

2014-15 onwards

Ph.D Syllabus [with M.Phil]

SEMESTER- I

Course-I: RESEARCH METHODOLOGY, STATISTICS AND PEDAGOGY

Objectives:-

The scholar

- **Acquires knowledge of different aspects of Physical Education research**
- **Understand the types and techniques used in Physical Education research**
- **Develop the skills of preparing the research proposal, Hypotheses and research report.**
- **Understand and learn the method of computing statistics and use of SPSS packages**

UNIT – I

Meaning and scope of research in Physical Education- Characteristics of scientific research- Types of research – Hypothesis: Meaning and significance of hypothesis, Types of hypothesis, formulation of hypothesis- Locating the problem – criteria for selection of problem . Areas of research in Physical Education – Methods of data collection – Collection of primary data – Collection of data through questionnaires – Schedules – Guidelines for constructing questionnaires/ Schedules.

UNIT – II

Meaning and purpose of research design and experimental design – Different experimental designs and applicable statistical procedure – Control of experimental factors – Research proposal: nature and need of research proposal, basic steps involved in the preparation of a research proposal – Research report – Differences between abstract, research proposal and research report- format of research report – use of computer for research – Establishing a research laboratory.

UNIT – III

Comparing two groups: Independent “t” ratio, dependent “t” ratio, type I and II errors – one tail and two tail tests – Analysis of variance: need for analysis of variance, standard deviation of combined samples, one-way analysis of variance – post-hoc test of significance- Two-way analysis of variance – Repeated measure analysis of variance – Analysis of covariance: need for analysis of covariance, application of analysis of covariance.

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UNIT – IV

Correlation - Meaning:- co-efficient of correlation – Computation of Product moment correlation- Chi-square – rank difference methods of correlation- Biserial correlation- Tetrachoric correlation – Partial correlation: meaning of partial correlation, first order partial correlation computation, partial standard deviation- Multiple correlations: meaning, computation of multiple correlation- Prediction: Meaning of prediction, two variable regression equations, multiple regression equations- Application of statistical package with special reference to SPSS.

UNIT – V

Objectives and role of higher education- Quality teaching and learning – Characteristics of instructional design – Methods of teaching and Learning – (a) Large group techniques – Lecture, Seminar, Team teaching, Symposium, Project. (b) Small group design- simulation, role play demonstration, Brain storming, case demonstration and assignment. (c) e-learning and teaching, web based learning – Methods of evaluation- Self evaluation, Student evaluation- Diagnosis and remedial teaching- Question banking.

REFERENCES:

1. David H Clarke and Clarke H. Harrison (1984). "Research Process in Physical Education".
2. Baumgartner, T.A, and Strong, C.H (1994). "Conducting and Reading Research in Health and Human Performance". New York: Brown and Benchmark
3. Kothari, C.R.(1993). Research Methodology Methods and Techniques", New Delhi: Wiley Eastern Limited.
4. Anne Rothstein (1985). "Research Design and Statistics for Physical Education". New Jersey.
5. Vedanayagam, E.G (1989) "Teaching Technology for College Teachers". New Delhi: Sterling Publishers (p) Ltd.
6. Rajasekar. S (2005) "Computer Education and Educational Computing". Hyderabad: Neelkamal Publications.
7. Kumar K.L. (1997) "Educational Technologies", New Delhi: New age International.

Ph.D Syllabus [with M.Phil]

SEMESTER- II

Course – II : FIELD OF SPECIALIZATION [Any One]

A. TRAINING METHODS

Objectives:-

The scholar

- Acquires knowledge of different types of Sports Training
- Understand the types and techniques used in Sports Training
- Develop the skills of preparing the Training and Sports coaching program
- Understand and learn the method of testing procedure

SYLLABUS

UNIT – I

Basic principles of training - Physical fitness components, Strength:– Types of strength, static muscular activity, dynamic muscular activity – eccentric muscular activity, concentric muscular activity. Strength development training – General exercises, special exercises - Competition specific strength and endurance - Unit construction for strength development.

UNIT – II

Speed:- Definition of speed – Factors influencing speed – Speed Barrier – Components of load-Training for speed development – Intensity, extent(frequency), and density - Unit construction for speed. Endurance:– Groups of endurance – Types of endurance - short term, medium term and long term endurance - factors to be considered for endurance training - duration, repetition, competition and testing.

UNIT – III

Mobility:– Definition, classification, factors influencing mobility, role of mobility, training to develop mobility, mobility unit construction. Periodisation:– Meaning, single periodation, double periodation - Different periods:– Preparatory period, competition period, transition periods - Meaning of the term units - micro cycles, meso cycle and macro cycle.

UNIT – IV

Effect of drugs – Alcohol, Caffeine, Smoking and performance. Blood doping, anabolic steroid, drug abuse in athletics. Effect of climatic changes – High altitude training for long distance runner. Effect of aerobic endurance training on heart rate, heart size, blood pressure, blood distribution, lung volume, respiratory rate, maximal oxygen uptake and lactic acid.

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UNIT – V

Testing processes – Strength, Speed, Endurance, agility, Flexibility, Vital capacity. Percentage of body fat, VO_2 max. Tools:- Spirometer, sphygmomanometer, grip dynamometer, Leg dynamometer, install pulse apparatus, bio-monitor, flexometer, skin fold caliper, treadmill.

REFERENCE:

1. Frank W.Dick sports Training Principles. London:Lepus Book Co., 1980.
 2. Frances wakefield, Berothy Harikins and John M.Cooper, Make and Field Fundamentals for Girls and Women. London C.V. Mosby Co., 1970.
 3. Larry G. Shaver, Essentials of Exercise Physiology, Surjeet Publication, Delhi.
 4. Ramesh Bharadwaj; Drug Abuse in Sports. Publisher, Sports Publications, Bandermotram Press, Delhi 2011.
 5. Rob Steamaker and RAY Browing, Serious training for Endurance Athletes, 2nd Edition, 1989, USA.
 6. Hardajal Singh, Science of Sports Training, (New Delhi, D.V.S Publications, 1991)
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Course – II : FIELD OF SPECIALIZATION

B. SPORTS PSYCHOLOGY

Objectives:-

The scholar

- **Acquires knowledge and importance of Sports Psychology**
- **Understand the types and techniques used in accessing personality**
- **Develop the skills of Psychological Training**
- **Understand and learn the method of testing procedure of psychology traits.**

SYLLABUS

UNIT – I :

Meaning and definition of sports Psychology. Perceptual motor learning – The retention of motor skills – Transfer of skills - attention and its role in learning motor skills.

UNIT – II:

Nature of personality – Dimensions of Personality - Assessment of personality – The issue of heredity in personality – Factors affecting Personality - Personality traits of sportsmen – Personality of coach.

UNIT – III:

Theories of motivation – Achievement motivation – Motivation and participation in Physical activity – motivation and sports performance - level of aspiration and achievement - Method of assessing aspiration.

UNIT – IV:

Sports performance in groups – Team cohesion - sociometry in sport – Leadership in sports – Sports audience – Effect of sport audience on performance. Activation in sport – Method of assessing activation level of athletes.

UNIT – V :

Psychological characteristics of players during pre, during and post competition. Mental training – Psychological preparation of superior athletes. Psychodynamics in sports. Autogenic training.

REFERENCE:

1. Vanko Mirolave: Bryant Cratty J. Psychology and the Superior Athlete, The Macmillan Co., London 1984.
 2. Cratty Sryant, J. Psychology in contemporary sports, Englewood Cliffs, Prentics – Hall, Inc New Jersey, 1983.
 3. Cratty Bryant J. Movement Behaviour and motor learning Philadelphia, Lea and Febiger (USA) 1992.
 4. Cratty Bryant, Psychological and sociological basis of Physical activity, Englewood Cliffs, New Jersey, Prentice Hall Inc. 1994.
 5. Singer Robert N. Motor Learning and Human Performance. New York, Macmillan Publishing company, Inc.1995.
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Course – II : FIELD OF SPECIALIZATION

C. MEASUREMENT AND EVALUATION

Objectives:-

The scholar

- **Acquires knowledge and importance of Test and Measurement**
- **Understand the types and techniques used in accessing fitness**
- **Develop the skills of constructing the test**
- **Understand and learn the method of administration the test.**

SYLLABUS

UNIT - I

Need for tests – Criteria of test selection – Classification of tests – Construction of knowledge and skill tests.

UNIT - II

Motor and Health related fitness tests – Circulatory and respiratory endurance tests – Body dimensions and physique, posture appraisal – Centre of gravity tests – Flexibility tests – Kraus-Weber muscular fitness tests – Roger's strength and physical fitness indices.

UNIT - III

Motor ability and educability tests: Mecloy's – Larson's – Newton's – J.C.R. – Barrow motor ability tests – Johnson and Metheny – Johnson Motor Educability Tests.

UNIT - IV

Skill tests: Basketball-Badminton-Football-Volleyball-Hockey - Tennis.

UNIT - V

Administration of tests, suggestions for administering tests – testing personnel – Time for testing – Test records - Preparation of reports – Construction of tables and Graphic exhibits – purposes of reporting.

REFERENCE:

1. Bosco, James S. Measurement and evaluation in Physical Education, Fitness and Sports. New Jersey: Prentice Hall Inc.1983
 2. Clarke H. Harrison, Application of measurement to health and Physical Education. New Jersey: Prentice Hall Inc., 1976.
 3. Mathews, Donald K. Measurement in Physical Education. London: W.B. Saunders Co., 1958.
 4. Harold M. Borrow, Rosemary McGee Kothleen A. Tritschler, Practical Measurement in Physical Education and Sports IVth Ed, Febiger, 1989, U.S.A.
 5. Irene Polmer, Tests and Measurements, A workbook in Health and Physical Education, New York A.S. Barnes and Company, 1932.
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Course – II : FIELD OF SPECIALIZATION

D. EXERCISE PHYSIOLOGY

Objectives:-

The scholar

- Acquires knowledge and importance of Exercise Physiology
- Understand the types and techniques used in accessing Physiological variables
- Develop the skills of using equipments to evaluate physiological character
- Understand and learn the growth and development, environmental effects.

SYLLABUS

UNIT – I

Structure and function of skeletal muscles:- Skeletal muscle and exercise – Types of contraction – Sliding filament theory - muscular theory of contraction – Heat production in muscle, types of muscle. Growth and development – Physical performance of young athletes. Training the young athletes - ageing - Body composition and ageing – Environmental stress and ageing. Sex differences in body size and composition – Athletic ability – Physiological adaptation to exercise and training – Special consideration for female athletes.

UNIT – II

Qualifying sports training and optimal body weight for performance – Excessive training – Over training – Detraining – Retraining. Nutrition: Nutrition classification– Water and electrolyte balance – Sports diet – drinks. Ergogenic aids – Pharmacological agents and hormonal agents – Physiological agents.

UNIT - III

Structure and functions of cardiovascular system and effect of exercise on pulmonary ventilation and energy metabolism – Factors affecting the aerobic training. Evaluating endurance capacity – Cardiovascular, Respiratory, Metabolic adaptations to training.

UNIT - IV

Exercise : Oxygen debt – Second Wind – lactic acid formation – Lactate threshold – Energy system - Aerobic and Anaerobic metabolism – Types of Muscular contraction – Muscular adaptation to exercise – Chemical composition of Muscles.

UNIT – V

Work capacity under different environmental conditions under hot, humid, cold, high altitude – Energy costs of various sports activities – Anaerobic metabolism – Aerobic metabolism – Energy release. Measurement Evaluation: Assessment of

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Max-VO₂ using Treadmill bicycle ergometer and Spirometers – Assessment of power using Margaria Kalamann tests - Reaction time, movement time, Systolic and diastolic blood pressure. Mean pressure, Pulse rate – Finger dexterity - Steadiness test - assessing body composition.

REFERENCE:

1. Clark David H. Exercise Physiology, Prentice Hall, Inc. Englewood Cliffs, N.J. 1975 (Test Book)
2. Guyton A.C. Test Book of Mechanical Physiology, W.S. Saunders Co., Philadelphia, 1976.
3. Devrise H.A. Physiology of Exercise for Physical Education Athletics staples press, London, 1976.
4. Bourne G.H. The Structure & Function of Muscle Academic London, 1972.
5. Morehouse L.E. & Millar A.T. Physiology of Exercise, C.V. Henry Co., Saint Louis, 1976.
6. Astrand & K. Rodahl – Text Book of work Physiology, McGraw Hill Kogakusha Ltd., 1970.
7. Mathews K.K. & Fox E.L. Physiological basis of Physical Education and Athletics W.B. Savinle & Co., Philadelphia, 1976.

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