

## SEMESTER I THEORY COURSES

### COMPULSORY PAPER: 1<sup>ST</sup>

### RESEARCH PROCESS AND STATISTICS IN PHYSICAL EDUCATION

#### UNIT I – Introduction

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

#### UNIT II – Methods of Research

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

#### UNIT III Introduction of Statistics

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

#### UNIT IV – Data Classification, Tabulation and Measures of Central Tendency

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

#### UNIT V – Measures of Dispersions and Scales

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

#### REFERENCE :

- Best J. W (1971) Research in Education, New Jersey; Prentice Hall, Inc  
Clarke David. H & Clarke H, Harrison (1984) Research processes in Physical Education, New Jersey; Prentice Hall Inc.  
Craig Williams and Chris Wragg (2006) Data Analysis and Research for Sport and Exercise Science, London; Routledge Press  
Jerry R Thomas & Jack K Nelson (2000) Research Methods in Physical Activities; Illinois; Human Kinetics;  
Kamlesh, M. L. (1999) Research Methodology in Physical Education and Sports, New Delhi  
Moses, A. K. (1995) Thesis Writing Format, Chennai; Poompugar Pathippagam
- Best J. W (1971) Research in Education, New Jersey; Prentice Hall, Inc  
Clark D.H. (1999) Research Problem in Physical Education 2nd edition, Englewood Cliffs, Prentice Hall, Inc.  
Jerry R Thomas & Jack K Nelson (2000) Research Methods in Physical Activities; Illinois; Human Kinetics;  
Kamlesh, M. L. (1999) Research Methodology in Physical Education and Sports, New Delhi  
Rothstein A (1985) Research Design and Statistics for Physical Education, Englewood Cliffs: Prentice Hall, Inc  
Sivaramakrishnan. S. (2006) Statistics for Physical Education, Delhi; Friends Publication  
Thirumalaisamy (1998), Statistics in Physical Education, Karaikudi, Senthilkumar

**COMPULSORY PAPER: 2<sup>ND</sup>**  
**PHYSIOLOGY OF EXERCISE**

**UNIT I – Skeletal Muscles**

1. Macro & Micro Structure of the Skeletal Muscle, Chemical Composition.
2. Sliding Filament theory of Muscular Contraction. Types of Muscle fiber.

**UNIT II – Muscular System and Exercise**

1. Muscle Tone, Chemistry of Muscular Contraction – Heat Production in the Muscle.
2. Effect of exercises and training on the muscular system.

**UNIT III – Circulatory System**

1. Heart Valves and Direction of the Blood Flow. Conduction System of the Heart.
2. Blood Supply to the Heart, Cardiac Cycle, Stroke Volume, Cardiac Output.

**UNIT IV – Cardiovascular System and Exercise**

1. Heart Rate, Factors Affecting Heart Rate.
2. Mechanics of Breathing. Respiratory Muscles.

**UNIT V – Respiratory System**

1. Cardiac Hypertrophy. Effect of exercises and training on the Cardio vascular system.
2. Minute Ventilation, Ventilation at Rest and During Exercise. Diffusion of Gases, Exchange of Gases in the Lungs, Exchange of Gases in the Tissues.

**REFERENCES:**

- Amrit Kumar, R, Moses. (1995). Introduction to Exercise Physiology. Madras: Poompugar Pathipagam.
- Beotra Alka, (2000) Drug Education Handbook on Drug Abuse in Sports: Sports Authority of India Delhi.
- Clarke, D.H. (1975). Exercise Physiology. New Jersey: Prentice Hall Inc., Englewood Cliffs.
- David, L Costill. (2004). Physiology of Sports and Exercise. Human Kinetics.
- Fox, E.L., and Mathews, D.K. (1981). The Physiological Basis of Physical Education and Athletics. Philadelphia: Sanders College Publishing.
- Guyton, A.C. (1976). Textbook of Medical Physiology. Philadelphia: W.B. Sanders co.
- Richard, W. Bowers. (1989). Sports Physiology. WMC: Brown Publishers.
- Sandhya Tiwaji. (1999). Exercise Physiology. Sports Publishers.
- Shaver, L. (1981). Essentials of Exercise Physiology. New Delhi: Subject Publications.
- Vincent, T. Murche. (2007). Elementary Physiology. Hyderabad: Sports Publication.
- William. D. Mc Aradle. (1996). Exercise Physiology, Energy, Nutrition and Human Performance. Philadelphia: Lippincott Williams and Wilkins Company.

**Compulsory Paper: 3<sup>rd</sup>**

**YOGIC SCIENCES**

**Unit I – Introduction**

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

**Unit II – Asanas and Pranayam**

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

**Unit III – Kriyas**

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

**Unit IV – Mudras**

Meaning, Techniques and Benefits of Hasta Mudras, Asamyukta hastam, Samyukta hastam, Mana Mudra, Kaya Mudra, Banda Mudra, Adhara Mudra. Meditation: Meaning, Techniques and Benefits of Meditation – Passive and active, Saguna Meditation and Nirguna Meditation.

**Unit V – Yoga and Sports**

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

*Note: Laboratory Practicals be designed and arranged internally.*

**REFERENCE:**

- George Feuerstein, (1975). Text Book of Yoga. London: Motilal Bansaridass Publishers (P)  
Ltd.  
Gore, (1990), Anatomy and Physiology of Yogic Practices. Lonavata: Kanchan Prakashan.  
Helen Purperhart (2004), The Yoga Adventure for Children. Netherlands: A Hunter House book.  
Iyengar, B.K.S. (2000), Light on Yoga. New Delhi: Harper Collins Publishers.  
Karbelkar N.V. (1993) Patanjali Yogasutra Bhashya (Marathi Edition) Amravati: Hanuman  
Vyayam Prasarak Mandal  
Kenghe. C.T. (1976). Yoga as Depth-Psychology and para-Psychology (Vol-I): Historical Background, Varanasi: Bharata Manishai.

**Optional Paper: 4<sup>th</sup> (a)**

**TEST, MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION**

**UNIT I – Introduction**

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

**UNIT II – Motor Fitness Tests**

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

**UNIT III – Physical Fitness Tests**

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

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

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

**UNIT V – Skill Tests**

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

*Note: Practicals of indoor and out-door tests be designed and arranged internally.*

**REFERENCES :**

- Authors Guide (2013) ACSM's Health Related Physical Fitness Assessment Manual, USA: ACSM Publications  
Collins, R.D., & Hodges P.B. (2001) A Comprehensive Guide to Sports Skills Tests and Measurement (2nd edition) Lanham: Scarecrow Press  
Cureton T.K. (1947) Physical Fitness Appraisal and Guidance, St. Louis: The C. Mosby Company  
Getchell B (1979) Physical Fitness A Way of Life, 2nd Edition New York, John Wiley and Sons, Inc  
Jenson, Clayne R and Cynt ha, C. Hirst (1980) Measurement in Physical Education and Athletics, New York, Macmillan Publishing Co. Inc  
Kansal D.K. (1996), "Test and Measurement in Sports and Physical Education, New Delhi: DVS Publications  
Krishnamurthy (2007) Evaluation in Physical Education and Sports, New Delhi; Ajay Verma Publication

**OPTIONAL PAPER: 4<sup>TH</sup> (B)**  
**SPORTS TECHNOLOGY**

**Unit I – Sports Technology**

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

**Unit II – Science of Sports Materials**

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

**Unit III – Surfaces of Playfields**

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

**Unit IV – Modern equipment**

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

**Unit V – Training Gadgets**

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

**Note: Students should be encouraged to design and manufacture improvised sports testing equipment in the laboratory/workshop and visit sports technology factory/ sports goods manufacturers.**

**REFERENCE:**

- Charles J.A. Crane, F.A.A. and Furness, J.A.G. (1987) "Selection of Engineering Materials"  
UK: Butterworth Heiremann.  
Finn, R.A. and Trojan P.K. (1999) "Engineering Materials and their Applications" UK: Jaico Publisher.  
John Mongilo, (2001), "Nano Technology 101 "New York: Green wood publishing group.  
Walia, J.S. Principles and Methods of Education (Paul Publishers, Jullandhar), 1999.  
Kochar, S.K. Methods and Techniques of Teaching (New Delhi, Jullandhar, Sterling Publishers Pvt. Ltd.), 1982  
Kozman, Cassidy and Jackson. Methods in Physical Education (W.B. Saunders Company,

**OPTIONAL PAPER: 4<sup>TH</sup> (C)**  
**SPORTS JOURNALISM AND MASS MEDIA**

**UNIT I Introduction**

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

**UNIT II Sports Bulletin**

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

**UNIT III Mass Media**

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

**UNIT IV Report Writing on Sports**

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

**UNIT –V Journalism**

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

Practical assignments to observe the matches and prepare report and news of the same; visit to News Paper office and TV Centre to know various departments and their working. Collection of Album of newspaper cuttings of sports news.

**REFERENCE:**

- Ahiya B.N. (1988) Theory and Practice of Journalism: Set to Indian context Ed3. Delhi : Surjeet Publications
- Ahiya B.N. Chobra S.S.A. (1990) Concise Course in Reporting. New Delhi: Surjeet Publication
- Bhatt S.C. (1993) Broadcast Journalism Basic Principles. New Delhi. Haranand Publication
- Dhananjay Joshi (2010) Value Education in Global Perspective. New Delhi: Lotus Press.
- Kannan K (2009) Soft Skills, Madurai: Madurai: Yadava College Publication
- Mohit Chakrabarti (2008): Value Education: Changing Perspective, New Delhi: Kanishka Publication.,
- Padmanabhan. A & Perumal A (2009), Science and Art of Living, Madurai: Pakavathi Publication
- Shiv Khera (2002), You Can Win, New Delhi: Macmillan India Limited.
- Varma A.K. (1993) Journalism in India from Earliest Times to the Present Period. Sterling publication Pvt. Ltd.
- Value Education, (2000) Value Education.- New Delhi: APH Publishing Corporation.

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### **OPTIONAL PAPER: 4<sup>TH</sup> (D)**

#### **SPORTS MANAGEMENT AND CURRICULUM DESIGN IN PHYSICAL EDUCATION**

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

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

##### **UNIT II – Program Management**

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

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

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

##### **UNIT IV – Curriculum**

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

##### **UNIT V – Curriculum Sources**

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

##### **Reference:**

- Aggarwal, J.C (1990). Curriculum Reform in India – World overviews, Doaba World Education Series – 3 Delhi: Doaba House, Book seller and Publisher.
- Arora, G.L. (1984): Reflections on Curriculum, New Delhi: NCERT.
- Bonnie, L. (1991). The Management of Sports. St. Louis: Mosby Publishing Company, Park House.
- Bucher A. Charles, (1993) Management of Physical Education and Sports (10 ed.,) St.Louis: Mobsy Publishing Company.
- Carl, E, Willgoose. (1982). Curriculum in Physical Education, London: Prentice Hall.
- Chakraborty & Samiran. (1998). Sports Management. New Delhi: Sports Publication.
- Charles, A, Bucher & March, L, Krotee. (1993). Management of Physical Education and Sports. St. Louis: Mosby Publishing Company.
- Chelladurai, P. (1999). Human Resources Management in Sports and Recreation. Human

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**SEMESTER-II**  
**COMPULSORY PAPER: 1<sup>ST</sup>**  
**RESEARCH PROCESS AND STATISTICS IN PHYSICAL EDUCATION**

**UNIT I – Experimental Research**

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

**UNIT II – Sampling**

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

**UNIT III – Research Proposal and Report**

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

**UNIT IV – Probability Distributions and Graphs**

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

**UNIT V – Inferential and Comparative Statistics**

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

Note : It is recommended that the theory topics be accompanied with practical, based on computer software of statistics.

**REFERENCE**

- Best J. W (1971) Research in Education, New Jersey; Prentice Hall, Inc  
Clark D.H. (1999) Research Problem in Physical Education 2nd edition, Eaglewood Cliffs, Prentice Hall, Inc.  
Jerry R Thomas & Jack K Nelson (2000) Research Methods in Physical Activities; Illonosis; Human Kinetics;  
Kamlesh, M. L. (1999) Reserach Methodology in Physical Education and Sports, New Delhi  
Rothstain A (1985) Research Design and Statistics for Physical Education, Englewood Cliffs: Prentice Hall, Inc  
Sivaramakrishnan. S. (2006) Statistics for Physical Education, Delhi; Friends Publication  
Thirumalaisamy (1998), Statistics in Physical Education, Karaikudi, Senthilkumar  
Best J. W (1971) Research in Education, New Jersey; Prentice Hall, Inc  
Clarke David. H & Clarke H, Harrison (1984) Research processes in Physical Education, New Jersey; Prentice Hall Inc.  
Craig Williams and Chris Wragg (2006) Data Analysis and Research for Sport and Exercise Science, London; Routledge Press  
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Kamlesh, M. L. (1999) Reserach Methodology in Physical Education and Sports, New Delhi  
Moses, A. K. (1995) Thesis Writing Format, Chennai; Poompugar Pathippagam

**COMPULSORY PAPER: 2<sup>nd</sup>**  
**PHYSIOLOGY OF EXERCISE**

**UNIT I-- Respiratory System and Exercise**

1. Control of Ventilation. Ventilation and the Anaerobic Threshold. Oxygen Debt.
2. Lung Volumes and Capacities. Effect of exercises and training on the respiratory system.

**UNIT II – Metabolism**

1. Metabolism. ATP – PC or Phosphogen System.
2. Anaerobic Metabolism.
3. Aerobic Metabolism.

**UNIT III – Energy Transfer**

1. Aerobic and Anaerobic Systems during Rest and Exercise.
2. Short Duration High Intensity Exercises. High Intensity Exercise Lasting Several Minutes.
3. Long Duration Exercises.

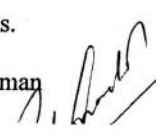
**UNIT IV – Climatic conditions Sports performance**

1. Variation in Temperature and Humidity. Thermoregulation.
2. Sports performance in hot Climate and Cool Climate.
3. High altitude.

**UNIT V – Sports performance and ergogenic aids**

1. Influence of: Amphetamine, Anabolic steroids, Androstenedione, Beta Blocker, Choline, Creatine, Human growth hormone on sports performance.
2. Narcotic, Stimulants: Amphetamines, Caffeine, Ephedrine, Sympathomimetic amines. Stimulants and sports performance.

**REFERENCES:**

1. Amrit Kumar, R, Moses. (1995). Introduction to Exercise Physiology. Madras: Poompugar Pathipagam.
  2. Beotra Alka, (2000) Drug Education Handbook on Drug Abuse in Sports: Sports Authority of India Delhi.
  3. Clarke, D.H. (1975). Exercise Physiology. New Jersey: Prentice Hall Inc., Englewood Cliffs.
  4. David, L Costill. (2004). Physiology of Sports and Exercise. Human Kinetics.
  5. Fox, E.L., and Mathews, D.K. (1981). The Physiological Basis of Physical Education and Athletics. Philadelphia: Sanders College Publishing.
  6. Guyton, A.C. (1976). Textbook of Medical Physiology. Philadelphia: W.B. Sanders co.
  7. Richard, W. Bowers. (1989). Sports Physiology. WMC: Brown Publishers.
  8. Sandhya Tiwaji. (1999). Exercise Physiology. Sports Publishers.
  9. Shaver, L. (1981). Essentials of Exercise Physiology. New Delhi: Subject Publications.
  10. Vincent, T. Murche. (2007). Elementary Physiology. Hyderabad: Sports Publication.
  11. William, D. Mc Aradle. (1996). Exercise Physiology, Energy, Nutrition and Human Performance. Philadelphia: Lippincott Williams and Wilkins Company.
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**COMPULSORY PAPER: 3<sup>rd</sup>**  
**SPORTS BIOMECHANICS AND KINESIOLOGY**

**UNIT I – Introduction**

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

**UNIT II – Muscle Action**

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

**UNIT III – Motion and Force**

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

**UNIT IV-Projectile and Lever**

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

**Note: Laboratory practicals should be designed and arranged for students internally.**

**UNIT V – Movement Analysis**

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

**REFERENCE:**

- Deshpande S.H.(2002). Manav Kriya Vigyan – Kinesiology (Hindi Edition) Amravati :Hanuman Vyayam Prasarak Mandal.
- Hoffman S.J. Introduction to Kinesiology (Human Kinesiology publication In.2005.
- Steven Roy, & Richard Irvin. (1983). Sports Medicine. New Jersey: Prentice hall.
- Thomas. (2001). Manual of structural Kinesiology, New York: Me Graw Hill.
- Uppal A.K. Lawrence Mamta MP Kinesiology(Friends Publication India 2004)
- Uppal, A (2004), Kinesiology in Physical Education and Exercise Science, Delhi Friends publications.
- Williams M (1982) Biomechanics of Human Motion, Philadelphia; Saunders Co
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**COMPULSORY PAPER: 4<sup>th</sup>**  
**ATHLETIC CARE AND REHABILITATION**

**Unit I – Corrective Physical Education**

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

**Unit II – Posture**

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

**Unit III – Rehabilitation Exercises**

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

**Unit IV – Massage**


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

**Unit V – Sports Injuries Care, Treatment and Support**

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

***Note: Each student shall submit Physiotherapy record of attending the Clinic and observing the cases of athletic injuries and their treatment procedure.(To be assessed internally)***

**REFERENCES:**

- Doherty, J. Meno. Webb, Moder D (2000) Track & Field, Englewood Cliffs, Prentice Hal Inc.  
Lace, M. V. (1951) Massage and Medical Gymnastics, London: J & A Churchill Ltd.  
Mc Ooyand Young (1954) Tests and Measurement, New York: Appleton Century.  
Naro, C. L. (1967) Manual of Massage and, Movement, London: Febra and Febra Ltd.  
Rathbone, J.L. (1965) Corrective Physical education, London: W.B. Saunders & Co.  
Stafford and Kelly, (1968) Preventive and Corrective Physical Education, New York.
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**SEMESTER III**  
**COMPULSORY PAPER: 1<sup>st</sup>**  
**SCIENTIFIC PRINCIPLES OF SPORTS TRAINING**

**UNIT I – Introduction**

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

**UNIT II – Components of Physical Fitness**

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

**UNIT III – Flexibility**

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

**UNIT IV – Training Plan**

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

**UNIT V – Doping**

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

**REFERENCES :**

- Beotra Alka, (2000), Drug Education Handbook on Drug Abuse in Sports. Delhi: Sports Authority of India.
- Bunn, J.N. (1998) Scientific Principles of Coaching, New Jersey Engle Wood Cliffs, Prentice Hall Inc.
- Cart, E. Klafs & Daniel, D. Arnheim (1999) Modern Principles of Athletic Training St. Louis C. V. Mosby Company
- Daniel, D. Arnheim (1991) Principles of Athletic Training, St. Luis, Mosby Year Book
- David R. Mottram (1996) Drugs in Sport, School of Pharmacy, Liverpool: John Moore University
- Gary, T. Moran (1997) – Cross Training for Sports, Canada : Human Kinetics
- Hardayal Singh (1991) Science of Sports Training, New Delhi, DVS Publications
- Jensen, C.R. & Fisher A.G. (2000) Scientific Basic of Athletic Conditioning, Philadelphia

**COMPULSORY PAPER: 2<sup>nd</sup>**  
**SPORTS PSYCHOLOGY**

**UNIT-I Definition, Need and Importance**

1. Meaning, Definition, History, Need and Importance of Sports Psychology.
2. Present Status of Sports Psychology in India.
3. Motor Learning: Basic Considerations in Motor Learning.

**UNIT-II Perception & Personality**

1. Motor Perception, Factors Affecting Perception, Perceptual Mechanism.
2. Personality: Meaning, Definition, Structure.
3. Measuring Personality Traits. Effects of Personality on Sports Performance.

**UNIT- III Motivation and Emotion**

1. Motivation: Meaning and Definition, Types of Motivation: Intrinsic, Extrinsic.
2. Achievement Motivation: Meaning, Measuring of Achievement Motivation.
3. Emotion and Anxiety: Meaning and Definition, Nature, Causes, Method of Measuring Anxiety.  
Competitive Anxiety and Sports Performance.

**UNIT- IV Stress and its Management**

1. Stress: Meaning and Definition, Causes. Stress and Sports Performance.
2. Aggression: Meaning and Definition, Method of Measurement. Aggression and Sports Performance.
3. Self-Concept: Meaning and Definition, Method of Measurement.

**UNIT-V Process of Goal**

1. Meaning and Definition, Process of Goal Setting in Physical Education and Sports.
2. Relaxation: Meaning and Definition, types and methods of psychological relaxation.

**REFERENCES:**

- Authors Guide (2013) National Library of Educational and Psychological Test (NLEPT) Catalogue of Tests, New Delhi: National Council of Educational Research and Training Publication.
- Authors Guide (2013) National Library of Educational and Psychological Test (NLEPT) Catalogue of Test, New Delhi: National Council of Educational Research and Training Publication.
- Jain. (2002), Sports Sociology, Heal Sahety Kendre Publishers.
- Jay Coakley. (2001) Sports in Society – Issues and Controversies in International Education, Mc-Craw Seventh Ed.
- Richard, J. Crisp. (2000). Essential Social Psychology. Sage Publications.
- Robert N. Singer (2001). Motor Learning and Human Performance. New York: The Macmillan Co.
- Robert N. Singer. (1989) The Psychology Domain Movement Behaviour. Philadelphia: Lea and Febiger.
- Thelma Horn. (2002). Advances in Sports Psychology. Human Kinetic.
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**COMPULSORY PAPER: 3<sup>rd</sup>**  
**HEALTH EDUCATION AND SPORTS NUTRITION**

**Unit - I Health Education**

Concept, Dimensions, Spectrum and Determinants of Health Definition of Health, Health Education, Health Instruction, Health Supervision Aim, objective and Principles of Health Education Health Service and guidance instruction in personal hygiene

**Unit - II Health Problems in India**

Communicable and Non Communicable Diseases Obesity, Malnutrition, Adulteration in food, Environmental sanitation, Explosive, Population, Personal and Environmental Hygiene for schools Objective of school health service, Role of health education in schools Health Services - Care of skin, Nails, Eye health service, Nutritional service, Health appraisal, Health record, Healthful school environment, first- aid and emergency care etc.

**Unit- III – Hygiene and Health**

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

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

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

**Unit – V Nutrition and Weight Management**

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

**References:**

- Bucher, Charles A. "Administration of Health and Physical Education Programme".  
Delbert, Oberteuffer, et. al. "The School Health Education".  
Ghosh, B.N. "Treaties of Hygiene and Public Health".  
Hanlon, John J. "Principles of Public Health Administration" 2003.  
Turner, C.E. "The School Health and Health Education".  
Moss and et. At. "Health Education" (National Education Association of U.T.A.)  
Nemir A. "The School Health Education" (Harber and Brothers, New York).  
Nutrition Encyclopedia, edited by Delores C.S. James, The Gale Group, Inc.  
Boyd-Eaton S. et al (1989) The Stone Age Health Programme: Diet and Exercise as Nature Intended. Angus and Robertson.  
Terras S. (1994) Stress, How Your Diet can Help: The Practical Guide to Positive Health Using Diet, Vitamins, Minerals, Herbs and Amino Acids, Thorons

**OPTIONAL PAPER: 4<sup>TH</sup> (A)**  
**SPORTS ENGINEERING**

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

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

**Unit - II Mechanics of engineering materials**

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

**Unit- III Sports Dynamics**

Introduction to Dynamics, Kinematics to particles – rectilinear and plane curvilinear motion coordinate system. Kinetics of particles – Newton's laws of Motion, Work, Energy, Impulse and momentum.


**Unit- IV Building and Maintenance:**

Sports Infrastructure- Gymnasium, Pavilion, Swimming Pool, Indoor Stadium, Out-door Stadium, Play Park, Academic Block, Administrative Block, Research Block, Library, Sports Hostels, etc. Requirements: Air ventilation, Day light, Lighting arrangement, Galleries, Store rooms, Office, Toilet Blocks (M/F), Drinking Water, Sewage and Waste Water disposal system, Changing Rooms ( M/F), Sound System (echo-free), Internal arrangement according to need and nature of activity to be performed, Corridors and Gates for free movement of people, Emergency provisions of lighting, fire and exits, Eco-friendly outer surrounding. Maintenance staff, financial consideration. **Building process:-** design phase (including brief documentation), construction phase functional (occupational) life, Re-evaluation, refurbish, demolish. **Maintenance policy**, preventive maintenance, corrective maintenance, record and register for maintenance.

**Unit – V Facility life cycle costing**

Basics of theoretical analysis of cost, total life cost concepts, maintenance costs, energy cost, capital cost and taxation

**Reference**

- Franz K. F. et. al., Editor, Routledge Handbook of Sports Technology and Engineering (Routledge, 2013)  
Steve Hake, Editor, The Engineering of Sport (CRC Press, 1996)  
Franz K. F. et. al., Editor The Impact of Technology on Sports II (CRC Press, 2007)  
Helge N., Sports Aerodynamics (Springer Science & Business Media, 2009)  
Youlin Hong, Editor Routledge Handbook of Ergonomics in Sport and Exercise (Routledge, 2013)  
Jenkins M., Editor Materials in Sports Equipment, Volume I (Elsevier, 2003)  
Colin White, Projectile Dynamics in Sport: Principles and Applications  
Eric C. et al., Editor Sports Facility Operations Management (Routledge, 2010)
- 

**OPTIONAL PAPER: 4<sup>TH</sup> (B)**  
**PHYSICAL FITNESS AND WELLNESS**

**Unit I – Introduction**

Meaning and Definition" of Physical Fitness, Physical Fitness Concepts and Techniques, Principles of physical fitness, Physiological principles involved in human movement. Components of Physical Fitness. Leisure time physical activity and identify opportunities in the community to participate in this activity. Current trends in fitness and conditioning, components of total health fitness and the relationship between physical activity and lifelong wellness.

**Unit II – Nutrition**

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

**Unit III – Aerobic Exercise**

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

**Unit IV – Anaerobic Exercise**

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

**Unit V – Flexibility Exercise**

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

**Reference:**

- David K. Miller & T. Earl Allen, Fitness, A life time commitment, Surjeet Publication Delhi 1989.
- Dificore Judy, the complete guide to the postnatal fitness, A & C Black Publishers Ltd. 35 Bedford row, London 1998
- Dr. A.K. Uppal, Physical Fitness, Friends Publications (India), 1992. Warner W.K. Oeger & Sharon A. Hoeger, Fitness and Wellness, Morton Publishing Company, 1990.
- Elizabeth & Ken day, Sports fitness for women, B.T. Batsford Ltd, London, 1986.
- Emily R. Foster, Karyn Hartiger & Katherine A. Smith, Fitness Fun, Human Kinetics Publishers 2002.
- Lawrence, Debbie, Exercise to Music. A & C Black Publishers Ltd. 37, Sohe Square, London 1999

**OPTIONAL PAPER: 4<sup>TH</sup> (C)**  
**VALUE AND ENVIRONMENTAL EDUCATION**

**UNIT I – Introduction to Value Education.**

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

**UNIT II – Value Systems**

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

**Unit- III – Environmental Education**

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

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

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

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

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

**REFERENCE:**

- Miller T.G. Jr., Environmental Science (Wadsworth Publishing Co.)  
Odum, E.P. Fundamentals of Ecology (U.S.A.: W.B. Saunders Co.) 1971.  
Rao, M.N. & Datta, A.K. Waste Water Treatment (Oxford & IBH Publication Co. Pvt. Ltd.) 1987  
Townsend C. and others, Essentials of Ecology (Black well Science)  
Heywood, V.H. and Watson V.M., Global biodiversity Assessment (U.K.: Cambridge University Press), 1995.  
Jadhav, H. and Bhosale, V.M. Environmental Protection and Laws (Delhi: Himalaya Pub. House), 1995.  
Mc Kinney, M.L. and Schoel, R.M. Environmental Science System and Solution (Web enhanced Ed.) 1996.  
Miller T.G. Jr., Environmental Science (Wadsworth Publishing Co.)

## **OPTIONAL PAPER: 4<sup>TH</sup> (D)**

### **EDUCATION TECHNOLOGY IN PHYSICAL EDUCATION AND SPORTS**

#### **Unit I – Nature and Scope**

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

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

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

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

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

#### **Unit IV – Audio Visual Media in Physical Education**

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

#### **Unit V – New Horizons of Educational Technology**

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

#### **REFERENCE:**

- Amita Bhardwaj, New Media of Educational Planning". Sarup of Sons, New Delhi-2003  
Bhatia and Bhatia. The Principles and Methods of Teaching (New Delhi : Doaba House), 1959.  
Communication and Education, D. N. Dasgupta, Pointer Publishers  
Education and Communication for development, O. P. Dahama, O. P. Bhatnagar, Oxford  
Page 68 of 71 IBH Publishing company, New Delhi  
Essentials of Educational Technology, Madan Lal, Anmol Publications  
K. Sampath, A. Pannirselvam and S. Santhanam. Introduction to Educational Technology (New Delhi: Sterling Publishers Pvt. Ltd.) : 1981.  
Kochar, S.K. Methods and Techniques of Teaching (New Delhi, Jalandhar, Sterling Publishers Pvt. Ltd.), 1982  
Kozman, Cassidy and Jackson. Methods in Physical Education (W.B. Saunders Company, Philadelphia and London), 1952.

**SEMESTER IV**  
**COMPULSORY PAPER: 1<sup>st</sup>**

**INFORMATION & COMMUNICATION TECHNOLOGY (ICT) IN PHYSICAL EDUCATION**

**Unit I – Communication & Classroom Interaction**

Concept, Elements, Process & Types of Communication, Communication Barriers & Facilitators of communication, Communicative skills of English - Listening, Speaking, Reading & Writing Concept & Importance of ICT Need of ICT in Education, Scope of ICT: Teaching Learning Process, Publication Evaluation, Research and Administration Challenges in Integrating ICT in Physical Education

**Unit II – Fundamentals of Computers**

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

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

**Unit III – MS Office Applications**

MS Word: Main Features & its Uses in Physical Education  
MS Excel: Main Features & its Applications in Physical Education  
MS Access: Creating a Database, Creating a Table, Queries, Forms & Reports on Tables and its Uses in Physical Education  
MS Power Point: Preparation of Slides with Multimedia Effects  
MS Publisher: Newsletter & Brochure

**Unit IV – ICT Integration in Teaching Learning Process**

Approaches to Integrating ICT in Teaching Learning Process  
Project Based Learning (PBL)

Co-Operative Learning

Collaborative Learning

ICT and Constructivism: A Pedagogical Dimension

**Unit V – E-Learning & Web Based Learning**

E-Learning

Web Based Learning

Visual Classroom

**REFERENCES:**

- B. Ram, New Age International Publication, Computer Fundamental, Third Edition-2006  
Brain under IDG Book. India (p) Ltd Teach Yourself Office 2000, Fourth Edition-2001  
Douglas E. Comer, The Internet Book, Purdue University, West Lafayette in 2005  
Heidi Steel Low price Edition, Microsoft Office Word 2003- 2004  
ITL Education Solution Ltd. Introduction to information Technology, Research and Development Wing-2006  
Pradeep K. Sinha & Priti; Sinha, Foundations computing BPB Publications -2006.  
Rebecca Bridges Altman Peach pit Press, Power point for window, 1999  
Sanjay Saxena, Vikas Publication House, Pvt. Ltd. Microsoft Office for ever one, Second Edition-2006

## **COMPULSORY PAPER: 2<sup>nd</sup> SPORTS PSYCHOLOGY**

### **UNIT-I Sports and Sociology**

1. Meaning and Definition – Sports and Socialization of Individual.
2. Sports as Social Institution, National Integration through Sports.

### **UNIT-II Leadership**

1. Fans and Spectators: Meaning and definition, Advantages and disadvantages on Sports Performance.
3. Leadership: Meaning, Definition, types. Leadership and Sports Performance.

### **UNIT-III Group Cohesion**

1. Group: Definition and Meaning, Group Size, Groups on Composition.
2. Group Cohesion, Group Interaction, Group Dynamics.
3. Current Problems in Sports and Future Directions, Sports Social Crisis Management.

### **UNIT-IV Women in Sports**

1. Women in Sports: Sports Women in our Society.
2. Participation pattern among Women, Gender inequalities in Sports.

### **UNIT-V Psychological Tests**

1. Psychological Tests: Types of Psychological Test: Instrument based tests: Pass-along test, Tachistoscope, Reaction timer, Finger dexterity board, Depth perception box, Kinesthesiometer board.

### **Reference**

- Questionnaire: Sports Achievement Motivation, Sports Competition Anxiety.  
Education, Mc-Craw Seventh Ed.  
Richard, J. Crisp. (2000). Essential Social Psychology. Sage Publications.  
Robert N. Singer (2001). Motor Learning and Human Performance. New York: The Macmillan Co.  
Robert N. Singer. (1989) The Psychology Domain Movement Behaviour. Philadelphia: Lea and Febiger.  
Thelma Horn. (2002). Advances in Sports Psychology. Human Kinetic.  
Whiting, K, Karman., Hendry L.B & Jones M.G. (1999) Personality and Performance in Physical Education and Sports. London: Hendry Kimpton Publishers.

**COMPULSORY PAPER: 3<sup>rd</sup>**  
**SPORTS MEDICINE**

**UNIT I – Introduction**

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

**UNIT II – Basic Rehabilitation**

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

**UNIT III – Spine Injuries and Exercise**

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

**UNIT IV – Upper Extremity Injuries and Exercise**

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

**UNIT V – Lower Extremity Injuries and Exercise**

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

*Practicals: Lab. Practicals and visit to Physiotherapy Centre to observe treatment procedure of sports injuries; data collection of sports injury incidences, Visit to TV Centre etc. should be planned internally.,*

**REFERENCES:**

- Christopher M. Norris. (1993). Sports Injures Diagnosis and Management for Physiotherapists. East Kilbride: Thomson Litho Ltd.  
James, A. Gould & George J. Davies. (1985). Physical Physical Therapy. Toronto: C.V. Mosby Company.  
Morris B. Million (1984) Sports Injuries and Athletic Problem. New Delhi: Surjeet Publication.  
Pande. (1998). Sports Medicine. New delhi: Khel Shitya Kendra  
The Encyclopedia of Sports Medicine. (1998). The Olympic Book of Sports

**COMPULSORY PAPER: 4<sup>th</sup>**  
**DISSERTATION**

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