UNIVERSITY OF SARGODHA, SARGODHA

NOTIFICATION

No.UOS/Acad/2326 Dated: 10.08.2010

On the recommendations of Academic Council, the Syndicate in its 2/2010 meeting held on 08.07.2010 has approved the syllabus of MA
Physical Education for implementation under annual system in affiliated
colleges from the academic session 2010-11. Approved curriculum is
annexed herewith.

(Ch. FAROOQ AHMAD)
Assistant Registrar (Acad)
for Registrar

Distribution:-
- Incharge
  Department of Physical Education
- Controller of Examinations
- IT Manager (for uploading on university website)
- Notification file

C.C:
- Secretary to the Vice-Chancellor
- P.A. to Registrar
 CURRICULUM OF M.A PHYSICAL EDUCATION UNDER ANNUAL SYSTEM

Session 2010-11

SCHEME OF STUDIES

There are Seventeen Courses in all; the colleges however have to choose at least 12 papers according to Physical and Academic facilities available with them. As it would be a two years duration programme of 1000 Marks entailing theory and practical comprising 500 marks for part-1 and part-2 each.

M.A. Part-I (Theory) | Marks
--- | ---
Paper-I Philosophy of Physical Education and Recreation | 65
Paper-II Movement Education (Basic Concepts) | 65
Paper-III Basic Anatomy and Physiology | 65
Paper-IV Sports Psychology | 65
Paper-V Science of Track and Field | 65
Paper-VI Rules and Techniques of Games and Sports | 65
TOTAL | 390

PRACTICALS | Marks
--- | ---
Athletics | 40
Games | 40
Gymnastics | 10
Physical Efficiency and Fitness Tests | 10
Swimming | 10
TOTAL | 110
GRAND TOTAL | 500

M.A. Part-II | Marks
--- | ---
Paper-VII Research Methodology in Physical Education | 65
Paper-VIII Bio mechanics | 65
Paper-IX Sports Medicine | 65
Paper-X Measurement and Evaluation in Physical Education | 65
Paper-XI Administration and Management in Physical Education | 65
Paper-XII OPTIONAL (Any one from the list of elective subjects) | 65
TOTAL | 390

PRACTICALS | Marks
--- | ---
Athletics | 40
Games | 40
Gymnastics | 10
Hiking and Hill Trekking | 10
Physical Efficiency and Fitness Tests | 10
TOTAL | 110
GRAND TOTAL | 500
ELECTIVE SUBJECTS

The Colleges may offer any one of the following elective/optional subjects according to the facilities available in their respective institutions.

I. Health and Environmental Science
II. Sports Injuries/Rehabilitation and its management
III. Curriculum Development in Physical Education
IV. Exercise Physiology
V. Sports Nutrition

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  iv. Industrial Recreation
   ii. Hospital Recreation  v. School Centred Recreation
   iii. Family 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

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.
5. Zeigler Eerle F, Philosophical Foundation for Physical Health and Recreation Education.

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-Loco 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:

3. Panda P K, Sharama O P, New Encyclopaedia of Physical Education
   Vol.8, Khel Sahitya Kendra.
4. Barratt, Physical Ethics or the Science of Action,
7. Anna Espenshade, Helen M Eckert, Motor Development, Charles E. Mril
   Publishing Company.
8. Clayen, Gordon and Blauer, Applied Kinesiology and Biomechanics,
9. Winter, David A. Biomechanics of Human Movement, John Willy and Sons.
    Englewood Cliffs, 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, Cunningham, A manual practical anatomy.

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 affecting sports performance
3. Personality and Sports
   Theories of personality
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
   - 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:

PAPER-V

SCIENCE OF TRACK AND FIELD

HISTORY OF OLYMPIC MOVEMENT

a. Olympic, Olympism
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
b. Training for general fitness events
TECHNICAL ASPECTS IN TRACK & FIELD

a. Running  c. Throwing  
b. Jumping  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 meet.

Books Recommended:

2. Abdul Waheed Mughal, Athletic Officiating, Islamabad. 

PAPER-VI

RULES AND TECHNIQUES OF GAMES AND SPORTS  
ORGANIZATION AND CONDUCT OF GAMES/SPORTS

a. Types of Tournaments v. Consolation  
i. League System (Round Robin)  vi. Ladder  
ii. Knock out (Elimination)  vii. Pyramid  
iii. Combination  
iv. Double Elimination  
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

Audio and Visual Aids in the development of skills in sports

Books Recommended:

15. Take up Table Tennis. Pak Am.
17. Know the Games series and teach yourself series on Hockey, Football, Volleyball, Cricket, Table Tennis, Net Ball, Soft Ball.
20. Lawn Tennis — Know the Game Series.

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
b. Scientific method of research in Physical Education

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. 1998. Research Methods in Physical Education,

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. Recililnear 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
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
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:

3. W. Herzog, 1994, John Wiley & Sons Publisher, USA.
8. Dr. Dhana Joy Shaw, 2000, Mechanical Basis of Biomechanics, Sports Publications, New Delhi, India.

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.
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
c. Conflict between legitimate medication and doping regulations.
d. Problems and prevention of self medication.
e. Current doping principles/regulations procedures

Books Recommended:

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, Pae Brothers, New Delhi, India.
7. JGF Williams and PN Sperryn Edward Arnold, Sports Medicine, Bullor & Tanner Ltd, London.

**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 i. 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).

PAPER XI

ADMINISTRATION AND MANAGEMENT IN 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 RELATIONS
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
e. Planning for Gymnasium/recreational buildings
f. Physical Education

i. Artificial Surfaces

Books Recommended:
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 refuse
e. Re-cycling
Books Recommended:

8. Maude Lee & Heredge E T. Health Factors for College Students.

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:


**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.

**LOCOMOTOR 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.

**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:


SPORTS NUTRITION

DEFINITION OF NUTRITION
A. Importance of Food, Nutrition & its relation to sports performance:
   i. Functions of food & nutrients obtained from food
   ii. Energy, Repairing Body Tissue, Regulate Body Process
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
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:


**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   v. Flat foot
   ii. Lordosis  iv. Knocked-Knees
   iii. Scoliosis
 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   iv. Physiotherapy
   ii. Mud therapy    v. Recreational Therapy
   iii. Electrotherapy

Books Recommended:

1. Christopher M Norris, 1997. Injuries Diagnosis and Management for Physiotherapists, Butter Worth Heinemann Publisher, UK.