# UTTRAKHAND TECHNICAL UNIVERSITY DEHRADUN (Uttarakhand)



# Master of Physical Education (M.P.Ed.)

(TWO YEAR PROGRAMME)

# CURRICULAM FRAME WORK/ORDINANCE OF TWO YEAR MASTER OF PHYSICAL EDUCATION PROGRAMME

# DEPARTMENT OF PHYSICAL EDUCATION

**IASPAL RANA INSITITUTE OF EDUCATION & TEHNOLOGY, DEHRADUN** 

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## GUIDELINES OF REGULATIONS AND SYLLABUS STRUCTURE FOR M.P. ED. TWO YEARS PROGRAMME (FOUR SEMESTERS) CHOICE BASED CREDIT SYSTEM (CBCS)

**Preamble:** The Master of Physical Education (M.P.Ed.) two years (Four Semesters, Choice Based Credit System) programme is a professional programme meant for preparing Physical Education Teachers for senior secondary (Class XI and XII) level as well as Assistant Professor/Directors/Sports Officers in Colleges/Universities and teacher educators in College of Physical Education.

The M.P.Ed. programme is designed to integrate the study of childhood, social context of Physical Education, subject knowledge, pedagogical knowledge, aim of Physical Education and communication skills. The programme comprise of compulsory and optional theory as well as practical courses and compulsory school internship in School / College / Sports Organizations / Sports Academy / Sports Club.

**Intake, Eligibility and Admission Procedure:** The Intake, Eligibility and Admission Procedure are as per the NCTE norms and standards.

#### **Eligibility**

- (a) Bachelor of physical education (B.P.Ed.) or equivalent with at at least 50% marks. Or
- (b) Bachelor of Science (B.Sc.) in Health and physical education with at at least 50% marks.

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

**Number of seats:** As approved by NCTE Jaipur for M.P.Ed. course.

#### Note:-

\*Married girl is eligible for admission to M.P.Ed. programme. But, it is also compulsory for her to sign an undertaking that she will discontinue the programme at once for at least one academic year, if she gets pregnant during the course of study. She can join back afresh from the beginning of the semester keeping the guidelines pertaining to the maximum duration of the course in mind.

**Admission procedure:** Admission shall be made on merit entrance basic.

<u>Merit</u>		<u>Entrance</u>		
B.P.Ed	20 %	Written test	50 %	
Graduation	20 %	Sports proficiency test	30 %	
Sports participation	10 %	Interview	10 %	
Interview	50 %	Sports achievement	10 %	

<sup>\*</sup>No differently-abled candidate is eligible for the admission in M.P.Ed. programme.

The total entrance test will be conducted in two days and could be extended, if needed and it will be conducted at BCC campus Srinagar.

- **(A) Theory Paper** comprising of 100 multiple-choice questions of one and half hours duration carrying 50 marks. Questions shall be based on B.P.Ed. course.
- **(B)** There shall be **Sports proficiency test** of 30 marks will be conducted by Internal Examiners of Department of Physical Education, JRIET, Dehradun . Following games and sports will be conducted in this test: **Athletics, badminton, basketball, cricket, football, handball, hockey, kabaddi, kho-kho, table-tennis, volleyball and yoga.**
- **(C) Interview** comprising of 10 marks will be conducted by Internal Examiners of Department of Physical Education, JRIET, Dehradun in the entrance mode of admission
- **(D) Sports Participation Weightage :-** Candidate shall be given maximum 10 marks weightage on the basis of their sports participation in any one of the following level:

Participation	Marks
> International:	10
> Senior National championship/ National Game	<b>s:</b>
1st Place :	10
2nd Place :	08
3rd Place :	07
Participation:	05
> All India Inter-Zonal Inter University Compet	itions:
1st Place :	08
2nd Place :	07
3rd Place :	06
Participation:	05
Zonal Inter University Competitions/Junior	National Competitions:
1st Place :	07
2nd Place :	06
3rd Place :	05
Participation:	04
Senior State Championship/Rural national	games/Women festival:
1st Place :	05
2nd Place :	04
3rd Place :	03
Participation:	02

#### Note:-

\*The school state championship and inter collegiate championship participation shall be considered for eligibility criteria only; candidate shall not get any marks for sports weightage.

Medical examination: Qualified candidates will have to submit medical certificate.

**Course fee:** The course fee Rs 32,000/-semester shall be at the time of admission in the course in the mode of **DD/Banker's cheque** in favour of the, <u>IASPAL RANA INSITITUTE OF</u> **EDUCATION & TEHNOLOGY, DEHRADUN**.

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

The student, who discontinue the programme after one year or more semesters due to extraordinary circumstances, are allowed to continue and complete the programme with due approval from the registrar.

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

**Course:** The term course usually referred to, as 'papers' is a component of a M.P.Ed programme. All courses need not carry the same weight. The courses should define learning objectives and learning outcomes. A course may be designed to comprise Lectures/ tutorials/laboratory work/ field work/ outreach activities/ project work/ vocational training/viva/ seminars/ term papers/assignments/ presentations/ self-study etc. or a combination of some of these.

**Courses of Programme:** The M.P.Ed. Programme consists of a number of courses, the term 'Course' applied to indicate a logical part of subject matter of the programme and is invariably equivalent to the subject matter of a "paper" in the conventional sense. The following are the various categories of courses suggested for the M.P.Ed. Programme.

Theory:
 Core Course
 Elective Course
Practicum:
Teaching Practices:

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

**Working days:** There shall be at least 200 working days per year exclusive of admission and examination processes etc.

**Credits:** The term 'Credit' refers to a unit by which the programme is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or one and half hours of practical work/field work per week. The term 'Credit' refers to the weight given to a course, usually in relation to the instructional hours assigned to it. The total minimum credits, required for completing a M.P.Ed. Programme is 90 credits and for each semester 20 credits. Total Number of hours required to earn 4 credits for each Theory Course are 68-80 hours per semester whereas 102-120 hours for each Practicum Course.

**Condonation:** Student must have 75% of attendance in each course for appearing the examination. Students who have 74% to 65% of attendance shall apply for condonation in the

prescribed form along with the Medical Certificate or proof of participation in intercollege or inter university competitions. Students who have 64% to 50% of attendance shall apply for condonation in prescribed form along with the Medical Certificate. Students who have below 50% of attendance are not eligible to appear for the examination.

#### Provision of Bonus Credits Maximum 06 Credits in each Semester

S. No.	Special Credits for Extra Co-curricular Activities	Credit
1.	Sports Achievement at Stale level Competition (Medal Winner)	1
	Sports Achievement National level Competition (Medal Winner)	2
	Sports participation International level Competition	4
2.	Inter Uni. Participation (Any one game)	2
3.	Inter College Participation (min. two game)	1
4.	National Cadet Corps / National Service Scheme	2
5.	Blood donation / Cleanliness drive / Community services	2
6.	Mountaineering - Basic Camp, Advance Camp / Adventure Activities	2
7.	Organization / Officiating - State / National level in any two game	2
8.	News Reposting / Article Writing / book writing / progress report writing	1
9.	Research Project	4

Students can earn maximum **06 Bonus credits** in each semester by his/her participation in the above mentioned activities duly certified by the Head of the institution / Department. This Bonus credit will be used only to compensate loss of credits in academic activities.

#### **Examinations:**

- i. There shall be examinations at the end of each semester, for first semester in the month of November /December: for second semester in the month of May / June. A candidate who does not pass the examination in any course(s) shall be permitted to appear in such failed course(s) in the subsequent examinations to be held in November/December or May / June.
- ii. If the student again fails in the supplementary examination, he/she will not be allowed to continue the programme.
- iii. A candidate should get enrolled /registered for the first semester examination. If enrollment/registration is not possible owing to shortage of attendance beyond condonation limit / rules prescribed OR belated joining OR on medical grounds, such candidates are not permitted to proceed to the next semester. Such candidates shall redo the semester in the subsequent term of that semester as a regular student; however, a student of first semester shall be admitted in the second semester, if he/she has successfully kept the term in first semester.

**Pattern of Question Papers:** Question Papers shall have five questions corresponding to five units of each theory course. M.P.Ed.: Format of Question Paper for 5 Units. Each question paper shall have five questions. The pattern will be as follows:

Question No.	Description	Marks
	(From Unit 1)	
	Answer in detail (Long Question) <b>Or</b>	
1.	Answer in detail (Long Question)	14
	(From Unit 2)	
	Answer in detail (Long Question) <b>Or</b>	
2.	Answer in detail (Long Question)	14
	(From Unit 3)	
	Answer in detail (Long Question) <b>Or</b>	
3.	Answer in detail (Long Question)	14
	(From Unit 4)	
	Answer in detail (Long Question) <b>Or</b>	
4.	Answer in detail (Long Question)	14
	(From Unit 5)	
	Answer in detail (Long Question) <b>Or</b>	
5.	Answer in detail (Long Question)	14
•	Total	70

**Examiners:** There will be one internal and one external examiner based on the Game specialisation that is from **Athletics**, **badminton**, **basketball**, **cricket**, **football**, **handball**, **hockey**, **kabaddi**, **kho-kho**, **table-tennis**, **volleyball** and **yoga** for all the four semester in practical and teaching practice.

**Evaluation:** The performance of a student in each course is evaluated through continuous internal assessment (CIA), one test of 15 marks and of one to two hours duration is to be conducted around 10-14 weeks of academic work from the start of each semester; evaluation is to be done in terms of percentage of marks with a provision for conversion to grade point. If, any student is not able to give the internal test due to Medical reason or participation in intercollege or inter university competitions, the concerned course teacher must conduct the student examination within a month time (there is no provision for seeking improvement of internal assessment). The marks obtain in CIA is added with end semester examination and will be consolidated at the end of course. The components for continuous internal assessment are;

One Test	15 Marks
Seminar / Lab Practical / presentations	5 Marks
Assignments	5 Marks
Attendance	5 Marks
Total	30 Marks

Attendance shall be taken as a component of continuous assessment, although the students should have minimum 75% attendance in each course. In addition to continuous evaluation component, the end semester examination, which will be written type examination of at least 3 hours duration, would also form an integral component of the evaluation. The ratio of marks to be allotted to continuous internal assessment and to end semester examination is 30:70. The evaluation of practical work, wherever applicable, will also be based on continuous internal assessment and on an end-semester practical examination.

Attendance in Percentage	Marks
Above 95	5
95-90	4
89-85	3
84-80	3
79-75	1
Below 75	0

**Minimum Passing Standard:** The minimum passing standard for CIA (Continuous Internal Assessment) and External Examinations shall be 40%, i.e. 12 marks out of 30 marks and 28 marks out of 70 marks respectively for theory courses. The minimum passing for both CIA & external examination shall be 50%, i.e. 15 marks out of 30 and 35 marks out of 70 marks for the practical courses.

**Educational Tour/Camp**: In addition to the above rules the student must fulfill the following requirements to acquire the degree which is mandatory. Educational Tour or Leadership Camp organized by the Department of Physical Education of at least 05 days. The students shall contribute separately for these activities.

The student will have to attend Educational tour or Leadership camp in II semester, if any student due to extraordinary circumstances not able to attend tour/camp, are allowed to attend in IV semester with the permission of Head of the department. The students will have to submit tour/camp report within ten days after arrival from tour/camp compulsorily in the Department of Physical Education, J.R.I.E.T, Dehradun. failing which the result will not be declared.

**Grading:** Once the marks of the CIA (Continues Internal Assessment) and SEA (Semester End Assessment) for each of the courses are available, both (CIA and SEA) will be added. The marks thus obtained for each of the courses will then be graded as per details provided in **Letter Grades and Grade Points table** from the first semester onwards the average performance within any semester from the first semester is indicated by Semester Grade Point Average (**SGPA**) while continuous performance (including the performance of the previous semesters

(\*)

(**SGPA**) while continuous performance (including the performance of the previous semesters also) starting from the first semester is indicated by Cumulative Grade Point Average (**CGPA**). These two are calculated by the following formula:

#### (i) SGPA(Si) Si= $\sum$ (Ci x Gi)/ $\sum$ Ci

where Ci is the number of credits of the ith course and Gi is the grade point scored by the student in the ith course.

- (ii) The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e. CGPA =  $\sum$  (Ci xSi)/ $\sum$ Ci Where Si is the SGPA of the ith semester and Ci is the total number of credits in that semester.
- (iii) The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcript or certificate or marksheet.

**Classification of Final Results:** For the purpose of declaring a candidate to have qualified for the Degree of Master of Physical Education in the First class / Second class / Pass class or First class with Distinction, the marks and the corresponding CGPA earned by the candidate in Core Courses will be the criterion. It is further provided that the candidate should have scored the First / Second Class separately in both the grand total and end Semester (External) examinations.

**Award of the M.P.Ed. Degree:** A candidate shall be eligible for the award of the degree of the M.P.Ed. only if he/she has earned the minimum required credit including Bonus Credits of the programme prescribed above.

#### **Letter Grades and Grade Points:**

- i. Two methods-relative grading or absolute grading—have been in vogue for awarding grades in a course. The relative grading is based on the distribution (usually normal distribution) of marks obtained by all the students in the course and the grades are awarded based on a cut-off mark or percentile. Under the absolute grading, the marks are converted to grades based on pre-determined class intervals. To implement the following grading system, the colleges and universities can use any one of the above methods.
- ii. The grades for each course would be decided on the basis of the percentage marks obtained at the end-semester external and internal examinations as per following table:

Percentage	Grade Point	Latter Grade	Description	Classification of final result
85 & above	8.5-10.0	0	Outstanding	
70-84.99	7.0-8.49	A+	Excellent	First class with Distinction
60-69.99	6.0-6.99	Α	Very Good	First Class
55-59.99	5.5-5.99	B+	Good	Higher Second Class
50-54.99	5.0-5.49	В	Above Average	Second Class
40-49.99	4.0-4.99	С	Average	Pass Class
Below 40	0.0	F	Fail/ Dropped	Dropped
	0.0	AB	Absent	Absent

**Grade Point Calculation:** Calculation of Semester Grade Point Average (SGPA) and Credit Grade Point (CGP) and declaration of class for M. P. Ed. Programme.

The credit grade points are to be calculated on the following basis:

#### Example - I

Marks obtained by Student in course CC101 = 65/100

Percentage of marks = 65 %

Grade from the conversion table is = A

Grade Point = 6.0 + 5 (0.99/9.99)

 $=6.0 + 5 \times 0.1$ 

6.0+0.5 =

6.5

The Course Credits = 04

Credits Grade Point (CGP) =  $6.5 \times 04 = 26$ 

The semester grade point average (SGPA) will be calculated as a weighted average of all the grade point of the semester courses. That is Semester grade point average (SGPA) = (sum of grade points of all eight courses of the semester) / total credit of the semester as per example given below:

#### **Semester-1**

Course No.	Credit	Marks out of 100(5)	Grade	Grade Point	Credit Grade Point
CC-101	4	65	Α	6.5	26
CC-102	4	60	Α	6	24
CC-103	4	62	Α	6.2	24.8
EC-101/EC-	4	57	B+	5.7	22.8
. 102	•	•			
PC-101	4	55	B+	5.5	22
. PC-102	4	. 72	A+	. 7.2	. 28.8
PC-103	4	66	Α	6.6	26.4
PC-104	4	72	A+	7.2	28.8
	32				203.6

#### **Examples: Conversion of marks into grade points**

$$CC-10165 = 60 + 5 = 6.0 + 5 \times (0.99 / 9.99) = 6.0 + 5 \times 0.1 = 6.0 + 0.5 = 6.5$$

$$CC-10260 = 6.0$$

$$CC-103 62 = 60 + 2 = 6.0 + 2 \times (0.99/9.99) = 6.0 + 2 \times 0.1 = 6.0 + 0.2 = 6.2 EC-$$

$$101/\text{EC}-102\ 57 = 55 + 2 = 5.5 + 2\ x\ (0.49\ /\ 4.99) = 5.5 + 2\ x\ 0.1 = 5.5 + 0.2 = 5.7$$

PC-10155 = 5.5

$$PC-10272 = 70 + 2 = 7.0 + 2 \times (1.49/14.99) = 7.0 + 2 \times 0.1 = 7.0 + 0.2 = 7.2$$

$$PC-103\ 66 = 60 + 6 = 6.0 + 6 \times (0.99 / 9.99) = 6.0 + 6 \times 0.1 = 6.0 + 0.6 = 6.6$$

$$PC - 10472 = 70 + 2 = 7.0 + 2 \times (1.49/14.99) = 7.0 + 2 \times 0.1 = 7.0 + 0.2 = 7.2$$

**SEMESTER GRADE POINT AVERAGE (SGPA)** = Total Credit Grade Points = 203.6 / 32 = 6.3625, SGPA Sem. I = 6.3625, at the end of Semester-1 Total SGPA = 6.3625, Cumulative Grade Point Average (CGPA) = 6.3625/1 = 6.3625,

CGPA = 6.666875, Grade = A, Class = First Class

#### **Semester-2**

Course No.	Credit	Marks out of 100(5)	Grade	Grade Point	Credit Grade Point
CC-201	4	76	A+	7.6	30.4
CC-202	· 4	64	A	6.4	25.6
CC-203	4	59	B+	5.9	23.6
EC-201/EC-	4	80	A+	8	32
202					
PC-201	4	49	С	4.9	19.6
PC-202	4	64	Α	6.4	25.6
PC-203	4	55	B+	5.5	22
TP-201	4	72	A+	7.2	28.8
	32				207.6

SGPA Sem. II = 6.4875

At the end of Semester-2

Total SGPA for two Semesters = 12.85

Cumulative Grade Point Average (CGPA) = 12.85/2 = 6.425

CGPA = 6.66875, Grade = A, Class = First Class

#### **Semester-3**

Course No.	Credit	Marks out of 100(5)	Grade	Grade Point	Credit Grade Point
CC-301	4	64	A	6.4	25.6
CC-302	4	64	A	6.4	25.6
CC-303	4	59	B+	5.9	23.6
EC-301/EC-	4	81	A+	8.1	32.4
302					
PC-301	4	49	С	4.9	19.6
PC-302	4	64	Α	6.4	25.6
PC-303	4	68	Α	6.8	27.2
TP-301	4	75	A+	7.5	30
	. 32		_	_	209.6

SGPA Sem. III = 6.55

At the end of Semester-3

Total SGPA for three Semesters = 19.4

Cumulative Grade Point Average (CGPA) = 19.4/3 = 6.466667

CGPA = 6.66875, Grade = A, Class = First Class

#### Semester-4

Course No.	Credit	Marks out of 100(5)	Grade	Grade Point	Credit Grade Point
CC-401	4	83	A+	8.3	33.2
CC-402	4	76	A+	7.6	30.4
CC-403	4	59	B+	5.9	23.6
EC-401/EC-	4	81	A+	8.1	32.4
402					
PC-401	4	49	С	4.9	19.6
PC-402	4	78	A+	7.8	31.2
TP-401	4	81	A+	8.1	32.4
TP-402	4	75	A+	7.5	30
	32				232.8

SGPA Sem. IV = 7.275 At the end of Semester-4

> Total SGPA for all the four semesters = 26.675 Cumulative Grade Point Average (CGPA) = 26.675 /4 = 6.66875 CGPA = 6.66875, Grade = A, Class = First Class

#### Note:

- 1. SGPA is calculated only if the candidate passes in all the courses i.e. get minimum C grade in all the courses.
- 2. CGPA is calculated only when the candidate passes in all the courses of all the previous and current semesters.
- 3. The cumulative grade point average will be calculated as the average of the SGPA of all the semesters continuously, as shown above.
- 4. For the award of the class, CGPA shall be calculated on the basis of:
  - i) Marks of each Semester End Assessment and
  - ii) Marks of each Semester Continuous Internal Assessment for each course.
- 5. The final Class for M.P.Ed. Degree shall be awarded on the basis of last CGPA (grade) from all the one to four semester examinations.

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

**Revision of Syllabi:** Syllabi of every course should be revised according to the NCTE.

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

• In case, the syllabus of any course is carried forward without any revision, it shall also be counted as revised in the revised syllabi.

#### **Miscellaneous:**

- 1. The procedural details may be given by the university from time to time.
- 2. Any unforeseen problems/difficulties may be resolved by Vice Chancellor, whose decision in the matter shall be final.
- 3. The provision of any order, rules or regulation in force shall be inapplicable to the extent of its inconsistency with these regulations.

(\*) the committee is in the opinion of adopting the grading process in later stages i.e. as the university develops its software for this however, it should be done at the earliest in the interest of students

# **Semester-I**

Part- A Theoretical Course										
Course	Title of the papers	Total	Credits	Internal	External	Total				
Code		Hour		Marks	marks					
		S								
Core Course										
MPEd/	Physiology of Exercise	4	4	30	70	100				
CC-501										
MPEd/	Athletic care and	4	4	30	70	100				
CC-502	Rehabilitation									
MPEd/	Sports Biomechanics and	4	4	30	70	100				
CC-503	Kinesiology									
	Elective	e cours	e(Anyone	2)	1					
MPEd/		_								
EC-504	Yogic Science	4	4	30	70	100				
MPEd/										
EC-505	Sports Technology									
		1	ical Cours		1					
MPEd/	Game Specialization I -	6	4	30	70	100				
PC-501	Individual Skill									
MPEd/	Games Specialization I	6	4	30	70	100				
PC-502	Theory (Skill &									
	Technique)									
MPEd/	Lab Practical (Sports	6	4	30	70	100				
PC-503	Psychology, Biomechanics									
	& Kinesiology, Test and									
	Measurement									
			g Practic							
MPEd/	Game Specialization I -	6	4	30	70	100				
TP -501	Teaching Lesson (5									
	Lesson)									
	Total	40	32	240	560	800				

# Semester-II

	Part- A Theoretical Course							
Course	Title of the papers	Total	Credits	Internal	External	Total		
Code		Hours		Marks	marks			
Core Course								
MPEd/	Research Process in Physical	4	4	30	70	100		
CC -601	Education							
MPEd/	Evaluation in Physical	4	4	30	70	100		
CC -602	Education							
MPEd/	Applied Statistics in Physical	4	4	30	70	100		
CC -603	Education							
	Elective	course	(Anyone)					
MPEd/								
EC -604	Sports Journalism and Mass Media	4	4	30	70	100		
MPEd/	Sports Management and							
EC -605	Curriculum design in Physical							
	education							
			al Course					
MPEd/	Games Specialization <b>I</b> -	6	4	30	70	100		
PC -601	Theory (training and							
	tactics)							
MPEd/	Game Specialization <b>I</b> –	6	4	30	70	100		
PC -602	Game proficiency							
	Part - C Teaching I	Practices	s (Coachii	ng Lesson)				
MPEd/	Game Specialization I							
TP -601	Coaching Lesson (5 Lesson)	6	4	30	70	100		
MPEd/	Theory teaching on subjects	6	4	30	70	100		
TP -602	of Ist & IInd Semester and							
	Game Specialization II (5							
	Lesson)							
		40	32	240	560	800		
	Total							

## **Semester-III**

	Part- A 7	Theoreti	cal Cours	e					
Course	Title of the papers	Total	Credits	Internal	External	Total			
Code		Hours		Marks	marks				
	Core Course								
MPEd/	Scientific Principles of Sports								
CC -701	Training	4	4	30	70	100			
MPEd/		4	4	30	70	100			
CC -702	Sports Medicine								
MPEd/	Health Education and Sports	4	4	30	70	100			
CC -703	Nutrition								
	Elective	e Course	(Anyone)						
MPEd/									
EC -704	Value and environment education	4	4	30	70	100			
MPEd/									
EC -705	Physical Fitness and Wellness								
		Practic	al Course						
MPEd/	Game Specialization II -	6	4	30	70	100			
PC -701	Individual Skill								
MPEd/	Games Specialization II	6	4	30	70	100			
PC -702	Theory (Skill & Technique)								
MPEd/	Lab Practical (Sports	6	4	30	70	100			
PC -703	Psychology, Biomechanics								
	& Kinesiology, Test and								
	Measurement								
		<u><b>Feaching</b></u>	Practice	S					
MPEd/	Game Specialization II -								
TP -701	Teaching Lesson (5 Lesson)	6	4	30	70	100			
		40	32	240	560	800			
	Total								

#### **Semester-IV**

	Part- A T	Theoreti	cal Cours	e				
Course	Title of the papers	Total	Credits	Internal	External	Total		
Code		Hours		Marks	marks			
Core Course								
MPEd/	Information and communication	4	4	30	70	100		
CC -801	technology in physical education							
MPEd/		4	4	30	70	100		
CC -802	Sports psychology							
MPEd/	Education technology in	4	4	30	70	100		
CC -803	physical education							
	Elective	e Course	(Anyone)					
MPEd/								
EC -804	Dissertation	4	4	30	70	100		
MPEd/								
EC -805	Sports Engineering							
	Part - B	Practic	al Course	•				
MPEd/	Games Specialization II -							
PC -801	Theory (training and	6	4	30	70	100		
	tactics)							
MPEd/	Game Specialization II -							
PC -802	Game proficiency	6	4	30	70	100		
	Part - C Teaching I	Practices	s (Coachi	ng Lesson)				
MPEd/	Game Specialization II	6	4	30	70	100		
TP -801	Coaching Lesson (5 Lesson)							
MPEd/	Theory teaching on subjects	6	4	30	70	100		
TP -802	of IIIrd & IVth Semester and							
	Game Specialization II (5							
	Lesson)							
		40	32	240	560	800		
	Total							

#### Note:-

- 1. Games specialization will be given in following Games and sports: Athletics, badminton, basketball, cricket, football, handball, hockey, kabaddi, kho-kho, tabletennis, volleyball and yoga. Student will select one Game specialization for I and II semester (Game Specialization I) and one more Game specialization for III and IV semester (Game Specialization II)
- 2. The Games specialization in a particular games and sports discipline will run by the department only if at least 5 students opt for a particular games and sports and availability of teacher of Games specialization.

# **Scheme of Examination**

# Semester-I

	Theory (400)			
Paper Subjects		Interna	Externa	Total
		l Marks	l marks	
MPEd/	Physiology of Exercise	30	70	100
CC-501				
MPEd/		30	70	100
CC-502	Athletic care and Rehabilitation			
MPEd/		30	70	100
CC-503	Sports Biomechanics and Kinesiology			
MPEd/		30	70	100
EC-504	Yogic Science			
MPEd/		30	70	100
EC-505	Sports Technology			
	Practical (400)			
MPEd/PC -501	Game Specialization I - Individual Skill	30	70	100
MPEd/PC -502	Games Specialization I - Theory	30	70	100
MPEd/PC -503	Lab Practical	30	70	100
MPEd/TP -501	Game Specialization I - Teaching Lesson	30	70	100
	Total	240	560	800

# Semester-II

	Theory (400)			
Paper	Subjects	Internal	External	Total
		Marks	marks	
MPEd/CC -601	Research Process in Physical	30	70	100
	Education			
MPEd/CC -602	Evaluation in Physical Education	30	70	100
MPEd/CC -603	Applied Statistics in Physical Education	30	70	100
MPEd/				
EC -604	Sports Journalism and Mass Media	30	70	100
MPEd/	Sports Management and Curriculum design in			
EC -605	Physical education	30	70	100
	Practical (400)			
MPEd/PC -601	Games Specialization I - Theory	30	70	100
MPEd/PC -602	Game Specialization I - Game	30	70	100
	proficiency			
MPEd/TP -601	Game Specialization I - Teaching Lesson	30	70	100
MPEd/TP -602	Class room Teaching	30	70	100
	Total	240	560	800

# Semester-III

	Theory (400)			
Paper	Subjects	Interna l Marks	Externa l marks	Total
MPEd/CC -701	Scientific Principles of Sports Training	30	70	100
MPEd/CC -702	Sports Medicine	30	70	100
MPEd/CC -703	Health Education and Sports Nutrition	30	70	100
MPEd/EC -704	Value and environment education	30	70	100
MPEd/EC -705	Physical Fitness and Wellness	30	70	100
	Practical (400)			
MPEd/PC -701	Game Specialization <b>II</b> - Individual Skill	30	70	100
MPEd/PC -702	Games Specialization II - Theory	30	70	100
MPEd/PC -703	Lab Practical	30	70	100
MPEd/TP -701	Game Specialization II - Teaching	30	70	100
	Lesson			
	Total	240	560	800

# **Semester-IV**

	Theory (400)			
Paper	Subjects	Interna	Externa	Total
		l Marks	l marks	
MPEd/	Information and communication	30	70	100
CC -801	technology in physical education			
MPEd/		30	70	100
CC -802	Sports psychology			
MPEd/	Education technology in physical	30	70	100
CC -803	education			
MPEd/		30	70	100
EC -804	Dissertation			
MPEd/		30	70	100
EC -805	Sports Engineering			
	Practical (400)			
MPEd/PC -801	Games Specialization II - Theory	30	70	100
MPEd/PC -802	Game Specialization II - Game	30	70	100
	proficiency			
MPEd/	Game Specialization II - Teaching	30	70	100
TP -801	Lesson			
MPEd/		30	70	100
TP -802	Class room Teaching			
	Total	240	560	800

Table-1: Semester wise Distribution of Hours per Week

Semester	Theory	Practicum	Teaching Practice	Total
I	16	18	06	40
II	16	12	12	40
III	16	18	06	40
IV	16	12	12	40
TOTAL	64	72	24	160

Minimum of 36 hours per week is required in five or six days in a week

Table-2: Number of Credits per Semester

Semester	Theory	Practicum	Teaching Practice	Total
I	16	12	04	32
II	16	08	08	32
III	16	12	04	32
IV	16	08	08	32
TOTAL	64	48	16	128

# SEMESTER-I THEORY COURSES MPEd/CC-501 PHYSIOLOGY OF EXERCISE

#### **UNIT I - Skeletal Muscles and Exercise**

Macro & Micro Structure of the Skeletal Muscle, Chemical Composition. Sliding Filament theory of Muscular Contraction. Types of Muscle fiber. Muscle Tone, Chemistry of Muscular Contraction – Heat Production in the Muscle, Effect of exercises and training on the muscular system.

#### **UNIT II - Cardiovascular System and Exercise**

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

#### **UNIT III - Respiratory System and Exercise**

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

#### **UNIT IV - Metabolism and Energy Transfer**

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

#### UNIT V - Climatic conditions and sports performance and ergogenic aids

Variation in Temperature and Humidity – Thermoregulation – Sports performance in hot climate, Cool Climate, high altitude. Influence of: Amphetamine, Anabolic steroids, Androstenedione, Beta Blocker, Choline, Creatine, Human growth hormone on sports performance. Narcotic, Stimulants: Amphetamines, Caffeine, Ephedrine, Sympathomimetic amines. Stimulants and sports performance.

#### Reference:

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

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

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

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

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

Guyton, A.C. (1976). Textbook of Medical Physiology. Philadelphia: W.B. Sanders co.

Richard, W. Bowers. (1989). Sports Physiology. WMC: Brown Publishers

# MPEd/CC-502 ATHLETIC CARE AND REHABILITATION

#### **Unit I - Corrective Physical Education**

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

#### **Unit II - Posture**

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

#### **Unit III - Rehabilitation Exercises**

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

#### **Unit IV - Massage**

Brief history of massage – Massage as an aid for relaxation – Points to be considered in giving massage – Physiological , Chemical, Psychological effects of massage – Indication / Contra indication of Massage – Classification of the manipulation used massage and their specific uses in the human body – Stroking manipulation: Effleurage – Pressure manipulation: Petrissage Kneading (Finger, Kneading, Circular) ironing Skin Rolling – Percussion manipulation: Tapotement, Hacking, Clapping, Beating, Pounding, Slapping, Cupping, Poking, Shaking Manipulation, Deep massage.

#### Unit V - Sports Injuries Care, Treatment and Support

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

#### **References:**

Dohenty. J. Meno. Wetb, Moder D (2000) Track & Field, Englewood Cliffs, Prentice Hal Inc. Lace, M. V. (1951) Massage and Medical Gymnastics, London: J & A Churchill Ltd. McOoyand Young (1954) Tests and Measurement, New York: Appleton Century. Naro, C. L. (1967) Manual of Massage and, Movement, London: Febra and Febra Ltd. Rathbome, J.l. (1965) Corrective Physical education, London: W.B. Saunders & Co. Stafford and Kelly, (1968) Preventive and Corrective Physical Education, New York.

# MPEd/CC-503 SPORTS BIOMECHANICS AND KINSESIOLOGY

#### **UNIT I – Introduction**

Meaning, nature, role and scope of applied kinesiology and Sports Biomechanics. Meaning of Axis and Planes, Dynamics, Kinematics, Kinetics, Statics Centre of gravity -Line of gravity plane of the body and axis of motion, Vectors and Scalars.

#### **UNIT II - Muscle Action**

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

#### **UNIT III - Motion and Force**

Meaning and definition of Motion. Types of Motion: Linear motion, angular motion, circular motion, uniform motion. Principals related to the law of Inertia, Law of acceleration, and law of counter force. Meaning and definition of force- Sources of force - Force components .Force applied at an angle - pressure -friction -Buoyancy, Spin - Centripetal force - Centrifugal force.

#### **UNIT IV - Projectile and Lever**

Freely falling bodies - Projectiles -Equation of projectiles stability Factors influencing equilibrium - Guiding principles for stability -static and dynamic stability. Meaning of work, power, energy, kinetic energy and potential energy. Leverage -classes of lever - practical application. Water resistance - Air resistance - Aerodynamics.

#### **UNIT V - Movement Analysis**

Analysis of Movement: Types of analysis: Kinesiological, Biomechanical. Cinematographic. Methods of analysis – Qualitative, Quantitative, Predictive

#### **References:**

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

Hoffman S.J. Introduction to Kinesiology (Human Kinesiology publication Inc. 2005

Thomas. (2001). Manual of structural Kinesiology, New York: McGraw Hill.

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

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

## **MPEd/EC-504 Yogic Sciences**

#### **Unit I – Introduction**

Meaning and Definition of Yoga. Astanga Yoga: Yama, Niyama, Aasna, Pranayama, Prathyahara, Dharana, Dhyana, Samadhi, Concept of Yogic Practices; Principles of Breathing- Awareness - Relaxation, Sequence - Counter pose - Time - Place - Clothes - Bathing - Emptying the bowels - Stomach - Diet - No Straining - Age - Contra- Indication - Inverted asana - Sunbathing.

#### **Unit II - Aasanas and Pranayam**

Loosening exercise: Techniques and benefits. Asanas: Types- Techniques and Benefits, Surya Namaskar: Methods and benefits. Pranayama: Types- Methods and benefits. Nadis: Meaning, methods and benefits, Chakras: Major Chakaras- Benefits of clearing and balancing Chakras.

#### Unit III - Kriyas

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

#### **Unit IV - Mudras**

Meaning, Techniques and Benefits of Hasta Mudras, Asamyuk tahastam, Samyu ktahastam, Mana Mudra, Kaya Mudra, Banda Mudra, Adhara Mudra. Meditation: Meaning, Techiques and Benefits of Meditation – Passive and active, Saguna Meditation and Nirguna Meditation.

#### **Unit V - Yoga and Sports**

Yoga Supplemental Exercise – Yoga Compensation Exercise – Yoga Regeneration Exercise-Power Yoga. Role of Yoga in Psychological Preparation of athelete: Mental Welbeing, Anxiety, Depression Concentration, Self Actualization. Effect of Yoga on Physiological System: Circulatory, Skeletal, Digestive, Nervous, Respiratory, Excretory Syste.

#### **Reference:**

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

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

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

Kenghe. C.T. (1976). Yoga as Depth-Psychology and para-Psychology (Vol-I): Historical Background, Varanasi: BharataManishai.

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

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

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

# MPEd/EC-505 SPORTS TECHNOLOGY

#### **Unit I - Sports Technology**

Meaning, definition, purpose, advantages and applications, General Principles and purpose of instrumentation in sports, Workflow of instrumentation and business aspects, Technological impacts on sports.

#### **Unit II - Science of Sports Materials**

Adhesives- Nano glue, nanomoulding technology, Nano turf. Foot wear production, Factors and application in sports, constraints. Foams- Polyurethane, Polystyrene, Styrofoam, closed-cell and open-cell foams, Neoprene, Foam. Smart Materials – Shape Memory Alloy (SMA), Thermo chromic film, High-density modelling foam.

#### **Unit III - Surfaces of Playfields**

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

#### Unit IV - Modern equipment

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

#### **Unit V - Training Gadgets**

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

#### **References:**

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

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

John Mongilo, (2001) "Nano Technology 101 "New York: Green wood publishing. Walia, J.S. Principles and Methods of Education (Paul Publishers, Jullandhar), 1999. Kochar, S.K. Methods and Techniques of Teaching (New Delhi, Jullandhar, Sterling Publishers Pvt. Ltd.), 1982

# **SEMESTER II**

# MPEd/CC -601-RESEARCH PROCESS IN PHYSICAL EDUCATION

#### **UNIT I – Introduction**

Meaning and Definition of Research – Need, Nature and Scope of research in Physical Education. Classification of Research, Location of Research Problem, Criteria for selection of a problem, Qualities of a good researcher.

#### **UNIT II - Methods of Research**

Descriptive Methods of Research; Survey Study, Case study, Introduction of Historical Research, Steps in Historical Research, Sources of Historical Research: Primary Data and Secondary Data, Historical Criticism: Internal Criticism and External Criticism.

#### **UNIT III - Experimental Research**

Experimental Research – Meaning, Nature and Importance, Meaning of Variable, Types of Variables. Experimental Design - Single Group Design, Reverse Group Design, Repeated Measure Design, Static Group Comparison Design, Equated Group Design, Factorial Design.

#### **UNIT IV - Sampling**

Meaning and Definition of Sample and Population. Types of Sampling; Probability Methods; Systematic Sampling, Cluster sampling, Stratified Sampling. Area Sampling – Multistage Sampling. Non- Probability Methods; Convenience Sample, Judgement Sampling, Quota Sampling.

#### **UNIT V - Research Proposal and Report**

Chapterization of Thesis / Dissertation, Front Materials, Body of Thesis – Back materials. Method of Writing Research proposal, Thesis / Dissertation; Method of writing abstract and full paper for presenting in a conference and to publish in journals, Mechanics of writing Research Report, Footnote and Bibliography writing.

#### Reference:

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

Clarke David. H & Clarke H, Harrison (1984) Research processes in Physical Education, New Jersey; Prentice Hall Inc.

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

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

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

Subramanian, R, Thirumalai Kumar S & Arumugam C (2010) Research Methods in Health, Physical Education and Sports, New Delhi; Friends Publication

# MPEd/CC -602 EVALUATION IN PHYSICAL EDUCATION

#### **UNIT I – Introduction**

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

#### **UNIT II - Motor Fitness Tests**

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

#### **UNIT III - Physical Fitness Tests**

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

#### **UNIT IV - Anthropometric and Aerobic-Anaerobic Tests**

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

#### **UNIT V - Skill Tests**

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

#### **References:**

Cureton T.K. (1947) Physical Fitness Appraisal and Guidance, St. Louis: The C. Mosby Company Jenson, Clayne R and Cynt ha, C. Hirst (1980) Measurement in Physical Education and Athletics, New York, Macmillan Publishing Co. Inc

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

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

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

Wilmore JH and Costill DL. (2005) Physiology of Sport and Exercise: 3<sup>rd</sup> Edition. Champaigm IL: Human Kinetic

# MPEd/CC -603 APPLIED STATICTICS IN PHYSICAL EDUCATION

#### **UNIT I - Introduction**

Meaning and Definition of Statistics. Function, need and importance of Statistics. Types of Statistics. Meaning of the terms, Population, Sample, Data, types of data. Variables; Discrete, Continuous. Parametric and non-parametric statistics.

#### **UNIT II - Data Classification, Tabulation and Measures of Central Tendency**

Meaning, uses and construction of frequency table. Meaning, Purpose, Calculation and advantages of Measures of central tendency – Mean, median and mode.

#### **UNIT III - Measures of Dispersions and Scales**

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

#### **UNIT IV - Probability Distributions and Graphs**

Normal Curve. Meaning of probability- Principles of normal curve – Properties of normal curve. Divergence form normality – Skewness and Kurtosis. Graphical Representation in Statistics; Line diagram, Bar diagram, Histogram, Frequency Polygon, Ogive Curve.

#### **UNIT V - Inferential and Comparative Statistics**

Tests of significance; Independent "t" test, Dependent "t" test – chi – square test, level of confidence and interpretation of data. Meaning of correlation – co-efficient of correlation – calculation of co- efficient of correlation by the product moment method and rank difference method. Concept of ANOVA and ANCOVA.

#### **References:**

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

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

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

Kamlesh, M. L. (1999) Research Methodology in Physical Education and Sports, New Delhi Rothstain A (1985) Research Design and Statistics for Physical Education, Englewood Cliffs:Prentice Hall, Inc

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

# MPEd/EC -604 SPORTS JOURNALISM AND MASS MEDIA

#### **UNIT I Introduction**

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

#### **UNIT II Sports Bulletin**

Concept of Sports Bulletin: Journalism and sports education – Structure of sports bulletin – Compiling a bulletin – Types of bulletin – Role of Journalism in the Field of Physical Education: Sports as an integral part of Physical Education – Sports organization and sports journalism – General news reporting and sports reporting.

#### **UNIT III Mass Media**

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

#### **UNIT IV Report Writing on Sports**

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

#### **UNIT -V Journalism**

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

#### Reference:

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

Ahiya B.N. Chobra S.S.A. (1990) Concise Course in Reporting. New Delhi: Surjeet Publication Bhatt S.C. (1993) Broadcast Journalism Basic Principles. New Delhi. Haranand Publication Dhananjay Joshi (2010) Value Education in Global Perspective. New Delhi: Lotus Press. Mohit Chakrabarti (2008): Value Education: Changing Perspective, New Delhi: Kanishka Publication.

# MPEd/EC -605 SPORTS MANAGEMENT AND CURRICULUM DESIGN IN PHYSICAL EDUCATION

#### **UNIT I - Introduction to Sports Management**

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

#### **UNIT II - Program Management**

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

#### **UNIT III - Equipments and Public Relation**

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

#### **UNIT IV - Curriculum**

Meaning and Definition of Curriculum. Principles of Curriculum Construction: Students centred, Activity centred, Community centred, Forward looking principle, Principles of integration, Theories of curriculum development, Conservative (Preservation of Culture), Relevance, flexibility, quality, contextually and plurality. Approaches to Curriculum; Subject centred, Learner centred and Community centred, Curriculum Framework.

#### **UNIT V - Curriculum Sources**

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

#### **Reference:**

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

Carl, E, Willgoose. (1982. Curriculum in Physical Education, London: Prentice Hall. Chakraborthy & Samiran. (1998) .Sports Management. New Delhi: Sports Publication.

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

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

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

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

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

#### **SEMESTER III**

# MPEd/CC -701 SCIENTIFIC PRINCIPLES OF SPORTS TRAINING

#### **UNIT I - Introduction**

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

#### **UNIT II - Components of Physical Fitness**

Strength: Methods to improve Strength: Weight Training, Isometric, Isotonic, Circuit Training, Speed: Methods to Develop Speed: Repetition Method, Downhill Run, Parachute Running, Wind Sprints, Endurance, Methods to Improve Endurance: Continuous Method, Interval Method, Repetition Method, Cross Country, Fartlek Training

#### **UNIT III - Flexibility and Coordinative abilities**

Flexibility: Methods to Improve the Flexibility- Stretch and Hold Method, Ballistic Method, Special Type Training: Plyometric Training. Training for Coordinative abilities: Methods to improve Coordinative abilities: Sensory Method, Variation in Movement Execution Method, Variation in External Condition Method, Combination of Movement Method, Types of Stretching Exercises.

#### **UNIT IV - Training Plan**

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

#### **UNIT V - Doping**

Definition of Doping – Side effects of drugs – Dietary supplements – IOC list of doping classes and methods. Blood Doping – The use of erythropoietin in blood boosting – Blood doping control – The testing programmes – Problems in drug detection – Blood testing in doping control – Problems with the supply of medicines Subject to IOC regulations : over-the- counter drugs (OTC) – prescription only medicines (POMs) – Controlled drugs (CDs). Reporting test results – Education

#### **References:**

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

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

Daniel, D. Arnheim (1991) Principles of Athletic Traning, St. Luis, Mosby Year Book David R. Mottram (1996) Drugs in Sport, School of Pharmacy, Liverpool: John Moore University Hardayal Singh (1991) Science of Sports Training, New Delhi, DVS Publications Jensen, C.R. & Fisher A.G. (2000) Scientific Basic of Athletic Conditioning, Philadelphia

# **MPEd/CC -702 SPORTS MEDICINE**

#### **UNIT I - Introduction**

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

#### **UNIT II - Basic Rehabilitation**

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

#### **UNIT III - Spine Injuries and Exercise**

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

#### **UNIT IV - Upper Extremity Injuries and Exercise**

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

#### **UNIT V - Lower Extremity Injuries and Exercise**

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

#### **References:**

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

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

Morris B. Million (1984) Sports Injuries and Athletic Problem. New Delhi: Surjeet Publication. Pande.(1998). Sports Medicine. New Delhi: Khel Shitya Kendra

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

# MPEd/CC -703 HEALTH EDUCATION AND SPORTS NURTITION

#### **Unit - I Health Education**

Concept, Dimensions, Spectrum and Determinants of Health

Definition of Health, Health Education, Health Instruction, Health Supervision, Aim, objective and Principles of Health Education

Health Service and guidance instruction in personal hygiene

#### Unit - II Health Problems in India

Communicable and Non Communicable Diseases

Obesity, Malnutrition, Adulteration in food, Environmental sanitation, Explosive, Population, Personal and Environmental Hygiene for schools

Objective of school health service, Role of health education in schools

Health Services - Care of skin, Nails, Eye health service, Nutritional service, Health appraisal, Health record, Healthful school environment, first- aid and emergency care etc.

#### **Unit- III - Hygiene and Health**

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

#### **Unit - IV- Introduction to Sports Nutrition**

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

#### **Unit - V Nutrition and Weight Management**

Concept of BMI (Body mass index), Obesity and its hazard, Dieting versus exercise for weight control Maintaining a Healthy Lifestyle, Weight management program for sporty child, Role of diet and exercise in weight management, Design diet plan and exercise schedule for weight gain and loss.

#### **References:**

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

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

Hanlon, John J. "Principles of Public Health Administration" 2003.

Moss "Health Education" (National Education Association of U.T.A.)Nemir A. 'The School Health Education" (Harber and Brothers, New York). Nutrition Encyclopedia, edited by Delores C.S. James, The Gale Group, Inc.

# MPEd/EC -704 VALUE AND ENVIRONMENTAL EDUCATION

#### **UNIT I - Introduction to Value Education.**

Values: Meaning, Definition, Concepts of Values. Value Education: Need, Importance and Objectives. Moral Values: Need and Theories of Values. Classification of Values: Basic Values of Religion, Classification of Values.

#### **UNIT II - Value Systems**

Meaning and Definition, Personal and Communal Values, Consistency, Internally consistent, internally inconsistent, Judging Value System, Commitment, Commitment to values.

#### **Unit- III - Environmental Education**

Definition, Scope, Need and Importance of environmental studies., Concept of environmental education, Historical background of environmental education, Celebration of various days in relation with environment, Plastic recycling & prohibition of plastic bag / cover, Role of school in environmental conservation and sustainable development, Pollution free eco-system.

#### **Unit - IV Rural Sanitation and Urban Health**

Rural Health Problems, Causes of Rural Health Problems, Points to be kept in Mind for improvement of Rural Sanitation, Urban Health Problems, Process of Urban Health, Services of Urban Area, Suggested Education Activity, Services on Urban Slum Area, Sanitation at Fairs & Festivals, Mass Education.

#### **Unit - V Natural Resources and related environmental issues:**

Water resources, food resources and Land resources, Definition, effects and control measures of: Air Pollution, Water Pollution, Soil Pollution, Noise Pollution, Thermal Pollution Management of environment and Govt. policies, Role of pollution control board.

#### **Reference:**

Miller T.G. Jr., Environmental Science (Wadsworth Publishing Co.) Odum, E.P. Fundamentals of Ecology (U.S.A.: W.B. Saunders Co.) 1971.

Rao, M.N. & Datta, A.K. Waste Water Treatment (Oxford & IBH Publication Co. Pvt. Ltd.) 1987.

Townsend C. and others, Essentials of Ecology (Black well Science).

Miller T.G. Jr., Environmental Science (Wadsworth Publishing Co.).

# MPEd/EC -705 PHYSICAL FITNESS AND WELLNESS

#### **Unit I – Introduction**

Meaning and Definition" of Physical Fitness, Physical Fitness Concepts and Techniques, Principles of physical fitness, Physiological principles involved in human movement. Components of Physical Fitness.

Leisure time physical activity and identify opportunities in the community to participate in this activity. Current trends in fitness and conditioning, components of total health fitness and the relationship between physical activity and lifelong wellness.

#### **Unit II - Nutrition**

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

#### Unit III - Aerobic Exercise

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

#### **Unit IV - Anaerobic Exercise**

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

#### **Unit V - Flexibility Exercise**

Flexibility Training, Relaxation Techniques and Core Training. Safety techniques (stretching protocol; breathing and relaxation techniques) types of flexibility exercises (i.e. dynamic, static), Develop basic competency in relaxation and breathing techniques. Pilates, Yoga.

#### **Reference:**

David K. Miller & T. Earl Allen, Fitness, A life time commitment, Surject Publication Delhi 1989. Dificore Judy, the complete guide to the postnatal fitness, A & C Black Publishers Ltd. 35 Bedford row, London 1998.

Warner W.K. Oeger & Sharon A. Hoeger, Fitness and Wellness, Morton Publishing Company, 1990.

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

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

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

# **SEMESTER IV**

# MPEd/CC -801 INFORMATION AND COMMUNICATION TECHNOLOGY IN PHYSICAL EDUCATION

#### Unit I - Communication & Classroom Interaction

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

Importance of ICT Need of ICT in Education

Scope of ICT: Teaching Learning Process, Publication Evaluation, Research and Administration, Challenges in Integrating ICT in Physical Education

#### **Unit II - Fundamentals of Computers**

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

Computer Memory: Concept & Types Viruses & its Management

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

#### **Unit III - MS Office Applications**

MS Word: Main Features & its Uses in Physical Education

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

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

#### **Unit IV - ICT Integration in Teaching Learning Process**

Approaches to Integrating ICT in Teaching Learning Process

Project Based Learning (PBL)

**Co-Operative Learning** 

**Collaborative Learning** 

ICT and Constructivism: A Pedagogical Dimension

## Unit V - E-Learning & Web Based Learning

E-Learning

Web Based Learning

Visual Classroom

#### **References:**

Douglas E. Comer, The Internet Book, Purdue University, West Lafayette in 2005.

Heidi Steel Low price Edition, Microsoft Office Word 2003-2004.

Pradeep K. Sinha&Priti; Sinha, Foundations computing BPB Publications -2006. Rebecca Bridges Altman Peach pit Press, Power point for window, 1999.

Sanjay Saxena, Vikas Publication House, Pvt. Ltd. Microsoft Office for ever one, Second Edition-2006.

# MPEd/CC-802 SPORTS PSYCHOLOGY

#### **UNIT I - Introduction**

Meaning, Definition, History, Need and Importance of Sports Psychology. Present Status of Sports Psychology in India. Motor Learning: Basic Considerations in Motor Learning– Motor Perception – Factors Affecting Perception – Perceptual Mechanism. Personality: Meaning, Definition, Structure – Measuring Personality Traits. Effects of Personality on Sports Performance.

#### **UNIT II - Motivation**

Meaning and Definition, Types of Motivation: Intrinsic, Extrinsic. Achievement Motivation: Meaning, Measuring of Achievement Motivation. Anxiety: Meaning and Definition, Nature, Causes, Method of Measuring Anxiety. Competitive Anxiety and Sports Performance. Stress: Meaning and Definition, Causes. Stress and Sports Performance. Aggression: Meaning and Definition, Method of Measurement. Aggression and Sports Performance. Self-Concept: Meaning and Definition, Method of Measurement.

#### **UNIT III - Goal Setting**

Meaning and Definition, Process of Goal Setting in Physical Education and Sports. Relaxation: Meaning and Definition, types and methods of psychological relaxation. Psychological Tests: Types of Psychological Test: Instrument based tests: Pass-along test – Tachistoscope – Reaction timer – Finger dexterity board – Depth perception box – Kinesthesiometer board. Questionnaire: Sports Achievement Motivation, Sports Competition Anxiety.

#### **UNIT IV - Sports Sociology**

Meaning and Definition – Sports and Socialization of Individual Sports as Social Institution. National Integration through Sports. Fans and Spectators: Meaning and definition, Advantages and disadvantages on Sports Performance. Leadership: Meaning, Definition, types. Leadership and Sports Performance.

#### **UNIT V – Group Cohesion**

Group: Definition and Meaning, Group Size, Groups on Composition, Group Cohesion, Group Interaction, Group Dynamics. Current Problems in Sports and Future Directions – Sports Social Crisis Management – Women in Sports: Sports Women in our Society, Participation pattern among Women, Gender inequalities in Sports.

#### **References:**

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

Jay Coakley. (2001) Sports in Society – Issues and Controversies in International Education, McCraw Seventh Edn.

John D Lauther (2000) Psychology of Coaching. NerJersy: Prenticce Hall Inc.

John D. Lauther (1998) Sports Psychology. Englewood, Prentice Hall Inc.

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

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

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

# MPEd/CC -803 EDUCATION TECHNOLOGY IN PHYSICAL EDUCATION

#### **Unit I - Nature and Scope**

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

#### **Unit II - Systems Approach to Physical Education and Communication**

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

#### **Unit III- Instructional Design**

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

#### Unit IV - Audio Visual Media in Physical Education

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

#### Unit V - New Horizons of Educational Technology

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

#### Reference:

Amita Bhardwaj, New Media of Educational Planning". Sarup of Sons, New Delhi-2003 Bhatia and Bhatia. The Principles and Methods of Teaching (New Delhi: Doaba House), 1959.

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

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

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

# **MPEd/EC-804 DISSERTATION**

- 1. A candidate shall have dissertation for M.P.Ed. IV Semester and must submit his/her Synopsis and get it approved by the Head of Department on the recommendation of D.R.C. (Departmental Research Committee).
- 2. A candidate selecting dissertation must submit his/her dissertation not less than one week before the beginning of the IV<sup>th</sup> Semester Examination.
- 3. The candidate has to face the Viva-Voce conducted by DRC.

## MPEd/EC-805 SPORTS ENGINEERING

#### **Unit - I Introduction to sports engineering and Technology**

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

#### **Unit - II Mechanics of engineering materials**

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

### **Unit- III Sports Dynamics**

Introduction to Dynamics, Kinematics to particles – rectilinear and plane curvilinear motion coordinate system.

Kinetics of particles – Newton's laws of Motion, Work, Energy, Impulse and momentum.

#### **Unit- IV Building and Maintenance:**

Sports Infrastructure- Gymnasium, Pavilion, Swimming Pool, Indoor Stadium, Out-door Stadium, Play Park, Academic Block, Administrative Block, Research Block, Library, Sports Hostels, etc. Requirements: Air ventilation, Day light, Lighting arrangement, Galleries, Store rooms, Office, Toilet Blocks (M/F), Drinking Water, Sewage and Waste Water disposal system, Changing Rooms (M/F), Sound System (echo-free), Internal arrangement according to need and nature of activity to be performed, Corridors and Gates for free movement of people, Emergency provisions of lighting, fire and exits, Eco-friendly outer surrounding. Maintenance staff, financial consideration.

Building process:- design phase (including brief documentation), construction phase functional (occupational) life, Re-evaluation, refurnish, demolish.

Maintenance policy, preventive maintenance, corrective maintenance, record and register for maintenance.

#### **Unit - V Facility life cycle costing**

Basics of theoretical analysis of cost

Total life cost concepts, maintenance costs, energy cost, capital cost and taxation

#### Reference:

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

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

Franz K. F. et. al., Editor The Impact of Technology on Sports II (CRC Press, 2007)

Helge N., Sports Aerodynamics (Springer Science & Business Media, 2009)

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

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