

**PRE-Ph.D/M.Phil.  
(PHYSICAL EDUCATION)**

**SYALLABUS**

**PART –A**  
**Paper – I**  
**RESEARCH METHODOLOGY**

**UNIT I :- Introduction**

- Meaning and definition of Research
- Need, Nature and Importance of research
- Scope of Research
- Characteristics of good research
- Qualities of a good research scholar

**The Research Problem**

- Locating the Problem
- Criteria in Selecting the Problem
- Limitation, Delimitations, Statement and Significance of the Problem
- Formulation of Hypothesis.

**Review of Related Literature**

- Library Sources
- Research reviews, Card catalogue, Indices, Abstracts, bibliography etc.

**UNIT II:- Methodology**

**Methods of Research**

- Historical Research: Primary and Secondary Sources, evaluation of Historical Material, Criticism and pitfalls in the Historical research.
- Experimental Method
- Experimental Design- single/parallel group design, repeated measures design: Static group comparison design, random group design related group design, factorial design.
- Survey method
- Data collection procedure
- Questionnaire Method- Interview Method: Opinionnaire Method
- Case Study Method

**UNIT III:- Research Proposal**

- Design of the Study (Schematic presentation)
- Tools-available equipment and instruments for research
- Sample – sampling method (Simple, Stratified, Multiple and purposive sampling)

**Research Report:**

- Mechanics writing the research report
- Preliminary of front material
- Main body
- Back materials
- Critical evaluation of completed research
- Preparation of abstract

## PART – B Statistics

### UNIT IV:

- Measure of central tendency, graphical representation of data, normal.
- Probability curve- 't' test, test of significance, level of significance
- Variables – dependent, a) Product Movement Correlation  
b) Rank difference Correlation
- Partial and Multiple Correlation
- Computation of Partial Multiple Correlation

### Prediction and Wherry – Dpp – Little Method

- Meaning and Prediction
- Two Variable regression equation
- Multiple regression equation in Physical Education
- Wherry – Doo – Little method of Multiple correlation

### UNIT – V Analysis of Variance – ANOVA

- Need and use of ANOVA
- Standard Deviation of Combined Samples
- One-Way analysis of variance
- Post-Hoc Tests of Significance

### Analysis of Co-variance – ANACOVA

- Need and use of analysis of covariance
- Problem and control covariance
- Use of computer for data analysis

## REFERECNCE BOOKS

1. Garrett E. Henry, Statistics in Psychology and Education, Bombay, Allied Publishing Company.
2. Clarke H. David and Harison Clark, Research process in Physical Education, Englewood Cliffs, New jersey, Prentice Hall etc.
3. Clarke H.W. Application of Measurement to Health and A Physical Education and Measurement in Physical
4. Neilson N.P. An Elementary Course in Statistics, Education, California, Test and Measurement in Physical
5. Cohen Advanced Statistics in Physical Education Research.
6. Bloomers Paul and Linguist E.F. Statistical Methods in Psychology and Education Calcutta, Oxford Book.
7. Best JohnW. Research in Education, New Delhi, Prentice Hall of India Pvt. Ltd.
8. Kamlesh M.L. Research, Methodology in Physical education, Metropolitan, New Delhi.
9. Agarwal, I.e. Education resort- an introduction, New Delhi, Arya Book depot.
10. Mouly, George. The science of Education Research, New Delhi Eurasia Publishing House.
11. Sukhia S.P. Et a1. Elements of Education research, Bombay, Allied Publishers.
12. Satyanarayana, V. Research in Physical Education, Discovery publishing House.
13. Whitney F.e. The Elements of Research, Prentice Hall, Inc Englewood Cliffs.

Part A- Paper II  
**SPORTS PSYCHOLOGY (Specilisation)**

**UNIT I :- History of Sports Psychology**

Meaning, Definition, Nature and Scope of Psychology in sports. Branches of psychology in sports (Experimental, Clinical and Educational Psychology)- Need and importance of Psychological preparation in various Games and Sports.

**Emotional Aspects of Sports:**

Emotions – Nature of emotion-types of emotions – factors effecting emotions – control of emotions in sports – adjusting emotions in sports mental activity and sports related goals.

**UNIT II :- Personality Development and Behavior**

Growth & Development of personality – assessment of personality in Sports – Types of personality – personality in athletics – intelligence – Theories intelligence – Theories of intelligence – Measurement of Intelligence – theories of play- behavior – Its nature, Meaning, Definition and behavioral pattern of sports persons and spectators.

**UNIT III :- Anxiety – Coaching Interventions**

Anxiety – Nature and meaning- cause and effect of Anxiety – types of anxiety – assessment of anxiety in sports – measures to control anxiety – Dimensions and evaluation of pre-competition, during competition and post competition anxiety levels

**Aggression and Hostility:**

Aggression in Sports – Degrees of aggression – reasons for aggression in sports – control of aggression – Hostility – Frustration – Models of Frustration

**UNIT IV :- Arousal – Activation and Performance**

Nature – Need and importance of arousal and activation in sports – Drive Theory – emotional and cognitive

accompaniments to activation recurrent emotions and activation – assessment of activation – anticipation – levels of anticipation in sports.

### **Motivation and learning**

Motivation in sports – theories of motivation – motivation of children in sports – Achievement motivation – Intrinsic versus extrinsic motivation – Levels of aspiration and participation in sports – Drop outs in sports – Learning – Theories of learning – Laws of Learning – Motor Learning – Learning Curve – nature and process of Learning and performance

## **UNIT V :- Socio – Psychological dimensions in Sports**

Sports Performance in groups – team cohesion – attitude formulation – development of attitudes – factors influencing attitudes in sports – Leadership – Qualities of a good sports leader – types of leadership – Theories of leadership – characteristic of leadership – leadership dimensions in sports.

### **Guidance and Counseling in sports**

Nature and Scope of Guidance and Counseling in sports – physical Education Teacher/Coach as a guide and Counselor – duties and responsibilities – principles and functions of vocational guidance – guidance as a continuous process – levels of adjustment and spans enrichment – counseling for improving Sports performance

### **REFERENCES:**

1. Aldermen, R. Psychological behavior in Sports: Toronto: Standar
2. Allport - G, Personality a Psychological Interpretation, London, Constable and Co. 1937.
3. Bandura - A. Agression: A social Learning, analysis, Englewood Cliffs, Prentice Hall (1973) New Jersey.

4. Bryant J. Cratty Psychology in Contemporary Sport, Prentice Hall, Englewood Cliffs, New Jersey.
5. Clifford and T. Morgan Introduction to Psychology Mc. Graw Hall International London.
6. Guru Baksh and A.C. Sando, Psychology in Sports, Friends publication, Delhi.
7. Jetendra Mohan Chandra and Sult in Akthas, Psychology of Sports Indian Perspective friends Publication, Delhi.
8. John. D. Lanther, Sports Psychology, Prentice Hall, Inc, Englewood Cliff
9. Reuben Frost, Psychology, Concepts applied to Physical Education and Coaching, Addison Publishing and Co.
10. Satyanarayana, V. Physical Education Social attitudes and Leadership qualities, Discovery publishing house, New Delhi, 2001.
11. Schultz J, H & W, Luther Authogenic Therapy Graine & Stvatton, New York
12. Singer Robert, N. Motor Learning and Human Performance, Mac Millan company London.
13. Vanko Mirolavg: Bryant Caatty. J. Psychology & Superiot Athlete: Mac Millan Company, New York.
14. Whitting K. hardomen & Rend Jones Personality Performance in Physical Education and Sport, Kripto Publishers London – 1973.
15. William E. Warren Coaching and Motivation a Practical Guide to maximum athletic performance, prentice Hall Inc.. Englewood Cliffs, New Jersey.

## SPORTS BIO-MECHANICS (SPECIALISATION)

**Unit I:-** Introduction and need of knowledge of Bio-Mechanics in professional preparation. Nature and scope of Bio-Mechanics in physical Education and Sports.

### **Unit II:- Movement and Mechanics in the Body**

a). Concept of Application of Mechanics in Sports- Static and Dynamic. Balance (Equilibrium) Force- Moment of Force- Centripetal and Centrifugal Force, Force of Gravity, Friction. Impact and Elasticity Levers. Newton's laws of motion- Velocity and Acceleration- Types of Motion-Rotary and Linear Motion- Angular Kinetics- Linear Kinetics Motion- Rotary and Linear Motion – Angular Motion – Angular Kinetics- Linear Kinetics – Linear Kinematics- centre of Gravity – Falling bodies – path of Projectiles.

### **Unit – III: Hydro Dynamic Constructs**

Concept and Application of Mechanics in Aqua Media Sports – floatation – Buoyant Force-Specific Gravity – Centre of Buoyancy Rotative Motion- Fluid resistance – Gyroscopic Action.

Guiding Principles derived from the application of the above mechanical Concepts in the Aqua Media Sports.

### **Unit IV: Aero – Dynamic Constructs:**

Concepts and Application of Mechanics in the Air Media – wind resistance – Spin and Gyration – Surface drag – Form drag – lift and the Magnus Effect.

**Unit V:** Principles of Cinematographic Analysis – Application of Cinematographic and video analysis – motor ideograms – avoidance of errors of measurement.

Bio-mechanical analysis of the following activities – Running, Jumping, Throwing, Service,, Tennis, Basketball, Foot Ball, Hockey and Volley Ball.

### **REFERENCES:**

Broer, M.R. Efficiency of Human Philadelphia W.C.Saunders Company

Bunn, John W. Scientific Principles of Coaching: Englewood Cliffs, New Jersey Prentice Hall Inc.

Dyson.GH.G. The Mechanics of Athletics, London, Hodder and Stoughton  
Hay, James, G Biomechanics of Spans Techniques, Englewood Cliffs, New Jersey, Prentice Hall Inc.

HaY, James, G. and Reid J.Gaish, The Anatomic and Mechanical Basis of Human Motion, Englewood Cliffs, New Jersey, Prentice Hall Inc.

Scott, M.G. Analysis of Human Motion, New York: Appleton Century Crafts, Logan- 'Kinesiology and Bio-Mechanics'

Part A - Paper II  
**EXERCISE PHYSIOLOGY AND SPORTS MEDICINE  
(SPECIALISATION)**

**Unit I: Muscular System and Exercise:**

- Types of Muscles, Reciprocal innervations – Types of Contraction
- Muscles tone- Hypertrophy of muscles in relation to physical Activity.
- Bio energies, fuel for Muscular work, Energy and Metabolism
- Effect of Exercise on Muscular Systems.

**Unit II: Respiratory and Exercise:**

- Structure and properties of lungs – Mechanism of Respiration- Gaseous exchanges and Pulmonary Ventilation – Transport of oxygen and carbon oxide.
- Effect of Exercise on respiratory system.

**Unit III: Circulatory System and Exercise:**

- Heart – Structure – Circulation of blood, arteries, Veins, Cappillaries
- Types of Circulation – pulmonary circulation, ... Systematic Circulation
- Coronary Circulation' – Portal Circulation
- Effect of Exercise on heart and circulatory system.

**Unit IV: Other Physiological aspects of Exercise and Sports**

- Concept of physical fitness and physical training – warming up and conditioning – physiological aspects of development of strength endurance, skill, speed, agility and coordination.
- Sex differences and aging in relation to training methodology
- Ergogenic Aids in Exercise and Sports
- Nutrition aspects
- Balanced diet and athletic performance – Effect of Alcohol, Drugs and smoking on Athletics performances.

## Unit V: Role of Sports Medicine

- Introduction, history and development - Injuries and therapeutic management.
- Measurement and evaluation
- Muscular strength and Endurance, Cardio Vascular Variables, Tests of Cardio Vascular fitness.

### REFERENCES BOOKS:

1. Clark, David, Exercise Physiology, Prentice Hall, Inc, Englewood Co. New Jersey, 1975
2. Guyton A.C. Test Book of Mechanical Physiology, W.B. Sundar Col Philadelphin 1976
3. Davries H.A. Physiology of Exercise for Phy. Edn & Athletic Steple Press, London 1976.
4. Kespovich P.V. & Spinning W.E. Physiology of Muscular Activity Bourne G.B.
5. The Structure & Function of Muscle Academic London,.
6. Morehouse L.E., & Millar A.T. Physiology of Exercise, C.B. Maebly Company, Saint Loyuise, 1976.
7. P.O. Astrand & K. Rodahi – Text book of work Physiology, MrCrew Hio1 Kogakusha Ltd. 1970.
8. Mathews K.K. & Fox E.L. Physiological basis of Physical Education and Athletics W.B. Savinele & Co., Phyladelphia 1976.

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