

CURRICULUM
OF
HEALTH & PHYSICAL
EDUCATION

FOR
B.A
MH&PE/M.A./M.Sc.

(Revised 2004)



HIGHER EDUCATION COMMISSION
ISLAMABAD

CURRICULUM DIVISION, HEC

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PREFACE

Curriculum of a subject is said to be the throbbing pulse of a nation. By looking at the curriculum one can judge the state of intellectual development and the state of progress of the nation. The world has turned into a global village; new ideas and information are pouring in like a stream. It is, therefore, imperative to update our curricula regularly by introducing the recent developments in the relevant fields of knowledge.

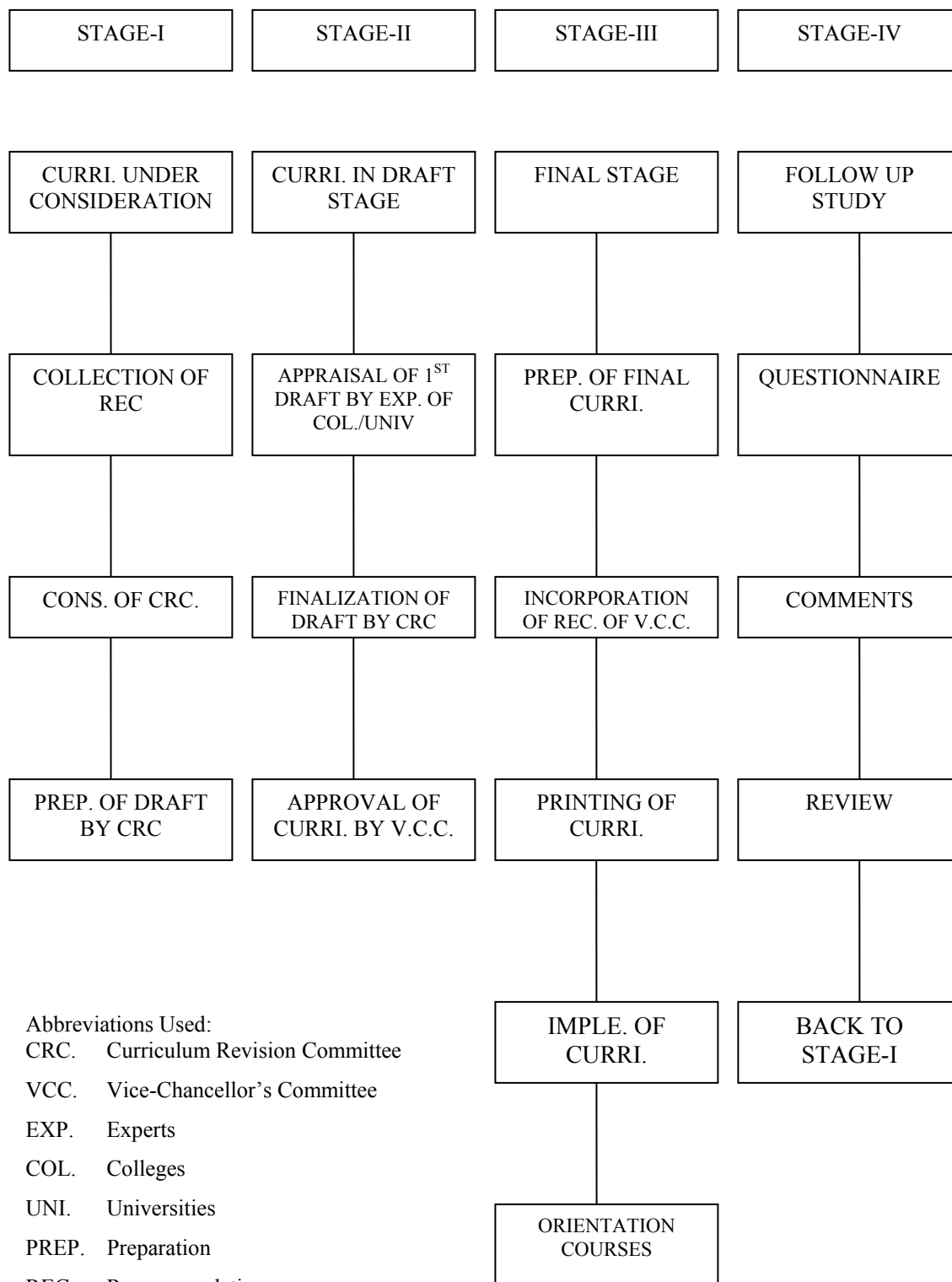
In exercise of the powers conferred by sub-section (1) of section 3 of the Federal Supervision of Curricula Textbooks and Maintenance of Standards of Education Act 1976, the Federal Government vide notification no. D773/76-JEA (Cur.), dated December 4, 1976, appointed University Grants Commission as the competent authority to look after the curriculum revision work beyond class XII at bachelor level and onwards to all degrees, certificates and diplomas awarded by degree colleges, universities and other institutions of higher education.

In pursuance of the above decisions and directives, the Higher Education Commission (HEC) is continually performing curriculum revision in collaboration with universities. According to the decision of the special meeting of Vice-Chancellors' Committee, curriculum of a subject must be reviewed after every 3 years. For the purpose, various committees are constituted at the national level comprising senior teachers nominated by universities. Teachers from local degree colleges and experts from user organizations, where required, are also included in these committees. The National Curriculum Revision Committee for Health & Physical Education in its meeting held in April 2004 at the HEC Regional Centre, Lahore revised the curriculum after due consideration of the comments and suggestions received from universities and colleges where the subject under consideration is taught. The final draft prepared by the National Curriculum Revision Committee duly approved by the Competent Authority is being circulated for implementation by the relevant institutions.

(PROF. DR. ALTAF ALI G. SHAIKH)
Adviser (HRD)

July 2004

CURRICULUM DEVELOPMENT



Abbreviations Used:

CRC. Curriculum Revision Committee

VCC. Vice-Chancellor's Committee

EXP. Experts

COL. Colleges

UNI. Universities

PREP. Preparation

REC. Recommendations

INTRODUCTION

The final meeting of the National Curriculum Revision Committee constituted by Higher Education Commission (HEC) comprising senior Professors of Health & Physical Education from the Universities and Colleges was held at HEC Regional Centre, Lahore from April 26-28, 2004 to finalise the draft curriculum of Health and Physical Education at Graduate and Post-Graduate level. The draft curriculum was prepared in the preliminary meeting earlier held in January, 2004. The following attended the meeting:

- | | |
|--|-----------------|
| 1. Prof. Dr. Mohammad Asghar Javed
Chairman
Department of Sports Sciences and
Physical Education
Old Hailey College, Punjab University
Lahore | Convener |
| 2. Mrs. Soofia Khaliq
Director Physical Education
University of Karachi
Karachi | Member |
| 3. Prof. M. Akram Ansari
Lecturer, Centre for Health & Physical Education
University of Sindh
Jamshoro | Member |
| 4. Mr. Turs Mohy-ud-Din
Director Sports
Bahauddin Zakariya University
Multan | Member |
| 5. Mr. Yasir Iqbal,
Department of Health and Physical Education
University of Sargodha
Sargodha | Member |
| 6. Mr. Jalil-ur-Rehman
Lecturer
Deptt. of Health & Physical Education
Gomal University
D.I. Khan | Member |

7. Mr. Zain-ul-Abeddin **Member**
Director,
Deptt. Of Physical Education
University of AJ&K
Muzaffarabad
8. Mrs. Abida Shaheen **Member**
Department of Physical Education
University of Karachi
Karachi
9. Mr. Jaber Ali Qureshi **Member**
Principal
National College of Physical Education & Sports
Iqra University
I-8/1, Mughal Market
Islamabad
10. Mrs. Shaheen Khan **Member**
Director General Sports
Higher Education Commission
Islamabad
11. Mrs. Shafqat Rasool **Member**
Assistant Professor
College of Physical Education
Lahore
12. Mr. Javed Akhtar **Member**
Assistant Professor
Department of Physical Education
University of the Punjab
Lahore
13. Mrs. Shaheena Ishtiaq **Member**
Department of Physical Education
Lahore College of Women University
Lahore
14. Mrs. Tabasum Abbas **Member**
Director Sports
Board of Intermediate & Secondary Education
Lahore

15. Mr. Najeeb ur Rehman Channa **Member**
Director Sports
Mehran University of Engg. & Tech.
Jamshoro (Hyderabad)
16. Mian Rafique **Member**
College of Physical Education
Lahore
17. Dr. Abdul Waheed Mughal **Secretary/Member**
Deputy Director General
Pakistan Sports Board
Aabpara
Islamabad

The meeting started with recitation from Holy Quran by Zain-ul-Abeddin.

Professor Dr. Altaf Ali G. Shaikh, Adviser (HRD) welcomed the participants. He briefed the participants about the responsibility of the Higher Education Commission, for revision of curricula of all subjects taught at graduate and post-graduate level in the Universities and affiliated Colleges in the country and Azad Jammu and Kashmir. He also gave a brief description with introduction of curriculum procedure for revising/developing the curriculum of a certain subject. He said that the Curriculum of Health and Physical Education was revised in 1999 so there is a great need to revise it to incorporate the latest trends, in the field. Then the session was declared open for general discussion.

The Committee unanimously appointed Prof. Dr. Mohammad Asghar Javed, University of the Punjab, Lahore as Convener and Dr. Abdul Waheed Mughal, Deputy Director General, Pakistan Sports Board, Islamabad as Secretary of the Committee.

The curriculum revised by the National Curriculum Revision Committee is given as below:

CURRICULUM FOR HEALTH AND PHYSICAL EDUCATION AS AN ELECTIVE SUBJECT AT GRADUATE LEVEL

OBJECTIVES

The envisaged programme has been intended to achieve the following objectives:

1. To bridge the links of the subject of Health and Physical Education between Secondary, Intermediate, graduate and Postgraduate.
2. To promote Physical, mental, social, emotional and spiritual growth of the youth.
3. To promote the concept of dignity of labour through Health and Physical Education programme.
4. To promote a spirit of healthy competitions.
5. To improve quality of life and well-being.
6. To offer the activities that lead to character building.
7. To offer such activities that lead to the qualities of leadership and sportsmanship.
8. To offer programme leading to the learning of skills and techniques of various games.
9. To highlight the significance and importance of Movement with reference to Islamic rituals.

SCHEME OF STUDIES

Outline of Tests

Viewing an overall importance of theory and practical work, and comparative relevance of health and physical needs, the Committee suggests the following distribution:

Part-I (Theory)

Paper-A Physical Education

Paper-B Health Education

Part-II (Practical)

Physical Education

Health Education

Note: Distribution of marks may be left to the respective Universities/Departments.

Paper-A: Physical Education

- | | | | |
|----|------------------------------------|----|--------------------------------|
| a. | Introduction to Physical Education | f. | Religious rituals and movement |
| b. | Historical background | g. | Games and Sports |
| c. | Movement Education | h. | Track and Field |
| d. | Physical Fitness | i. | Outdoor Pursuits |
| e. | Safety Education | j. | Recreation |

Paper-B: Health Education

- | | | | |
|----|--|----|-------------------------------|
| a. | Meaning and Scope of Health Education | e. | Nutrition |
| b. | Personal Hygiene | f. | Corrective Physical Education |
| c. | Air | g. | Massage |
| d. | Human Organism anatomy physiology & effect of exercise on the following systems: | h. | First Aid |
| | i. | | Muscular system |
| | ii. | | Respiratory system |
| | iii. | | Circulatory system |
| | iv. | | Nervous system |
| | v. | | Fatigue and relaxation |

Note:- The Universities/Institutions will design practicals based on equipment and materials facilities available with them.

DETAILS OF COURSES

PAPER-A

PHYSICAL EDUCATION

INTRODUCTION TO PHYSICAL EDUCATION

- | | | | |
|----|---|----|-----------------------|
| a. | Definition | d. | Scope |
| b. | Aims and Objectives | e. | Importance in present |
| c. | Scientific Foundations of
Physical Education | | day life |

HISTORICAL BACKGROUND OF PHYSICAL EDUCATION

- | | | |
|----|----------|-----------|
| a. | Greece | (Ancient) |
| b. | Sweden | (Ancient) |
| c. | Pakistan | (Modern) |
| d. | USA | (Ancient) |
| e. | Germany | (Ancient) |
| f. | Iran | |

MOVEMENT EDUCATION

- a. Definition
- b. Types of movement
- c. Factors affecting movement; Gravity, Air resistance, Mass, Friction, Equilibrium, Levers, Muscular Strength and Power, Flexibility, Metabolic Functioning
- d. Biomechanical Analysis of the following movement concepts
 - i. Stretching
 - ii. Jumping
 - iii. Running
 - iv. Balancing and weight bearing

PHYSICAL MOTOR FITNESS

- a. Definition
- b. Importance of Physical Fitness
- c. Components of Physical Fitness
 - i. Cardiovascular Endurance
 - ii. Muscular Power
 - iii. Muscular Endurance
- d. Motor Fitness
 - i. Speed
 - ii. Agility
 - iii. Balance

RESEARCH

- a. Definition Nature, Scope and Significance of research
- b. Tools of Research
 - i) Questionnaire
 - ii) Interview

SAFETY EDUCATION

- a. Definition
- b. Importance
- c. Home safety
- d. Traffic safety
- e. Sports safety

RELIGIOUS RITUALS AND MOVEMENT

- a. General importance with reference to Quran & Sunnah
- b. Namaz
- c. Haj
- d. Jihad

GAMES AND SPORTS

- a. Importance of games and sports
- b. Qualities of Sportsmen and code of ethics
- c. Systems of Tournaments
 - i) League (Round Robin) System
 - ii) Knock out (Elimination) System
 - iii) Combination system
- d. Rules and techniques of the following:
 - Men**
 - Hockey
 - Volleyball
 - Football
 - Tennis
 - Cricket
 - Basketball
 - Women**
 - Basketball
 - Volleyball
 - Hockey
 - Tennis
 - Table Tennis
 - Badminton

TRACK AND FIELD EVENTS

- a. Introduction of track and field events (National level)
- b. Rules, regulations and techniques of the following events:
 - i. 100, 400, 800 & 1500 meters
 - ii. 3000 meters steeple chase
 - iii. 4x100 meters relay race
 - iv. Broad Jump
 - v. Throwing the javelin
 - vi. High Jump
 - vii. Putting the shot

OUTDOOR PURSUITS

Significance and organisation of the following:

- a. Roving (Men)
- b. Senior guides (Women)
- c. Hiking & Hill Trekking
- d. Youth Hostelling

RECREATION

- a. Definition, need and importance.
- b. Introduction of Recreational activities, mental recreation (Indigenous games, small area sports, indoor and outdoor games)
- c. Utilization of Educational Institutions as Community Recreational Centres.

PAPER-B

HEALTH EDUCATION

INTRODUCTION OF HEALTH EDUCATION

- | | |
|-------------------------|---|
| a. Definition and Scope | c. Relationship with Physical Education |
| b. Importance | d. Health and longevity |

PERSONAL HYGIENE

- a. Islamic concept about personal hygiene
Care of Eyes, Nose, Throat, Teeth, Feet, Finger, Nails, Arm Pits, Skin, Hair and Dress
- b. Drug Abuse, Effects of the following on human health:
Opium, Morphine, Hashish, Heroin, Charas, Alcohol.

COMMUNITY HEALTH

- a. Public Health problems
- b. Community Health Centre
- c. Sanitation of home, school and locality
- d. Symptoms, Causes & prevention of the following Communicable diseases:
 - i. Aids, Tuberculosis, Hepatitis (B &C)

ENVIRONMENTAL POLLUTION

- a. Air
- b. Water
- c. Noise
- d. Radiation

HUMAN ORGANISM

- a. Anatomy Physiology and effects of exercise on the following systems
 - i. Muscular system
 - ii. Circulatory system
 - iii. Respiratory system
 - iv. Nervous System

NUTRITION

- a. Calories and Caloric requirement
- b. Constituents of food
- c. Balanced Diet with special reference to the sources of food available in Pakistan
- d. Effect of malnutrition on human body

POSTURE & POSTURAL DEFECTS

- a. Posture and its importance
- b. General deformities (Kyphosis, Lordosis, Khypholordosis, Scoliosis, Knee Knocking, Flat foot)
- c. Causes of deformities
- d. Remedial exercises

FIRST AID

- a. Definition and importance
- b. General principles of First Aid
- c. Qualities of First Aider
- d. Signs, Symptoms and First Aid of Fractures, Dislocation, Sprains, Strains, Cramps, Wounds, Shocks, Sun Stroke, Bites, Poisons.

MASSAGE

- a. Definition of Massage
- b. Utility and importance of Massage
- c. Types of Massage; Aquatics, Mud, Manual etc.

PRACTICALS

Skill efficiency in Games

Skill efficiency in any two of the following games. One from each Group:

Group-I

Men

Hockey
Football
Cricket

Women

Basketball
Hockey
Volleyball

Group-II

Volleyball
Tennis
Basketball

Tennis
Table Tennis
Badminton

SKILL-EFFICIENCY IN TRACK AND FIELD

Skill-efficiency in any two of the following events:

100 & 400 meters
1500 & 3000 meters
4x100 meters relay
Broad Jump

Tripple Jump
Javelin Throw
Putting the Shot
High Jump/Pole vault
Steeple Chase

GYMNASTICS

Skill Co-efficiency in any two of the following:

Forward Roll
Backward Roll
Spanning
Cart Wheeling
Straddle Vault

Dive Roll
Head Standing
Hand Standing
Dive Roll (on Box)

POSTURAL JUDGEMENT

Demonstration and judgement of correct Sitting, Standing, Walking and Lying posture

VIVA VOCE/PRACTICAL NOTE BOOK

To be designed by Institutions/Universities.

RECOMMENDATIONS

1. Time allocated for this subject be made comparable with other disciplines in Colleges.
2. Equipment and Mattresses be provided in colleges for offering this subject.
3. Curriculum based training programmes be organized for In-service training of teachers.
4. Individual(s) in the field be encouraged to write small booklets/monographs on specific topics of the subject.
5. Books be provided to the Colleges by the HEC.
6. Preparation of practical journals be made mandatory for each student with a weighage of 56 marks.
7. Each candidate must be in sports kit for practical examination.

CURRICULUM FOR MH&PE/M.A./M.Sc.

RATIONAL

The Higher Education Commission in the light of their functions have undertaken to revise the said Curriculum with the following objectives:

1. To update the curriculum to address the current trends.
2. To introduce a unified and composite package for all the institutions offering postgraduate degree in Health and Physical Education.

The Revision Committee after a thorough discussion have made every effort to eliminate present shortfalls, discard outdated concepts and make the curriculum a representative and a legitimate package to be offered at Master level throughout the country.

OBJECTIVES

Revision of the existing Curricula of Sports Sciences in Physical Education Colleges/Departments offering Master's degrees in the subject is being done to achieve the following important objectives:

1. To offer scientific knowledge for developing competent professionals.
2. To develop logical continuity and sequential order between the courses of Part-I and Part-II.
3. To make the whole package more rational and Market oriented to increase workability and competence of the trainees.
4. To ensure unification of curriculum for all institutions in the country offering Master's degree in Physical Education/Sports Science.
5. To enrich the programmes to be acceptable for induction at higher level of learning.

SCHEME OF STUDIES

Seventeen Courses have been recommended by NCRC for teaching at Masters level. The Universities and Colleges may however choose at least 12 papers according to Physical and Academic facilities available with them.

The Universities/Institutions running semester system programme may choose the paper out of the proposed elective and optional, according to their own requirements.

As it would be a two years composite programme entailing theory and practicals, the Committee suggested the following distribution (each course will carry 100 marks):

M.A./M.Sc./BHP.Ed. Part-I (Theory)

Paper-I	Philosophy of Physical Education and Recreation
Paper-II	Movement Education (Basic Concepts)
Paper-III	Basic Anatomy and Physiology
Paper-IV	Sports Psychology
Paper-V	Science of Track and Field
Paper-VI	Rules and Techniques of Games and Sports

PRACTICALS

Athletics

Games

Educational Gymnastics

Physical Efficiency and Fitness Tests

Swimming

Hiking and Hill Trekking

Recreational and Educational Trips

Note: Marks of the papers are at the discretion of the Universities concerned.

M.A./M.Sc./MHP.Edu Part-II

Paper-VII Research Methodology in Physical Education

Paper-VIII Bio mechanics

Paper IX Sports Medicine

Paper-X Measurement and Evaluation in Physical Education

Paper-XI Paper is to be selected out of the elective proposed subject to the condition that the part or whole of the paper is not similar to the compulsory paper already taken up or studied.

Note: The institutions are allowed to offer these subjects in order of their preference.

ELECTIVE SUBJECTS

The Universities/Colleges may offer the following elective/optional subjects according to the facilities available in the respective institutions.

Paper-I	Health and Environmental Sciences
Paper-II	Administration and Management in Physical Education
Paper-III	Curriculum Development in Physical Education
Paper-IV	Exercise Physiology
Paper-V	Sports Nutrition
Paper-VI	Sports Injuries/Rehabilitation and its Management

OPTIONAL COURSES:

Four courses are to be offered by the Universities/Institutions out of the following list:

- I Physical Education for Handicapped
- II. Foundation of Physical Education
- III. Science of Sports training
- IV. Social aspects of sports and recreation
- V. Research project
- VI. Creation & Maintenance of Sports Facilities
- VII. Sports Coaching
- VIII. Sports Marketing Technology
- IX. Aerobic & Anaerobic

Details of the optional subjects to be offered will be as proposed by the universities concerned.

DETAILS OF COMPULSORY COURSES

PAPER-I

PHILOSOPHICAL BASIS OF PHYSICAL EDUCATION AND RECREATION

PART "A" Philosophy

INTRODUCTION

- a. Definition of Physical Education
- b. Nature, Scope and Historical Significance of Physical Education
- c. Objectives of Physical Education

PHILOSOPHY OF PHYSICAL EDUCATION AND SPORTS

- a. Definition of Philosophy
- b. Ancient and Modern Philosophies
 - i) Naturalism
 - ii) Pragmatism
 - iii) Idealism
 - iv) Realism
- c. Islamic Philosophy and Physical Education

PHILOSOPHY OF RECREATION AND LEISURE PROGRAMME

- a. Definition, Significance and Scope of Recreation and Leisure
- b. Objectives of Recreation
- c. Kinds of Recreation
 - i. Community Recreation
 - ii. Hospital Recreation
 - iii. Family Recreation
 - iv. Industrial Recreation
 - v. School Centred Recreation
 - vi. Regular School Programme
- d. Classification of recreational activities

PART "B" Recreation

LEADERSHIP

- a. Definition of a leadership
- b. Qualities of Recreational leader
- c. Responsibilities of leadership
- d. Types of Leadership
- e. Criteria of Leadership selection
- f. Site selection and check list
- g. Budgeting

CAMPING AND OUTDOOR EDUCATION

- a. Nature, Scope & Significance of camping and outdoor education
- b. Hiking & Hill Trekking
- c. Girl Guiding/Scouting

Books Recommended:

1. Krishnamurthy V, *Educational Dimensions of Physical Education*, 1990, Sterling Publisher Ltd, New Delhi, India.
2. Singh S B, Sodhi T S, Sandhu G S, *Philosophies of Education*, 1st edition, 1988, Indian Publications, Hill Road, Ambala Cantt, India.
3. Zeigler Eerle F, *An Introduction to Sports and Physical Education Philosophy*, 1989, C. Brown Publisher Int, New York.
4. Charles, Bucher A, Donald Chu, *Dimensions of Physical Education*, 2nd edition, C V Mosby Company, New York, USA.
5. Zeigler Eerle F, *Philosophical Foundation for Physical Health and Recreation Education*.
6. Hatfield Bral, Seppo E, ISO Alhola, *Psychology of Sports*, 1986, W M Brow Publishers, Dubuque, Iowa.
7. Charlas A Ucher, *Foundation of Physical Education*. Saint Louis, C V Mosby Company .
8. Harold ABL, *Men and Movement & Principles of Physical Education*. 2nd edition, Lea and Fbinger.
9. Wilam V E and Brow-Well, *Administration of Health Education and Physical Education*. A B Sanders and Co, Philadelphia.

PAPER-II

MOVEMENT EDUCATION

MOVEMENT: EDUCATION

- a. Definition of movement education
- b. Origins of Movement Education
- c. Nature of Movement Education
- d. Schools of thought
- e. Theories of Movement

GENERAL FACTORS EFFECTING MOVEMENT

- a. Physiological Factors
- b. Psychological Factors
- c. Sociological Factors

MOVEMENT CONCEPTS

- a. Spatial Awareness

- b. Body Awareness
- c. Quality of Movement
- d. Relationship

MOVEMENT VOCABULARY DEVELOPMENT CONCEPTS

- a. Conceptualization leading to Movement Vocabulary
- b. Movement and Music
- c. Formulation of Tasks

SELECTED FUNDAMENTAL MOVEMENTS

- a. Loco motor Movements

Walking	Running
Jumping	Hopping
Sliding	Leaping
Rolling	Gliding
- b. Non-Loce motor Movements

Curling and Stretching	Turning and Twisting
Pushing and Pulling	Lifting and Lowering
Swinging and Circling	Stillness and Balancing

OTHER AREAS

- a. Movement sequence
- b. Partner and group work
- c. Small Area Games and Lead-up Activities

EDUCATIONAL GYMNASTICS

- a. Definition of Educational Gymnastic
- b. Objectives of Educational Gymnastic
- c. Educational Gymnastic programme

SOMATOTYPING

- a. Historical overview
- b. Body Types — Sheldon's Method
- c. Endomorphy-Mesomorphy-Ectomorphy

EQUIPMENT AND APPARATUS

- a. Kinds of apparatus
- b. Importance of apparatus
- c. Handling of apparatus
- d. Maintenance of apparatus
- e. Improvement of apparatus

Books Recommended:

1. Barrow, 1988. *Principles of Man and Movement*, Lea.
2. Bouchard, 1991. *Physical Activity Sciences*, Huamn.

3. Panda P K, Sharama O P, *New Encyclopaedia of Physical Education Vol.5*, Khel Sahitya Kendra.
4. Barratt, *Physical Ethics or the Science of Action*.
5. Wads, 1995. *Introduction to Kinesiology*, WCB Brown.
6. Thompson, 1994. *Manual of Structural Kinesiology*, Mosby Year Book.
7. Anna Espenschade, Helen M Eckert, *Motor Development*, Charles E Mrril Publishing Company.
8. Clayen, Gordon and Blauer, *Applied Kinesiology and Biomechanics*, McGraw-Hill Book Company.
9. Winter, *David A. Biomechanics of Human Movement*, John Willy and Sons.
10. Schurr, Evelyn L, *Movement Experiences for Children*, Prentice Hall, Inc. Englewood Cliffts, New Jersey.

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 Saunders, Co, New York, Philadelphia, USA.
4. Soloman and Davis, *Human Anatomy and Physiology*, W B Saunders.
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.

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 behaviour
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 behaviour via requirement
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 effect performance
8. **Concentration**
Attention and its dimension
Types of attentional focus
Importance of concentration in sports
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 behavioural 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 Bettel 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

SCIENCE OF TRACK AND FIELD

HISTORY OF OLYMPIC MOVEMENT

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

LAYING OF STANDARD TRACK

CONDITIONING IN ATHLETICS

- a. Strength training
- b. Endurance training
- c. Flexibility training
- d. Other components:
Power, Speed, Agility, Reaction time.

TRAINING PRINCIPLES

- | | |
|----------------------------|------------------|
| a. Overloading and Stress | e. Recovery/Rest |
| b. Specificity of training | f. Individuality |
| c. Progression | |
| d. Continuity | |

RESISTANCE TRAINING (ISOTONIC, ISOMETRIC AND ISOKINETIC)

- | | |
|----------------------------------|---|
| a. Definition of weight training | c. Specific exercises for Athletic events |
| b. Training for general fitness | |

TECHNICAL ASPECTS IN TRACK & FIELD

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

WARM-UP/COOL DOWN

- a. Definition
- b. General and Specific Warm-up
- c. Cool down concepts

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 net.

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.

PAPER-VI

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 (for boys)
 - iii. Cricket
 - iv. Basketball
 - v. Volleyball
 - vi. Tennis
 - vii. Badminton
 - viii. Table Tennis
 - ix. Hand Ball
 - x. Kabaddi (for boys)

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 20th 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. Saggarr, 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 Sports for Girls.*
27. Marshal Canendish. *Encyclopaedia of Sports.*

PAPER-VII

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

- a. Tests/Interview schedule, Interview guide, Observation; participant and non-participant, Questionnaire

- b. Construction of questionnaire, types and guidelines for construction
- c. Administrator of questionnaire.
- d. 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*, Croom Helm London.
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.

12. L R Gay, 1990. Educational Research Competencies, Maxwell Macmillan, USA.
13. Rashid Khalid, 1993. Taaleem-i-Jismani, Ilmi Kutab Khan, Urdu Bazar, Lahore.

PAPER-VIII

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
 - i. Angular Distance and Angular Displacement

- ii. Angular speed and velocity
- iii. Angular Acceleration
- iv. Angular motion vectors

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. Football
- b. Basketball
- c. Gymnastics
- d. Hockey
- e. Track and field:
 - Running
 - Throwing
 - Jumping
- f. Swimming

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*. VILE & 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.

PAPER-IX

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

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 Pandee 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.
4. Hermas G P Mosterd W L, 1989. *Sports Medicine and Health*, Elsevier Science Publishers B V, Biomedical Division, Amsterdam, Netherlands.

5. 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-X

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 | f. Standard Deviation |
| c. Frequency table | g. Normal probability curve |
| d. Measures of central tendency | h. Standard scores (Z. Scores-T. Scores) |
| e. Quartiles and percentiles | i. Correlation |
| | j. Anova Test |

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
- c. Types of Rating devices

MEASUREMENT OF SPECIFIC SPORT SKILLS

- | | |
|---------------|-----------------------------|
| a. Hockey | e. Volleyball |
| b. Football | f. Tennis |
| c. Basketball | g. Track & Field |
| d. Badminton | (one event from each group) |

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 Measrmenet to Health and Physical Education*, 1967. Prentice Hall Inc, Englewood Ckuff, New Jersy, New York, USA.
6. Baungartner. *Measurement for Evaluation in Physical Education*, 4th edition. C Brown Publishers, New York, USA.
7. Lien. *Measurement and Evaluation of Learning*, 4th edition, 1980. C Brown Publishers, New York, USA.
8. Banow Harold M & Rosemary McGee. *A Practical Approach to Measurement in Physical Education*.
9. Walpole Ronald E, *Introduction to Statistics*, The Macmillan Company, New York.
10. Lindsey Ruth Lt Al. *Body Mechanics*. WMC Brown.
11. Ted A Baumgartner, Andrew S Jackson, 1999. *Measurement for Evaluation in Physical Education and Exercise Science*.

DETAILS OF ELECTIVE COURSES HEALTH & ENVIRONMENTAL SCIENCES

PART-A HEALTH

MEANING AND SIGNIFICANCE OF HEALTH EDUCATION

- a. Definition of Health
- b. Definition and scope of Health Education
- c. Relationship of Health Education with Physical Education
- d. Importance of Health Education in Community

PERSONAL HYGIENE

- a. Islamic concepts of personal Hygiene
- b. Cleanliness and Health
- c. Health Hazards

(Tobacco, Naswar, Sleeping Pills, Opium, Morphine, Hashish, Heroin, Charas, Alcohol and other drugs.

COMMUNITY HEALTH

- a. Concepts in Community Health
- b. Health & Welfare
- c. Health & Development
- d. Infectious diseases, Epidemiology
- e. Disease Transmission
- f. Immunity
- g. Disease prevention and control
- h. Disinfection
- i. Symptoms, causes and prevention of most common communicable diseases
- j. Epidemiology of non-communicable diseases and condition

Part-B ENVIRONMENTAL SCIENCE

- a. Concept and Importance of Environment
- b. Environmental improvement

ENVIRONMENT AND HUMAN HEALTH

- a. Toxic pollutants and their effect on health
- b. Mechanisms of action of drugs producing toxic effects of drugs on human body
- c. Carcinogenic agents
- d. Chemicals in food
- e. Biological effects of Radiation
- f. Sources of pollution:
Air

Water

Noise

WASTES

- a. Hazardous waste
- b. Sources and Quantities
- c. Disposal on land and in Ocean
- d. Energy from refuge
- e. Re-cycling

Books Recommended:

1. Simpson Stuan 1990. *Guide to the Environment*. Times Books, London.
2. Arnis Karan. *Environmental Science*.
3. Houghton and R A, 1989. *Global Climatic Change*, Scientific American.
4. Dr Jabalpur K S Shah, 1990. *Synopsis of Hygiene and Public Health*.
5. Bucher. *Physical Education and Recreation*, McGraw-Hill.
6. Harold. *Health Facts for College Students*. McGraw-Hill.
7. Harold. *A Text Book of Healthful Living*, Delhi.
8. Maude Lee & Heredge E T. *Health Factors for College Students*.
9. Shah. *Synopsis of Hygiene and Public Health*.
10. Anderson and Mortengreen. *Community Health*.
11. Willgoose 1988. *Environmental Health*, C Brown Publisher, New York, USA.
12. Miller 1991. *Dimensions of Community Health Education*. C Brown Publishers, New York, USA.
13. Nriago and Simmons, 1990. *Food Contamination from Environmental Sources*, John Willey & Sons Inc.

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 and record

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.
4. Pande P K Sharma O P, 1998. *New Encyclopaedia of Physical Education Vol I-V*.

5. Bucher, Charles A. *Administration of Physical Education and Athletic Programme*. The C V Mosby Company.
6. Bucher, Charles A. *Administration of Health and Physical Education, Including Athletics*. The C V Mosby Company.
7. Arthur A, Voltmer and Edward F. *The Organization and Administration of Physical Education*, Prentice Hall Inc.
8. Editor, Howard Stephenson. *Hand Book of Public Relations* McGraw-Hill Book Company.
9. Plichard Theibert and Eugue M Ezersky, 1976. *Facilities in Sports and Physical Education*. The C V Mosby Company, St Louis, USA.
10. Charles A Bucher and March L Krotee. *Sports*, McGraw-Hill Publisher, New York, USA.
11. Jay Coakley, 2001, *Sports in Society*, McGraw-Hill Publisher, New York, USA.
12. Deborah A Yow and Others, 2000. *Strategic Planning for Collegiate Athletics*. The Haworth Half-Court Press, New York, USA.

CURRICULUM DEVELOPMENT IN PHYSICAL EDUCATION

CURRICULUM

- a. Definition
- b. Physical Education as an integral part of the education process
- c. Need for Physical Education and sports Curriculum in educational institutions

PROCESS OF CURRICULUM DEVELOPMENT

- a. Curriculum Process:
 - i. Situation Analysis/need assessment
 - ii. Objectives
 - iii. Content selection
 - iv. Methodology
 - v. Evaluation
- b. Models of Curriculum development
- c. Major issues related to Physical Education Curriculum design

PHYSICAL EDUCATION CURRICULUM

- a. International trends in Physical Education Curriculum development
- b. Physical Education Curricula as reflected in the education policies of Pakistan
- c. Factors affecting the Physical Education Curricula:
 - i. Psychological
 - ii. Philosophical
 - iii. Social and Cultural
 - iv. Socio Political

CURRICULUM DEVELOPMENT

- a. Primary
- b. Middle
- c. Secondary
- d. College and Universities

CURRICULUM EVALUATION

- a. Criteria for evaluation of curriculum
- b. Feedback as an instrument for improvement

Books Recommended:

1. Iqbal and Yasmeen, 1997. *Science of Physical Education*, Jamshoro Alumni, Health & Physical Education.
2. Khalid Rashid, 1995. *Talimaat-i-Jismani*. Ilmi Kutabkhana, Kabir Street Urdu Bazar, Lahore.
3. Tanner Laurel N, Daniel Tanner. 1980. *Curriculum Development*, Macmillan Publishers.
4. Cowell, 1955. *Curriculum Design in Physical Education*. Prentice Hall Inc, Englewood Cliffs, New Jersey, USA.
5. Jewett Bain 1985. *Curriculum Process in Physical Education*, C Brown Publishers, New York, USA.
6. Report 1980. *Curriculum for Development (Final Report)*, UNESCO.
7. Report 1986. *Curriculum in Health and Physical Education for Classes I-V-VI-VII-VIII-IX-X-XI & XII*, National Bureau of Curriculum, Islamabad.
8. *Curriculum for Development (Final Report an Analysis and review of Procedures and Customs)*, UNESCO).
9. Nicholas S H and Nicholas R. *Developing a Curriculum A Practical Guide*.
10. Govt of Pakistan, 1947. *Proceedings of the First Educational Conference*.
11. Govt of Pakistan, 1960. *Commission on National Education*.
12. Govt of Pakistan, 1982. *Reports of the Curriculum Committee, Part-II & III*, Ministry of Education, Islamabad 1982.

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 heart 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 Vo₂ 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.

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.
3. Reilly T, 1990. *Physiology of Sports*. C V Brown Publisher, New York, USA.

4. 1989. *Powers Exercise Physiology*. C.Brown Publisher New York, USA.
5. Shaver, 1990. *Essentials of Exercise Physiology*. Jitandir Vij Publisher, New Delhi, India.
6. Rodhi Ashand Kaare, 1986. *Text Book of Work Physiilogy*. Hill Co, Singapore, ISBN-0-07-1000114.
7. Richard, A Berger, *Applied Exercise Physiology*. Lee & Febiger, Philadelphia.

SPORTS NUTRITION

DEFINITION OF NUTRITION

- A. Importance of Food, Nutrition & its relation to sports performance:
 - i. Functions of food & nutrients obtained from food
Energy, Repairing Body Tissue, Regulate Body Process
 - ii. Sports nutrition for maintaining & improving sports performance

- B. Concept of Human Energy:
 - i. Definition of energy
 - ii. Measures of energy
 - iii. Human Energy system
 - iv. Energy value of different foods
 - v. Exercise and fatigue

- C. Energy Sources:
 1. Carbohydrates:
 - i. Major Nutritional Constituents
 - ii. Types (Sources) recommended
 - iii. Metabolism & function
 - iv. Carbohydrate loading

 2. Lipid:
 - i. Role of lipid in the body
 - ii. Lipid as energy source and reserve
 - iii. Use of lipid during exercise

 3. Protein:
 - i. Functions, sources, recommended intake
 - ii. Metabolism
 - iii. Protein & exercise

 4. Vitamin:
 - i. Introduction, sources, types, importance
 - ii. Nutrient intake, supplements

 5. Minerals:
 - i. Introduction, sources, types, importance

- ii. Mineral intake, supplements
- 6. Water:
 - i. Introduction; recommended of water intake, functions
 - ii. Regulation of Body Temperature
 - iii. Fuel & Electrolyte losses & replacements
 - 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.

SPORTS INJURIES REHABILITATION AND ITS MANAGEMENT

INTRODUCTION TO SPORTS INJURIES

- a. Classification:
 - i) Cramps
 - ii) Ruptures
 - iii) Fractures
 - iv) Pulled Muscles/Muscle Stiffness
 - v) Strains
 - vi) Soreness
- b. Identification:
 - i) Upper Limb

ii) Lower Limb

PREVENTION OF INJURIES DURING:

- a. Warm up
- b. Skill performance
- c. Play
- d. Use of equipment
- e. Proper cool down

TREATMENT OF INJURIES

- a. Through Exercise
- b. Through Medication
- c. Hydro Therapy/Steam Therapy/Ice Therapy
- d. Pressure Therapy

CORRECTIVE PHYSICAL EDUCATION

- a. Posture (Descriptive and Anatomical definitions)
- b. General Causes of bad posture
- c. General postural deformities
 - i. Kyphosis
 - ii. Lordosis
 - iii. Scoliosis
 - iv. Knocked-Knees
 - v. Flat foot
- d. Remedial Exercises
- e. Adapted Physical Education
 - i. Definition
 - ii. Nature, scope and significance of adapted Physical Education
 - iii. Physical activities for convalescents
 - v. Rehabilitation programme for special persons

MASSAGE

- a. Definition of Massage
- b. Importance of Massage
- c. Types of Massage
 - i. Hydrotherapy
 - ii. Mud therapy
 - iii. Electrotherapy
 - iv. Physiotherapy
 - v. Recreational Therapy

Books Recommended:

1. Christopher M Norris, 1997. *Injuries Diagnosis and Management for Physiotherapists*, Butter Worth Heinemann Publisher, UK.
2. Gardiner M Dena, 1985. *The Principles of Exercise Therapy*. CBS Publications, Shandara, Delhi.
3. Iqbal, Yasmeen, Akhtar and Naeem, 1997. *Sports Injuries: Prevention Diagnosis and Treatment*. (Jamshoro: Alumin, Centre for Health & Physical Education).

4. Peterson Laras and Dr Per Renstorm, 1989. *Sports Injuries*, Published Federation and Folksam Insurance Company, UK.
5. Morris B Mellion, M D, 1989. *Sports Injuries and Athletic Problem*. Surjeet Publication, New Delhi, India.
6. Hutson M A, 1987. *Sports Injuries*. Oxford Medical Publication, London.

RECOMMENDATIONS

The Committee unanimously recommended the following for the betterment and furtherance of Health and Physical Education teaching at Graduate and Post-Graduate Levels.

1. In-Service Seminar/Courses and Training Programmes on coaching, officiating and latest research and technology must be organized prior and after the implementation of Curricula periodically.
2. The experts/resource persons from all over Pakistan with specific background be engaged preferably from Institutes and Committee members.
3. The disparity among the institutions and departments in respect of the nomenclature of the degrees be minimized by renaming Masters in Sports Sciences as M.Sc. and Bachelors as B.Sc. The matter should be taken up by respective universities.
4. The prominent books of various subjects (lists to be provided by Government Universities/departments) be printed through National Book Foundation as the low cost books.
5. Monographs be published by Higher Education Commission on topics of the syllabi.
6. The Committee is of the considered opinion that a COUNCIL of Sports Sciences professionals be formed at the national level on the pattern of Pakistan Medical & Dental Council or Pakistan Engineering Council.