

**DEPARTMENT
OF
PHYSICAL EDUCATION**

Karunya University

LIST OF SUBJECTS

Code No.	Subject Name	Credit
PD201	History, Principles and Foundation of Physical Education	4:0:0
PD202	Organisation, Administration, Supervision and Camping in Physical Education	4:0:0
PD203	Methods in Physical Education and Introduction to Test and Measurement.	4:0:0
PD204	Anatomy & Physiology	4:0:0
PD205	Kinesiology & Biomechanics	4:0:0
PD206	Principles of Officiating, Training and Coaching	4:0:0
PD207	Health Education, First Aid and Sports Nutrition	4:0:0
PD208	Sports injuries and Physiotherapy	4:0:0
PD209	Practical – I	0:0:2
PD210	Practical – II	0:0:2
PD211	Practical – III	0:0:2
PD212	Practical – IV	0:0:2
PD213	Practical – V	0:0:2
PD214	Practical – VI	0:0:2
PD215	Practice Teaching	0:0:2

PD201 HISTORY, PRINCIPLES AND FOUNDATION OF PHYSICAL EDUCATION

Credit : 4:0:0

Marks : 40+60

Unit I

Introduction - Meaning of the term principles – sources of principles of Physical Education – Related subjects.

Definition of education, Physical Education, Physical culture – Physical Training.

Unit II

Aims & Objectives of Education and Physical Education.

Theories of play (Surplus energy Theory, Recreation Theory, Relaxation Theory, Instinct Theory, Inheritance Theory, Social Contact Theory, Domination Theory & Self Expression Theory.).

Unit III

Biological Foundation of Physical Education – Hereditary traits – Muscle Tone – Athletic heart – Unsynchronized development - Reciprocal innervations – Vital capacity – Differences between boys and girls during the period of adolescence – Somato type classification according Shelton & Kretschmer – Exercise a Biological necessity – growth - structure – function – Body Mechanics.

Unit IV

Department of Physical Education

Sociological foundations of Physical education – Socialization through Physical Education – Social Environment for development of individual personality – Group dynamics – Leadership – Delinquency – National Integration.

Unit V

Psychological foundations of Physical Education- Meaning of Psychology its role in Physical Education – Educational Psychology- Theories of learning - Laws of Learning – Types of Learning.

Unit VI

Personality Types of Personality – Learning curve- Individual differences – Intelligent quotient- Transfer of Learning.

Unit VII

Physical Education in Ancient Greece- Physical Education in Ancient Sparta and Athens. Olympics Games & Asian Games: Ancient Olympic games & Modern Olympic games- Asian games – Olympic flag Oath, Torch.

Unit VIII

Physical Education in India : YMCA and its contribution – Teacher Training Institutions in India – National and State Sports Councils of India – Arjuna Awards – Dronacharya Awards.

References:

1. Dr. A.K. Uppal, “Historical Development in Physical Education”.
2. Dr. S.R. Sharma, “Principles of Teaching in Physical Education”.
3. J.F. Williams, “Foundation of Physical Education”

PD202 ORGANISATION, ADMINISTRATION, SUPERVISION AND CAMPING IN PHYSICAL EDUCATION

Credit : 4:0:0

Marks : 40+60

Unit I

Meaning, Nature and scope of Organization and Administration- Procedures of Organization- Steps in Administration - Guiding Principles of Organization.

Unit II

Scheme of Organization of Physical Education Programme in Elementary, High and Higher Secondary Schools, college, University and State. (Organization Charts and responsibilities of Personnel)

Unit III

Facilities and Standards in Physical Education: Standard- definition-meaning.

- a) Play area-Standard recommended for schools and Colleges- Location of play areas in Schools-Types of Surface-Layout of play courts- suggestion for planning and laying out-care of play grounds.

- b) Gymnasium- Need – Types – Size – Construction _ equipments – care maintenance.
- c) Swimming pool_ need importance-types-construction of a multipurpose swimming pool-areas-purification-Regulations to be observed.
- d) Equipment in Physical Education- Need and importance- Types of equipments- Criteria for selection procedure for purchase- care and maintenance Store keeping routine – disposal.

Unit IV : Finance And Budget

Physical Education budget for a school, Guiding factors in preparing a budget – Games fund- Rules of utilization- model Budget of income and expenditure.

Unit V : Programme Planning

Characteristics of a sound programme of Physical Education – Factors influencing the programme- Physical Education Syllabus _ Time Table- Physical Education periods- Time Allotment.

Unit VI

Office Management- Records and Registers – Types of Records and Registers – Stock Register – Skills test Register – Attendance Register – Summary record of compulsory Physical Education tests – Cumulative Records – Physical Fitness test register.

Unit VII : Camping And Recreation

Aim and Objectives of Camp – Types – Selection and lay out of Campsite – Organizing a Leadership Camp – Camp Officials Camp Programme – Camp – activities. Meaning scope and significance of Recreation Types of recreation.

Unit VIII : Supervision

Qualities and Qualifications of a Supervisor in Physical Education – Duties of a Supervisor pertaining to Administration, Instruction facilities and Professional Growth Techniques of Supervision, Visitation, Demonstration and Bulletins.

References

1. Bucher C.A., “Administration of School”
2. Joseph P.M., “Organisation of Physical Education”
3. Cowel and Huzelton, “Curriculum Design in Physical Education”
4. Rubin R., “Book of Camping”

PD203 METHODS IN PHYSICAL EDUCATION AND INTRODUCTION TO TEST AND MEASUREMENT

Credit : 4:0:0

Marks : 40+60

Unit I : Introduction

Meaning of Method and factors influencing method - Presentation techniques planning and Presentation- Methods of teaching Physical activities : command methods, Oral Method, Demonstration Method, Invitation Method, At – Will Method, Set Drill Method, Whole

Method, part method, Whole part Method, Progressive part Method, Observation & Visualization Method

Unit II : Class management & Teaching Aids

General and Specific points for a class management - Principles for a good class management - Commands – Response Command – Rhythmic Command - Meaning of Teaching Aids and Importance - Use of Audio Visual Aids.

Unit III : Lesson Plan

Values of Lesson Plan - Types of Lesson Plan – General Lesson Plan and Particular Lesson Plan - Preparation of Lesson Plan

Unit IV : Teaching of Activities

Calisthenics & Marching - Indigenous activities - Minor Games - Major Games - Track & Field events.

Unit V : Classifications

Meaning of classification - Importance of classification - Factors influencing classification - Method of classification.

Unit VI : Method Of Organisation And Conducting Tournaments:

- a) Single knockout tournaments - Single League tournaments – Combination – tournaments - Challenge tournaments (Ladder, Pyramid).
- b) Intramural competition and Extramural Competition.
- c) Demonstration, Exhibition and play days
- d) Track and field meet.

Unit VII : Test And Measurement

Meaning-need and importance of Test and Measurement - Selection of Test-criteria for a good test-validity-reliability-objectivity-norms.

Unit VIII : Areas of Test and Measurement

- a) Physical Fitness - AAPHERD Youth Fitness Test, AAPHERD Health Related Fitness Test.
- b) Motor Fitness - Indiaver Motor Fitness test
- c) Harvard Step test - Cooper's Test.
- d) Sports Skill Test - Johnson Basketball Test
- e) McDonald Soccer Test
- f) Russell Lange volleyball Test

References:

1. C.H. McCloy, "Test and Measurement in Health & Physical Education"
2. Dr. A. Moorthy, "Research Methods in Physical Education, Sports & Exercise Science"
3. Thirunarayanan C. and Harikaran S., "Methods in Physical Education"

PD204 ANATOMY AND PHYSIOLOGY

Credit : 4:0:0

Marks : 40+60

Unit I

Anatomy and Physiology – meaning – need and importance in Physical Education – Cell structure – Cell division – Qualities of all living matter.
Elementary Tissues of the body and their functions.

Unit II : Skeletal System

Classification of Bones, Axial and appendicular skeleton and their functions – Arches of the foot – Sex differences in the skeleton – Classification of joints with examples for each.

Unit III : Blood

Composition of blood - Functions and its Components - Blood group - Coagulation of blood.

Unit IV : Circulatory system

Position and structure of heart - Cardiac cycle - Arterial pulse - Circulation of blood - Blood pressure - Blood vessels.

Unit V : Respiratory system

- a) Respiratory passages
- b) The lungs and respiratory movements
- c) External and Internal respiration
- d) Functions of the lungs
- e) Mechanism of respiration

Unit VI : Digestive System

Structure and functions of Mouth, Stomach, Small and Large Intestine, Pancreas and Liver.

Unit VII : Nervous System

Nerve Cell - Motor & Sensory Pulses - Functions of cerebrum, Cerebellum, Medulla oblongata and Spinal cord - Reflex action

Unit VIII

Structure and functions of the eye and ear - Structure and functions of the skin and kidney.

References:

1. Albert Blaisdall, "Human Anatomy & Physiology"
2. Albert Blaisdall, "Human Physiology"
3. K.K. Varma, "Anatomy & Physiology"

PD205 KINESIOLOGY AND BIOMECHANICS

Credit : 4:0:0

Marks : 40+60

KINESIOLOGY

Unit I

Definition – meaning. Brief history Aim and Objectives of kinesiology importance of kinesiology for physical education and sports.

Unit II

Axes and Planes of motion Fundamental positions. Types of movement around joints.

Unit III : Classification of Muscles

Kinesiological grouping of muscles. Origin insertion and actions of muscles at various joints. Muscular analysis of fundamental movements – walking – running, throwing, catching pulling, pushing.

BIO-MECHANICS

Unit IV

Meaning of the term Bio-Mechanics - Role of Mechanical Principles in Sports and games - Need for efficient movement in sports - Pre requisites to efficient movement.

Unit V

Center of Gravity : Definition, meaning, its role in Sports & Games - Equilibrium: Stages - Factors that determine the degree of stability - Application of principles of equilibrium of Sports and Games.

Unit VI

Motion : Definition, Meaning - Speed, Velocity and Acceleration-definition meaning - Linear motion, curvilinear motion and angular motion – meaning and explanation with examples - Newton's Laws of motion and their application.

Unit VII

Lever-definition and meaning - Types and characteristics for Lever with examples from Sports and Games - Mechanical advantage of Levers - Application of the Principles of Levers to Sports.

Reference:

1. Dr. A. K. Uppal & Dr. Lawrence, “Biomechanics in Physical Science”.

PD206 PRINCIPLES OF OFFICIATING, TRAINING AND COACHING

Credit : 4:0:0

Marks : 40+60

Unit I : History and Development of Major Games

Basketball, Cricket, Football, Volleyball, Hockey, Kabaddi, khokho, Badminton, Handball and Athletics.

Unit-II : Teaching of Fundamental Skills

Drills for development of skills-lead up games.

Unit-III : Ground Marking and Measurements

Equipments-Rules and Interpretations - methods of Officiating- duties of officials of the major games.

Unit-IV

Marking of 400 mtrs track and 200 mtrs track.

Marking of Throwing and field Events-Rules and interpretations -Duties of officials.

Unit-V : Training

Warming up-effects of warming up - Conditioning Exercises - Definitions and principles of Training - Training for motor components - Strength, Speed, Endurance, flexibility, coordinative abilities.

Unit-VI : Types of Training

Weight Training - Circuit Training - Fartlek training - Interval training – Load – Intensity – Density – Duration - Frequency.

Unit-VII : Coaching

Philosophy of Coaching-Qualities and Qualifications of a coach-code of ethics.

Unit-VIII

Positional Play-tactics - Attacking and defending tactics – Periodisation - Preseason, Competitive season, off season.

References:

1. "Book of Rules and Games", YMCA Publication
2. Lawther J.D., "Psychology of Coaching"
3. Allyn and Bacon, "Guide to Effective Coaching, Principles and Practices".

PD207 HEALTH EDUCATION, FIRST AID AND SPORTS NUTRITION

Credit : 4:0:0

Marks : 40+60

Unit-I

Health-definition-concepts-factors influencing health-heredity-environment.
Health problems of India-population and health environmental pollution-school health problems.
Personal hygiene-desirable hygienic habits-health requirements.

Unit-II

Infection-immunity-causes of diseases - mode of infection spread of infection-public health measures to combat infection public health administration sanitation-water supply.

Unit-III

Communicable diseases - cause-signs and symptoms, preventive measures of malaria, typhoid, cholera, dysentery, filariasis.

Unit-IV : First Aid

Meaning-need and importance of first aid - First Aid treatment for accident-Burns-electrical shock - poison-wound-drown.

Unit-V

Types of bandages-artificial Breathing-first Aid for fracture-intoxication-handling of emergency person.

Unit-VI

Meaning of nutrition-Diet-Balanced Diet-Components of nutrition-carbohydrates-Fat-Protein-vitamins and Minerals.

Unit-VII

Factors determining Diet-Planning-felocies of diet -ergogenic aids-drug-doping

Unit- VIII

Sports and diet-energy requirement in sports-caloric expenditure in sports-pregame meal-waters replacement-Diet planning

References:

1. R.H.A. Blimmer, "Food, Health and Vitamins".
2. St. John's Ambulance First Aid
3. You and Your Health

PD208 SPORTS INJURIES AND PHYSIOTHERAPY

Credit : 4:0:0

Marks : 40+60

Unit I

Need and importance of the study of sports injuries in the field of physical education.
Prevention of injuries in sports.

Unit II

Common sports injuries – diagnosis immediate first aid – treatments of:
Laceration - Blisters – contusions – sprains – strain dislocation and cramps.

Unit III

Sports Specific injuries myositis ossificans – Tennis elbow – Rotator cuff injury.

Unit IV

Definition – Guiding principles of physiotherapy, importance of physiotherapy.
Electrotherapy – infrared rays, Ultraviolet rays, short wave diathermy, Ultrasonic rays.

Unit V

Hydrotherapy : Criotherapy, thermotherapy, contrast bath, whirl pool bath- steam bath – sauna bath – hot water fomentation.

Unit VI

Massage : History of massage – classification of manipulations (Swedish system),
Physiological effects of massage.

Unit VII : Therapeutic Exercise

Definition and scope – principles of therapeutic exercise – classification and effective use of therapeutic movements.

- a) The passive movements (relaxed, forced and passive, stretching).
- b) The active movements (Free, resisted)
- c) Types of contractions in resisted movements (concentric & Eccentric and State)
- d) Application of the therapeutic exercises:
Free mobility exercises – shoulder, elbow-wrist and finger joints- hip, knee, ankle and foot joints-trunk, Head and neck exercises.

Unit VIII : Posture

Meaning and values of good posture – causes of poor posture – postural examinations – New York State posture rating chart test. Some common deviations in posture – normal curvature of the spine and its utility, Kyphosis, Lordosis, Kypholordosis flat back. Scoliosis (C and S curve) round shoulders, knock knees, bowlegs, flat foot causes diagnoses for deviations and treatment including exercises.

References:

1. Waston, Jones, “Fractures and Joint Injuries”.

2. Park and Park, "Text Book of Social and Preventive Medicine".
3. Faber & Faber, "Sports Fitness and Sports Injuries".

PD209 PRACTICAL - I

Credit : 0:0:2

Marks : 50+50

1. Foot ball
2. Kabaddi
3. Volley Ball
4. Badminton

PD210 PRACTICAL - II

Credit : 0:0:2

Marks : 50+50

1. Marching
2. Light Apparatus
3. Conditioning Exercise
4. Dhands and Baithaks
5. Softball

PD211 PRACTICAL - III

Credit : 0:0:2

Marks : 50+50

1. Rhythmics
2. Suryanamaskar and Asanas

Gymnastics

1. Floor exercise
2. Apparatus exercise

PD212 PRACTICAL - IV

Credit : 0:0:2

Marks : 50+50

Track and Field

1. Running events
2. Jumping events
3. Throwing events

PD213 PRACTICAL - V

Credit : 0:0:2

Marks : 50+50

1. Hockey
2. Cricket
3. Basketball
4. KhoKho

PD214 PRACTICAL - VI

Credit : 0:0:2

Marks : 50+50

1. First Aid & Physiotherapy
2. Officiating (any two games)

PD215 PRACTICE TEACHING

Credit : 0:0:2

Marks : 25+25+50

1. General Lesson
2. Particular lesson (Track or field or major game)
3. Internal assessment of practice teaching and observation record book

Note: The practice is spread through out the year. The examination will be held only at the end of the final semester.

LIST OF NEW SUBJECTS

Code No.	Subject Name	Credit
PD301	Research Process and Advanced Statistics in Physical Education and Sports	4:0:0
PD302	Modern Trends in Physical Education	4:0:0
PD303	Sports Physiology	4:0:0
PD304	Sports Training	4:0:0
PD305	Sports Psychology and Sociology	4:0:0
PD306	Sports Medicine	4:0:0
PD307	Yoga And Fitness	4:0:0
PD308	Measurement and Evaluation in Physical Education	4:0:0
PD309	Sports Management	4:0:0
PD310	Applied Bio Mechanics	4:0:0

PD301 RESEARCH PROCESS AND ADVANCED STATISTICS IN PHYSICAL EDUCATION AND SPORTS

Credits : 4:0:0

Unit - I: - Research problem and Variables – Meaning and definition of research – qualities of good research – characteristics of scientific research. Formulation of title – statement of the problem – delimitations and limitations. Hypothesis in different forms – operational definition – significance of the study. Internal and external validity – Independent and dependent variable – comparative, relationship and effect studies.

Unit - II: - Areas of Research and Experimental Design – Training methods, exercise physiology, sports psychology – measurement and evaluation – writing a proposal by selecting a topic in the above areas, collecting literature from various sources. Experimental designs – meaning - basic principles – repeated measure design, rotated group design, Independent factorial design and mixed factorial design, defining thesis format – arrangement of chapters – use of computers for research.

Unit - III: - Measures of central tendency, variability, reliability, t- ratio for independent and repeated groups – level of confidence standard scales – different types – Graphs – line, bar and phi diagram – frequency polygon, histogram and ogive curve – sampling process – different types of sampling – sampling theory.

Unit – IV : - One way analysis of variance – concept – independent and repeated groups – problem solution – two way analysis of variance – Independent and repeated group – problem solution – two way analysis of mixed design – one factor independent and other factor repeated measure design – problem solution – Analysis of covariance - one way – two way concepts.

Unit – V: - Simple, partial and multiple correlations – Concept of Wherry Doolittle method – Problem solution of Chi square biserial, tetrachote, correlations phi contingency coefficients problem solution. Rank order correlation.

Reference Books

1. Clarke David. H and Clarke H. Harrison, Research processes in physical Education, New Jersey Prentice Hall Inc. 1984.
2. Best, John W. and Kalm James, V. Research in Education, New Delhi: Prentice Hall of India, 192.
3. Clarke, H. Harrison and Clarke, David H. Advanced Statistics, New Jersey: prentice Hall Inc, 1972.
4. Garret Henry E and Woodworth, R.S. Statistics in Psychology and Education, Bombay Allied Publication Pvt Ltd., 1958.
5. Thirumalaisamy (1998) Statistics in Physical Education, Karaikudi: Senthil Kumar Publishers.

PD302 MODERN TRENDS IN PHYSICAL EDUCATION

Credits : 4:0:0

Unit – I: - Professional Preparation – Teacher Training Programme in India – Diploma Course, Certificate Course, Undergraduate Course – Post Graduate Course – Higher Education (Research Degrees) – Comparison of Different Course contents – Professional Organization in Physical Education and sports in India – Germany – Britain – United States of America, China and Australia.

Unit – II: - Careers in Physical Education and Sports – Schemes of Government (Central and State) – Avenues of Placements – Teaching Career – Coaching Career – Fitness and Health related career- Therapy related career sport careers in media, management and performance – Various schemes of Sports and Games for publication – research laboratories – fellowship – SAI-UGC- State –Corporation.

Unit – III: - Modern Facilities and Equipments – Types of surface of playgrounds (Track and Field and Games) Modern equipments used in various sports and games.

Unit –IV: - Identification of talents – Pre requisites and conditions for developing talent – Early recognition – screening and selection with performance factors – Anatomical, Physiological, Psychological and motor characteristics required for different sports persons - Talent Identification and Training – Main tasks of training – Main features of sports training programme, principal tasks.

Unit – V: - Future of Physical Education and Sport – Issues and challenges in Physical Education and Sports – leadership – values – public relations – Future and challenges in Physical Education personnel in organization and administration – in training – in competition.

Reference Books

1. Bucher A Charles "Functions of Physical Education".
2. Bunna, Joh W "Scientific Principles of Coaching"
3. Hay, James G "Biomechanics of Sports Techniques"
4. Millor L Doris & Belson E Richard "Biomechanics of Sports"
5. Winter A David "Biomechanics of Human Movement".
6. O. William Daytan "Athletic Training and Conditioning".
7. F.A.B. Webstar "The Science of Athletics".
8. Ken, Rawlison: "Modern Athletic Training".
9. Morehouse & Basch "Scientific basis of Athletic Training".
10. Carl E. Klafs & David D Aro eim: "Modern Priciples of Athletic Training".
11. Bunn John.W., "Scientific Principles of Coaching".
12. J.D. Lauther: "Scientific Principles of Coaching".
13. Government of India Reports: Ghothari Commission.
14. Government of India reports: Eanwarabai Patel Commission Report on Secondary Education.
15. Government of India Reports: "Sports Policy".
16. University Grants Commission Reports: Development Grants Under Five Year Plan.
17. University Grants Commission Reports on Financial Assistance for Professional Growth.
18. Government of India report on structure for college of Physical Education.
19. Sports pedagogy by Androvitch 1906 U.S.SR. Publication.

PD303 SPORTS PHYSIOLOGY

Credits : 4:0:0

Unit- I: - Definition of energy – Biological energy cycle, ATP – aerobic and anaerobic energy systems – during rest and exercise – Recovery from exercise – the oxygen debt – replenishment of energy stores during recovery. Muscle glycogen synthesis – liver glycogen replenishment – restoration of own stores – Measurement of energy, work and power definition of efficiency – cycle ergo meter – mechanical and electrical treadmill – step bench.

Unit – II: - Structure and functions of skeletal muscle – The motor unit and strength gradation – Muscle force –velocity and power – Nervous control of muscular movement – Basic structure and functions of the nerve Neuron – Muscular Junctions. Different types of nervous system.

Unit – III: - Pulmonary Ventilation – Minute ventilation – ventilator mechanics – pressure change – gas exchange and transport – Blood flow and gas transports – cardiac output during exercise – circulating mechanics – changes in pressure and resistance during exercise – cardio – respiratory control at rest and during exercise.

Unit – IV: - Physiological Effects of Physical Training – Training effects – factors influencing training effects – Exercise and training for health and fitness – causes and risk factors of cardio-vascular diseases – the exercise prescription – performance of altitude – Athletic performance at altitude – training and altitude - Heat balance and climatic condition – Temperature regulation and heat disorder – Physiological responses to cold.

Unit – V: - Nutrition and exercise performance- Diet before activity, during activity, following activity, exercise and weight control – Exercise and acid balance – Acid base balance following heavy exercise – Exercise and endocrine system – Characters and mechanism of hormonal action, Hormonal responses to exercise and training – Effects of age and gender – Age and athletic performance, age and menstruation – exercise during pregnancy.

Reference Books

1. Fox, Edward L and Mathews Donald K “The Physiological basis of physical education and athletics, New York: Sander College Publishing, 1982.
2. Mcardle. Williams D et al: Exercise Physiology – energy nutrition and human performance, Ed.2. Philadelphia, Lea and Febiger 1986.
3. Karpovich and Sinning “Physiology of Muscular Activity” W.B. Seunders Company, Philadelphia, London, Toronto.
4. William D. Mcardle, Frank I Katch, Victor L Katch “Exercise Physiology” Lea and Febigen Philadelphia.
5. David H Clarke, “Exercise Physiology” Prentice Hall Inc., Englewood Cliffs, New Jersey.
6. Morehouse and Miller “Physiology and Exercise” The C.V. Mosby Company.
7. Larry G Shaver, ‘Essentials of Exercise Physiology Surjeet publications.

PD304 SPORTS TRAINING

Credits : 4:0:0

Unit – I: - Sports Training – Aim, task and characteristics of sports training, Principles of sports training, Methods of training: weight training – isotonic, isometric, isokinetic, interval training, circuit training – fartlek training – Effects on training of physiological systems – muscle, heart rate – oxygen consumption - blood lactate- lung capacity, work capacity, body composition.

Unit – II: - Training load –Important features of training load – Intensity, density, duration and frequency – principles of training load – adoption of load – principles of over load. Training plan: periodisation – single, double and triple, preseason competition – season and off-season – long term plan – meso – cycle, macro cycle - micro cycle – schedules – steps involved in preparation of schedule.

Unit – III: - Strength - Forms of strength – characteristics of strength – means and methods of strength training for women and children – Endurance – Forms of endurance – characteristics of endurance, means and methods – Speed: Forms of Speed – characteristics of speed training - means and methods – Flexibility : Forms of flexibility, characteristics of flexibility, means and methods – co-ordinative abilities – (agility) eye, foot, hand co-ordination.

Unit - IV: - Technical preparation – fundamentals and methods for the development of techniques in sports – stage of technical development – causes and correction of faults. Tactical preparation – Tactical concepts – Methods of tactical development – Psychological

preparation – individual differences – requirement – diet for different seasons – doping – drugs – effects.

Unit – V: - Diet – diet for different sportsmen and women, caloric requirement – diet for different seasons – doping – drugs – effects.

Reference Books

1. Dick, Frank W. (1980) Sports Training Principles. London: Lepus Books.
2. Fox, Edward L (1984) Sports Physiology, Halt: CBS College publishing.
3. Singh, Hardyal (1991) Science of Sports Training – New Delhi: DVS. Publications Kinetics.
4. Nieman, David G (1998). The Exercise Health Connection.
5. Shaver, Larry G (1982). Essential of exercise physiology Delhi: Surjeet Publications.
6. Wilmore, J.H. and Costell, D.L.(1999) Physiology and sports and exercise. Champaign IL: Human Kinetics.

PD305 SPORTS PSYCHOLOGY AND SOCIOLOGY

Credits : 4:0:0

Unit – I: - The Nature of Learning – Motor learning – Coordination of motion, Theories of learning – Kinesthesia, proprioception and labyrinthine, receptors, reflex action and the automatizing motor skills – Feed – back, servomechanism and knowledge of results – reinforcement and readings – retention and forgetting – Factors and conditions affecting motor learning – speed of perception – attention and concentration. The learning curve, imitation and learning – self activity and mental practices, trial and continuous revision learning – the whole and part learning, autogenic techniques, ergogenic effects

Unit – II: - The role of Emotion in Sports .performance – Motivation and arousal theories of patronage and political support in development of sports – stress and competition – Aggression – Anxiety – all round performance, fears of athletes – reindicting anxiety.

Unit – III: - Evaluation of the Superior athlete –Typology of athletic activities based upon their psychological demands – Psychological preparation of the superior athlete – pre, during and post competition – Model training – intellectual training of the athlete – social – psychological preparation of the athletes – conceptualizing – automation – imagery.

Unit – IV: - Motivation techniques – Building confidence, Dedication and pride, Discipline, fear and motivation, Motivation in practice and in games – Situational Motivation – Forging positive attitudes and relationships, handling the self motivated athlete, motivating the ‘Problem’ Athlete, Handling the ‘Superstat’ Athlete – Motivation – Girls and women.

Unit – V: - Psychological Assessment of Testing – Assessing intelligence, Testing for special aptitude, Personality assessment, Behavioural assessment.

Reference Books

1. L.L.E. William Jack Judy A Blucher, Psychology of Coaching Theory and Application, Surjeet Publication, Delhi, 1982.

2. Morgan William P. Contemporary Readings in Sports Psychology Spring Field, Minois, USA, 1970.
3. John D. Lauther: Sports Psychology, Prentice Hall Inc., Englewood.

PD306 SPORTS MEDICINE

Credits : 4:0:0

Unit – I: - A brief history of sports medicine – definition – meaning, preventive – curative and rehabilitation aspects – The participation, Physical Examination. Types of sports injuries – general principles of injury management – Management of soft-tissue injuries, bony injuries, nerve injuries.

Unit – II: - Regional Athletic injuries and management – Head injuries – Shoulder injuries – arm and elbow joint injuries – wrist and hand injuries – thigh and knee injuries – lower leg., ankle and foot injuries – Evaluation and management of specific disorders – traumatic lesions of the spinal cord – care of fracture – treatment of back disorders, and deformities – low back pain and scoliosis.

Unit – III: - Applied sports medicine – Role of exercise in the prevention of various disease: Cardio – vascular – disorders – Asthma – diabetes – obesity.

Unit - IV: - Importance of sports nutrition – Exercise and food intake – before, during and after activity – computerized meal and exercise plan – role of carbohydrate in prolonged and severe training. Diet prescription for Hockey, Football, Basketball, Volleyball, Tennis, Cricket and athletics.

Unit – V: - Therapeutic modalities and procedure – principles of therapeutic modalities and procedure – hydrotherapy – Diathermy – ultrasound – electrical muscle stimulation-transculator electrical nerve stimulation (TENS) Cryokinetics, cold and therapeutic exercises cold spray - paraffin bath, ultraviolet – therapeutic cold spray- massage – Meaning and definition of physical rehabilitation – Goal of rehabilitation, rehabilitation programme – types of exercise – manual resistance – proprioceptive neuromuscular facilitation programme for neck, shoulder, shoulder joint, arm and elbow joint – wrist and hand, lower-back, hip joint-thigh, knee, lower leg, ankle and foot.

Reference Books

1. Edward L. Fox. Donald K. Mathews: The Physiological basis of Physical education and Athletics, Baundura College Publishing.
2. Antony P. Millar Sports Injuries and their Management, William & Watkins and associates Pvt., Ltd Australia.
3. Krusen Kottle, Ellwood, Physical Medicine and Rehabilitation, W.B. Saunders Company, Philadelhia, London, Toronto.
4. James A could III George I Davies, orthopaedic and sports physical therapy, the C.V. Mosby Company St. Locus – Toronto.

PD307 YOGA AND FITNESS

Credits : 4:0:0

Unit – I: - Meaning - need – importance of historical background of yoga – Types of Yoga. Bhakti Yoga, Karma Yoga, Gnana Yoga, Raja Yoga, Kundalini Yoga, Manthra Yoga, Hatha Yoga, Yanthra Yoga.

Unit – II: - Effects of Yoga on different systems of human body, impact of yoga on daily life. Scientific effects of yogasanas, Pranayama – Kriyas: Therapeutic uses of yoga. Yoga and dietary principles.

Unit – III: - Definition of physical fitness – need and importance meaning of wellness – difference between physical fitness and wellness – the relationship between fitness / wellness and health – components of physical fitness and their meaning and importance.

Unit – IV: - Assessment of physical fitness – Athletic related fitness and health related fitness – Problems associated with measurement of Physical Education – strength and endurance, assessment and prescription. Problems associated with measurement of cardio – vascular endurance.

Unit – V: - Body Composition – Techniques for assessing body composition – Nutrition for weight control and wellness – Effects of exercises on Physical fitness – preventive and curative, exercise for cardiovascular disease – chronic obstructive pulmonary diseases – diabetes – back pain.

Reference Books

1. Swami Digamberji. Yoga and Physical Education, Kavivalyadhama. Konalva, India.
2. M. L. Gharota, Science of Yoga, Kaivalyadhama, Lonalva, India.
3. Karambalkar, Therapeutic value of Yoga, Kaivalyadhama, Lonavla, India.

PD308 MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION

Credits : 4:0:0

Unit – I: - Meaning of Measurement and Evaluation – Inter relationship of Measurement and Evaluation – Basic Principles of Measurement and Evaluation – Modern Trends in Measurement and Evaluation – Need for selecting appropriate Measurement and Evaluation in Physical Education and Sports – Criteria for selecting Measurement and Evaluation – Technical standards – Objectivity, Reliability, Validity, Norms – Administrative consideration: Equipment, time, money, utility, facility, feasibility.

Unit – II: - Test of Physical Performance – Speed, Agility, Balance, strength, endurance, flexibility, California perceptual motor ability, and Generality of components, Test of Physical Fitness: Basic fitness test, AAHPER Youth Fitness test – Physical fitness Index, Sargent test, National Physical Efficiency Tests, Indian Motor Fitness Test, Test for High School and College men, Kraus Weber Tests.

Unit – III: - Motor Fitness Tests – J.C.R. Test – Oregon Motor Fitness Test – California Motor Fitness Test – Motor Ability Test – Barrow motor ability test – carpenter motor ability test – Scott motor ability test – Latchaw motor ability test.

Unit – IV: - Motor Educability Test – OPNA Brance motor educability test – Johnson Metheny motor ability test – Cardio – Vascular Test: Callageher & Brouha Harvard step for secondary boys – Tuttle pulse ratio test- Schneider cardio – vascular test – postural test – IOWA Posture test – Woodruff body alignment posture test – foot print angle test.

Unit – V: - Test of Specific Sports Skills – Badminton Miller wall volley test – French short service test Basketball – Knox basketball test, Leilich Basketball test – Hockey – French – Field Hockey Test, Friedal field hockey test – Soccer – Warner Soccer skills test, AAPHER Football skill test – Tennis – Dyer Tennis Test, Broer – Miller Forehand, backhand drive test, volleyball – LIBA – STAUFF – Test, Brady Volleyball test.

Reference Books

1. Nilgoose, Erle: “Evaluation in Health Education and Physical Education”, New York, McGra-Eill Book Co., Inc.
2. Cureton, Thomas K. Physical Fitness Appraisal and Guidance – ST. Louis, The mosby company, 1947.
3. Bovard John F., Frederich We., Hagman, Parecia E., “Test and Mesurement in Physical Education”, Philadelphia, W.B., Sounders Company, 1949.
4. Campell, W.R. and Tauker, N.M., “An Introdouction to Test and Measurement in Physical Education”, London, C. Bellk & sons Ltd., 1967.

PD309 SPORTS MANAGEMENT

Credits : 4:0:0

Unit – I: - Meaning of Sports Management – Principles of Sports Management – Personnel Management – Facility Management – Programme Management.

Unit – II: - Accounting and Budgeting – Definition and role of accounting in sport and fitness enterprise – Assumptions and principles of accounting – The accounting system – Depreciation – Accounting for non profit organizations – Types of business – cash management – Budgeting.

Unit – III: - Sports Marketing – Meaning of Sport Marketing – Factors involved in the marketing of sport – Strategic market management – Market awareness – developing a target market strategy – the sport product – Price-Promotion-Place – Marketing Plan.

Unit – IV: - Ethics – Fundamental concepts of Ethics – Personal moral development – theories of ethics – Models of analysis – Personal ethics and organizational responsibility – ethics and professionalization of sports management – Implication for sport management preparation and practice.

Unit - V: - Computer Application – Managing information of computers – using computers to manage information – The administrative use of computers in professional

sport –The administrative use of computers in college sport – sport management specific computer software.

Reference Books

1. Baumol, W., and Blinder, A. Economics: Principle and policies (4th Edition) Orlando, Florida: Harcourt brace Jovanovich.
2. Lazer, W., and Culley, J. Marketing Management. Boston: Houghton Miffling Co.
3. Mulling B. Sport Marketing, Promotion and Public Relations, Amherst, arshachuselts: National Sports Management, Inc.
4. Good Paster, K. Ethics in Management Boston: Harvard business school. Cheng, V. Computer's best use is in information management.
5. Bonnie Park House. The Management of Sports, Mosby Yearbook.

PD310 APPLIED BIO MECHANICS

Credits : 4:0:0

Unit – I: - Nature and Scope of applied mechanics in Physical Education – movement mechanics in the Body.

Unit – II: - (a). Concept of applications of mechanics in sports- static and dynamic balance (equilibrium). Force – moment of force – centripetal and centrifugal forces. Force of gravity, spin and friction, elasticity – levers, Newton's laws of motion, velocity and acceleration types of motion – Rotary and Linear motion – Angular Kinetics – Linear kinetics, kinematics – center of gravity – falling bodies –Path of projection – work, power and energy. (b) Guiding principles derived from the application of above mechanics – concepts.

Unit – III: - Hydrodynamics constructions – Concepts and application of mechanics in sports in the Aqua media – Flotation. Buoyant force – specific gravity – center of buoyancy – Rotative motion – Fluid resistance – Gyroscopic action – Guiding principles derived from the application of the above mechanics concepts in the Aqua media.

Unit – IV: - Aero dynamic constructs – Concepts and application of mechanics in the air media. Wind resistance, spin and gyration surface drag-from drag lift the minus effect. Guiding principles derived from the application of above mechanical concepts in the air media.

Unit – V: - Analysis of Sports Techniques – Principles of cinematographic analysis – Application of cinematographic and video analysis – Motor ideograms avoidance of errors of measurements.

Reference Books

1. Johnson C.R. Fisher, A.G., Scientific Basis of Athletic Conditioning. Philaladelphia: Lea and Febiger 1972.
2. Singh, H. Sport Training General Theory and Methods, N.I.S., Patiala, 1984.
3. Singh, Hardayal, Science of Sports Training New D.A.V Publications.

4. Frances wand field, Dorothy Markins and John M. Cooper Track and Field Fundamental for Girls and Women. London C.V. Mobsy Company'70.
5. L. Mateven. Sports Training U.S.S.R. Publication New Delhi.
6. Frank N. Dich, Sports Training Principles London M Lepus Book Co.
7. Arnot, Robert & Gaines, Charles Sport Talent New Zealand, Penguin Books.
8. Bunn, John W. Scientific Principles of Coaching Englewood Cliffs N.J. Prentice Hall, Inc.
9. Harre, Dietrich Principles of Sports Training Berlin, Sportverlag.