

**Ph.D IN PHYSICAL EDUCATION
COURSE WORK
SCHEME OF EXAMINATION**

| Paper S. No. | Name Of Compulsory Papers | Marks | |
|--------------|--|-------|-----|
| | | Max | Min |
| I | Research & Statistical Methodology | 100 | 50 |
| II | Review of related literature | 100 | 50 |
| III | Evaluation Techniques in Physical Education. | 100 | 50 |

Note: The second paper (II) involves reviewing of published research work in the relevant field of Ph.D work under the supervision of the assigned supervisor

SPECIALIZATION (SELECT ANY ONE PAPER RELATED TO Ph.D WORK)

| Paper S. No. | Name of Elective Papers Specialization (anyone from following) | Marks | |
|--------------|--|-------|-----|
| | | Max | Min |
| IV A | Sports Psychology | 100 | 50 |
| IV B | Exercise Physiology | | |
| IV C | Sports Sociology | | |
| IV D | Sports Bio-mechanic | | |
| IV E | Sports Training | | |
| IV F | Sports Management | | |

Theory Specialization Subject Area: (paper IV)

One Theory Paper of 100 marks (candidate has to select one specialization from the above papers in consultation with supervisor at the time of course work registration, which will be related to the topic of Ph.D work)

Note: All Ph.D Scholars shall be required to assist teachers in taking activities/theory classes compulsorily during course work.

Ph.D. Course Work
Compulsory Paper I:
RESEARCH AND STATISTICAL METHODOLOGY

1. **Introduction to Research Methodology:** Meaning and purpose of Research; steps in Research with special emphasis on concepts like problem, Hypothesis, constructs and variables; Types of Research.
2. **Methods of Research & Design:** Experimental Method; observation method, survey methods, field studies, case studies, Research design- Meaning, usage and types.
3. **Technique of data collection & sampling: Primary Data:** Interview, observation, Questionnaire, Semantic differential, Q- Methodology, Scales tests, Sociometry; Secondary Data: data banks, review of journal, magazine, Reliabilities, suitability, internet and Adequacy of data, Sampling: Meaning & Characteristics of good sample design, methods & principles.
4. **Statistics:** Definition and types of statistics, levels of measurement, construction of frequency distribution, graphical representations: Histogram, frequency polygon, ogive, bar diagram, pie chart, Analysis of data and Report writing: Types format.
5. **Descriptive Statistics:** Measures of central tendency, measures of variability correlation and multiple regressions.
6. **Inferential Statistics:** Normal Probability curve, standard Error formulas, t-test, ANOVA, F-test, Chi Square, Z test, Non Parametric Statistics: Uses; types.

REFERENCE:

- Agarwal, J.C. (1989) Educational Research- An Introduction, New Delhi: Arya Book Depot.*
- Agrawal, B.L., Basic statistics, New Delhi: New Age Publishers.*
- Ahuja Ram (2006) Research Methods, Jaipur: Rawat Publication*
- Allen, R.G.D. (1958) Statistics for Economics, London: Allen & Unwin.*
- Anderson T.W. An Introduction to Multivariate Statistical Analysis, New Delhi:*
- Bernad Oste and Mensing R.w. (1975) Statistics in Research Ames: The Iowa State University*
- Best John W. and Kahn, James V. (2006)*
- Kothari, C.R. (1989) Research Methodology: methods and Techniques, Banglore: Wiely Eastern. Press.Wiley Eastern Publication Ltd.*
- Young, P.V., (1988) Scientific Social Surveys & Research, New Delhi: prentice Hall of India.*
- Yule, G.V. and Kendall, M.G., An Introduction to the theory of statistics.*

Ph.D. Course Work
Compulsory Paper II
REVIEW OF RELATED LITERATURE

1. Survey Of Related Literature.

Functions of the Review of Literature
Importance of Survey of Related Literature
Purposes of Survey of Related Literature
Functions of Survey of Related Literature
Advantages of Survey of Related Literature
Limitations of Survey of Related Literature
Sources of Information

2. Libraries and Research

Introduction
How to Use a Library
Library Skill
Behavioural Suggestion for Library Skill
Planning Of Library Work
Acquiring Library Work Skill
Improvement In Reading
Note Making
Getting Familiar With Certain Library Techniques
Sources Of Information
Note Book Materials
Micro Films And Microfiche

3. Computer and Research

Role of Computers in Physical Education Research.
Computers: An Introduction to MSDOS & Window Operating System.
Report Writing (Using MS Word)
Basic Steps in Computer Analysis Of Data (Using MS Excel)
Library Catalogs
Generation
Basic Steps in Computer Analysis Of Data.
Using Computers in Literature Search.
Computer Based Sources and Computer Aided Searches.
Direct Access to Reference Information (DATRIX)
Microcomputers
What Is Internet?
Supercomputing Centers
NSFNET
Electronic Lifelines
Communication is the Key
Data Communication
Tools
Useful Terminology

Ph.D. Course Work
Compulsory Paper III
EVALUATION TECHNIQUES IN PHYSICAL EDUCATION

1. **Teaching students how to take tests:**
Familiarity with the Testing Medium
Preparing for a Test
Test Wiseness
2. **Norms and Scales:**
Raw Scores and Derived Scores
Norm - Grade Norms, Age Norms, Percentage Norms, Standard Score Norms
Choice of type of scale
Criterion for Selecting Norms
3. **Anthropometric Measurements:**
Why measure body structure and composition?
Sheldon's body type classification
Girth Measurement- Chest, Upper Arm, Forearm, Thigh and Calf
Breadth Measurement- Shoulder width, Chest Width, Elbow width, Hip width and
Knee width Stature measurement- Standing Height, Sitting Height, Arm Length and Leg
Length
4. **Body Composition:**
Measuring Body Density from underwater weighing
Converting Body Density to percent body fat
Predicting Body Density by Skinfold Equations
Measuring Skinfold Fat
Computing Body Density and Percent Body Fat
Optimum Percent Body Fat & Desirable Body Weight.
Weight Loss Programme
5. **Development of Instruments for evaluating Skill and Knowledge:**
Skill Test
Rating Scale
Knowledge Test
6. **Critical Appraisal as Basis Reference Tests:**
Physical Fitness
Motor Fitness
Health related Physical Fitness
7. **Measurement of components of Motor Fitness:**
Speed, Agility, Balance, Flexibility, Strength, Endurance and Coordination
8. **Critical Appraisal of standard Skill Tests:**
Hockey, Football, Basketball, Volleyball, Badminton and Tennis

REFERENCE:

- D. Allen Phillips & James E. Hornak. Measurement & Evaluation in Physical Education*
D.K. Kansal. Test & Measurement in Sports & Physical Education
Donald K. Mathew. Measurement in Physical Education
H. Harrison Clarke. Application of Measurement to Health and Physical Education
H.M. Barrow & R. McGee. A Practical Approach to Measurement in Physical Education
Johnson & Nelson. Practical Measurement for Evaluation in Phy. Edn.

**Ph.D. Course Work
Optional Paper IV (A)
SPORT PSYCHOLOGY**

- 1. Development of Sport Psychology**
History of Sport Psychology.
Comparative Sport Psychology.
Current concern of in sport Psychology.
Professionalization of Sport Psychology.
Future of sport Psychology.
- 2. Personality**
Nature of personality.
Theories of Personality.
Methods of techniques of personality assessment.
Sports Personality research -
i) Problems with sports personality research.
ii) New directions in sports personality research.
- 3. Motivation in Sports.**
Nature of Motivation
Theories of Motivation
Achievement motivation
Motivation & It's implications for coaching & teaching.
- 4. Aggression in sport.**
Nature of aggression
Theories of aggression
Factors related to the acquisition & exhibition of aggressive sport behavior.
Aggression & Sport performance.
- 5. Imagery and Mental Practice**
Definition of the practice
Empirical research on imagery & mental practice
Theatrical explanation of mental practice effects
Current applied issues in imagery & sport
Further research direction.
- 6. Psychological load in competitive sports**
Meaning of psychological load.
Performing & mental load capacity of a sports person.
- 7. Volitional regulation in sports.**
Meaning of volitional regulation actions.
Characteristics of volitional regulated actions.
Factors affecting volitional regulated behavior.
Development of volitional qualities.
- 8. Psychology of officiating.**
Important characteristics of good official
Development of psychological skills.
Psychological preparation for officiating before the competition.

REFERENCE:

- Cratty Bryant, J.: Movement Behavior and Motor Learning. (Philadelphia: Lea and Febiger. 1973), Edn. 3).*
- Crafty Bryant, J.: Psychology and Physical Activity (New Jersey Englewood Cliffs, Prentice Hall Inc. 1965)*
- Cratty Bryant, J.: Psychology Preparation and Athletic Excellence (New York: Movement Publication Inc. 1978).*
- Kamles M.L. : Psychology of Physical Education and Sports (New Delhi Metropolitan Book Co. Pvt. Ltd. 1983).*
- Kane J.: Psychological Aspect of Physical Education and Sports (London Boston: Routledge and Kegan Paul, 1972).*

Ph.D. Course Work
Optional Paper IV (B)
EXERCISE PHYSIOLOGY

- 1. Psychological changes due to exercise and training :**
 Effect of exercise and training on various systems,
 Oxygen debt,
 second wind,
 Micro-circulation,
 Effect of exercise on carbohydrate, fat and protein metabolism.
- 2. Role of sports Medicine in the field of physical education and sports.**
- 3 Prediction and performance by lab and field testing.**
- 4. Role, Importance and construction of any national physical Fitness programme a physiological approach.**
- 5. Work and Environment**
 Work capacity under different environment conditions such as :
 Hot, Humid, Cold and High altitude.
- 6. Sports and Nutrition's**
 Physiological considerations of diet in relation to components, quantities and significance, sports and diet and diet before during and after competition.
- 7. Growth and Development :**
 Individual rate of growth and development.
 Role of heredity and environment on sports performance.
- 8. Instrumentations :**
 Various instruments/equipment used in the field of exercise physiology lab in Bio-chemical, Histological and other studies.
- 9. Sex difference and sports :**
 Exercise Aging and Cardio-vascular diseases.

REFERENCE:

- Astrand, P.O. and Rodhl, Karre: Test Book of Work Physiology Tokyo: Mcgraw-Hill Kogakusha Ltd., 1970)*
- Bourne, Geoffrey H.: The Structure and Function of Muscles London: Academic Press, 1972.*
- Guyton, Arthur C.: Test Book of Medical Physiology (Philadelphia; W. B. Saunder Company, 1976)..*
- Karpovich, P.V. and Sinning Wayne E.: Physiology of Muscular Activity (Philadelphia: W.B. Saunders Company, 1971) 7 Ih Eda*

Mathew, D.K. and Fox E.L., Physiological Basis of Physical Education
Morehouse, L.E. and Miller, A.T.: Physiology Exercise (Saint Louis: The C.V. Mosby Company, 1976) 7"
, Ed.

Ph.D. Course Work
Optional Paper IV (C)
SPORTS SOCIOLOGY

- 1. Sociology of sports:-**
Introduction, Definition of Sport & sociology, Social Perspectives, Stratification aspects
- 2. Sports and Modern Society:-**
Sport Social Differentiation and Social Inequality
- 3. Sports Group and Sports Organization**
Sport Establishment, Sport and Social Power, Social Character of the Different Sport
(a) Group leadership, composition and structure, process and performance.
(b) Organization leadership, structure and composition, process and performance.
- 4. Social Psychological of Sports:-**
Socialization Process, Violence in Sport, Self actualization, Athlete and Spectator, Sports and Politics
- 5. Sports and Regulative Institutions of Society -**
Interaction between sports and (a) Economic system (b) Politics and (c) Religion.
- 6. Trends and Issues concerning Sports in Society -**
Sports and aggression, Violence in sports, Professional sports, Women and children in sports.

REFERENCE:

- Ball Donald W. and Loy Kohn W. Sport and Social Order:- Contribution to the Sociology of Sport (London: Addison Wesley publishing Co., Inc. 1975).*
- Calhoun Donald W. Sport, Culture and personality, (Human Publishers, Inc Champaign ISSLINOIS (1987)*
- Chelladurai P. Sports Management Macro perspective (Canada Sports Dynamics 1985).*
- Grendorfer Susan L. and Yiannakis Andrew, Sociology of Sport:- Diverse perspectives (West Point, N, Y, Leisure press 1981).*
- Vanderwag Harold J. Sports Management (New York: Mac Million publishing company, 1984).*

Ph.D. Course Work
Optional Paper-IV (D)
SPORTS BIO-MECHANICS

1. **Meaning of Biomechanics.**
Bio-Mechanics in Physical Education, Sports and Research.
Distance and Displacement (Linear and Angular)
Speed and velocity (linear and Angular)
Acceleration (Linear and Angular uniform motion)
Relationship of linear and Angular motion
Newton's Laws of motion as Applicable to Linear and Angular Motion.
2. **Force: Meaning,** units of Force, effects of force, sources of force, Components and resultant, Friction Pressure.
Work, Power and Energy.
Moment of Force.
Centrifugal and Centripetal Forces
Moment of Inertia.
Levers.
Freely falling bodies, projectiles, momentum and impulse.
Stability, (Static and Dynamic), Initiating Rotation in the Air.
Equilibrium
Centre of Gravity
Spin, impact and elasticity.
Fluid Mechanics, Air resistance and water resistance.
3. **Definition, scope and importance of Kinesiology,** terminology of various types of movements, body plans, body axis, Characteristics of various joints and their movements, characteristics of Skillful performance. Basic concept of mechanical analysis of walking and running.
4. **Analysis of Fundamental Skills:**
Walking, Running, Throwing, Lifting, Pulling, Pushing, Catching and Climbing.
5. **Analysis of skills of the following games/sports:**
Athletic, Gymnastics, Swimming, Football, Hockey, Basketball, Cricket and Volley ball.

REFERENCE:

- Barrow, Marian, M. : Efficiency of Human Movements, Philadelphia W.B. Saunders, 1960*
- Bunn. John W.: Scientific Principles of Coaching, Englewood Cliffs N.J: Prentice Hall, 1972*
- Hay James, G. : The Bio- Mechanics of Sports Techniques, Englewood Cliffs, N.J. Prentice Hall Inc., 1988.*
- Hay, James G. and Reid J. Gavind: Anatomy, Mechanics and Human Motion, Englewood Cliffs, N.J. Prentice Hall Inc., 1988.*
- Rosche, P.J. Burk : Kinesiology and Applicant Anatomy, Lea and Febiger 1967.*
- Scott. M.G. : Analysis of Human Motion, 2nd edition.*
- Simonian Charles : Fundamentals of sports Bio-Mechanics, Englewood Cliffs, N.J. Prentice Hall Inc., 1911.*
- Wells and Luttgens : Kinesiology*

**Ph.D. Course Work
Optional Paper -IV (E)
SPORTS TRAINING**

1. **a) TECHNIQUE:**
Definition of skill, Technique and Technical training.
Characteristics of Technique.
Phases of skill acquisition.
Methods of technique Training.
Causes and correction of faults.
b) TACTICS:
Definition of tactics and strategy.
Basic Tactical Concepts- Offensive, Defensive and high performance.
Methods of Tactical Training.
Control of Tactical Knowledge.
2. **a) PLANNING AND ORGANISATION OF TRAINING:**
Important of Planning.
Principles of Planning.
Systems of Planning.
Periodisation and its types.
Contents for various periods of training.
b) COMPETITION PLANNING AND PREPARATION:
Importance of Competitions.
Competition Frequency.
Main and build-up Competition.
Direct preparation for an important competition.
3. **EVALUATION OF TRAINING:**
Items to be included in evaluation programme.
Uses of Graphs and principles of graphical representation.
Forms of diagrams used for evaluation checking progress.

REFERENCES:

- Cratty, J. Brayant Perceptual and Motor Development in Infants and children (N.J.: Englewood Cliffs, Prentice Hall, Inc. 1979).*
- Dick W. Frank, sports Training Principles (London: Lepus Books, 1980).*
- Harre, Dietrich, Principles of sports Training (Berlin: Sporulated, 1982).*
- Jensen, R. Clayne, and Fisher A.G. Scientific Basis of Athletic conditioning (Philadelphia: Lea and Fibiger 1979), 2nd Edn.*
- Matvyew, L.P. Fundamental of sports Training (Moscow: Progress Publishers, 1981).*
- Singh, H. Sports Training, General Theory and methods (Patiala: NSNIS, 1984).*

Ph.D. Course Work
Optional Paper -IV (F)
MANAGEMENT OF PHYSICAL EDUCATION

1. Historical Evolution of Management.
2. Overview of Leadership, Management and Administration in physical Education and Sports.
 - (a) The Nature of Leadership, management and Administration. The Unified Concept of Management.
 - (b) The Purpose, Scope of Managing Physical Education, Fitness and Sports Programmes.
 - (c) The Effective Leader and Director.
3. Basic Skills/Functions in the Process of Management.
 - (a) Making wise Decisions.
 - (b) Communicating Effectively.
 - (c) Managing Time and Setting Priority.
 - (d) Planning for the Activity Based Programme.
 - (e) Organising for the Activity Based Programme.
 - (f) Controlling the Activity Based Programmes.
 - (g) Delegation of Duty in the Activity Based Programmes.
 - (h) Staffing and Leading Personnel in Activity Based programmes.
4. Fundamentals of Organisational Behaviour -
 - (a) Foundation of a Behavioural Approach to work.
 - (b) The Individual and work Environment.
 - (c) The Human Behaviour and the Climate of the work Environment.
 - (d) Understanding Motivated Behaviour - Human needs and Motivation, Goal Setting and Reinforcement, Counselling and reward System.
 - (e) Leadership and the Human Behaviour in the work Environment - Leadership Style, Participative Management, Real and Imagined Leadership and Effective, Group Performance.
 - (f) Unions and Labour Relations.
5. Training of Administrators.
 - (a) Training of Administrator / Manager for better performance - Competency, Based Approach.
 - (b) Analysis Administrator Performance Problems.
 - (c) How to Develop Behaviour - and How to Stop Problematic Behaviour - Punishment
6. Philosophy, personality and an Administrator / Manager.
7. Principles, policies and Standard Practices of Management.
8. Office management.
9. Class management and Management of Teaching Staff.
10. Managing Sports Facilities - Designing and Planning Sports Facilities, Sports Facility Specifications, Standards and Structures.
11. Management of Sports Equipment - Selection, Purchase, Maintenance and security.
12. Financial Management in Physical Education and Sports.
13. Risk Management in Sports.

14. Legal Aspects of Physical Education and Administration in Sports.
15. Community Involvement and Public Relation.
16. Stress, Burnout and Conflicts in Management of Physical Education and Sports.
17. Management of Recreation and Leisure Services.

REFERENCE :

- Allen, Louis A. Management Kland organization. (New York : McGraw Hill Book Company, Inc., 1958).*
- Browie, Gary W. and Zeigler, F.E. Management Competency Development in Sports and Physical Education (Philadelphia : Lea and Febiger, 1983).*
- Bucher, Charles A. Administration of Physical Education and Athletic Programs. (London : The C.V. Mosby Company, 1983), 8th Ed.*
- Connellan, Thomas K. How to Improve Human Performance. (New York : Harper & Row Publishers, 1978).*
- Davis, Keith, Human Behaviour at Work, (New Delhi : Tata Mc Graw - Hill Publishing Company Ltd., 1981), 6th Ed.*
- Francis, James G. and Milbourn, Gene Jr. Human Behaviour in the work Environment, (Colifornia : Goodyear Publishing Company, Inc. 1980).*
- Frost, B. and Lockhart, B.D. Marshall Stanley, J. Adminstration of Physical Education and Athletics - Concept and Practices (New Delhi : Universal Book Stall, 1992) 2nd Ed.*
- Horine, Larry, Administration of Physical Education and Sports Programme, (Boulevard : Won C. Brown Publishers, 1991), 2nd Ed.*
- Marler, C. and Cowling Alan. Manging Human Resources. (London : Edward Arnold Advision of Holder and Stoughton 1990), 2nd Ed.*
- Railey, Jim H. and Tschauner, Peggy Railey, Managing Physical Education Fitness and Sports Performances. (London : Mayfill Publishing Company, 1988) 2nd Ed.*
- Whiteside, Lynn. W. Effective Management Techniques for getting Things Done. (Delhi : Vikas Publication 1971.)*
