

**Proposed Syllabus for MSc Physical Education &  
Sports Sciences Part-I & II (Annual System) for  
Affiliation Colleges Academic Session 2017 onward**

*Signature  
Completed*

*S. A. J.*  
11.02.17

**Curriculum and course**

**MSc Physical Education & Sports Sciences (Annual System)**

**THEORY (Part 1)**

Paper No.	Title	Marks
MSc Physical Education & Sports Sciences (Part 1)		
I	Rules and Techniques of Games and Sports	65
II	Science of Track and Field	65
III	Anatomy And Physiology	65
IV	Sports Psychology	65
V	Biomechanics	65
VI	Test, Measurement & Evaluation in Sports	65
	<b>Total Marks</b>	<b>390</b>

**Practical (Part 1)**

Practical No.	Title of Practical	Marks
MSc Physical Education & Sports Sciences (Part 1)		
I	Athletics (Long Jump, Triple Jump, Sprint Starts, Discus Throw, Shot Put)	30
II	Game (Volley Ball, Foot Ball, Table Tennis, Badminton, Net Ball)	30
III	Swimming [Basics of swimming:- (Breathing, Arm Action, Floating, Body Position), Free Style, Back Stroke]	25
IV	Outdoor Pursuits (hiking, first Aid )	15+10=25
	<b>Total Marks</b>	<b>110</b>

Note: - Practical of Swimming and Outdoor Pursuits (hiking, first Aid) will be awarded by HOD of relevant institute/ College.



Curriculum and course

MSc Physical Education & Sports Sciences (Annual System)

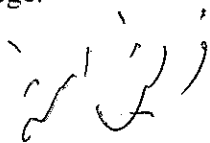
THEORY (Part 2)

Paper No.	Title	Marks
MSc Physical Education & Sports Sciences (Part 2)		
I	Sports Nutrition	65
II	Sports Medicine	65
III	Sports Physiology	65
IV	Methods of Research in Sports	65
V	Science of Sports Training and Coaching	65
VI	Optional Course / Research Project	65
Optional Paper: - Students will have to option any one of the following optional courses or they have to go for Research Project.		
VI(a)	Sports Management and Planning Sports Facilities	65
VI(b)	Physical Education for Special Person	65
<b>Total Marks</b>		<b>390</b>

Practical (Part 2)

Practical No.	Title of Practical	Marks
MSc Physical Education & Sports Sciences (Part 2)		
I	Athletics (Relay & Hurdle Race, Long Distance Races, High Jump, Javelin Throw)	30
II	Game (Hockey, Cricket, Basket Ball, Lawn Tennis, Hand Ball)	30
III	Educational Gymnastics ( Exercise of physical fitness, Front Roll, Back Roll, Dive Roll, Head Standing, Hand Standing, Cart Wheel, Bridge)	25
IV	Physical Efficiency Test	25
<b>Total Marks</b>		<b>110</b>

Note: - Practical marks of Physical Efficiency Test will be awarded by HOD of relevant institute/College.



## THEORY (Part 1)

### PAPER-I

#### RULES AND TECHNIQUES OF GAMES AND SPORTS

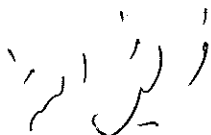
#### ORGANIZATION AND CONDUCT OF GAMES/SPORTS

- a. Types of Tournaments
  - i. League System (Round Robin)
  - ii. Knock out (Elimination)
  - iii. Combination
  - iv. Double Elimination
  - v. Consolation
  - vi. Ladder
  - vii. Pyramid
- b. Organization and conduct of games and sports at different levels.
  - i. School
  - ii. College
  - iii. University
  - iv. National level

#### RULES AND TECHNIQUES OF THE FOLLOWING GAMES:

- a. Origin and Historical Background
  - i. Hockey
  - ii. Football
  - iii. Cricket
  - iv. Basketball
  - v. Volleyball
  - vi. Tennis
  - vii. Badminton
  - viii. Table Tennis
  - ix. Hand Ball
  - x. Kabaddi (for boys)
  - xi. Net Ball (for girls)
  - xii. Tug of War
  - xiii. Swimming

Audio and Visual Aids in the development of skills in sports



### Books Recommended:

1. 1991. *Official Rules of Sports and Games*. Methnen.
2. 1991. *Complete Illustrated Encyclopaedia of All the "Rules of the Game" Sport of the World*. Collins.
3. Barrett, 1993. *Players, Games and Spectacle*. F Watts.
4. Anshel, 1991. *Dictionary of the Sports and Exercise*. Human.
5. Gregory. *Activity Book About Sport*. Romansleigh.
6. Smith, 1992. *Chronicle of 20<sup>th</sup> Century Sport*. Pak Am.
7. Rustad, 1995. *Cricket Encyclopaedia*. Pak Am.
8. Barker, 1992. *Go & Play Tennis*. Pak Am.
9. 1995. *Rules of Games & Sports*. Pak Am.
10. Thani 1995. *Skills & Tactics Cricket*. Pak Am.
11. Thani, 1995. *Skills & Tactics Field Athletics*. Pak Am.
12. Thani, 1995. *Skills & Tactics Gymnastics*, Pak Am.
13. Saggar, 1994. *Skills & Tactics Volleyball*. Pak Am.
14. Costill, 1993. *Swimming*. Pak Am.
15. *Take up Table Tennis*. Pak Am.
16. Giller, 1989. *World's Greatest Football Matches (PB)*. Pak Am.
17. *Know the Games series and teach yourself series on Hockey, Football, Volleyball, Cricket, Table Tennis, Net Ball, Soft Ball*.
18. Charles-C, Cowell and Hilda M Seh. *Modern Principles and Methods in Secondary Schools Physical Education*.
19. *Basketball — Know the Game Series*.
20. *Lawn Tennis — Know the Game Series*.
21. *How to improve you Basketball*. The Athletic Institute of Chicago, America.
22. Ruth Medglay. *Rules of the Games*.
23. Pankaj. *Rules of Game & Sports*.
24. B N Ahuja. *Rules & Skills of Game & Sports*.
25. Donald Casady, *Sports Activities for Men*.
26. Vannier, *Individual and team Sprots for Girls*.
27. Marshal Canendish. *Encyclopaedia of Sports*.

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## PAPER-II

### SCIENCE OF TRACK AND FIELD

#### HISTORY OF OLYMPIC MOVEMENT

- a. Olympic,
- b. Ancient Olympic
- c. Modern Olympic

#### LAYING OF STANDARD TRACK

#### TECHNICAL ASPECTS IN TRACK & FIELD

- a. Running
- b. Jumping
- c. Throwing
- d. Walk Race

#### RULES OF TRACK & FIELD EVENTS

- a. Jumps
- b. Throws
- c. Races
- d. Relay
- e. Hurdles

#### ADMINISTRATION AND ORGANIZATION OF ATHLETIC COMPETITION

- a. Athletics Officials
- b. Formation of Committees for conduct of Track and Field Events.

#### Books Recommended:

1. *How to organize an Athletics Meeting*, Amateur Athletic Association Hand Book.
2. Abdul Waheed Mughal, *Athletic Officiating*, Islamabad.
3. Primo Nebiol, 1997. *Hand Book Inter. Amateur Athletic Federation*, IAAF.
4. Vivek, 1996. *New Encyclopaedia of Track & Field*, Khel Sahitya Kendra.
5. Gummerson, 1992. *Sports Coaching and Teaching*, A & B. Black.
6. Tony Pocock, 1992. *Official Rules of Sports & Games*.
7. Thani, 1995. *Skills & Tactics Field Athletics*, Sports Publishers.
8. 1994. *Track Athletics*, A & C Black.
9. 1994. *Field Athletics*, A & C. Black.
10. Amateur Athletics Association, Hand Book.
11. Rashid Khalid, 1993. *Taaleem-i-Jismani*, Ilmi Kutab Khana, Lahore.

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## PAPER-III

### BASIC ANATOMY AND PHYSIOLOGY

#### INTRODUCTION

- a. Definition and Importance of Anatomy and Physiology.

#### SKELETAL MUSCLES

- a. Anatomy of Skeletal Muscles
- b. Description of major muscles of the body
- c. Function of muscles during exercise
- d. Effect of exercise on muscles

#### BONES AND JOINTS

- a. Description of joints
- b. Anatomy of Bones and Joints
- c. Effect of exercise on bones and joints and senility changes

#### ANATOMY AND PHYSIOLOGY OF THE FOLLOWING SYSTEMS

- a. Nervous Systems (Peripheral – Autonomic)
- b. Circulatory system
- c. Respiratory system
- d. Digestive system
- e. Excretory system

#### ENDOCRINOLOGY

- a. Endocrine glands and functions
- b. Effects of malfunctioning of endocrine glands on human body
- c. Detail of muscles related hormones

#### **Books Recommended:**

1. Lost R J, Caningam, *A manual practical anatomy.*
2. Elaine N Marieb, 2002, *Human Anatomy & Physiology*, The Benjamin/Cummings Publishing Company, USA.
3. King & Shower, *Human Anatomy and Physiology*, W B Saundars, Co, New York, Philadelphia, USA.
4. Soloman and Davis, *Human Anatomy and Physiology*, W B Saundars.
5. Marieb, 1992. *Human Anatomy & Physiology*, The Benjamin Publishers.
6. Thibodeau, 1992. *Structure & Function of the Body*. Mosby Year Book.
7. Marieb, 1994. *Essentials of Human Anatomy & Physiology*. The Benjamin Publishers.
8. Wynsberghe, 1995. *Human Anatomy & Physiology*. Mc-Graw Hill.

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## PAPER-IV

### SPORTS PSYCHOLOGY

1. **Introduction**  
Definition of sports psychology  
Significance of Psychology in sports  
Psychological obstacles
2. **Nervous System and Glandular System**  
Response Mechanism in human body or Neuro-physiology of Arousal  
Glands and their effects on human behavior  
Psycho-Physiological factors effecting sports performance
3. **Personality and Sports**  
Theories of personality  
Measurement of personality  
Personality profiles of athletes
4. **Motivation and Performance**  
Definition of motivation Sports  
motivation scale  
Nature and types of motivation Theories of  
motivation  
Shaping athletes behavior
5. **Stress**  
Definition of stress  
Theories of stress  
Effects of sports stress on performance or Neuro-chemical aspects of stress  
Dynamics of stress
6. **Aggression**  
Types of aggression  
Theories of aggression  
Significance of aggression in sports  
Aggression
7. **Goal Setting Types**  
of goals Goal  
identification  
Rational goal setting/principles of effective goal setting how  
goals affect performance
8. **Concentration**  
Attention and its dimension  
Types of attentional focus  
Importance of concentration in sports

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Factors that effect concentration  
Techniques to enhance concentration

**9. Self-Confidence and Sports performance**

Introduction  
Models of sports confidence  
Sources of sports confidence  
Development of self-confidence

**10. Sport Cohesion**

Definition and types of cohesion  
Factors that effect team cohesion  
Measurement of cohesion  
Interventions to enhance cohesion

**11. Cognitive and behavioral interventions to improve sports performance**

Coping strategies in sports  
Relaxation strategies Arousal  
Energizing strategies  
Imagery and sports performance  
Hypnosis

(Imagery – Relaxation, Self-talks and Self-thoughts, Arousal)

**Books Recommended:**

1. Chiang H and Maslow A H, N Y Van Nostrand, 1989. *The Health Personality*
2. Harper N Y and Brothers, Maslow, J, 1954. *The Motivation and Personality*.
3. Liaget J, 1965. *The Moral Judgement on Child*, N Y Free Press.
4. Polarad, M B and Geogheen B, *The Growing Child in contemporary society*. Milkaukees. The Bruce Publishing Co.
5. Schultz, B M, 1969. *Psychology in Use an introduction to applied Psychology*, N Y Macmillan & Co.
6. Harvey P G Health, 1988. *Psychology*, Longman, London.
7. Borthy V Harns and Bettei L Harris, 1984. *The Athletics Science to Sports Psychology*, Leisene Press.
8. William P Stranb, 1980. *Sports Psychology in Analysis of Athlete Behaviour*. Movement Publications USA.
9. Borcas Busam But, 1987. *Psychology of Sports*, Van Nostrand Rouledge Company, New York.
10. Terry Orlick, 1975. *Human Kinetics*, Publishers, Inc. USA.
11. Kane J E, 1972. *Psychological Aspects of Physical Education and Sports*, Rouledge and Kegan Paul, London and Boston.

## PAPER-V

### BIOMECHANICS

#### BIOMECHANICS IN SPORTS AND ATHLETICS

- a. What is Biomechanics
- b. Functions of Biomechanics
- c. Importance of knowledge of Biomechanics to the:
  - i. Physical Educator
  - ii. Coach
  - iii. Athlete

#### FORMS OF MOTION

- a. Translation (or linear motion)
  - i. Rectilinear translation
  - ii. Curvilinear translation
  - iii. Non-linear motion
- b. Rotation (or Angular Motion)
  - i. Angular motion about an internal axis
  - ii. Angular motion about an external axis
- c. General Motion

#### KINETICS

- a. Linear Kinetics  
Inertia, Mass, Force, Newton's Laws of motion. Friction, Impulse-Conservation of Momentum, impact, Pressure, Work.
- b. Angular Kinetics  
Eccentric Force, Moment, Resultant Moment, Equilibrium, levers-Center of Gravity, Moment of Inertia, Angular Momentum, Centripetal and centrifugal force.

#### KINEMATICS

- a. Linear Kinematics
  - i. Distance and Displacement
  - ii. Speed and Velocity
  - iii. Acceleration
  - iv. Vectors and Scalars
  - v. Projectile
- b. Angular Kinematics
  - ii. Angular Distance and Angular Displacement
  - iii. Angular speed and velocity
  - iv. Angular Acceleration
  - v. Angular motion vectors

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## FLUID MECHANICS

Flotation, Buoyant force, Specific gravity, Centre of Buoyancy, Fluid Resistance, Surface Drag, Form Drag, Wave Drag, Lift.

## BIOMECHANICAL ANALYSIS OF SPORTS TECHNIQUES

- a. Games.
- b. Track and Field's Events.

### Books Recommended:

1. James G Hay, 1993, *the Bio-Mechanics of Sports Techniques* Prentice Hall International Ltd, UK.
2. B M Nigg, 1994. *Biomechanics of the Musculo-Skeletal System.*
3. W.Herzog, 1994, John Wiley & Sons Publisher, USA.
4. Susan J Hall, 1995. *Basic Biomechanics*, McGraw-Hill Companies, USA.
5. J P Troup and Others, 1996. *Biomechanics and Medicine in Swimming.* VIIIE & FN Spun Publisher, UK.
6. Robert A Robergs, 1999. *Fundamental Principles of Exercise Physiology for Sports.*
7. Scott O Roberts, 2000. *Fitness Performance and Health*, McGraw- Hill Publisher, USA.
8. Dr. Dhana Joy Shaw, 2000. *Mechanical Basis of Biomechanics*, Sports Publications, New Delhi, India.
9. Roger Bartlett. *Introduction to Sports Biomechanics.* Department of Exercise and Sports.
10. Gheluse, 1988, *Current Research in Sports Biomechanics.*
11. Hay, *Biomechanics of Sports Techniques*, Prentice Hall, New York.

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## PAPER-VI

### MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION

#### INTRODUCTION

- a. Historical overview
- b. Definition of measurement and evaluation
- c. Importance of measurement and evaluation in Physical Education
- d. Basic principles of evaluation

#### EVALUATION AND ADMINISTRATION OF TESTS

- a. Criteria for selecting appropriate test
- b. Pre test responsibilities
- c. Duties during testing and responsibilities
- d. Post test responsibilities

#### BASIC STATISTICS

- a. Introduction
- b. Quantitative Data
- c. Frequency table
- d. Measures of central tendency
- e. Quartiles and percentiles
- f. Standard Deviation

#### MEASUREMENT OF PHYSICAL FITNESS

- a. Definition of Physical Fitness
- b. Components of Physical Fitness
- c. Physical Fitness index
- d. Measurement of Motor Fitness

#### GENERAL MOTOR ABILITY

- a. Definition of Motor Ability
- b. Measurement of Motor Ability
- c. Components of Motor Ability

#### CARDIOVASCULAR FITNESS

- a. Definition
- b. Measurement of Cardiovascular Fitness

#### CLASSIFICATION AND GRADING IN PHYSICAL EDUCATION

- a. Purposes of classification/grading
- b. Marking system in Physical Education
- c. Criteria for grading

#### RATING SCALES IN PHYSICAL EDUCATION

- a. Construction of Rating Scales
- b. Rules for the use of Rating scales

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- c. Types of Rating devices

#### MEASUREMENT OF SPECIFIC SPORT SKILLS

- a. Games
- b. Track & Field

#### Books Recommended:

1. Harrison Clerk A. *Application of Measurement in Health & Physical Education.*
2. Wilson N R. *Test & measurement in Physical Education.* (California National Text PA, ALTO).
3. Ch. Mecloy. *Test and Measurement in Health & Physical Education.* (NY FSc, Croits & Co).
4. Johnson Barry and Nelson Jack K. *Practical Measurement for Evaluation in Physical Education.* Burgess Publishers. 7/10 Ohms Lane Edina M N 55435.
5. Clarke H Harrison. *Application of Meausrmenet to Health and Physical Education, 1967.* Prentice Hall Inc, Englewood Ckuff, New Jersey, New York, USA.
6. Baungartner. *Measurement for Evaluation in Physical Education, 4<sup>th</sup> edition.* C Brown Publishers, New York, USA.

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7. Lien. *Measurement and Evaluation of Learning*, 4<sup>th</sup>  
Publishers, New York, USA.

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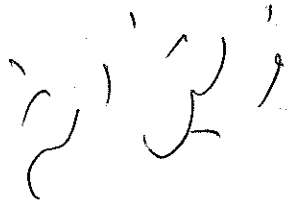
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- iv. Health aspects
- 7. Weight management:
  - i. concepts of dieting
  - ii. physiological factors of weight management
- 8. Nutrition for optimal Health & Physical Performance:
  - i. Balanced diet
  - ii. Pre-contest during and after contest meal
  - iii. Dietary recommendations for better health & physical performance.

**Books Recommended:**

1. Ottaway, 1985. *Handbook of Sports Nutrition Food for Sport Resource.*
2. Ridgway, 1994. *Food for Sport.* Boxtree.
3. Paish 1990. *Nutrition for Sport.* Crowood.
4. Bean, 1993. *Complete Guide to Sports Nutrition.* Black.
5. Devlin, 1992. *Food, Nutrition and Sports Performance.* Spon.
6. Asterita, 1985. *Nutrition and Stress.* Praeger.
7. Kibler, 1990. *Sport Participation Fitness Examination.* Huamn.
8. Grisogono, 1991. *Injuries and Diet Fitness: Children in Sport.* J Murray.
9. Geoffrey P Webb, 2002. *Nutrition: A Health Promotion Approach.* Arnold Publishers, UK.
10. Melvin H Williams, 2000. *Nutrition for Health Fitness and Sports.* McGraw-Hill Publishers, New York, USA.
11. Ottoway Berry & Bargin 1985. *Food for Sports — A Hand Book of Sports Nutrition.* Resource Publisher, Cambridge.





## PAPER-II

### SPORTS MEDICINE

#### INTRODUCTION

- a. What is sports medicine
- b. History of sports medicine
- c. Nature scope and significance of sports medicine
- d. Branches of sports medicine

#### TRAINING AND CONDITIONING IN SPORTS

- a. Sports and ageing.
- b. Training principles
- c. Overtraining
- d. Strength training
- e. Endurance training
- d. Flexibility training

#### SPORTS INJURIES

##### Injuries of extremities

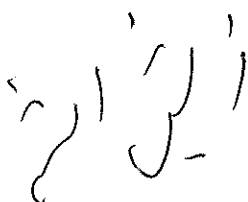
- i. Injuries of upper limb & treatment
- ii. Injuries of lower limb & treatment
- iii. Injuries of lower limbs and treatment

#### Muscle injuries

- a. Causes of muscle injuries
- b. Types of muscle injuries
- c. Strain
- d. Compartment syndrome
- e. Cruising injuries
- f. Muscle soreness
- g. Complications of muscle injuries
- h. Treat of muscle injuries

#### SPRAIN

- a. Definition



- b. Grades
- c. Signs, symptoms and treatment

## **FRACTURES**

- a. Definition
- b. Causes of fractures
- c. Types of fractures
- d. General principles of healing of fractures
- e. Treatment of fractures
- f. Injuries of back

## **TENDON INJURIES**

- a. Definition
- b. Types of tendon injuries & their treatment
- c. Different types of bursitis its causes signs, symptoms & treatment

## **OVER USE INJURIES**

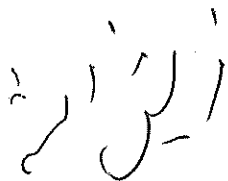
- a. Definition
- b. Causes
- c. Overuse injuries in sports men
- d. Supraspinatus syndrome, injury to meniscus, tennis elbow, golf elbow, patellofemoral, Groin injuries and Hamstring injuries.

## **TREATMENT OF INJURIES**

- a. Through exercise
- b. Through medication
- c. Hydro therapy steam therapy/ ice therapy
- d. Pressure therapy
- e. Laser therapy

## **Massage**

- a. Definition of massage
- b. Importance of massage
- c. Methods of massage



## THERAPEUTIC EXERCISES

- a. Physiotherapy exercises
- b. Yoga
- c. Mud Therapy
- d. Aquatic therapy
- e. Recreational therapy
- f. Touch/pressure therapy

## CLIMATIC STRESS & ITS MANAGEMENT

- a. Climate stress e.g. heat cramps, heat fatigue, heat stroke, frost bite and hypothermia.
- b. Altitude stress

## DOPING

- a. Definition of doping
- b. Addiction in sportsman and its effects on performance/health.
- c. Conflict between legitimate medication and doping regulations.
- d. Problems and prevention of self medication.
- e. Current doping principles/regulations procedures

## Books Recommended:

1. Dr Gupta L C and Dr Pandey P K, 1987. *Outlines of Sports Medicine*, Jaypee Brothers Medical Publishers, New Delhi, India.
2. Dr Vidya Ratan, 1989. *Hand Book of Preventive and Social Medicine*, Jaypee Brothers Medical Publishers, New Delhi, India.
3. Dr Vidya Ratan, 1991. *Multiple Choice Questions in Preventive and Social Medicine*. Pee Brothers, New Delhi, India.
5. Hermas G P Mosterd W L, 1989. *Sports Medicine and Health*, Elsevier Science Publishers B V, Biomedical Division, Amsterdam, Netherlands.
- Sperryn Peter N, 1989. *Sports and Medicine*, Butterworths Borough Green, Sevenoaks, England.
6. Dr Giam C K, Dr Teb K C, 1988. *Sports Medicine Exercise and Fitness*. P G Publishing Pvt Limited, UK.
7. JGF Williams and PN Sperryn Edward Arnold, *Sports Medicine*, Butler & Tanner Ltd, London.
8. John M C Coslon and Williams Armour. *Sports Injuries and their Treatment*.

## PAPER-III

### EXERCISE PHYSIOLOGY

#### INTRODUCTION

- a. Definition and nature of exercise physiology.
- b. Importance of exercise physiology in Physical Education.

#### CARDIO RESPIRATORY

Heart: Normal and diseased, CVS responses to exercises, B.P., hypertension, P.R., normal, abnormal changes; rehabilitation in heat diseased.

Blood: Training responses, anaemia, altitude, blood doping.

Lungs: Normal respiration and exercise responses, measurement, spirometry.

#### LOCO MOTOR SYSTEM:

Muscle: Gross anatomy and function, nerves and vessels, structure and function, fibre types and biochemistry, metabolic fuels for exercise and recovery.

#### CARDIOVASCULAR SYSTEM IN EXERCISE

- a. Muscle blood flow and blood pressure.
- b. Work out put, Oxygen consumption and cardiac output.
- c. Training effects on heart, dystrophy and atrophy on cardio output; stroke volume and heart rate in exercise.
- d. Relaxation of cardiovascular performance to Vo<sub>2</sub> maximum.
- e. Effects of heart disease and old age on athletic performance.
- f. Benefits of exercise for prevention of cardiovascular disease.

#### BODY HEAT IN EXERCISE, HEAT STROKE & HEART EXHAUSTION.

Acclimatization to heat, cold, altitude.

Effect of high Ambient pressure "Deep sea diving"

#### BODY FLUID AND SODIUM IN EXERCISE. REPLACEMENT OF SODIUM AND POTASSIUM.

#### SYSTEM OF ENERGY. AEROBIC AND ANAEROBIC.

#### BIOCHEMISTRY OF EXERCISE.

General metabolic and endocrine changes; effects of therapeutic medication including hormones.

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TRAINING – TYPES AND EFFECTS; ERGONOMIC AIDS.

EXERCISE SEX DIFFERENCES. MALE & FEMALE ATHLETES.

OBESITY, EFFECTS ON PERFORMANCE AND CONTROL

FATIGUE AND EXHAUSTION

**Books Recommended:**

1. Reilly T and Williams, 1990. *Physiology of Sports* (E & FN Spon, London).
2. Ardle William D Mc, 1988. *Exercise Physiology*. Lea Febuser, 600 Washing to Square, Philadepia, PA19106 USA, ISBN 9-07. 100114.
4. Reilly T, 1990. *Physiology of Sports*. C V Brown Publisher, New York, USA.
5. 1989. *Powers Exercise Physiology*. C.Brown Publisher New York, USA.
6. Shaver, 1990. *Essentials of Exercise Physiology*. Jitandir Vij Publisher, New Delhi, India.
7. Rodhi Ashand Kaare, 1986. *Text Book of Work Physiillogy*. Hill Co, Singapore, ISBN-0-07-1000114.
8. Richard, A Berger, *Applied Exercise Physiology*. Lee & Febiger, Philadelphia.

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## PAPER-IV

### RESEARCH METHODOLOGY IN PHYSICAL EDUCATION

#### INTRODUCTION

- a. Definition: Introduction of Research
- b. Importance of Research in Physical Education
- c. Characteristics of Researcher
- d. Types of Research

#### SCIENTIFIC METHODS IN RESEARCH

- a. What is scientific research?
- b. Scientific method of research in Physical Education
- c. Relationship between research and theory

#### CONCEPTS OF RESEARCH

- a. Concepts and Variables (types of variables, ways to control variables)
- b. Definition: Theoretical and Operational

#### SELECTION AND FORMULATION OF RESEARCH PROBLEM/TOPIC

- a. Identification of Research Problems
- b. Objectives of the problem/topic
- c. Review of relevant literature
- d. Determinants of the significance of a research problem
- e. Theoretical framework

#### RESEARCH DESIGN

- a. Types of research design:  
(Survey, experiment, case study, content analysis scope of each research design in Physical Education)
- b. Population and samples

#### HYPOTHESIS

- a. Definition and functions of hypothesis
- b. Characteristics of hypothesis
- c. Sources and logic through which hypothesis are derived

#### TOOLS OF DATA COLLECTION

- b. Tests/Interview schedule, Interview guide, Observation, participant and non-participant, Questionnaire
- c. construction of questionnaire, types and guidelines for construction
- d. Administrator of questionnaire.
- e. Conduct of interviews, mailed questionnaire

#### MEASUREMENT, SCALING, AND ANALYSIS OF DATA

- a. Scores; T score, Z score, standard score. Graphs; histogram, pygraphs, bargraphs. Frequency Curve(normal curve); Indexes, Scales, Tables.
- b. Application of computer in data analysis; MS Word, Excel, use of statistics software, Power Point and Internet.

#### WRITING OF RESEARCH REPORT

- a. Style/format of report, outline
- b. Body of report:
  - i. Introduction
  - ii. Methodology
  - iii. Literature review
  - iv. Data Analysis
  - v. Findings
  - vi. Recommendations
  - vii. Appendix, questionnaire references, indexes, references.

#### Books Recommended:

1. Iqbal A Qureshi. 1996. *Research Methods in Physical Education*, Hyderabad. Alumni.
2. David Clarke and Harrison Clarke, 1984. *Research Process in Physical Education*, Prentice Hall Inc, New Jersey.
3. John Best, 1981. *Research in Education*, Prentice Hall Inc, New Jersey.
4. Deobold Dalen, 1979. *Understanding Educational Research*. McGraw- Hill Inc, New York.
5. Bhatnagar O P, 1990. *Research Methods & Measurement in Behavioural and Social Sciences*. Agricole Publishing Academy, New Delhi.
6. Annel Rothstein, *Research Design and Statistics for Physical Education*, Prentice Hall Inc.
7. David H Clarke and H Harrison Clarke, *Research Processes in Physical Education*, Prentice Hall Inc.
8. Louis Conen and Lawrence Manion, *Research Methods in Education*, C
9. Englenart Max D, *Methods of Educational Research*, Rand McNally and Company Chicago.
10. Muhammad Iqbal Saif, *The Basics of Research Process*, Gomal University, Dera Ismail Khan.
11. David H Clarks, 1984. *Research Process in Physical Education*, Prentice Hall Inc. Englewood, Cliffs, New Jersey.

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## **Paper- V**

### **Science of Sports Training and Coaching**

- Introduction and nature of coaching profession

### **Role of Coach**

- Coaching philosophy
- Coaching Style

### **Coaching of major sports**

- Athletics
- All Games

### **Development of Skill Analysis and Strategies**

- *Physical training*
- *Mental training*
- *Technical training*
- *Tactical training*

### **Periodization of Training**

- *Off season training*
- *Pre season training*
- *Peak season training*
- *Macro training*
- *Micro training*
- *Meso training*
- *Warming up*
- *Cooling down*

### **Teaching Methodology for a Coach**

- *Skill, Technique and Ability*
- *Skill Development*

### **Component of Fitness**

- *Health Related Fitness (Need, Importance & Improvement)*
- *Skill Related Fitness (Need, Importance & Improvement)*
- *Training Principles (Need, Importance & Improvement)*

### **Recommended Books (Latest Editions of Following Books)**

1. *The Scientific Aspects of Sports Training: A. W. Taylor.*

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2. *Sports Coaching Concepts; A Framework for coaches' behavior: John Lyle*
3. *Scientific Principles of Coaching: Englewood Cliff*
4. *Coaching Basketball: Jerry Kraus and Ralph Pim*
5. *Scientific Foundation of Coaching: Pate Rotella Mcclenaghan*
6. *Psychology of Coaching: John D. Lawther*

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## DETAILS OF OPTIONAL COURSES

### Paper- VI (a)

#### PLANNING, ADMINISTRATION AND MANAGEMENT IN SPORTS/PHYSICAL EDUCATION

##### ADMINISTRATION

- a. Definition of administration
- b. Scope and importance of administration
- c. Types of administration
- d. Qualities of an Administrator
- e. Responsibilities of Administrator

##### ORGANIZATIONAL ADMINISTRATIVE SET UP IN SPORTS/PHYSICAL EDUCATION

- a. Administrative Organization and Structure
- b. Formal and informal organization
- c. Objectives of organizations
- d. Administrative set up of Physical Education in Educational Institution.

##### PERSONNEL ADMINISTRATION IN PHYSICAL EDUCATION

- a. Principles of Personnel Administration
- b. Qualification of Staff
- c. Teaching load
- d. Inservice Training
- e. Evaluation and supervision

##### FISCAL MANAGEMENT

- a. Importance of fiscal management
- b. Types of Budget
- c. Finance and Budgeting
- d. Preparing Annual Budget
- e. Purchase procedure
- f. Fund Raising

##### OFFICE MANAGEMENT

- a. Importance of Office Management and Discipline
- b. Facilities, Space Personnel Equipment and Supplies
- c. Administrative Structure
- d. Environment and Cultures
- e. Assignments, responsibilities, correspondence, filing system

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## PUBLIC RELATION

- a. Definition
- b. Importance of Public Relationing in Sports & Physical Education
- c. Difference between Private and Public Administration

## PLANNING FACILITIES IN PHYSICAL EDUCATION/SPORTS

- a. Basic consideration for planning
- b. Need of planning for various activities, areas and facilities
- c. Planning factors, units, types and functions
- d. Planning and Teaching Stations for schools and indoor activities
- f. Planning for Gymnasium/recreational buildings
- g. Play fields.
- h. Stadium
- i. Artificial Surfaces

### **Books Recommended:**

1. Jensen, 1992. *Administrative Management of Physical Education and Athletic Programme*. Lea.
2. Leith, 1990. *Study Guide to Sport Administration*. Human.
3. Chakraborty S, 1998. *Sports Management*. Lokesh Thani.
5. Pande P K Sharma O P, 1993. *New Encyclopaedia of Physical Education Vol I-V*.
6. Bucher, Charles A. *Administration of Physical Education and Athletic Programme*. The C V Mosby Company.
7. Bucher, Charles A. *Administration of Health and Physical Education, Including Athletics*. The C V Mosby Company.
8. Arthur A, Voltmer and Edward F. *The Organization and Administration of Physical Education*. Prentice Hall Inc.
9. Editor, Howard Stephenson. *Hand Book of Public Relations* McGraw- Hill Book Company.
10. Plichard Theibert and Eugue M Ezersky, 1976. *Facilities in Sports and Physical Education*. The C V Mosby Company, St Louis, USA.
11. Charles A Bucher and March L Krotee. *Sports*, McGraw-Hill Publisher, New York, USA.
12. Jay Coakley, 2001, *Sports in Society*, McGraw-Hill Publisher, New York, USA.
13. Deborah A Yow and Others, 2000. *Strategic Planning for Collegiate Athletics*. The Haworth Half-Court Press, New York, USA.



## **Paper- VI (b)**

### **Physical Education for Special Person**

#### **Historical background of special population**

- a. Concepts of special populations:
  - I. Dark Age
  - II. Modern Age
- b. Concept for special populations in our society

#### **Understanding of special population**

- a. W.H.O.'s Definition and Classification of Special population
- b. Basic Terms
- c. Public Law

#### **Types of Special Population**

##### **a. Mental Retardation:**

- I. Mild
- II. Moderate
- III. Severe
- IV. Profound

##### **b. Deaf and Defective:**

- I. Mild
- II. Moderate
- III. Severe
- IV. Profound

##### **c. Visually impaired:**

- I. Blind
- II. Partially Sighted
- III. Partially Blind
- IV. Low Vision

##### **d. Physically Disabled:**

- I. Mild
- II. Moderate
- III. Severe
- IV. Profound

#### **Teaching Programmes for Special Population**

- a. Individual Programmes

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- b. Developmental Programmes
- c. Remedial programmes
- d. Therapeutic programmes

### **Adjustment of special population**

- a. Factors affecting adjustment
- b. The effects of environmental
- c. Ways of making adjustment
- d. Adjustment of special populations in society through teachers and parents

### **Physical activities for special population**

- a. Games and sports activities for special population (Paralympics & special Olympics)
- b. Fitness exercises for special population
- c. Understanding the nature of motor learning
- d. Principles of mechanics of movement for special population

### **Physical education teacher for special population**

- a. Attributes of physical education teacher
- b. Qualifications of physical education teacher

### **Recommended Books (latest editions of following books)**

1. Shekar, K.C. Adapted Physical Education, New Delhi: Khel Sahitya Kendra, 2005.
2. Jain, Anoop, Adapted Physical Education, New Delhi: Sports Publication, 2003.
3. Misra, Bhawana, Handbook of Teaching Disabled, New Delhi: mohit, 2002.
4. Seamus Hegarty Mithu Alur, Education and Children with Special Needs, Sage Publications 2002 India.
5. Rao, V.K., Special Education, New Delhi; A.P.H., 2001.
6. Horrat, Michel, Developmental and Adapted Physical Activity Assessment, Human Kinetics Pub., London 2007.
7. Kelly, Luke, E., Adapted Physical Education national standards, 2<sup>nd</sup> ed. Human Kinetics Pub., London 2006.

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