

MANGALORE UNIVERSITY
DEPARTMENT OF PG STUDIES AND RESEARCH IN PHYSICAL EDUCATION

SYLLABUS FOR Ph.D. COURSE

SUBJECT: PHYSICAL EDUCATION

PAPER I- RESEARCH PROCESS AND STATISTICAL TECHNIQUES IN PHYSICAL EDUCATION AND SPORTS

Unit I

Meaning and definition of research, types of research, nature, scope and need for research in Physical Education and Sports. Formation and development of Research problem, location and selection of research problem.

Unit II

Research Tools, sampling and Hypothesis. Methods of collecting data, design and construction of questionnaires. Population sample and sampling. Selecting a sample and size of the sample. Formulation of Hypothesis. Meaning and purpose of research design.

Unit III

Research proposal – Nature and need of research proposal, basic steps involved in the preparation of a proposal. The detailed format of a Research Proposal.

Unit IV

Preparation of a Research report, technical aspects of the research report. Mechanics of writing.

Unit V

Statistics

Measures of central tendency and variability descriptive and inferential statistics.

Unit VI

Testing of Hypothesis – comparing two groups – ‘t’ test – type I and II errors- Chi-square, ‘f’ ratio. Analysis of variance – need for analysis of variance – one way and two way analysis of variance. Analysis of co-variance.

Reference Books:

1. Best John W. Research in Education, Engle Wood Cliffs, NJ: Prentice Hall Inc. 1963
2. Clarke, David H. and Clark H. Harrison. Research in Education, Engle Wood Cliffs, NJ: Prentice Hall Inc. 1984.
3. Hayman John L. Research in Education, Columbus, Ohio: Charles E. Merrill Publishing Co. 1968.
4. Mouly George J. The Science of Educational Research, New Delhi, Eurasia Publishing House (Pvt.) 1963.
5. Garret Harry E and Woodworth R.S. Statistics in Psychology and Education Bombay, Allied syeafia Pvt. Ltd. 1958
6. Guliford J.P.: Fundamental Statistics in Psychology and Education, New York, Mc Graw Hill Book Co. Inc 1956
7. Rosentein, Annie L Research Design and Statistics for Physical Education. Englewood Cliffs, N.J. Prentice hall Inc. 1985.
8. Steel, Robert G.D. and James H. Torrci: Principles and procedures of Statistics, London: MC Graw Hill Book Co. Inc.

PAPER II- THEORETICAL FOUNDATIONS OF PHYSICAL EDUCATION AND SPORTS

UNIT I:

History of Physical Education & Sports

Origin and Development of Ancient and Modern Olympics. Physical Education in Europe Countries. Physical Education in Ancient India. Influence of Great Britain and U.S.A., Y.M.C.A. and its contributions. Teacher's Training Institute in Physical Education in India.

Nature and Scope of Physical Education & Sport, Meaning and Philosophy, Objectives, Role in Society and Education, Historical Foundations.

UNIT II:

Managerial Aspects of Sports:

Sports Management: Meaning, Objectives, Functions and Skills of Management, Basic Concept of Management, Planning, Organizing, - Staffing, Directing and Controlling.

Finance Management- Planning the Budget, Allocation of Funds, Expenditure, Accounts and Auditing, Control and Evaluation.

UNIT III:

Physiological Foundations:

Microscopic structure of muscle and Sliding Filament theory, Muscle Fiber types. Response of Cardiac output of exercise, Respiratory system and exercise, Minute Ventilation and response to exercise. Oxygen Dissociation curve, Coefficient of Oxygen utilization, VO₂ max.

UNIT IV:

Biomechanical Foundations:

Newtons Laws of Motion as applied to linear and Angular Motion. Stability and factors affecting stability. Levers. Friction. Projectile Motion, Aerodynamics and principles of aerodynamics. Water resistance and performance.

UNIT V:

Psychological Foundations:

Meaning and definition of Sports Psychology, Need and Importance of Sports Psychology. Recent development in Sports Psychology.

Coaching through conflict; Effective communication strategies. Internal team conflict, conflict management, Effective mediation strategies.

UNIT VI:

Sociological Foundations of Physical Education & Sports:

Sport and Indian Culture. Nature and Scope of Sport. Goals of Sports Sociology, Characteristics of sport, Sports in the educational institutions, Women's sports.

PAPER III- RECENT DEVELOPMENT IN PHYSICAL EDUCATION & SPORTS

UNIT I:
Sports Management:
Career and Professional Development in Physical Education and Sports: Career opportunities, Transferable Skills, Leadership, Leadership qualities.

UNIT II:
Sports Psychology:
Meaning and definition Interaction-and Sports performance. Meaning of Imagery, Imagery techniques. performance. Imagery and Sports performance. Measurement of Psychological skills.

UNIT III:
Sports Physiology and Biomechanics:
Exercise Physiology
Cardiovascular Control During Exercise
Respiratory Regulation During Exercise
Cardiorespiratory Adaptations to Training
Thermal Regulation and Exercise
Nutrition and Nutritional Ergogenics
Sex Differences and the Female Athlete
Prescription of Exercise for Health and Fitness
Biomechanics
Linear Kinematics - Distance and displacement, Speed and Velocity, Acceleration and uniform motion, Vector and Scalar Quantities, Units of linear kinematics
Angular Kinematics - Angular distance and angular displacement, Angular speed and angular velocity, Angular acceleration, Radius of movement, Units of angular kinematics
Linear Kinetics-Inertia, Mass, Weight, Power, Review of Force, Newton's first law of motion
Newton's second law of motion - Force-acceleration relationship, Force-time relationship, Impulse and momentum, The relationship between force, inertia, and linear acceleration
Newton's third law of motion
Conservation of momentum
Frictional Forces, Starting and stopping friction, Sliding friction, Rolling friction
Work and Energy - Kinetic Energy, Strain Energy, Potential Energy
Angular Kinetics-Eccentric, parallel and concurrent forces, Torque, The lever system - Functions, Classifications
Analogues to Newton's three laws of motion
Transfer of momentum
Fluid Mechanics
Static considerations: buoyancy and flotation
Dynamic considerations: resistance and propulsion
Drag forces
Lift forces
Magnus effect

Observing and Analyzing Human Movement
How to break down skills, analyzing movement for proper technique, basic gait analysis (walking and running), overhand and sport techniques, proper training techniques
Technology in Biomechanics
Motion capture systems, force platforms, electromyography, balance equipment, other equipment

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Sports Management:

Career and Professional Development in Physical Education and Sports: Career opportunities, Transferable Skills, Leadership, Leadership qualities.

UNIT II:

Sports Psychology:

Meaning and definition Interaction-and Sportsmanship. Sports and its effect on sports performance. Imagery and Sports performance. Meaning of Imagery, Imagery techniques. Measurement of Psychological skills.

UNIT III:

Sports Physiology and Biomechanics:

Exercise Physiology

Cardiovascular Control During Exercise

Respiratory Regulation During Exercise

Cardiorespiratory Adaptations to Training

Thermal Regulation and Exercise

Nutrition and Nutritional Ergogenics

Sex Differences and the Female Athlete

Prescription of Exercise for Health and Fitness

Biomechanics

Linear Kinematics - Distance and displacement, Speed and Velocity, Acceleration and uniform motion, Vector and Scalar Quantities, Units of linear kinematics

Angular Kinematics - Angular distance and angular displacement, Angular speed and angular velocity, Angular acceleration, Radius of movement, Units of angular kinematics

Linear Kinetics-Inertia, Mass, Weight, Power, Review of Force, Newton's first law of motion

Newton's second law of motion - Force-acceleration relationship, Force-time relationship,

Impulse and momentum, The relationship between force, inertia, and linear acceleration

Newton's third law of motion

Conservation of momentum

Frictional Forces, Starting and stopping friction, Sliding friction, Rolling friction

Work and Energy - Kinetic Energy, Strain Energy, Potential Energy

Angular Kinetics-Eccentric, parallel and concurrent forces, Torque, The lever system -

Functions, Classifications

Analogues to Newton's three laws of motion

Transfer of momentum

Fluid Mechanics

Static considerations: buoyancy and flotation

Dynamic considerations: resistance and propulsion

Drag forces

Lift forces

Magnus effect

Observing and Analyzing Human Movement

How to break down skills, analyzing movement for proper technique, basic gait analysis (walking and running), overhand sport techniques, proper training techniques

Technology in Biomechanics

Motion capture systems, force platforms, electromyography, balance equipment, other equipment

UNIT IV:

Sports Training:

Basic concepts of sports training-Meaning, Classification of sports disciplines, Methods of training, types of exercises, factors affecting the ability to train and compete.

Principles of sports training- Conscious involvement, sensualisation, individualization and Accessibility, Gradual increase of loads, specialization, providing a general and versatile foundation, specialization of general preparation, continuity and systematicness, cyclic character of the training process, Economy of effort.

Cycles in sports training-Structure and types of microcycle, mesocycle and macrocycle
Recovery and Means of recovery

Developing physical abilities-Methods, Preparation, injury prevention and general and sport specific development of Strength, Speed, Endurance, Coordination, Agility, Flexibility

Technical and tactical training-General and Directed training, Sport specific training

Development of Mental toughness-General and sport specific psychological training.

Planning and Control of Training-Long term planning – Annual training plans

Control of training process – Principles, Flaws of control, training effects and control, overtraining, control of planned loads in different cycles.

UNIT V:

Evaluation in Physical Education & Sports:

Measurement and Research. Kinesthetic Perception Measurement. Growth and nutritional status measurement. Practical Measurement of Social factors. Computer Analysis of data.

UNIT VI:

Sports Sociology: Sports as a social institution, Relationship of sports with other social institutions, Effects of Commercialization of sports, Status and Income of Sportsmen in Commercial sports, Women in Sports, Sports Competition as preparation for life, Socio metric evaluation process.



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