. Duration of the Course of the study is for two academic years, consisting of four semesters. The total working days shall be not less than 200 days in an academic year, each semester consists of not less than 100 days excluding examination days. Each working day shall consist of four hours of practical work (morning and evening two (2) hours each session) and three (3) hours of theory.
- b. The course of study shall consist of two parts i.e Part I- Theory Part II- Practicum as indicated below

### PART I – THEORY

First Semester			
S. No	Paper Type	Paper Code	Title of the Paper
1	Core Papers	1MC1	Research Methods in Physical Education
		1MC2	Scientific Principles of Training and Coaching
		1MC3	Measurement and Evaluation in Physical Education
2	Elective Papers	1MEA	Exercise Physiology (or)
		1MEB	Applied Kinesiology
3	Supportive Paper	1MS1	Advanced Communication Skills
Second Semester			
4	Core Papers	2MC1	Sports management and Curriculum Design
		2MC2	Officiating and Coaching in Specialization Game – I
		2MC3	Theories of Track and Field

5	Elective Papers	2MEA	Adapted Physical Education (or)
		2MEB	Fitness for Special Population
6	Supportive Paper	2MS1	Applications of Computer
<b>Third Semester</b>			
7	Core Papers	3MC1	Sports Psychology and Sports Sociology
		3MC2	Statistical Application in Physical Education
		3MC3	Experimental Technique in Laboratories
8	Elective Papers	3MEA	Fitness and Wellness (or)
		3MEB	Yogic therapy
9	Supportive Paper	3MS1	Value Education
<b>Fourth Semester</b>			
10	Core Papers	4MC1	Sports Medicine
		4MC2	Officiating and Coaching in Specialization Game – II
		4MC3	Project
11	Elective Papers	4MEA	Sports Nutrition (or)
		4MEB	Applied Biomechanics
12	Supportive Paper	4MS1	Sports Technology

## PART II – PRACTICUM

### FIRST YEAR

#### 1. COACHING

The student has to undergo coaching programme in nearby institutions.

#### 2. TRACK AND FIELD

The student has to specialize in Track and Field during first year in the following events: i) Sprint, ii) Middle and Long Distance Running, iii) Long Jump, iv) Triple Jump, v) Pole

Vault, vi) High Jump, vii) Shot Put, viii) Discus Throw, ix) Javelin Throw, x) Hammer Throw, xi) Hurdles, xii) Combined Events and xiii) Relay Races.

### **3. SPECIALIZATION**

In the first year the candidate has to select any one of the following games as specialization: Badminton, Basketball, Cricket, Football, Handball, Hockey, Kabaddi, Kho-Kho, Tennis, and Volleyball.

### **4. PRACTICUM**

Students should undergo practical examination and submit a record book for the following:

#### **First Semester**

- i) Measurement and Evaluation
- ii) Advanced Communication skills
- iii) Care and Maintenance of play fields Part-I
- iv) Project sports meet Part-I

#### **Second Semester**

- i. Adapted Physical Education / Fitness for Special Population
- ii Applications of computer
- iii Track and field
- iv Specialization Game-I
- v Coaching and Project sports meet Part-II
- vi Care and Maintenance of play fields Part-II

### **SECOND YEAR**

#### **1. SPECIALIZATION**

In the second year the candidate has to select any one of the following games as specialization: Badminton, Basketball, Cricket, Football, Handball, Hockey, Kabaddi, Kho-Kho, Tennis, and Volleyball.



## 2. SPECIAL GAMES/ACTIVITIES

The student has to undergo practical in the following: Kalari, Aerobics, Table Tennis, and Bharathiam.

## 3. PRACTICUM

Students should undergo practical examination and submit a record book for the following:

### **THIRD SEMESTER**

- a) Fitness and Wellness /Yogic Therapy (Also to submit record book)
- b) Experimental Technique in Laboratories: Exercise Physiology, Kinesiology and Biomechanics, Sports Physiotherapy, Sports Psychology. (Also to submit record book)
- c) Value Education
- d) Laying and Marking of play fields and report of tournaments Part-I (Basketball, Cricket, Kabaddi, Football & Kho-kho)
- e) Care and Maintenance of play fields Part-III
- f) Project sports meet Part-III
- g) Internship Coaching

### **FOURTH SEMESTER**

- i) Sports technology
- ii) Specialization Game-II (Also to submit record book)
- iii) Special Games/Activity
- iv) Laying and Marking of play fields and report of tournaments Part-II (Handball, Hockey, Tennis, Volleyball, Badminton)
- v) Care and Maintenance of play fields-Part-IV
- vi) Project sports meet Part-IV

# SCHEME OF EXAMINATION

## PART I – THEORY

FIRST SEMESTER							
Paper Code	Title of the Paper	Marks					
		Hrs.	Int.	Ext.	Total	Pass Mini.	Credit
1MC1	Research Methods in Physical Education	64	25	75	100	50	3
1MC2	Scientific Principles of Training and Coaching	64	25	75	100	50	3
1MC3	Measurement and Evaluation in Physical Education	64	25	75	100	50	3
1MEA	Exercise Physiology	64	25	75	100	50	3
1MEB	Applied Kinesiology						
1MS1	Advanced Communication Skills	33	25	25	50	25	1
Total		289	125	325	450	225	13

## Part – II Practicum

PRACTICUM							
1MP1	Measurement and Evaluation in Physical Education	20	50	-	50	25	1
1MP2	Advanced Communication Skills	20	50	-	50	25	1
1MP3	Care and maintenance of play-fields part-I	40	25	-	25	13	2
1MP4	Project sports meet Part-I	14	25	-	25	13	1
	Coaching	15	-	-	-	-	1
	Track and field	150	-	-	-	-	8
	Specialization Game - I	152	-	-	-	-	8
Total		411	150	-	150	76	22

**Note:**

1. 15 hours of coaching (1 credit) of first semester have been carried over cumulatively to second semester for evaluation.
2. 150 hours of Track and field (8 credits of first semester have been carried over cumulatively to second semester for evaluation.
3. 152 hours of Specialization game – I (8 credits) of first semester have been carried over cumulatively to second semester for evaluation.

**PART I – THEORY**

<b>SECOND SEMESTER</b>							
<b>Paper Code</b>	<b>Title of the Paper</b>	<b>Marks</b>					
		<b>Hrs</b>	<b>Int.</b>	<b>Ext.</b>	<b>Total</b>	<b>Pass Mini.</b>	<b>Credit</b>
2MC1	Sports management and Curriculum Design	64	25	75	100	50	3
2MC2	Officiating and Coaching in Specialization Game-I	64	25	75	100	50	3
2MC3	Theories of Track and Field	64	25	75	100	50	3
2MEA	Adapted Physical Education	64	25	75	100	50	3
2MEB	Fitness for Special Population						
2MS1	Applications of Computer	32	25	25	50	25	1
<b>Total</b>		<b>288</b>	<b>125</b>	<b>325</b>	<b>450</b>	<b>225</b>	<b>13</b>

## PART II – PRACTICUM

PRACTICAL							
2MP1	Adapted Physical Education	20	50	-	50	25	1
2MP2	Fitness for Special Population						
2MP3	Applications of Computer	20	50	-	50	25	1
*2MP4	Track and Field	152	100	200	300	150	8
*2MP5	Specialization Game - I	152	100	200	300	150	8
2MP6	Coaching(100) and Project sports meet Part-II (25)	28 (14+14)	125	-	125	63	2
2MP7	Care and Maintenance of play fields Part-II	40	25	-	25	13	2
<b>Total</b>		<b>412</b>	<b>450</b>	<b>400</b>	<b>850</b>	<b>426</b>	<b>22</b>

\*Note:

1. 150 hours (8 credits) of Track and field of first semester and 152 hours (8credits) of second semester, a total of 302 hours (16 credits) will be evaluated.
2. 152 hours (8 credits) of Specialization game – I of first semester and 152 hours (8credits) of second semester, a total of 304 hours (16 credits) will be evaluated.
3. 15 hours (1 credit) of coaching of first semester and 14 hours (1 credit) of second semester a total of 29 hours (2 credits) will be evaluated.
4. 14 hours (1 credit) of project sports meet of second semester will be evaluated.

## PART I – THEORY

THIRD SEMESTER							
Paper Code	Title of the Paper	Marks					
		Hrs.	Int.	Ext.	Total	Pass Mini.	Credit
3MC1	Sports Psychology and Sports Sociology	64	25	75	100	50	3
3MC2	Statistical Application in Physical Education	64	25	75	100	50	3
3MC3	Experimental Technique in Laboratories	64	25	75	100	50	3
3MEA	Fitness and Wellness	64	25	75	100	50	3
3MEB	Yoga Therapy						
3MS1	Value Education	33	25	25	50	25	1
Total		289	125	325	450	225	13

## PART – II PRACTICUM

PRACTICAL							
3MP1A	Fitness and Wellness (or)	20	50	-	50	25	1
3MP1B	Yogic Therapy						
3MP2	Experimental Technique in Laboratories : Exercise Physiology (25), Kinesiology and Biomechanics (25), Sports Physiotherapy (25), Sports Psychology (25)	80	100	-	100	50	4
3MP3	Value Education	20	50	-	50	25	1
3MP4	Laying and marking of play fields and report of tournaments Part-I (Basketball, Cricket, Football, Kabaddi & Kho – Kho)	80	50	-	50	25	4
3MP5	Care and Maintenance of play fields Part-III	40	25	-	25	13	2

3MP6	Project Track and Field Meet Part-III	14	25	-	25	13	1
3MP7	Internship Coaching	20	100	-	100	50	1
	Specialization game –II	137	-	-	-	-	8
Total		411	400	-	400	201	22

**Note:**

137 hours of Specialization game –II (8 credits) of third semester have been carried over cumulatively to fourth semester for evaluation.

**PART I – THEORY**

FOURTH SEMESTER							
Paper Code	Title of the Paper	Marks					
		Hrs	Int.	Ext.	Total	Pass Mini.	Credit
4MC1	Sports Medicine	64	25	75	100	50	3
4MC2	Officiating and Coaching in Specialization Game - II	64	25	75	100	50	3
4MC3	Thesis	64	25	75	100	50	2
4MC3A	Viva-Voce		25	25	50	25	1
4MEA	Sports Nutrition	64	25	75	100	50	3
4MEB	Applied Biomechanics						
4MS1	Sports Technology	32	25	25	50	25	1
Total		288	150	350	500	250	13

## Part – II Practicum

PRACTICUM							
4MP1	Sports Technology	20	50	-	50	25	1
*4MP2	Specialization Game-II	178	100	200	300	150	8
4MP3	Special Games/Activities: (Kalari, Aerobics, Bharathiam, Table Tennis)	80	100	-	100	50	4
4MP4	Laying and marking of play fields and report of tournaments Part-II (Handball (10), Hockey(10), Tennis(10), Volleyball(10), Badminton(10))	80	50	-	50	25	4
4MP5	Care and Maintenance of play fields Part-IV	40	25	-	25	13	2
4MP6	Project sports meet Part-IV (25)	14	25	-	25	13	1
<b>Total</b>		<b>412</b>	<b>350</b>	<b>200</b>	<b>550</b>	<b>276</b>	<b>20</b>

**\*Note:** 137 hours (8 credits) of Specialization game – II of third semester and 178 hours (8 credits) of fourth semester, total of 315 hours (16 credits) will be evaluated.

	First Semester			Second Semester			Third Semester			Fourth Semester		
	Hrs	Cre-dits	Marks	Hrs	Cre-dits	Marks	Hrs	Cre-dits	Marks	Hrs	Cre-dits	Marks
Part-I Theory	289	13	450	288	13	450	289	13	450	288	13	500
Part-II Practicum	411	22	150	412	22	850	411	22	400	412	20	550

	<b>Marks</b>	<b>Credits</b>
Part – I	1850	52
Part – II	1950	86
<b>Total</b>	<b>3800</b>	<b>138</b>

**Note:**

1. Part I Examination shall consist of Nineteen (19) written papers and a thesis. The thesis should be prepared under the guidance of a member of the staff, who shall be the Advisor/Guide. Thesis is to be completed in the fourth semester.
2. The last date for the submission of thesis will be 7 days before the last theory examination paper of fourth semester. Thesis must be submitted with the signature of the Advisor/ Guide and Principal.
3. Four copies of the thesis, one for the departmental library, one for the guide, one for valuation, and one for candidate should be submitted.
4. For external thesis valuation, one external and one internal examiner shall value the thesis. The internal examiner should be the candidate's advisor/guide.
5. For the external practical examination, there would be one external examiner and one internal examiner who is the concerned staff handling the practical class.
6. If a candidate fails in any paper in any semester he shall be permitted to continue the next semester, in which case he will reappear in the papers in which he had failed in the previous semesters along with all the papers of the current semester.
7. Granting xerox copy of answer script, re-totaling and revaluation could be conducted with a prescribed fee.
8. The candidate must complete the course of study for the degree of Master of Physical Education and pass the final examination within a period of 5 years commencing from his first admission to the course.
9. If a candidate fails in any semester examination and reappears as an ex-student, the internal assessment marks obtained by him shall be carried over.
10. If a candidate fails in Practicum – Specialization, he will be required to take the same at the time of the examination held for regular students in the subsequent years.
11. **Attendance:** A Student must have 80% attendance in theory and practical classes to appear for university examination: If attendance is between 70% to 80% he must produce a Medical



Certificate (only in case he is medically unfit) and obtain the Certificate of Condonation from the concerned authorities by paying condonation fee of 250/-. In other cases, if a student gets less than 80% in attendance he should redo the semester.

12. **Continuous Assessment for Part I – Theory Papers**

- a) **Written Examination (5 Marks)**: Continuous assessment will be graded by the subject teachers. Two tests (CIA-1, CIA-2) will be conducted for each paper. The best of two tests will be considered and converted to 5 marks.
- b) **Assignment / Seminar (5 Marks)**: The teachers will give assignments to the students and 5 marks are allotted for assignments.
- c) **Attendance (5 Marks)**: Regularity in attending classes will be graded as per the percentage of attendance.
- d) **Pre – Semester (10 Marks)**: Pre-Semester examination will be held at the end of each semester before the final semester examination covering all portions for 75 marks. Marks awarded in this examination will be converted to 10 marks.

13. In case a student misses to appear for Continuous Assessment Tests or Pre-semester due to participation in competition or due to genuine reasons, he may be permitted to appear for a special test.

**Internal Marks break up (25 Marks)**

a.	Continuous Internal Assessment Tests (Best out of 2 converted to 5 marks)	5 Marks
b.	Marks Assignment / Seminar	5 Marks
c.	Percentage of Attendance 95 % - and above - 5 Marks 90 % – 94 % - 4 Marks 85 % – 89 % - 3 Marks 81 % – 84 % - 2 Marks 80 % - 1 Mark	5 Marks
d.	Pre Semester 75 Marks converted to 10	10 Marks
Total		25 Marks

14. **Requirements for Passing:** No candidate shall be eligible for the award of the M.P.Ed., degree unless he passed the written examinations (Part-I), Practicum (Part – II)

15. **Revaluation of Examination Papers:** In respect of M.PED Degree Course, any candidate can apply for revaluation of his answer script of any theory paper he had appeared, if he does not satisfy with the marks awarded to him in the paper. Firstly, the candidate has to fill in prescribed application form and remit ₹100 per paper for getting the photo-copy of the answer script. After going through the script, if the candidate desires for revaluation of the answer paper he has to fill in the prescribed application form, pay the revaluation fee (₹400/- per paper) by cash in the Controller's office.

After the expiry of late dates, the script will be revalued by a panel of evaluators and the revised marks will be intimated to the candidates. The candidates who secure change in marks in the revaluation have to surrender their original mark sheets to the Controller of Examinations office to get revised mark sheets. The revaluation system is not applicable for the practical subjects. Applications received after the prescribed due dates will not be entertained by the institution.

16. **Grading System:** To pass in an examination a student has to score a minimum of 50% marks in each paper – Theory and Practicum (Internal and External Combined).

a) To pass in practicum internal examination, a student has to score a minimum of 50% marks in aggregate for each semester.

Minimum Passing	-	50 Marks
50 to 59%	-	Second Class
60% to 74%	-	First Class
75% and above	-	Distinction

- b) A Candidate shall be declared to have passed with distinction if he obtains 75% or more of the aggregate marks at his first appearance.
- c) The weighted average shall be calculated for each semester as follows:

The Product of the marks assigned to each course by number of credits shall be added up. The sum of the products (weighted score) will be divided by the total number of credits. For example:

**Table I – Weighted Average Score**

S. No	Paper Code	Title of the paper	Max. Marks	Marks Obtained	Credit	Weighted Score
1.	1MC1	Research Methods in Physical Education	100	70	3	70x3
2.	1MEA	Exercise Physiology	100	80	3	80x3
3	1MS1	Advanced Communication Skills	50	45	1	45x1

The weighted average score obtained for the above three courses shall be summed up and divided by the number of credits.

Thus,

$$\begin{aligned}
 &= \frac{(70 \times 3) + (80 \times 3) + (45 \times 1)}{3+3+1} \\
 &= \frac{210 + 240 + 45}{7} \\
 &= \frac{495}{7} \\
 &= 70.71
 \end{aligned}$$

Therefore, weighted average mark is 73.75 which is within the range of 70 – 74 i.e. A+ letter grade and graded as First Class (Table II).

## 17. Grading of the Course:

- a. A Ten (10) point scale is used for the evaluation of the performance of the student to provide letter grade for each course and overall grade for the Master's Programme.
- b. The total performance within a semester and the continuous performance from the second semester onwards will be indicated by a Grade Point Average (GPA). Cumulative Grade Point Average (CGPA) and respectively. Hence CGPA is the real indicators of one's performance more than the class.

### Formula

$$\text{Grade Point Average (GPA)} = \frac{\sum_i C_i G_i}{\sum_i C_i}$$

$C_i$  = Credits earned for course  $i$  in any semester.

$G_i$  = Grade Point obtained for course  $i$  in any semester.

GPA =  $\frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses in a semester}}$

**Table II – CONVERSION OF MARKS TO GRADE POINTS AND LETTER GRADE PERFORMANCE IN A COURSE**

Range of Marks	Grade Points	Letter Grade	Description
90 – 100	9.0 – 10.0	O	Outstanding
80 – 89	8.0 – 8.9	D+	Excellent
75 – 79	7.5 – 7.9	D	Distinction
70 – 74	7.0 – 7.4	A+	Very Good
60 – 69	6.0 – 6.9	A	Good
50 – 59	5.0 – 5.9	B	Average
00 – 49	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

## Formula

Cumulative Grade Point Average (CGPA) =  $\frac{\sum n \sum_i C_ni G_{ni}}{\sum n \sum_i C_ni}$

C<sub>i</sub> = Credits earned for course i in any semester.

G<sub>i</sub> = Grade Point obtained for course i in any semester.

n = The semester in which such courses were credited.

$$\text{CGPA} = \frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses in the entire programme}}$$

**Table III – CGPA, GRADE AND CLASSIFICATION OF FINAL RESULT**

CGPA	GRADE	CLASSIFICATION OF FINAL RESULT
9.5 – 10.0	O+	First Class with Exemplary*
9.0 and above but below 9.5	O	
8.5 and above but below 9.0	D++	First Class with Distinction*
8.0 and above but below 8.5	D+	
7.5 and above but below 8.0	D	
7.0 and above but below 7.5	A++	First Class
6.5 and above but below 7.0	A+	
6.0 and above but below 6.5	A	
5.5 and above but below 6.0	B+	Second Class
5.0 and above but below 5.5	B	
0.0 and above but below 5.0	U	Re-appear

\*Note: The candidates who have passed in the first appearance and within the prescribed semester of the Programme are eligible.

## CORE PAPER – I

### 1MC1 - RESEARCH METHODS IN PHYSICAL EDUCATION

#### Objectives:

After studying this paper the student teachers will be able to:

1. Introduction to research methods
2. Formation and development of research problem.
3. Use the descriptive method.
4. Understand the aspects of experimental research.
5. Tools used in the research.

**UNIT I: Introduction to research methods:** Meaning and Definition of Research – Need – Nature & Scope of Research in Physical Education – Classification of Research – Basic Research – Applied Research – Action Research.

**UNIT II: Formation & Development of Research Problem:** Location of Research Problem – Criteria for Selection of a Problem – Hypothesis – Formulation of Hypothesis – Research Proposal – Qualities of a good researcher.

**UNIT III: Descriptive methods of Research:** Historical Research – Philosophical – Survey – Tools of Research – Questionnaire, Interview, Check Lists, Rating Scales – Case Study – Normative Study – Allied areas of Research – Cinematography, Anthropometry, Body mechanics, Movement analysis, Applied Physiology, and Sports Psychology.

**UNIT IV: Experimental Research:** Meaning of variables – Types of Variables – Population, Sample, Theories of Sampling – Types of Sample – Nature and meaning of experimental Research – Planning for experimental research – Field Experimentation – Laboratory – Experimental Design – Single Group Design – Reverse

group design – Repeated measures design – Static design – Comparative design – Equated group design – Factorial design.

**UNIT V: Format of thesis:** Front material, Body of the thesis, Back material – Mechanics of writing research report and article – Bibliography writing – APA Format.

**References:**

1. John W. Best – Research H. Clarke – “*Research in Education 1959*”, Prentice Hall Inc.
2. Harison Clarke, David H. Clarke – *Research Process in Physical Education and Health*” Englewoon Cliff, New Jercy, Prentice Hall Inc. 1970.
3. Kamalesh, M.L. – *Methodology of Research in Physical Education and Sports*, 1986, New Delhi : Metropolitan Book Co. Pvt.
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5. CR. Kothari, *Research Methodology, Methods a Techniques*, 2001, Wishwa prakasham New Delhi
6. Dipak kumar Bhattacharyya, *Research Methodology*, 2<sup>nd</sup> edition 2006, excel boo Delhi
7. Dr. Abu sufiyan zilli eral *Research Methods for Sports Scientists*, 2001, friends publication (India) Delhi
8. C.R. Kothari, *Research Methodology Methods & Techniques*, 1987, Wiley eastern limited, New Delhi
9. Lokesh kovl, *Methodology of Educational Research*, 1993, vikas publication house, pvt. ltd. New Delhi
10. Dhananjoy Shaw, *Research Methodologies in Physical Education – Sports & Exercise Sciences*, Khal & Sahitya Kendra.

## CORE PAPER – II

### 1 MC2 - SCIENTIFIC PRINCIPLES OF TRAINING AND COACHING

#### Objectives:

After studying this paper the student teachers will be able to:

1. The concept of sports training
2. Understand the physical fitness components.
3. The methods to improve endurance and flexibility.
4. The types of training plans.
5. How to identify talent and its characteristics.

**UNIT I: Sports training:** Definition–Aims of Sports Training–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: Physical Fitness Components:** Strength: Methods to improve Strength:–Weight Training–Isometric, Isotonic, Circuit Training; Speed: Methods to Develop Speed – Interval training, Downhill Run, Parachute Running and Wind Sprints.

**UNIT III: Physical Fitness Components:** Methods to Improve Endurance: Continuous Method, Repetition Method – Farlek training - Flexibility, Stretching Exercises: Methods to Improve the Flexibility- Stretch and Hold Method-Ballistic Method-Special Type of Training: Plyometric Training; Training for Coordinative abilities: Methods to Improve–Sensory Method–Variation in Movement Execution Method–Variation in External Condition Method-Combination of Movement Method.

**UNIT IV: Training Plan:** Macro Cycle Plan– Meso Cycle Plan – Micro Cycle Plan–Short Term Plan and Long Term Plan–Periodisation:–Meaning–Single, Double and Multiple



Periodisation–Preparatory Period– Competition Period and Transition Period.

**UNIT V: Coaching :** Philosophy of coaching, qualities and qualification of a good coach – Identification of Talent - Pre Requisites and Conditions for Developing Talent- Early Recognition.

**References:**

1. Bunn, J.N. Scientific Principles of Coaching. New Jersey: Engle Wood Cliffs. Prentice Hall.
2. Cart, E. Klafs., Daniel, D. Arnheim. Modern Principles of Athletic Training. St.Louis: C.V. Mosphy Company.
3. Daniel, D. Arnheim. (1991). Principles of Athletic Training. St.Louis: Mosby Year Book.
4. Englewood and Cliffs. (1955). Scientific Principles of Coaching, USA.
5. Gary, T. Moran. (1997). Cross Training for Sports. Canada: Human Kinetics.
6. HardayalSingh. (1984). Sports Training, General Theory and Methods. Patiala: NSNIS.
7. Hardayal Singh. (1991). Science of Sports Training. New Delhi: DVS Publications.
8. Jensen, C.R., and Fisher, A.G. Scientific Basic of Athletic Conditioning. Philadelphia.
9. Ronald, P. Pefiffer. (1998). Concepts of Athletic Training. London: II Edition, Jones and Bartlett Publications.
10. Yograj Thani. (2003). Sports Training. Delhi: Sports Publications.
11. Dick W.F. (1980). Sports Training Principles, London, Lepus Books.

## CORE PAPER – III

### 1MC3 - MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION

#### **Objectives:**

After studying this paper the student teachers will be able to:

1. The various aspects of measurement and evaluation.
2. The various test constructions.
3. Physical fitness assessment and its tests.
4. Motor educability and its tests.
5. Specific sports skill test in various games.

**UNIT I: Introduction :** Definition and Meaning of Test - Measurement and Evaluation - Need and Importance of Measurement and Evaluation - Definition and Meaning of Validity – Reliability - Objectivity and Norms - Criteria for Test Selection - Scientific Authenticity - Norms - Administrative Considerations - Basic Principles of Test Construction - Establishing Validity, Reliability, and Objectivity.

**UNIT II: Test Construction:** Construction of Written test – Skill test and Knowledge - Types of Tests - Standardized Tests - Teacher Made Test - Objective Test - Subjective Test - Administration of Tests - a) Advance Preparation b) Duties During Test c) Duties After Test.

**UNIT III: Area of Evaluation:** Definition and Meaning of Physical Fitness - Components of Fitness - Definition and Meaning of Motor Fitness - 1).Health Related Fitness Test, 2).Indiana Motor Fitness Test - Motor Ability, 3).JCR Motor Fitness, 4).Barrow Motor Ability Test, 5).Newton Motor Ability Test, 6).Kraus Weber Minimum Muscular Fitness Test.

**UNIT IV:** Definition - Endurance - Harward Step Test for College Men - Beep test - Definition and Meaning of Motor Educability : Metheny Johonson Test - Adams Sports Type Test - Definition - Posture - Woodruff Body Alignment Posture test.

**UNIT V: Specific Sports Skill Test:** Badminton: Miller Wall Volley Test – Basketball: Johnson Basketball Test, Knox Basketball Test; Hockey: - Friedel Field Hockey Test – Volleyball: Russel Lange Volleyball Test - Brady Volleyball Test; Football: Johnson Soccer Test - MC-Donald Volley Soccer Test; Tennis: Dyer Tennis Test.

**References:**

1. Barrow, Harold M., and Mc Gee Rosemary. (1979). *A Practical Approach to Measurement in Physical Education*. Philadelphia: Lea and Fibiger.
2. Clarke, H. Harrison., and David H. Clarke. (1976). *Application of Measurement in Physical Education*. New Jersey: Prentice Hall, Englewood Cliffs.
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4. Jenson, Clayne R., and Cynt ha, C. Hirst. (1980). *Measurement in Physical Education and Athletic*. New York: Macmillan Publishing Co., Inc.
5. Johnson, Barry L., Jack, K. Nelson. (1982). *Practical Measurement for Evaluation in Physical Education*. New Delhi: Surjeet Publication.
6. Kirkendall, Don R. (1987). *Measurement and Evaluation for Physical Educators*, Illinols: Human Kinetic Publishers, Inc.
7. Krishnamurthy. (2007). *Evaluation at Physical Education and Sports*, New Delhi: Ajay Varma Publication.
8. Safrit., and Margaret, J. (1981). *Evaluation in Physical Education*. New Jersey: Prentice Hall Inc.
9. Sharma Sita Ram. (2005). *Test and Measurement in Education*. New Delhi: Shri Sai Printographers.
10. Veena Varma. (2003). *Evaluation in Physical Education*. New Delhi: Sports Publication.

## **ELECTIVE PAPER – IV - A**

### **1MEA - EXERCISE PHYSIOLOGY**

#### **Objectives:**

After studying this paper the student teachers will be able to:

1. Skeletal muscle structure and exercise effects.
2. Cardiovascular system and exercise effects.
3. Respiratory system and exercise effects.
4. Metabolism and energy transfer during exercise.
5. Climatic conditions, Sports performance and ergogenic aids on exercise.

**UNIT I: Skeletal Muscle:** Structure of the Skeletal Muscle – Chemical Composition – Types of Muscle Fiber – Sliding Filament Theory of Muscular Contraction – Chemistry of Muscular Contraction – Heat Production in the Muscle – Effect of exercises and training on the muscular system.

**UNIT II: Cardiovascular System:** Structure and Function of Heart - 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 Cardio vascular system.

**UNIT III: Respiratory System:** Mechanics of Breathing - Lung Volumes and Capacities - Minute Ventilation - Ventilation at Rest - Ventilation During Exercise - Diffusion of Gases - Pulmonary respiration - Tissue respiration - Control of Ventilation - Anaerobic Threshold - Oxygen Debt – 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 metabolism during Rest and Exercise - Short Duration

High Intensity Exercises - High Intensity Exercise  
Lasting Several Minutes - Long Duration Exercises.

**UNIT V:** **Climatic conditions and sports performance and ergogenic aids:** Variation in Temperature and Humidity - Thermoregulation – Sports performance in hot and cold climate - high altitude.

**Doping:** Definition and Meaning - Classification of doping - Effect of Amphetamine, Anabolic steroids, Beta Blocker – Blood doping – Diuretics – Narcotics, Stimulants – Doping test procedures.

### References:

1. Amrit kumar, R, Moses. (1995). *Introduction to Exercise Physiology*. Madras: Poompugar Pathipagam.
2. Clarke, D.H. (1975). *Exercise Physiology*. New Jersey: Prentice Hall Inc., Englewood Cliffs.
3. David, L Costill. (2004). *Physiology of Sports and Exercise*. Human Kinetics.
4. Sandhya Tiwaji. (1999). *Exercise Physiology*. Sports Publishers.
5. Fox, E.L., and Mathews, D.K. (1981). *The Physiological Basis of Physical Education and Athletics*. Philadelphia: Sanders College Publishing.
6. Guyton, A.C. (1976). *Textbook of Medical Physiology*. Philadelphia: W.B. Sanders Co.
7. Richard, W. Bowers. (1989). *Sports Physiology*. WMC: Brown Publishers.
8. Sharu, L. (1981). *Essentials of Exercise Physiology*. New Delhi: Subject Publications.
9. Vincent, T. Murche. (2007). *Elementary Physiology* Sports Publication.
10. William, D. Mc Aradle. (1996). *Exercise Physiology, Energy, Nutrition and Human Performance*. Philadelphia: Lippincott Williams and Wilkins Company.

## **ELECTIVE PAPER – IV - B**

### **1MEB - APPLIED KINESIOLOGY**

#### **Objectives:**

After studying this paper the student teachers will be able to:

1. Introduction to kinesiology and its application in sports & games.
2. Human motion, application in Sports & EMG.
3. Analysis of upper extremity.
4. Analysis of spinal column and thorax.
5. Analysis of movements and instrument analysis.

**UNIT I: Introduction to the Study of Kinesiology :** Definition and Meaning of kinesiology - Skeletal - Planes and Movements – Importance of Kinesiology in sports and games.

**UNIT II: The Musculoskeletal System :** The Musculature - The Neuromuscular Basis of Human Motion - Types of movements (active and passive) and application in sports – EMG (Electromyography) - Its basis in Kinesiology and sports.

**UNIT III: The Upper and Lower Extremity :** The Shoulder Region - The Elbow, Forearm, Wrist, and Hand - Hip Region - Knee, Ankle, and Foot – Muscles involved in movements and application in sports.

**UNIT IV: The Spinal Column and Thorax :** Terminology of movements and Measurement of Range of Motion - Conditions of Rotary Motion - The Center of Gravity and Stability - The Standing Posture (Muscles involved) - Kinesiology of Fitness and Exercise.

**UNIT V: Moving Objects:** Pushing and Pulling - Throwing, Striking, and Kicking - Locomotion: Solid Surface environment - The Aquatic Environment - Instrumentation for Motion Analysis.

## References:

1. Bruce Abernethy. (2005). *The Biophysical Foundation of Human Movement*. Human Kinetics.
2. Christopher, M. (1993). *Norris Sports Injuries Diagnosis and Management for Physiotherapists*, East Kilbride: Thomson Litho Ltd.
3. Dhananjay, Shaw. (2007). *Pedagogic Kinesiology*. Delhi: Sports and publication.
4. Morris, B. Mellin. (1989). *Sports Injuries and Athletic Problems*. New Delhi: Surjeet Publication.
5. NancyHamilton. (2002). *Kinesiology - Scientific Basis of Human Motion*. Newyork: McGraw - Hill companies,Inc.
6. NichdasStergiou. (2004). *Innovative Analysis of Human Movement*. USA: Human Kinetics.
7. Pande, P.K. (1998). *Sports Medicine*. New Delhi: KhelShitya Kendra.
8. Rita Jain. (2006). *Atlas of Human Body*. New Delhi: Sports Publication.
9. Selvam, V. (2001). *Kinesiology*. Chidamparam: Radhakrishnan publication.
10. Shirl, J. Hoffman. (2005). *Introduction to Kinesiology*. USA: Human Kinetics.
11. Steven Roy., & Richard Irvin. (1983). *Sports Medicine*. New Jersey: Prentice - Hall Inc.
12. Thomas. (2001). *Manual of Structural Kinesiology*. New York: Me Graw - Hill cornparues.
13. Uppal, A. (2004). *Kinesiology - In Physical Education and Exercise Science*. Delhi: Friends publications.

## SUPPORTIVE PAPER – V

### 1MS1 – ADVANCED COMMUNICATION SKILLS

**Objectives:** After studying this paper the student teachers will be able to:

1. Useful expressions in various situations.
2. Reading aspects, writing skills and interview needs.
3. Basics of grammar and sentence types.

**UNIT I: Some useful expressions :** Simple questions and answers – When to use – Where to use and how to use – Important phrasal verbs – Self introduction – introducing two persons - Listening news, T.V, Radio, etc., describing picture, object - Announcement - Master of ceremony - Welcome address - Listening and Answering, describing a sport event (commentary), Group discussion - Handling question, Turn taking - Intervention.

**UNIT II: Reading and Writing and Effective interview:** Reading different kinds of texts - Passage, newspaper picture interpretation - dialogue writing - Report writing comprehension - Listen and Write - Listen and answer - Minutes writing - Agenda preparation - Career skill - Application for job - Covering letter - Resume preparation - Slogan writing - Press Report.

**UNIT III: Grammar:** Tense – Present tense - Past tense - Future tense – Singular – Plural – Gender – Suffix – Prefix - Formation of sentences - Use of dictionary - Types of sentences: Affirmative - negative and exclamatory; Verb, Adjective, Vocabulary: Use of articles – Preposition – adjectives.

#### References:

1. Peter Simon. (2011). *Communication Skills*. Ramesh Publishing House.
2. Radhakrishna, Pillai. and Rajeevan, K. (2011). *Spoken English for You - Level One*. Chennai: Emerald Publishers.
3. Sanjay Kumar. (2011). *Communication Skills*. Ramesh Publishing House.



## CORE PAPER – VI

### 2MC1 - SPORTS MANAGEMENT AND CURRICULUM DESIGN

#### Objectives:

After studying this paper the student teachers will be able to:

1. Understand the concepts of sports management.
2. Plan out the programme management modules.
3. Understand the public relations in sports.
4. Plan the methods in sports marketing.
5. Understand the curriculum design in physical education.

**UNIT I: Sports Management:** Definition and Meaning of Management and Sports Management - Importance of Management- Principles for Management - Organization and Structure - Criteria for Evaluating Physical Education Instructional Programs; Personnel Management: Personnel Policies - Personnel Recruitment and Selection - General and Additional Qualification for Physical Educators.

**UNIT II: Programme management:** Management Guide lines for Competitive Sports Programs in Schools, Colleges and for Person With Disabilities - Importance of Program Development - Role of Management - Factors that Influence Program Development - Facility Management - Planning the Facility - Construction of Indoor and other Facilities.

**UNIT III: Public Relations in Sports:** Planning the Public Relation Program - Principles of Public Relation - Public Relations in School and Communities - Public Relation and the Media - Print Media/News Releases, Pictures and Graphics, Public Speaking, Discussion and Advisory Groups - Radio and Television - Films and

Video – Posters – Exhibits – Brochures – Demonstrations  
- Miscellaneous.

**UNIT IV: Sports Marketing:** Definition of Sports Marketing-  
Market Awareness - Identifying and Targeting Sports,  
Consumers - Life Style Marketing – Product- Planning  
- Product Development Process - Marketing Plan.

**UNIT V: Curriculum Design:** Curriculum Design - Principles  
of Curriculum Development - Criteria for Curriculum  
Content - Steps in Curriculum Planning - Curriculum  
Research in Physical Education - Types of curriculum,  
Evaluation of Curriculum.

**References:**

1. Bonnie, L. (1991). *The Management of Sports*. St.Louis: Mosby Publishing Company, Park House.
2. Carl, E, Willgoose. (1982). *Curriculum in Physical Education*, London: Prentice Hall.
3. Chakraborty., and Samiran. (1998). *Sports Management*, New Delhi: Sports Publication.
4. Charles, A, Bucher., and March, L, Krotee. (1993). *Management of Physical Education and Sports*. St.Louis: Mosby Publishing Company.
5. Chelladurai, P. (1999). *Human Resources Management in Sports and Recreation*. Human Kinetics.
6. John, E, Nixon.,and Ann, E, Jewett. (1964). *Physical Education Curriculum*, New York: The Ronald Press Company.
7. Williams, J.F. (2003). *Principles of Physical Education*. Meerut: College Book House.
8. Yadvnider Singh. *Sports Management*, New Delhi: Lakshay Publication.

## CORE PAPER – VII

### 2MC2 - OFFICIATING AND COACHING IN SPECIALIZATION GAME- I

## CORE PAPER – XVII

### 4MC2 - OFFICIATING AND COACHING IN SPECIALIZATION GAME- II

## BASKETBALL

### Objectives:

After studying this paper the student teachers will be able to:

1. Know the origin and development of the game.
2. Learn the fundamental skills and drills.
3. Understand the tactics and strategies.
4. Interpret the rules and regulations.
5. Plan the training and skill evaluation methods.

### **UNIT I: Origin, History and Development of Basketball:**

Introduction Origin and Development of the Game in and around the world and India – International and National level association and its affiliated bodies - International and National Tournaments - Awards.

### **UNIT II: Fundamental Skills and Drills:**

Basic Body Movements - Advanced Body Control - Ball Handling Skills - Shooting Skills - Defensive Skills – Rebounding - Team Defense and Offense - Drills and Lead-up Activity.

### **UNIT III: Tactics and Strategies:**

Defensive and Offensive Tactics in Basketball – Strategy – Offensive formation – Pivot Play – Post Play – Screening – Fast break – Give and Go – Defensive formation – Man-to-Man – Zone defensive – Full court press – Combination of Man-to-Man defensive.

### **UNIT IV: Rules and Regulations:**

Rules of the Game - Interpretation of the Rules - Duties of the Officials –

Court Officials – Table Officials - System of Officiating  
– Signals - Terminology - Layout and marking of play  
field, surfaces.

**UNIT V: Coaching and Skill Evaluation:** Philosophy of  
Coaching - Coaching Plan - Preparation of Coaching  
Schedules for Various Levels - Physiological Preparation.  
Basketball Skill Tests – Johnson Basketball Test –  
Knox Basketball Test – Team selection – Scouting –  
Organization of Tournaments – Coaching aids.

**References:**

1. Clair Bee. and Ken Norton. (1959). *Basketball Fundamentals and Techniques*, New York: the Ronald Press Company.
2. Clair Bee. and Ken Norton. (1959). *Individual and Team Basketball Drills*. New York: The Ronald Press Company.
3. Clair Bee. and Ken Norton. (1959). *Man -to- Man Defense and Attack*, New York: TRPC.
4. Clair Bee. (1950). *Winning Basketball Plays*. New York: The Ronald Press Company.
5. Kanika, K. (2005). *Basketball Coaching Manual*, New Delhi: Sports Publication.
6. Krause, V, Jerry. (1991). *Basketball Skills and Drills*, Mumbai: The Marine Sports Publishing Division.
7. Lewis Cole. (1978). *A Loose Game: The Sport and Business of Basketball*. New York: The Bobbs Merrill Company.
8. Moontasir Abbas. (1979). *Principles of Basketball*. Bombay: Skanda Publishers.
9. Mukesh Kumar. (2008). *Rules and Measurements in Sports*. New Delhi: Sports Publication.
10. NBA Power Conditioning. (1997). *National Basketball Conditioning Coaches Association*. USA: Human Kinetics Publishers.

# BADMINTON

## Objectives:

After studying this paper the student teachers will be able to:

1. Know the origin and development of the game.
2. Learn the fundamental skills and drills.
3. Understand the tactics and strategies.
4. Interpret the rules and regulations.
5. Plan the training and skill evaluation methods.

**UNIT I: History:** Origin, History and Development of Badminton around the World and in India - Badminton World Federation - Badminton Association of India, Tamil Nadu Badminton Association; **Tournaments:** World Championship, Olympic Games, Commonwealth Games, Asian Games and Other International and Domestic Tournaments.

**UNIT II: Fundamental Skills, Drills:** Grips (forehand grip, back hand grip) - footwork - serve (high serve, low serve, flick serve and drive serve) - clear (overhead clear and underarm clear) - drop shots (forehand drop shot, backhand drop shot, around the head drop shot) - smash (forehand smash, backhand smash, around the head smash) - drive (forehand drive, backhand drive) - net play (net shots, net kill, net lift).

**UNIT III: Tactics and Strategy: Singles Strategy:** Playing systems and Singles strategies– Playing systems and doubles strategies–Playing systems and mixed doubles strategies - Attacking formation – side-by-side formation – movement pattern of offence and defensive skills.

**UNIT IV: Rules and Regulations:** Preparation and maintenance of various badminton courts - court markings - specification of post, net, racket, cock and players kit - officiating (mechanism of officiating, duties and

power of officials, official signals) - rules of badminton singles, doubles and their interpretation - terminology.

**UNIT V: Coaching and Skill Evaluation:** Preparation of coaching schedule –periodization -utilization of training aids –training plan for various levels - talent identification - selection of players - various skill tests in badminton – different surfaces.

**References:**

1. Anujain. (2005). *Badminton Coaching Manual*. Delhi: Sports Publication.
2. Barrow Harold, M., & Mc Gee Rosemary. (1989). *Practical Measurement in Physical Education and Sports*. Philadelphia: Lea and Febiger.
3. Bill Form. (2001). *High-Performance Sports Conditioning*. USA: Human kinetics.
4. Brown, Lee E., et al. (2000). *Training for Speed, Agility and Quickness*. USA: Human Kinetics Publishers Inc.
5. Haffman, Jay. (2002). *Physiological Aspects of Sports Training Performance*. USA: Human Kinetics Publishers Inc.
6. Jain D.(2005). *Badminton Skills and Rules*. USA: AAHPER Publication.
7. PriyankaNarang. (2007). *Teach Yourself Badminton*. New Delhi: Sports Publication.
8. Radhika Son. (2004). *The Game of Badminton*. Delhi: Goodwill Publishing House.
9. Singh, M.K. (2006). *A to Z Badminton*. New Delhi: Friends Publications.
10. Wilmore, Jack H. & Costill, David, C. (1994). *Physiology of Sport and Exercise*. USA: Human Kinetics Publishers Inc.

## CRICKET

### Objectives:

After studying this paper the student teachers will be able to:

1. Know the origin and development of the game.
2. Learn the fundamental skills and drills.
3. Understand the tactics and strategies.
4. Learn the measurement and markings.
5. Understand the preparation of the players.

**UNIT I: Origin and History of Cricket:** History of Cricket in India, ICC, BCCI, TNCA. Tournaments: Test Matches, Ashes Series, Border - Gavaskar Trophy, World Cup, IPL

**UNIT II: Fundamental Skills:** Batting: Grip, Stance, Back Lift, Front Foot Defence, Back Foot Defence, Drives: Off-Drive, Cover-Drive, On-Drive and Straight Drive, Pull Shot, Hook Shot and Sweep Shot; Bowling: Basic Bowling Action, Pace Bowling: Out-swing, In-swing; Off-cutter, Leg-cutter, Spin: Off-spin, Leg-spin, Googly, Chinaman, Top-spin; Fielding: Catching, Long Barrier, Orthodox, Offensive Fielding, Defensive Fielding; Wicket-keeping: Stance, Receiving the Throws and Stumping.

**UNIT III: Tactics and Strategies:** Tactics in Batting – Tactics in Bowling – Field placements for various types of bowling (out swing, in swing, off spin, leg spin, short pitch delivery, etc.,) strategies in wicket keeping.

**UNIT IV: Rules and Regulations:** Measurement of the pitch within creases, umpiring signals, ways of making batsman out – scoring – rules of unfair play.

**UNIT V: Coaching and Skill Evaluation:** Specific training for pace bowlers, spinners, batsman, fielding, wicket –

keeping, training schedule for a college level team, evaluation of bowlers, batsman, fielder, wicket keeper.

**References:**

1. Anantharaman. *Know Cricket Play Cricket*. Bangalore: Sura Books Ltd.,
2. Jack Fingleton. (1958). *Master of Cricket*, 1st Published by William Heine-Mann Led Capetown Auckland.
3. Lan Merrison. (1999). *Play the Game Cricket*, London: Award Lock Book.
4. MCC Joint Committee. (1955). *Cricket on Non-Pitches*.
5. Mudar Patherya., and Barry O'brien. (1988). *The Penguin Book of Cricket Lists*, 1st Published by Penguin Books India Ltd.
6. Ram Mohan Majumdar. (2009). *Cricket Rule Book 2009*. New Delhi: Sports Publication.
7. *The Cricket-Bat and How to Use It*, by an Old cricketer. (2011). General Books Publishers.



## FOOTBALL

### Objectives:

After studying this paper the student teachers will be able to:

1. Know the origin and development of the game.
2. Learn the fundamental skills and drills.
3. Understand the tactics and strategies.
4. Interpret the rules and regulations.
5. Plan the training and skill evaluation methods.

**Unit I: History:** Origin and development of the game Football in the world and in India: National and International organization and its affiliated units – FIFA, AFC, AIFF, TFA – National and International Tournaments Durand Cup, Rovers Cup, Nehru Cup – Merdeka Cup, World Cup, All England championship.

**Unit II: Fundamental Skills and Drills:** Dribbling, Kicking, Heading, Trapping, Throw in, Feinting – Volleying – Goal keeping, Drills to develop the skills – Lead up activities.

**Unit III: Tactics and strategies:** Individual, Group and Team Tactics – Offensive and Defensive tactics – Principles of play – Attack – (Depth – Width – Penetration – Improvisation and Mobility), – Defense – (Depth – Delay – Balancing – Control and Restroy) system of play – Tactical preparation

**Unit IV: Rules and Regulations:** Laws of the game – Interpretation of rules – officials – signals – system of officiating – Layout and Maintenance of play field

**Unit V: Coaching and Skill Evaluation:** Training methods of football players – training schedule – training plan for various levels – talent identification – selection of players – scouting – various skill tests in football.

## References:

1. Alex Welsh. (1998). *The Soccer Goal Keeping Hand Book*. UK:A and C Black Publication.
2. Anil Kumar Vanaik. (2005). *Playing Fields Manual*. Friends Publication.
3. David Brenner. (1979). *Soccer Tactics*. UK: Albany Books,
4. Fillen Davis, and Kelly. (1949). *Teaching Posture and Body Mechanics*. New York: The Ronald Press Company.
5. Hank Nuwer. (1983). *Strategies of Great Football Coaches*, USA: Moffa Press.
6. HTA Whiting. (1975). *Concept in Skill Learning*. Lapus Books.
7. Marry A. Danaher. (1938). *The Commemorative Coinage of Modern Sports*. UK: AS. Barnes and Company.
8. Maurice Golesworthy. (1959). *The Encyclopaedia of Association Football*. Bristol Publication.
9. Mike Ditch. (1988). *Filed, Coaching Soccer: The Progressive Way*, Prentice Hall.
10. Thomas Reilly. (1996). *Science and Soccer*, UK: Eand FN Span Publishers.

## HANDBALL

### Objectives:

After studying this paper the student teachers will be able to:

1. Know the origin and development of the game.
2. Learn the fundamental skills and drills.
3. Understand the tactics and strategies.
4. Interpret the rules and regulations.
5. Plan the training and skill evaluation methods.

**UNIT I: History:** Introduction - Origin and Development of the Game in and around the world and India - - International and National Tournaments – Awards – HFI, AHF, IHF and its affiliated units.

**UNIT II: Fundamental Skills in Handball:** Dribbling, Passing, Shooting, Goal Keeping, Feinting, Blocking and Screening - Team Defensive skill – offensive skill - Drills for the Skills - Lead up Games.

**UNIT III: Tactics and Strategies:** Defensive and Offensive Tactics in Handball – Individual - Group and Team- Strategy in Handball – Defensive System of Play – Offensive System of Play.

**UNIT IV: Rules and Regulations:** Rules and their interpretation - Officials in Handball - Officiating - Mechanism of Officiating - Qualities of Officials - Duties of the Scorer - Time Keeper - Court Referee and Goal Line Referee - Personal Preparation of the Officials - Role of Officials in Competition.

**UNIT V: Coaching and Skill Evaluation:** Training Aids - Periodization - Coaching Plan – Coaching Schedule - Psychological Preparation of Players for Various Seasons - Talent Identification – scouting - Selection of Players – Various Skill Tests in Handball – training aids.

## References:

1. Canadian Team Federation, *Canadian Team Handball Federation Coaching-Volume II*.
2. Christan, Menschl / Hans / Gert Stein / Lothar Fahrman (1987). *Handball*, Democratic Republic Sportverlag Berlin, Germany.
3. Clanton, R. (1997). *Team Handball: Steps to Success*. USA: Human Kinetics.
4. Fritz (1979). *Handball (Technique-Tactics-Rules)*. Falken Verlag Erich Sicker KG.
5. I.H.F (1994). *Mini-A Pamphlet of the European Handball Federation and the International Handball Federation (IHF)*.
6. I.H.F (1998). *International Handball Federation - Handbook*. Lange Gasse - 10, Switzerland.
7. I.H.F (2005). *Rules of the Game-Indoor Handball*. IHF.
8. Lindsay Pennycook / Robin Sykes (1980). *Olympic Handball (The Complete Training Guide for Teachers and Coaches)*. Great Britain. Redwood Dura Limited Troebridge and Esher.
9. Marezinka, Z. (1993). *Playing Handball*. Hungary: Trio Budapest Publishing Company.
10. Tross, H. D. (1988), *Handball (Training-Technique- Tactics)*. Germany: Rowchlt Tashenbuch Verlag Company.

# HOCKEY

## Objectives:

After studying this paper the student teachers will be able to:

1. Know the origin and development of the game.
2. Learn the fundamental skills and drills.
3. Understand the tactics and strategies.
4. Interpret the rules and regulations.
5. Plan the training and skill evaluation methods.

**Unit I: History and Origin of Hockey:** In the world and in India – National and International level organizations and its affiliated units – International hockey federation (FIH), Indian hockey association – National and International tournaments – World cup – Aslansah hockey tournament – Agakhan Cup – Beighton cup – Nationals.

**Unit II: Fundamental skills and drills:** Dribbling - Rolling, Indian Dribble, Push – Straight Push, Reverse push, wrong foot push, Stopping – Right step, left step, reverse step, Hit – Straight hit, reverse hit, wrong foot hit, turn around and hit, Flick – Straight flick, reverse flick, wrong foot flick, Scoop – Straight scoop, push scoop, Drills to develop the skill and lead up activities, Goal keeping.

**Unit III: Tactics and Strategies:** Individual and team tactics – offensive and defensive tactics: Tackling – shadow tackling, lunge tackling, feinting tackling, tackling and retreat: Dodging – Dodging right, dodging left – Passing – Parallel pass, through pass, return pass, back pass, cross pass, over head pass: Set play – Penalty corner, Penalty stroke, Long corner, Positional play. System of play – Pyramid formation, 4-2-3-1-1, 4-2-4-1.

**Unit IV: Rules and Regulations:** Rules of the game and their interpretation – Officials - duties of officials, signals, system of officiating, layout of play field and their maintenance – various playing surface.

**Unit V: Coaching and Skill Evaluation:** Training methods for hockey players – Training plan for various levels – Training schedule – Talent identification – Selection of players – various skill tests in hockey – Henry Friedal field Hockey test, schmithal – French filed hockey test – SAI hockey skill test battery.

**References:**

1. Barrow, Harold M. Rosemany (1964), *A Physical Approach to Measurement in Physical Education*. Philadelphia, Lea and Febilger.
2. Bovarrd John F. Freederich W. Hagmann (1949), *Patrcial E., Test and Measurement in Physical Education*, Philadelphia, W.B. Saunders Company.
3. Jake Maddox (2011), *Field Hockey Firsts*, Capstone Press (MN).
4. Jennifer Hurtig (2006), *For the Love of Field Hockey*, Weigl Publishers.
5. Katrin Barth (2007), *Training Field Hockey*, Meyer and Meyer Fachverlag and Buchhandel Gamb H Publishers.
6. LLC Books (2011), *Field Hockey by Country - Australia, Canada, India and Germany*.
7. R.G Goel, *Encyclopedia of Sports and Games*, Vikas Publication. New Delhi
8. Wein, Horst the *Science of Hockey*, S. Chand Company Limited. New Delhi

# KABADDI

## Objectives:

After studying this paper the student teachers will be able to:

1. Know the origin and development of the game.
2. Learn the fundamental skills and drills.
3. Understand the tactics and strategies.
4. Interpret the rules and regulations.
5. Plan the training and skill evaluation methods.

## UNIT I: **Origin, History and Development of Kabaddi:**

Introduction, Origin, Forms of Kabaddi, (Amar, Gemini, Sanjeevani), the Game's History, Development of the Game (Unproductive Raid Rule, Time out System and Bonus Line Game). National Level Association and its Affiliated Units - Tournaments - State Level, National Level, International Level.

**UNIT II: Fundamentals of Offensive Skills** - the Raid and its Mechanism - Analysis of a Raid - Pre- Considerations of a Raid (Cant, Entry, Settling Nad Path of Attack, Foot Work, Skills, Tactics and, Retreat- Footwork - Types of Footwork - Drills for Footwork - Changing Direction During Raid - Hand Touch - Types of Hand Touch - Toe Touch - Foot Touch (Sudden Leg Thrust and Squat Leg Thrust) - Drills for Leg Thrust- Kicking - Types of Kicking - Kicking Drills. **Fundamentals of Defensive Skills** - Pre- Requisites of a Defence Player - Positions of Play- Positions of Play (Right, Centre and Left Zone) - Systems of Play in Defence (Systems of Play When Seven, Six, Five, Four, Three Two Players in the Court)-Types of Holds and Drills: Ankle Hold, Drills for Ankle Hold, Thigh Hold, Types of Thigh Hold, Knee Hold, Waist Hold/Trunk Hold, Wrist Hold, Blocking, Types of Blocking.

**UNIT III: Tactics and strategy:** Escape Tactics (Turning out to Escape, Jumping over the Chain or Anti, Creating a Gap to Escape, Sliding the Anti to Escape, Breaking the chain) – Pursuit – Types of Pursuit – Baulk Line Raiding tactics – Defensive Tactics and Strategy - Fielding on

the Bulk Line- Counter Action for Pursuit - Combination Holds - Types of Individual Combination Holds – Advanced Offensive Skills: Escape from Ankle Hold, Trunk/Waist Hold - Advanced Defensive Skills: Types of Chain Hold - (Chain Hold by Center/Corner Zone Players, Running Chain Hold and Following Chain Hold).

**UNIT IV: Rules and Regulations** – Rules and their interpretation – Officials – officiating - Official Signals- Duties and Powers of Officials - Preparation and Maintenance of Kabaddi Court - Marking Methods - Lighting Arrangements surface.

**UNIT V: Coaching and Skill Evaluation:** Warming - Up, Types of Warming - Up - Interval Training, Fartlek Training, Weight Training, Circuit Training - Planning and Periodization - Model Training Scheduler - Performance Analysis - Scouting - Tests to Evaluate Skills in Kabaddi: Footwork Test, Reaction Ability Test, Raiding Skill Test, Hand Touch Reach Test, Offensive Skill Test with Cant and Foot Touch Reach Test - Team Selection - Organization of Tournaments – training aids..

### References:

1. Barrow, Harold M. Rosemary (1964), *A Physical Approach to Measurement in Physical Education*, Philidelphia, Lea and Febgier.
2. Hephaestus (2001), *Articles on Sports Originating in South Asia - Kabaddi*, Hephaestus Publishers.
3. Livres Group, *Sports En Inde: Kabaddi* (2007), LLC Books.
4. LLC Books (2011), *Kabaddi Players By Nationality - Bangladesh, Pakistan, India*.
5. LLC Books (2011), *Traditional Sports of India: Kabaddi*.
6. Meenu Syal (2004), *Teach Yourself Kabaddi*, Sports Publications.
7. Prasad Rao (2002), *The Complete Handbook of Kabaddi*, Jagadamba Publications, Tupakula Street, Vizianagaram - 531 202 India.



## KHO - KHO

### Objectives:

After studying this paper the student teachers will be able to:

1. Know the origin and development of the game.
2. Understand the offensive and defensive skills.
3. Understand the offensive and defensive strategies.
4. Interpret the rules and regulations
5. Know the coaching methods.

**UNIT I: Origin and History of Kho Kho:** Development of the game in India and around the World – Kho-kho federation of India –National and International tournaments – Awards.

**UNIT II: Fundamental Skills in Kho-Kho:** Sitting position (Parallel method - Bullet method) - Giving kho-kho-chain kho - Pole turn - Pole diving - Covering (moving in the cross line) and different methods - sudden attack and different methods - Diving (Sitting dive and running dive) - Lead up activities. **Defensive skills in kho-kho:** methods of entry from entry zone - 3-3-2 method - 1-3-1-1 method - 2-3-1 method - six single up method - combination methods- Ring game - Lead up activities.

**UNIT III: Strategies:** Offensive strategies; Pole turn – Sitting pole turn – Running pole turn – fake & pole turn, pole dive – Sitting pole dive (1 step, 2 step, 3 step) – fake & pole dive – Direct pole dive, Defensive strategies: Entry procedures, combination of 3-3-2, 1-3-1-1 and 2-3-1 run, avoiding from sudden attack – avoiding from pole dive – avoid from judgment kho – avoid from direct pole dive – avoiding from third sitting attack.

**UNIT IV: Rules and Regulations of the Game:** Officiating system - Mechanism of officiating - Qualities of officials - Duties of Referee, Umpire, Scorer, Time keeper, Assistant scorer - Score sheets- Marking methods - lighting arrangements.

**UNIT V: Coaching and Skill Evaluation:** Philosophy of coaching - qualities and qualifications of coach - role of coach - Periodization- selection of players - Coaching plan - Model training schedule – Skill evaluation (subjective rating).

**References:**

1. Gauri Chakravarti (2001), *Kho-kho Avlokan*, Sports Publications.
2. Hephaestus (2001), *Articles on Sports Originating in South Asia - Kho-kho*, Hephaestus Publishers.
3. Livres Groupe, *Sports En Inde: Kho-kho* (2007), LLC Books.
4. LLC Books (2011), *Kho-Kho - India Kho-Kho Team*, Bangladesh National Kho-khoTeam.
5. LLC Books (2011), *Kho-Kho Players By Nationality - Bangladesh, Pakistan, India*.
6. LLC Books (2011), *Traditional Sports of India: Kho-Kho*.
7. Meenu Syal (2004), *Teach Yourself Kho-Kho*, Sports Publications.
8. Selvaraj. V.N. (1998), *Kho-Kho*, Teachers Publications, Coimbatore.

# TENNIS

## Objectives:

After studying this paper the student teachers will be able to:

1. Know the origin and development of the game.
2. Learn the fundamental skills and drills.
3. Understand the tactics and strategies.
4. Interpret the rules and regulations.
5. Plan the training and skill evaluation methods.

**UNIT I: History:** Origin and Development of the game around the world and in India – structure and setup of the Indian tennis – ATP-ITF-Davis cup – Olympics – Grand slam: Australian open – French open – Wimbledon – US open.

**UNIT II: Fundamental Skills and Drills:** Services – Volley (Low volley, Medium volley, High volley and Drive volley) – Half volley (net play) – Fore hand and back hand (Base line shots – cross court shots – mid court shots, down the line shots) – Return of serve – lobbing – Smash – drop shot – slice shots.

**UNIT III: Tactics and Strategy:** Single strategy - Tactical priorities (height, direction, depth, spine, speed) - Areas of the court – Tips for base line play – Forehand drill – Tips for mid court play – Tips for net play – Style of play – Counter stroking – Serve and volley – Doubles strategy: First serve in – Play down the middle – Server's responsibility – Receiver's responsibility – Parallel play (Tantom) – One up and one back – Both players back.

**UNIT IV: Rules and regulations:** Laying out Tennis Court (Single, Doubles), Permanent Fixtures, Ace, Faults in Service, Let, Scoring System, Role of court officials, Rules for Doubles game surface.

**UNIT V: Coaching and Skill Evaluation:** Plan: Definition and meaning – Principles and types: micro cycle – meso cycle – macro cycle (annual cycle) – periodisation – Olympics plan – Skill tests – Training aid – Scouting and organization of competition.

**References:**

1. Andy Durham (1987), *Play to Win Tennis*, London, Octopus Books
2. Ashit Paul (1985), *Tennis*, Calcutta: Thomson Press (India) Ltd.
3. Bill Tilden (1950), *How to Play Better Tennis*, New York: Rolls Offset Printing Co. Inc.,
4. Chack Kriese (1989), *Total Tennis Training*, Philadelphia: W.B. Saunders Co.,
5. Chef Murphy (1958), *Tennis for Beginners*, New York: The Ronald Press Company.
6. Evelyn Dewhurst (2002), *Coaching Successfully Tennis*, Delhi: Sports Publications.
7. Jeff Savage (1997), *Andre Agassi*, Minnesota: Lerner Publications Company.
8. John Feinstenis (1992), *Hard Courts*, New York: Villard Books.
9. Peter Sherwood & Gray Alderdice. (1981). *The World's Best Tennis Book Ever*. England: EP publishing Ltd.
10. Rick Chaver. (1996). *Teaching Tennis*. Delhi: Surjeet Publishing.

# VOLLEYBALL

## Objectives:

After studying this paper the student teachers will be able to:

1. Know the origin and development of the game.
2. Learn the fundamental skills and drills.
3. Understand the tactics and strategies.
4. Interpret the rules and regulations.
5. Plan the training and skill evaluation methods.

**UNIT-I: History:** Origin, and Development of Volleyball around the world and India – Federation of International Volleyball – Volleyball Federation of India, Tamil Nadu State Volleyball Association; Tournaments: World Championship, Olympic Games, Commonwealth Games, Asian Games and Other International and Domestic Tournaments.

**UNIT-II: Fundamental Skills, Drills:** Passing – Under Hand pass, Over Head pass, Service-Under Hand service, Over hand service, jump and serve, Attacking: Straight smash, tapping, Hard Driven spike, Blocking: Single block, (Double block and triple block) – Drills and lead up activity for fundamental skills – Mechanical principles of fundamental skills.

**UNIT-III: Technical and Tactical Preparation:** 'W' - Formation, Service reception - Double Triangle Formation- Formation without Block-Scattered Formation, Semicircular Formation - Formation with One Man Block: 1-1-4, 1-2-3, Formation with Two Man Block-2-4, 2-1-3, Offense: Types of attack. System of Defense-Inter Charge System, Over Load System, Rebound System, Self Defense System. Team Composition-6-0,5-1,4-2,3-3,2-4-General and Specific Warming up General and Specific Fitness Developments - Signals and Combination.

**UNIT-IV: Rules and Regulations:** Preparation and maintenance of volleyball court – court markings – specification of post, net, and players kit – officiating (mechanism of officiating, duties and power of officials, official signals) – rules of games and their interpretation – terminology.

**UNIT-V: Coaching and Skill Evaluation:** Preparation of coaching schedule – periodization – utilization of training aids – training plan for various levels – talent identification – selection of players – various skill tests in volleyball – different surfaces.

### References:

1. Arora M (2005), *Volleyball Coaching Manual*. Delhi (India): Sports Publications.
2. Behl R. (2010). *Volleyball Quiz*, New Delhi (India): Sports Educational Technology
3. Company, C.B (2010). *The A to Z of Sports and Games (Rules & Skills)*. Meerut: *Mini Books* (An Imprint of Chaudhary Book Company).
4. Gregory, B.K (2006). *Volleyball Steps to Success*. USA Human Kinetics.
5. India, N.C (2009). *Book of Rules of Games and Sports*. New Delhi: W.I. Judson.
6. Kamesh D.M. (2010). *Field Manual of Sports and Games*. Meerut: Nageen Prakashan Pvt., Ltd.,
7. Kumar V.C (2009). *Volleyball Players' Handbook*. Delhi (India): Friends Publications
8. Mishra, D.C (2007) *Teach Yourself Volleyball*. Delhi (India): Sports Publications
9. Nieder R.C. (1982). *Teaching Volleyball*. Delhi (India). Sujith Publications
10. Programe A.S (2007) *Coaching Youth Volleyball*. USA: Human Kinetics
11. Seidel, B.F (1975). *Sports Skills*. Dubuque WM C. Brown company publishers.
12. Shewan K.K (1999). *Beach Volleyball*. USA: Human Kinetics.

## CORE PAPER – VIII

### 2MC3 - THEORIES OF TRACK AND FIELD

#### Objectives:

After studying this paper the student teachers will be able to:

1. Know the planning and construction & marking of standard track.
2. Know the duties of officials.
3. Interpret the rules and regulations.
4. Know the markings of throwing and combined events.
5. Know the markings of jumping events.

**UNIT I: Planning and Construction:** Marking of Standard and Non-Standard Track (200 m, 400 m) – Arc Start - Group Start – Computation of Running Distance Radius (RDR) and Curb Distance Radius (CDR) – Stagger Distance and Diagonal Excess – Marking of Relays (4x100 m, 4x400 m) – Starting for all Track Events.

**UNIT II: Duties of Officials:** Duties of Management Officials – Duties of Competition Officials – Additional Officials – Officials and their Duties for Track Events – Field Events and Combined Events.

**UNIT III: Marking, Rules and their Interpretations of Track Events :** Sprint, Middle and Long Distance Events (100m, 200m, 400m, 800m, 1500m, 3000m, 5000m, 10000m, 100m Hurdles, 110m Hurdles, Relays, and Marathon Race).

**UNIT IV: Markings – Rules and their Interpretations of Throwing and Combined Events:** Shot put – Discus, Javelin and Hammer Throw – Heptathlon and Decathlon

**UNIT V: Markings - Rules and their Interpretations of Jumping Events :** Long Jump - High Jump - Triple Jump and Pole Vault. **Records:** National and International records of all the athletic events.

## References:

1. American Sports Education Program. (2008). *Coaching Youth Track and Field*, Human Kinetics.
2. Kamlesh. (2010). *Field Manual of Sports and Games*. Meerut: Nageen Prakashan Pvt. Ltd.
3. Edmondson and Burn up. (1979). *Basic Athletics*. London: Bell and Hyman.
4. Ekta Gothi. (2000). *Manual of Track and Field*. Delhi: Sports Publication.
5. George Immanuel. *Track and Field Event Layout and Marking*. IAAF Rules Book.
6. H.C. Buck. (1992). *Rules of Games and Sports*, Madras: Y.M.C.A. Publications.
7. Harold Abranoms and Jack Crump. (1958). *Athletics*. Kings wood Surrey: The Naloret Press.
8. Anand. (1990). *Play Field Manual*. Patiala: NIS Publication.
9. Thani. V. (2003). *Encyclopedia of Track and Field*. New Delhi: Khel Sahitya Kendra.
10. Vivek Thani. (1996). *New Encyclopedia of Track and Field*. Delhi: Khel Sahitya Kendra.



## ELECTIVE PAPER – IX - A

### 2MEA - ADAPTED PHYSICAL EDUCATION

#### **Objectives:**

After studying this paper the student teachers will be able to:

1. Understand the concept of Adapted Physical Education.
2. Know the Adapted Physical Education programme modules.
3. Understand the classification of disability.
4. Know the facilities and equipments of Adapted Physical Education.
5. Learn the physical fitness and motor development.

**UNIT I: Introduction to Adapted Physical Education:** Definition, aim and objectives of adapted physical education- Definition of Disabling Conditions - Physical Education for Persons with Disabilities - Benefits of Physical Education for persons with Disabilities - Recreational Sports Opportunities, Competition Opportunities - Special Olympics, Paralympics and Deaflympics.

**UNIT II: Adapted Physical Education Program Organization and Administration :** Guiding Principles of Adapted Physical Education - Interaction with Regular Physical Education Personnel - Communication with Parents - Nature of the Home Program, Parents as Teachers, Parent Involvement, Parent - Teacher Association, Parent Advisory Committee - Interpreting the Program, Unified Sports, Models: Recreation, Player development and competition.

**UNIT III: Classification of Disability :** Visual Impairment, Hearing Impairment, Neuromuscular Impairment, Orthopedic Impairment - Cardiovascular Impairment, Respiratory Impairment, Intellectual Disability and Emotional Impairment - Adapted Physical Education Activities - Specific Guidelines - Visual Impairment, Hearing Impairment, intellectually challenged, Orthopedically Handicapped.

**UNIT IV: Facilities and Equipments :** Orientation on Facilities and Equipments - Facilities for Elementary Schools, Secondary Schools and Colleges - Types of Equipments - Minimum Equipment – Additional Equipment, Adapted Equipments – Evaluation Equipment Facilities for Leisure, Recreation and Sports for persons with disabilities.

**UNIT V: Physical Fitness and Motor Development :** Definition - Physical fitness, motor fitness - Values of Physical Fitness - Physical Fitness through Life Long Activity - Factors Contributing to Poor Fitness - Evaluating Physical and Motor Fitness - Types of Physical Fitness Tests - Modification of the Physical Fitness Training System - Selected Fitness Problems: Malnutrition and obesity.

**References:**

1. Auxter, D. (1993). *Principles and Methods of Adapted Physical Education*. Mosby Publications.
2. Chapman, F. M. (1960). *Recreation Activities for the Handicapped*. New York: The Ronald Press Company.
3. Daniel, R. C. (1982). *Games Sports and Exercises for the Physically Handicapped*. Philadelphia
4. Jain, A. (2003). *Adapted Physical Education*. Delhi: Sports Publication.
5. Lau, D. S. (2001). *Physical Education for the Physically Handicapped*. Delhi: Khel Sahitya Kendra.
6. Schiffer, M. (1971). *The Therapeutic Play Group*. London: George Allen and Unwin Ltd.
7. Sharma, D. (2006), *Adapted Physical Education*. New Delhi: Friends Publication.
8. Sullivan, G. M. (1982), *Teaching Physical Activities to Impaired Youth: An Approach to Mainstreaming*. USA: Jhon Wilkey and Sons.
9. Thind, M. N. (2010), *Special Olympics Bharat Trainer Manuel*. New Delhi: Special Olympics Bharat.

## ELECTIVE PAPER – IX - B

### 2MEB - FITNESS FOR SPECIAL POPULATION

#### Objectives:

After studying this paper the student teachers will be able to:

1. Learn the concept and training for obese individuals.
2. Learn the concept and training for diabetic individuals.
3. Learn the concept and training for cardiovascular problem individuals.
4. Learn the concept and training for arthritic individuals.
5. Learn the concept and application of Holistic approaches.

**UNIT I: Obesity :** Definition - Types - Body Mass Index - High Risk Population - Problems of Obese Individual Fitness Assessment Techniques - Principles of Designing Exercise Package - Dangers of Exercise- Vital Assessment - First Aid Management.

**UNIT II: Diabetes Mellitus :** Definition - Types - Blood Sugar- High Risk Population - Problems of DM Individual Fitness Assessment Techniques - Principles of Designing Exercise Package - Dangers of Exercise to DM Individual First Aid Management.

**UNIT III: Cardiovascular Problems :** Definition - Atherosclerosis - Thrombus - Emboli - Varicose Veins - Hypertension Problems of Cardiovascular Disease Individuals- Fitness Assessment Techniques - Principles of Designing Exercise Package - Dangers of Exercise- First Aid Management.

**UNIT IV: Arthritic Conditions :** Definition - Types - Osteoarthritis - Rheumatoid Arthritis - High Risk Population Problems of Arthritic Individuals - Fitness Assessment Techniques - Principles of Designing Exercise Package Dangers of Exercise - First Aid Management

**UNIT V: Holistic Yoga:** Ayurveda - Naturopathy - Postural Deformities Exercises - Definition - Aim and Principles - Nutrition - First Aid Management.

**References:**

1. Ann Marie Swank. (2009). *Resistance Training for Special Populations*. Cengage Learning.
2. Body Fat Ranges. (2000). *An Approach for Developing Guidelines Based on Body Mass Index*. Am J Clin Nut.
3. John, P, Buckley. (2008). *Exercise Physiology in Special Populations*. Churchill Livingstone Publishers.
4. Kabeer NH., Simoes EJ., Murayi T., and Brownson, RC. (2001). *Correlates of Overweight and Weight-Loss Practices in Missouri*. Am J Health Behav.
5. Mokdad AH, Serdula MK, Dietz WH, Bowman BA, Marks JS, and Koplan JP (1999). *The Spread of the Obesity Epidemic in the United States*. JAMA.
6. Must A, Spadano J, Coakley EH, Field AE, Colditz G, and Dietz WH. (1999). *The Disease Burden Associated with Overweight and Obesity*. JAMA.
7. Peggie Williamson. (1999). *Exercise for Special Populations*. Lippincott Williams and Wilkins.
8. Robert D Mootz. (1999). *Chiropractic Care of Special Populations*. Jones and Bartlett Publishers.
9. Sorensen, TI. (2000). *The Changing Lifestyle in the World; Body Weight and What Else? Diabetes Care*.

## SUPPORTIVE PAPER – X

### 2MS1 - APPLICATIONS OF COMPUTER

#### Objectives:

After studying this paper the student teachers will be able to:

1. Learn the basics of computer skills.
2. Understand the microsoft office and interpretations.
3. Understand the internet interpretations.

**Unit I : Computer Skills :** Hardware - Software – Monitor – CPU – Mother board - RAM – ROM - Keyboard - Keyboard commands – Input and Output Devices - Logging on and off - Operating System - Managing Windows – Creating, moving and Renaming the folder.

**UNIT II: Microsoft office :** Definition – MS Word – MS Excel – MS Power point - Title Bar - Ribbon - Ruler - Status Bar - Scroll Bar - views - Text Area – MS Word: Mail merge - Page Layout - Bullets and Numbering - References, Bibliography - Hyperlink - Spell check – MS Excel: Formula Bar - Performing Mathematic Calculations - Worksheet views - Print - Creating Charts. MS Powerpoint: Add Background - Add Sound and Set the Speed - Insert pictures and videos.

**UNIT III: Internet :** Computer LAN, WAN, Introduction to Internet, Internet services – WWW – Sending Mail – Receiving Mail – Web Pages – Website – Search Engine – Survey of articles and literatures.

#### References:

1. Karl Schwartz (1998), *Training Guide - Microsoft Excel 97*, DDC Publishers.
2. Manddell (1995), *Computer and Data Processing Today*, West Publishers Co., St.Paul.
3. Microsoft (1998), *Digital Literacy*, Microsoft Publishers.
4. Saksham (2010), *Championship*, Microsoft Publishers.
5. Vikas Gupta (2005), *Comdex - Computer Course Kit*, Dream Tech. Publishers.

## CORE PAPER – XI

### 3MC1 - SPORTS PSYCHOLOGY AND SPORTS SOCIOLOGY

#### Objectives:

After studying this paper the student teachers will be able to:

1. Know the introduction to sports psychology.
2. Understand the personality traits.
3. Understand the anxiety, stress and aggression.
4. Know the psychological tests and its applications.
5. Know the introduction to Sports Sociology and its concepts.

**UNIT I: Sports Psychology:** Definition and Meaning of Sports Psychology – History of Sports Psychology – Need and Importance of Sports Psychology – Present Status of Sports Psychology; Motor Learning: Basic Considerations in Motor Learning – Physical – Motor; Perception: Factors Affecting Perception – Perceptual Mechanism.

**UNIT II: Personality:** Definition and Meaning – Structure – Personality Traits – Measuring Personality Traits – Effects of Sports on Personality and Sports Performance; Motivation: Definition and Meaning – Types of Motivation – Intrinsic – Extrinsic – Achievement Motivation - Measuring Motivation. Motivation and it's Performance; Practice: Factors Affecting Practice – Methods of Practice – Mass – Distributed – Measuring Practice – Feedback – Knowledge of Results.

**UNIT III: Anxiety:** Definition and Meaning – Nature – Causes – Measuring General Anxiety – Competitive Anxiety – Anxiety and Sports Performance; Stress: Definition and Meaning – Causes – Stress and Performance – Arousal – Measuring Stress and Arousal; Aggression: Definition and Meaning – Aggression in Sports – Catharsis in Sports, Measuring Aggression.

**UNIT IV: Psychological Tests:** Types of test:-Paper pencil tests and Instrument based tests. Purpose, Procedure, Need and importance of the tests.

Instrument based tests: Pass-along test – Tachistoscope  
- Reaction timer - Finger dexterity board - Depth perception box - Kinesthesiometer board.

**UNIT V: Sports Sociology:** Definition and Meaning – Sports and Socialization of Individual – Sociology of Sports – Difference between Sociology of Sport - Sports as Social Phenomena. Participation of women in sports in India: Problems-measures; Group: Definition and Meaning – Group Size - Groups on Composition – Group Cohesion – Group Interaction – Group Dynamics – Current Problems and Future Directions in Sports – Crisis Management in Sports – Role of Spectators in Sports – Sports and Media.

**References:**

1. Jay Coakley. (2001). *Sports in Society - Issues and Conterouersies in International Education*, Mc-Craw Seventh Ed.
2. John D Lauther. *Psychology of Coaching*. Ner Jersey: Enginewood Cliffs, Prenticce Hall Inc.
3. Jain. (2002), *Sports Sociology*, Heal Sahety Kendre Publishers.
4. John D.Lauther. *Sports Psychology*. Englewood, Prentice Hall Inc.
5. Miroslaw Vauks and Bryant Cratty. *Psychology and the Superior Athlete*. London: The Macmillan Co.
6. Richard, J. Crisp. (2012). *Essential Social Psychology*. Sage Publications.
7. Robert N. Singer. *Motor Learning and Human Performance*. New York: The Macmillan Co.
8. Robert N. Singer. *The Psychology Domain Movement Behaviour*. Philadelphia: Lea and Febiger.
9. Thelma Horn. (2002). *Advances in Sports Psychology*. Human Kinetic.
10. Whiting, K, Karman., L.B. Hendry and M.G. Jones. *Personality and Performance in Physical Education and Sports*. London: Hendry Kimpton Publishers.

## CORE PAPER – XII

### 3MC2 - STATISTICAL APPLICATION IN PHYSICAL EDUCATION

#### Objectives:

After studying this paper the student teachers will be able to:

1. Know the statistics and measures of central tendency.
2. Understand the measures of variability.
3. Understand correlation and SPSS.
4. Know the construction of norms.
5. Know the elementary graphical methods.

**UNIT I: Statistics:** Definition – Need and Importance of Statistics in Physical Education – Types of Statistics – Descriptive, Comparative, Relationship, Inferential and Predictive Statistics - Frequency Distribution – Measures of Central Tendency - Meaning and Calculation of Measures of Central Tendencies (Mean, Median and Mode).

**UNIT II: Measures of variability:** Meaning, range, quartile deviation, standard deviation, mean deviation and probable error – Calculation of Standard Deviation and Quartile Deviation. Calculation of Independent 't' test – Dependent 't' test – Computation through Excel and SPSS.

**UNIT III: Correlation:** Pearson Product Moment Correlation – Rank Order Correlation – SPSS : Introduction - Meaning - Data View- Variable View - Basic Steps in Data Analysis - Defining Variables - Data Editor -Entering and Editing Data- Add Variables - Saving Data and Output Files.

**UNIT IV: Norms:** Construction of Norms - Types of scales: 6 Sigma Scale, Z-Scale, t-Scale, Hull Scale, Percentile - Normal curve – Properties of Normal Curve, Divergence from Normality.



**UNIT V: Elementary Graphical Methods:** Histogram - Frequency Polygon - Frequency Curve - Cumulative Frequency Curve - Bar Diagram - Pie Diagram. Graph: Drawing Graph - Using MS Word and Excel - Layout – Design - Editing Graphs.

**References:**

1. Chanda, N. (1992). *Statistical Preparation and Social Scientistis*. New Delhi: Reliance Publications House.
2. Ferquson. (1959). *Statistical Analysis in Psychology and Education*. Mrgraw Hill Book Company, Inc.
3. Gupta. (1993). *Fundamentals of Statistics*. Delhi: Himalayas Publishing House.
4. Harrison Clark, D. H. (1987). *Research process in Physical Education*. New Jersey: Prentice-Hall, Inc, Englewood Cliffs.
5. Henty, G. E. (1969). *Statitics in Psychology and Education*. Bombay: Valalls Foffar and Summons Pvt. Ltd.
6. Kothslen, A. A. (1985). *Research Design and Statistics for Physical Education*. New Jersey: Englewood Cliffs: Prentice Hall Inc.
7. Tyrrell, S. (2009). *SPSS Stats Practically Short and Simple*. Ventus Publishing ApS.
8. William E. Wagner, I. (2011). *SPSS Statistics and Research Methods*. USA: SAGE Publications, Inc.
9. Zillieral, A. S. (2001). *Research Methods for Sports Scientists*. Delhi: Friends Publication.
10. Guilford, J. P. (1956). *Fundamental of Statistics in Psychology Educational*. New York: McGraw Hill Book Cp. Inc.

## CORE PAPER – XIII

### 3MC3 - EXPERIMENTAL TECHNIQUE IN LABORATORIES

**Objectives:** After studying this paper the student teachers will be able to:

1. Understand the establishment strategies of research lab.
2. Know the sports physiology lab and its usage.
3. Know the sports physiotherapy lab and its usage.
4. Know the sports psychology lab and its usage.
5. Know the field tests and its usage.

**UNIT I: Establishment of Research Laboratories:** Need for laboratory – Inauguration of the laboratory – suggestions for a comprehensive laboratory – Finance – Facilities – Staff – Shop – Different laboratories.

**UNIT II: Sports Physiology Lab:** Sphygmomanometer – Oximeter – Digital Spirometer, Body composition analyzer, Treadmill, Bicycle ergometer – Skinfold caliper – Lactate analyzer glucometer – purpose – procedure – Scoring.

**UNIT III: Sports Physiotherapy:** Meaning–Guiding principles–Hydrotherapy–Cryotherapy (Modes and Application)–Icepack–Ice wrap– Immersion technique–Ice massage–Ice towel –Thermotherapy(Modes and Application)–Hot bag– Moistheat therapy–Contrast bath–Whirlpool bath –Massage–Physiological effects– Classification of massage (Swedish type)

**UNIT IV: Sports Psychology:** Reaction timer, Finger Dexterity, Hand eye coordination, Mirror tracing board, Depth perception – purpose – procedure – scoring.

**UNIT V: Filed Tests:** 50 m dash, 4X10 m shuttle run, Standing broad jump – Vertical jump – bent knee sit up – 600 m run / walk test, Sit and Reach, Cooper test – Stork balance test - Body composition test – Bass stick test – New York posture rating test, Anthropometry – BMI, Woodruff body alignment test – Goniometer – Grip Dynamometer, Leg Dynamometer.

#### Reference:

1. Harrison H. Clark., and David H Clerk. (1987). *Application and Measurement to Physical Education* (6<sup>th</sup> Edition). New York: Preutice Hall.

## ELECTIVE PAPER – XIV - A

### 3MEA – FITNESS AND WELLNESS

#### **Objectives:**

After studying this paper the student teachers will be able to:

1. Understand the fitness and wellness concepts.
2. Understand the factors influencing fitness.
3. Plan the aerobic exercise programme.
4. Plan the aerobic training methods and modes.
5. Plan the flexibility exercise programme.

**UNIT I: Fitness:** Definition and Meaning of Physical Fitness - Components of Physical Fitness -Values of Physical Fitness - Wellness: Definition and Meaning - Components and Benefits of Wellness - Relationship between Fitness and Wellness.

**UNIT II: Factors Influencing Fitness:** Anatomical Factors, Physiological Factors and Psychological Factors - Benefits of Physical Activity - Types of Exercises used in Fitness (Aerobic, Anaerobic, Weight Training and Stretching,) - Assessment of Cardiovascular Endurance, Muscular Strength and Endurance, Flexibility and Body Composition.

**UNIT III: Designing Aerobic Exercise Programme:** Meaning and Definition and Benefits of Aerobic Exercise -The Exercise Prescription: The Elements of Aerobic Exercise Workout - Modes of Exercise - Intensity of Exercise - Frequency of Exercise - Duration of Exercise - Rate of Progression - Stages of Progression.

**UNIT IV: Aerobic Training Methods and Modes:** Continuous Training (Walking, Jogging, Cycling, Aerobic Dance, Bench Step Aerobics, Step Ergometry and Stair Climbing, Elliptical Training, Aerobic Riding and Water - Based Exercise) - Discontinuous Training (Interval

Training - Treading and Spinning - Circuit Resistance Training) Resistance Training: Meaning -Benefits of Resistance Training - Types of Resistance Training.

**UNIT V: Designing Flexibility Exercise Programme:** Meaning and Definition - Factors Affecting Flexibility -Methods of Stretching; Stretching Exercises for: Feet and Ankles, Lower Legs, Hamstrings, Adductors, Quadriceps, Hips and Gluteals, Lower Torso, Upper Back, Neck, Pectorals, Shoulders, Arms and Wrists; Exercise on Special Population: Exercise and Coronary Heart Diseases, Exercise and Diabetes, Exercise and Obesity.

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## **ELECTIVE PAPER – XIV – B**

### **3MEB - YOGIC THERAPY**

#### **Objectives:**

After studying this paper the student teachers will be able to:

1. Know the introduction about the yogic therapy.
2. Know the concept of yogic therapy
3. Know the yogic therapy for disorders-I
4. Know the yogic therapy for disorders-II
5. Know the yogic diet and its classifications.

**Unit I:        **Meaning of Yogic Therapy** :** Concept of Yoga therapy  
- Importance and Limitations – Role of Yoga therapist  
– Principles – Diagnosis – Yoga for women.

**Unit II:       **Concept of Alternative Medicine:**** Yoga therapy and  
the relevant alternative medicines like Naturopathy,  
Siddha – Ayurveda and Homeopathy.

**Unit III:      **Yogic Therapy for Various Disorders:**** Arthritis –  
Diabetes – Obesity – Constipation – Dyspepsia – Peptic  
Ulcer – Types of Headache – Migraine – Hernia – Back  
Pain.

**Unit IV:      **Yogic Therapy for Psychomatic Disorders:**** Hyper  
and Hypotension – Insomnia – Depression – Stress –  
Allergic Rhinitis – Asthma – Sinusitis.

**Unit V:       **Constituents of Food:**** – Carbohydrate – Fat – Protein –  
Vitamins – Minerals – Trace elements and Water - Yogic  
Diet and its Classification – Satwic – Tamasik – Rajasik  
– Positive balanced yogic diet.

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1. Swami Kavalayananda and Dr. S.L. Vinekar *Yogic Therapy, It's Basic Principles and Methods*, Ministry of Health, Govt of India, New Delhi 1963
2. Dr. K.N. Udupa, *Stress Disorders and its Management by Yoga*, Motilal Banarsidass Publishers Pvt, Ltd, Delhi 1980

3. Dr. Jayadeva Yogendra *Caring Heart Project*. The Yoga Institute Santacrutz Boy 400055
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5. Steven F. Brena: *Yoga and Medicine Penguin Books*, New York, 1972
6. Dr. P. Mariayyah: *Asanas*, Sports Publications Coimbatore, Tamilnadu, India.

## **SUPPORTIVE PAPER – XV**

### **3MS1 - VALUE EDUCATION**

#### **Objectives:**

After studying this paper the student teachers will be able to:

1. Know the introduction and the concept of value education.
2. Know the history of Swami Vivekananda.
3. Understand the educational system of ancient India.

**UNIT I      *Meaning and Definition of Value* :** Need and importance of value education - Types of values: personal, social, professional, cultural, religious and spiritual values - Eternal values of ancient India: Spirituality, simplicity, purity, truth and tolerance - Indian culture, its prosperity and tradition

**UNIT II      *Teachings of Swami Vivekananda* :** Man making and character building education - Development of right attitude, aptitude and interest - Developing discipline, reasoning and problem solving skills - Developing self reliance, self dependence and physical fitness

**UNIT III      *Educational system of ancient India* :** Gurukul system - Indian languages, music, dance and festivals - Brahmacharya Ashrama, importance of Brahmacharya in life - Karma Yoga, Bakthi Yoga - Jnana Yoga and Raja Yoga

#### **References:**

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2. Swami Vivekananda (2003) *My India, The India Eternal*, Ramakrishna Mission Institute of Culture, Gol Park, Kolkata
3. Swami Vivekananda (2005) *Karma Yoga, The Yoga of Action*, Advaita Ashrama, Mayavati, Uttarakhand.

4. Swami Vivekananda (2010) *Bhakthi Yoga, The Yoga of Love and Devotion*, Advaita Ashrama, Mayavati, Uttarakhand.
5. Swami Vivekananda (2009) *Jnana Yoga, The Yoga of Knowledge*, Advaita Ashrama, Mayavati, Uttarakhand
6. Swami Vivekananda(2003) *Raja Yoga, Conquering the Internal Nature*, Advaita Ashrama, Mayavati, Uttarakhand.
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## CORE PAPER – XVI

### 4MC1 - SPORTS MEDICINE

#### Objectives:

After studying this paper the student teachers will be able to:

1. Understand the sports medicine concept.
2. Know the causes and the classification of sports injuries.
3. Interpret the physiotherapy modalities and its usage
4. Understand the common injuries to the athlete.
5. Interpret the rehabilitation procedure for the injuries.

**UNIT I : Introduction to Sports Medicine:** Definition, meaning, concept and role of sports medicine - Preventive aspects of Sports Medicine - Purposes and procedures of the preparticipation, physical examination evaluation - disqualifying conditions.

**UNIT II : Common causes and classification of sports injuries:** Basic principles of the diagnosis of acute and chronic injuries in sports - Diagnostic tools - Initial management of injuries in sports - Prevention of sports injuries: Physical Conditioning and training, Diet, Protective equipments and Psychological stress.

**UNIT III : Physiotherapy Modalities:** Guiding principles of Physiotherapy - Therapeutic modalities and procedures - Hydrotherapy - Cryotherapy - Thermotherapy - Electrotherapy: Meaning - indications, contra indications and application of: Ultrasound Therapy - Electrical Muscle Stimulation - Transcutaneous Electrical Nerve Stimulation (TENS) Interferential Therapy - Traction. Massage: Physiological Effects of Massage - Classification of Massage (Swedish System)

**UNIT IV : Injuries to the running athlete:** Swimming injuries - thermal injuries : Heat injuries, prevention of heat injuries, heat injuries syndromes (Heat cramp, heat

fatigue, heat exhaustion, heat stroke and mixed heat - injury syndrome) - Drugs and medications commonly used in athletics.

**UNIT V :** **Rehabilitation:** definition, meaning, Goals and stages of rehabilitation - Rehabilitation programme for Neck, Shoulder, Arm, Elbow, Wrist, Hand, Upper Back, Lower Back, Hip, Thigh, Knee, Lower leg, Ankle and Foot.

### References:

1. Steven Roy - Richard In/in - *Sports Medicine* 1983. New Jersey, Prentice - Hall Inc.
2. Cleare Maxwell - Hudson - *The Complete Book of Massage* 1988. London Dorling Kind ersley Ltd.
3. Morris, B. Mellin, *Sports Injuries and Athletic Problems* 1989. Surjeet Publication. New Delhi.
4. James, A. Gould III - *Orthopedic and Sports* George J. Davies - Physical Therapy 1985. C.V. Mosby Compaly, Toronto.
5. *The Encyclopaedia of Sports Medicine The Olympic book of sports medicine* edited by A. Dinx, H.G. Knu ttgen and K. Tittel Blackwell scientific publications, 1998, Australia.
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**CORE PAPER – XVIII**  
**4MC3 - THESIS**  
**ELECTIVE PAPER – XIX - A**  
**4MEA - SPORTS NUTRITION**

**Objectives:**

After studying this paper the student teachers will be able to:

1. Know the fundamental concepts of nutrition.
2. Understand the classification of Nutrition and its requirements.
3. Know the nutritive value in food.
4. Know the energy requirements in various sports and games.
5. Understand the diet of athletes.

**UNIT I: Fundamentals of Nutrition:** Meaning - Need: Digestion (Gastro Intestinal Tract Function) - Absorption (Assorptive Mechanism, Absorption of the Nutrients, Intestinal Micro Flora, Lymphatic System) - Circulation of Nutrients - Inadequate Nutrition and Disease

**UNIT II: Classification of Nutrition :** Sources, Types, Micro & Macro, Functions, and Requirements of Carbohydrates, Proteins, Fats, Fibre, Vitamins, and Minerals. Water: Sources - Types - Functions, Requirements, Dehydration - Strakes of Water Contents.

**UNIT III: Nutritive value of common food preparation (per serving):** Nutritive and Caloric values of Foods: Cereal and millet preparations and its caloric values, pulse preparations and its caloric values, vegetable preparations and its caloric values, preparations containing milk and its caloric values, egg, fish, meat preparations and its caloric values.

**UNIT IV: Energy Requirements:** Assessment of Energy Intake (Hunger, Appetite, and Satiety) - Calories - Dietary Intakes - Caloric Density Foods - Assessment of Energy

Expenditure: Body Calorimetric - Components of Energy Expenditure - Basal and Resting Metabolism Thermic Effect of Food - Thermic Effect of Exercise - Estimating Energy Expenditure - Expenditure of Energy in Various Types of Activities (Running, Cycling Gymnastics, Volleyball Cricket, Tennis, Football, Swimming and, Cross Country Running)

**UNIT V: Diets for Athletes :** Recommended Dietary Composition for Athletes (Daily Dietary Intakes Esaddis) - Dietary Reference Intakes - Meal Composition and Athletic Performance - Pre Competition Diet - During Competition (Fluid Requirements during Exercise) and Post Competition Diets - Food Guide Pyramid Supplementation of Foods.

**References:**

1. Covert Bailey, (1984), *"The Fit-or-Fat Target Diet"*, Printed in USA.
2. David . F.Tver, Pery Ruseell, (1981), *"The Nutrition and Health Encylopedia"*, Van Nostrand Reinhold Company, New York.
3. Dr. D.C.Lal, (2006), *"Health and Nutrition"*, Sports Publication, Darya Gang, New Delhi.
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## ELECTIVE PAPER – XIX - B

### 4MEB - APPLIED BIOMECHANICS

**Objectives:** After studying this paper the student teachers will be able to:

1. Know the basic concepts of biomechanics.
2. Understand motion, force and friction concepts.
3. Know the biomechanic parameters and its types.
4. Interpret movement analysis - track & field.
5. Interpret movement analysis - games.

**UNIT I: Biomechanics:** Definition and Meaning - Branches of Biomechanics - Role of Biomechanics in Physical Education and Sports - Need and Importance of Biomechanics in Physical Education and Sports - Anthropometric Characteristics for Different Games and Sports .

**UNIT II: Motion:** Definition and Meaning of Motion - Types of Motion - Newton's Laws of Motion - Speed - Velocity - Acceleration - Projectile Motion - Horizontal Motion- Vertical Motion - Trajectory –Force: Definition and Meaning of Force - Types of Force- Impact - Impulse –**Friction:** Definition and Meaning of Friction - Types of Friction - Elasticity - Power - Work - Energy - Types of Energy– Pressure.

**UNIT III: Levers:** Definition and Meaning of levers - Types of Levers – Stability: Equilibrium - Weight - Gravity - Centre of Gravity; Fluid Mechanics: Float- Buoyant Force- Density - Fluid Force; Drag: Definition and Meaning of Drag - Types of Drag –Spin: Definition and Meaning of Spin - Effect of Spin - Uses of Spin; Resistance: Air Resistance - Water Resistance.

**UNIT IV: Movement Analysis of Fundamental Skills (Track and Field events):**

Track events: Sprint Events - Middle and Long Distance - Running - Hurdles

Field Events: Jumping events: Long Jump - Triple Jump - High Jump - Pole Vault; Throwing Event: Shot Put - Discus Throw - Javelin Throw - Hammer Throw.

**UNIT V: Movement Analysis of Fundamental Skills (Games):** Badminton: Service - Smash - Forehand – Backhand.  
Basketball: Dribbling - Passing - Shooting – Rebounding.  
Cricket: Bowling - Batting – Fielding.  
Football: Dribbling - Passing - Goal Shooting - Goal Keeping.  
Handball: Dribbling - Passing - Goal Shooting - Goal Keeping.  
Hockey: Dribbling - Passing - Goal Shooting - Goal Keeping.  
Kabaddi: Riding - Catching.  
Kho-Kho: Sitting - Chasing - Running and Dodging.  
Tennis: Service – Drives.  
Volleyball: Services - Spiking – Setting.

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10. Parameswara Ram. (1984). *Kinesiology - Physical Education and Sports*. Ludhiana: Prakash Brothers.

## SUPPORTIVE PAPER – XX

### 4MS1 - SPORTS TECHNOLOGY

#### Objectives:

After studying this paper the student teachers will be able to:

1. Understand the introduction to sports technology.
2. Interpret modern surfaces and equipments.
3. Interpret the modern technology in construction.

**Unit I: Sports Technology:** Definition – Need and importance –benefits of Sports Technology- Technology and Athletic Performance. Advantages and Criticism. Science Resources, Use of Computer and Software in Coaching.

**Unit II: Modern Sports Surfaces and Equipments:** Design, Construction and Installation of Sports Surfaces. Types of materials – Synthetic, Wood, Polyurethane, Artificial Turf.

Clothing and Shoes - Playing Equipments, Technical Equipments, Measurement Equipments and Protective Equipments. Training Gadgets- Advantages and Disadvantages. Materials: Carbon, Fiber.

**Unit III: Construction of Indoor and Outdoor Facilities:**  
**Indoor Facilities:** Construction of play fields: Typical floor plan, Equipment guidelines and general design guidelines - Badminton, Basketball, Handball, Hockey, Kabaddi, Kho-Kho, Tennis, Volleyball - Swimming Pool - Gymnasium hall - Multi Gym - Bleachers - Office Room - Storage Room - Locker Room - Power Room.  
**Outdoor Facilities:** Construction of Play Fields: Space recommendations and Equipment guidelines - Badminton, Basketball, Cricket, Football, Handball, Hockey, Kabaddi, Kho-Kho, Tennis, Track & Field - Volleyball - Swimming pool.

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