REGULATIONS, RULES SCHEME OF EXAMINATION AND SYLLABUS

COURSE WORK PAPER FOR

Ph.D. PROGRAMME

2022-2023

PONDICHERRY UNIVERSITY

DEPARTMENT OF PHYSICAL EDUCATION AND SPORTS

PRE Ph.D. PROGRAMME

REGULATION SCHEME OF EXAMINATION AND SYALLABUS

I DURATION OF THE COURSE

The duration of the Ph.D degree course shall be for a period of three years.

II ELEGIBILITY FOR ADMISSION:

For admission to the Ph.D. degree course the candidate shall fulfill the following condition:-

i) A candidate shall have passed (minimum 50%) the Master's Degree in Physical Education i.e. M.P.E.S. or M.P.E.d. or M.P.E or any other equivalent examination recognized by the Pondicherry University.
ii) Should be physically fit for daily heavy load of physical activities.

The candidates should not have any physical deformity or mental disability which prevents him/her from activity participating in physical Education programmes.

III ADMISSION CRITERIA

The candidate shall be selected for admission to Pre-Ph.D. from the rank list prepared on the basis of entrance examination:

i) Maximum Marks in Written Examination 100 Marks

Written examination comprise of objective type of question (i.e. Multiple choice question) from the following subjects covered in the Master of Physical Education degree course.

SUBJECTS

Research Methodology and Advanced Statistics

Exercise Physiology
Tests, Measurements and Evaluation
Training Methods
Sports Medicine
Sports Psychology
Bio- Mechanics and Kinesiology
Applied Yoga

PONDICHERRY UNIVERSITY

DEPARTMENT OF PHYSICAL EDUCATION AND SPORTS

COURSE: DOCTOR OF PHILOSOPHY (Ph.D.)
(Syllabus approved from Academic year 2020-2021 onwards)

1. INDEX

IV COURSE OF STUDY

PART – I Theory

PART – II Optional paper

PART – I THEORY PAPERS FOR FIRST SEMESTER

Paper – I DPES 900 Research Methodology & Advanced Statistics

PART – II OPTIONAL PAPERS

(SELECT ANY ONE)

DPES 901 Exercise Physiology
DPES 902 Tests, Measurements and Evaluation
DPES 903 Training Methods
DPES 904 Sports Medicine
DPES 905 Sports Psychology
DPES 906 Bio- Mechanics and Kinesiology

V ATTENDENCE

A candidate should have minimum 90% of attendance in each of the subjects to appear for the University examinations.

SCHEME OF EXAMINATION:

PAPER	**COURSE TITLE**	**COURSE CODE**
I	Research Methodology & Advanced Statistics	DPES 900
OPTIONAL PAPER (Select any one)		
II	Exercise Physiology	DPES 901
	Tests, Measurements and Evaluation	DPES 902
	Training Methods	DPES 903
	Sports Medicine	DPES 904
	Sports Psychology	DPES 905
	Bio- Mechanics and Kinesiology	DPES 906
	Applied Yoga	DPES 907

The candidates must secure a minimum of 50% marks in internal, as in the University examination to qualify for the Pre- Ph.D. programme.

Internal marks shall be awarded on the basis of the performance in the internal examination conducted by the respective faculty member – assignments, attendance and aptitude of the students. A candidate must secure at least 20 marks in each paper.

VI MEDIUM OF INSTRUCTION

The medium of instruction and examination shall be in English only.

VII PROMOTION AND PASS

A candidate who secures not less than 50% marks in each of theory paper (including dissertation) shall be declared to have passed the Pre – Ph.D. degree examination.

A candidate who fails in any paper shall be eligible to appear for the examination along with the subsequent main examination.

There is no provision for improvement in any paper. The marks secured by the candidates in the final examination shall be considered for proceed Ph.D. programme.

SUBMISSION OF DATE

The date for the Submission of the Dissertation in the department shall be dully certified that it has been prepared under the guidance of the guide. Five typed written copies of the dissertation of the dissertation should be submitted. The Guide has to submit a panel of three examiners along with a letter addressed of Examinations through proper channel. The Head of the Department will forward the dissertation and the panel of examiners to the controller of Examinations.

Paper I- DPES 900 – RESEARCH METHODOLOGY & ADVANCED STATISTICS

UNIT – I Meaning, Nature and Scope of Research, Importance of Research in Physical Education and Sports. Characteristics of Research and Researchers. Types of Research – Basic, Applied and Action research. Criteria and Locate a problem. Meaning and Significance of Hypothesis and its types. Recent trends in Physical Education Research.

UNIT – II Descriptive Studies – Survey, Questionnaire and Interview Techniques, Case studies and Profiles. Experimental designs – Experimental Methods – Control of Experimental Factors. Variables, Sampling, Establishing a Research Laboratory. Search of literature from various sources.

UNIT – III Format of writing a Research Thesis Report. Abstract, Research Proposal and Synopsis. Method of writing abstract and full paper for presenting in a conferenceand to publish in journals. Chapterization and thesis format. Use of computers in research.

UNIT – IV Definition of statistics – Need and importance of Statistics in Physical Education. Statistical concepts – Data – Grouped and Ungrouped data. Normal curve – scales. Testing of hypothesis – Level of significance – Type I and type II error – Parametric statistics “t” ratio. Analysis of variance (One way & Two way ANOVA) –Meaning, purpose, calculation and advantages of analysis of covariance – Post hoctest.

UNIT – V Product Movement Correlation, Rank order correlation – Biserial Correlation – Partial and Multiple Correlation and Phi coefficient. Predication and Wherry

dolittle method – Chi square, Contingency coefficient. Non-Parametric statistics – sign test – Mann Whitney U test – Kruskal Wallis H test. SPSS package.

REFERENCE BOOKS:

1. John W.Best, **Research Education**, 4th Ed. (New Delhi: Prentice Hall of India,1981).
2. M.L.Kamlesh, **Methodology of Research in Physical Education**, (New Delhi: Metropolitan, 1994).
3. R.H. Whitney, **Techiques of Research**.
4. David H. Clarke and Harison H., Clarke, **Research Process in Physical Education**, 2nd Ed. (Eglewood cliffs New Jersey Prentilce Hall Inc., 1984).
5. Good, Bar, Gates, **Research in Education.**
6. Veit Richard, **Research – The Student's Guide** (New York: Macmillan Publishing Co., 1980).
7. Sadhu A.N. Sigh Amarjith, **Research Methodology in Social Science**, 4th Ed. (Bombay Himlaya Publishing House, 1988).
8. Ferguson, George A. **Statistical Analysis in Psychology and Education**, 5th Ed. (Singapore: Mc Graw-Hill International Book Co., 1985).
9. Walpole. Ronald E. **Introduction to Stattistics**, 3rd Ed. (New York: Mac-Millan Publishing Co., Inc. York, 1982).
10. Mendenhal, Ott Understanding Statistics, 2nd Ed. (Belmont, California Woods worth Publishing Co., Inc.1976).
11. Garrett, Henary E. and Woods worth R.S. **Statistics in Psychology and Education**, (Bombay: Vakils, Feffer and Simons Ltd., India, 1981).
12. Steel Robers, G., Dr. and Torrid, James A., **Principles and Procedures and Statistics**, (New YorkL Mc Graw Hill Book Co., 1960).
13. H. Harrison, Clarks and David H. Clarke, **Advanced Statistics with Application to Physical Education**, (Englewood Cliffs, New Jersey: Prentice Hall Inc., 1972).

Paper II - DPES 901 EXERCISE PHYSIOLOGY

UNIT – I Structure and functions of Muscles: Classification of muscles, structure of muscles tissues, Hypertrophy of muscles in relation to Physical activity. Neuron, Motor units, Neuro muscular co ordination, Bio-electric potential.

UNIT- II Bio-Energies: Fuel for muscular work, energy for muscular contraction, aerobics and anaerobic systems. Inter-relationship of aerobic and anaerobic system with special reference to different activities. Anaerobic Threshold training.

UNIT- III Sports Ergonomics : Work capacity under different environmental condition - hot,cold and high altitude. Sports Nutrition: Physiological consideration of diet in relation to components, quantities and significance. Sports and diet, diet before during and after competition – Glycogen boosting - Caloric calculator, Determination of energy cost of various Sports activities.

UNIT – IV Effect of smoking, drinking, drugs and athletic performance, Dope testing. Aging and Exercise, basic principles and guidelines for construction of cardio – respiratory endurance exercise for the aged. Sex difference and Sports. Functional test, E.M.G., E.C.G., Eco graph, treadmill, bicycle Ergo meter, peak flow meter.

UNIT- V Physiological changes due to exercise and training: Obesity and Weight control. Acid balance rest and exercise. Characters and mechanism of hormonal action. Hormonal response to exercise and training. Motor development of various steps.

REFERENCE BOOKS:

1. Astrance, P.O., and K. Rodhal, **Text Book of Work Physiology**, (New York: Mc Graw Hill Book Co.,)
2. Berger, A.R., **Applied Exercise Physiology** (Philadelphia: Lea and Febiger).
3. Clarke, David H, **Exercise Physiology** (Engle wood Cliffs, New Jersey: Prentice Hall Inc.)
4. Curtain T.K., **Physiology of Exercise Programme on Adults** (Spring field: Charles C. Thomas Publishers).
5. De. Vriv., H.A., **Physiology of Exercise for Physical Education and Athletic**, (London: Staples Press, 1976).
6. Karpovich P.V and siuning W.F., **Physiology of muscular activity**.
7. **Shaver L.G., Essential of Exercise Physiology** (New Delhi: Surjeet Publication).
8. Noble, Bruce J. **Physiology of Exercise and Sports**, (Saint Louis: Time/Mirror/Mosby college Publishing).
9. Sundarajan G.S., Sports Medical Lectures (Madras: Rasha Publications).
10. Weldh r. Peter and Roy J. Shafer (Eds.) current Therapy in Spoprts Medicine (Toronto: B.C.Becker Inc.)

DPES 902 – TEST MEASURMENT AND EVALUATION

UNIT I Meaning of the measurement and evaluation. Basic principles and functions of measurement and evaluation – Place of measurement and evaluation in Physical Education.

UNIT II Criteria of test selection – Scientific authenticity, Reliability, Validity, Objectivity, Norms – Administrative Feasibility and Educational Application. Tests classification – Standard Test – objective and subjective tests. Construction of tests: Knowledge tests (Written tests) and skill tests. (Evaluation of knowledge teststeps in construction of knowledge and skill tests).

UNIT III Measurement of blood pressure, Pulse rate, Respiratory rate, Respiratory volume, Tidal volume – Vital capacity, Auditory and Visual reaction time, Body fat, Grip strength, Leg strength and Flexibility, Peak flow meter. Strength test – kraus weber

minimum muscular fitness tests – Rogers Physical Fitness Index – Suggested changes in the PFI tests. Physiological fitness – Harvad step test Cooper's 12 minutes continuous Run/ Walk tests.

UNIT IV Motor Fitness – Oregon Motor fitness test, California Physical Performance tests, revised AAHPERD Youth Fitness tests, Motor fitness tests of the armed forces. The JCR test, New York State Physical Fitness test, Purdue University – Motor fitness test, Shafer Girl's motor fitness test – Evaluation of motor fitness test – sit-ups and chins. Inter- relationship and self scoring.

UNIT V General Motor abilities – The concept of general motor ability equating by specific activities, equating by general abilities, strength index – strength abilities of girls. Mc Cloy's General Motor ability and capacity tests. Motor educability – IOWA – Brace test. Explosive muscular vertical jump and standing broad jump.

UNIT VI Measurement of social efficiency – Mc Cloy's behavior rating scale. Cowell Metric questionnaire. Bell adjustment Inventory. Sixteen personality factor questionnaire and California psychological inventory.

UNIT VII Measurement programmes – Suggestions for administering tests. Test personnel, time for testing – Economy of tables, graphic exhibit preparation of reports – Co-operative measurement projects – Central New York State project, Oregon Pilot Physical Fitness Project.

UNIT VIII Use of tests in tests in meeting an individual needs:

a) Presentation, interpretation and use of test results.
b) The teacher
c) The student
d) The parent
e) The administrator

REFERENCE BOOKS:

1. H. Harrison, Clarke, Application of Measurement to Physical Education, (Englewood Cliffs, New Jersey: Prentice Hall 1976).
2. Donald K Mathews, Measurement in Physical education (Philadelpha: W.B. Saunders Co. 1958).
3. Margaret H Safrit, Evaluation in Physical Education (Eaglewood Cliffs, New Jersey: Prentice Hall Inc.1981).
4. Berry L Johnson and jack N. Nelson Practical Measurement for Evaluation in Physical Education (Delhi: Surjeet Publication).

5. Barrow, Harold M and Mc Gee Rosemary, A Practical Approach to Measurement Physical Education (Philadelphia: Lee and febiger, 1979).
6. Philips Allen D and Bearnat James E., Measurement and Evaluation in Physical Education (New York: John Willey and Sons).

DPES 903 – TRAINING METHODS

UNIT I Meaning and importance of training, Aims and objectives of sports training, Principles of training and conditioning: Type of training weight training – Circuit training, interval training - Times running, wind sprints – Jogging miles – Fartlek training. Other factors: Diet, Sleep, Rest, Muscle tone and Readiness. Basic principles in training – Specificity – Over load and Reversibility. Physical fitness components, Motor fitness components, playometric high altitude training, Super compensation.

UNIT II Strength development strength – Maximum Strength – Elastic Strength, Strength Endurance – Absolute and relative Strength – External resistance and the athletes ability to express force – Static muscular activity – Dynamic muscular activity – Strength development training. Speed development: Speed in sports, Speed development training for Speed development – The speed barrier endurance and speed training.

UNIT III Endurance development: Training Methods – Duration – Repetition Competition and testing Endurance sports. Mobility Development: Mobility Classification factors influencing mobility – Role of Mobility, Mobility Training: Mobility Unit construction – Mobility Derivation.

UNIT IV Physiological Effect of training Schedules – Seasons and Levels – Concept of trainer system Role of trainer in Programme implementation. The effect of Drugs,Alcohol and Smoking on Performance. Effect of climatic changes and high altitudeon human Performance.

UNIT V Sports Talent identification process and procedure.

REFERENCE BOOKS:

1. Johnson C.R & Fisher A.G. Scientific Basis of Athletic Conditioning (Philadelphia: Lea and Febriger 1972)
2. Sig H Sports Training General Theory and Methods (Patiala: N.I.S., 1984).
3. Hardayal Singh, Science of Sports Training (New Delhi: D.A.V. Publication).
4. Frances Wand Field, Dorothy MArkins and Jhon M.Cooper, Track and Field Fundamentals for Girls and Women (London: C.V. Mosoby Co., 1970).
5. L. Matevan, Sports Training (New Delhi: U.S.S.R., Publication).
6. Franck N. Dich,Sports Training Principles (London: M Lepus Book Co.).
7. Arnot Robert and Gaines, Charles, Sport Talent (New Zealand: Penguin Books).
8. John W. Bunn, Scientific Principles of Coaching (Englewood Cliffs, New Jersey: Prentice Hall, Inc.).
9. Hare Dietrich, Principles of Sports Training (Berline:Sport verlag).

DPES 904 —SPORTS MEDICINE

UNIT I: History of sports medicine-its definition aims and objectives nature and functional utility- preventive, curative and rehabilitative aspects.

UNIT II: Concepts of physical fitness-specific fitness-definition and components of physical fitness. Physiological, pathological and psychological problems of sportsmen before, during and after competition.

UNIT III: Thermo-regulations and sports: fluid balance, climatic extremes and their possible effects on the physiological function-heat-exhaustion, heat cramp, heat stroke, exposure, mountain sickness-high altitude and its effects of performance.

UNIT IV: Nutrition and hygiene: athletic nutrition and mal nutrition, high calorie diets, role of vitamins, minerals, salts, carbohydrate, protein, fat loading before tournament. Hygiene of sportsmen: athlete foot, ring worm etc., importance and need of immunization.

UNIT V: Role of skills, rules and regulations in the prevention of sports injuries and early rehabilitation. Regional and specific injuries in track and field and other major games and their management. Somato types, physique and performance.

UNIT VI: Women in sports: special problem of female athlete. Ageing and sports.

UNIT VII: Sports physiotherapy: history of massage, definition, muscle relaxation as an aid to massage- factors to be considered in including relaxation-points to be considered in giving massage-classification, contra indication- effects and uses-hydrotherapy, sauna bath, electrotherapy and exercise therapy-sport therapy.

UNIT VIII: Strapping and supports-safety gadgets in sports and games. Drugs and doping: Ergogenic aids, anabolic substances-its use and misuse in sports, its affects and

dangers. Evaluation in sports medicine–biometrics-measurement analysis interpretation for evaluation and performance-selection-prediction.

REFERENCE BOOKS:

1. Peter G Stroke, A guide to Sports Medicine (London: Livingston Churchill, Edinburgh, 1979).
2. Armstrong and Tucker, Injuries and Sports (London; Staple Press).
3. Dolan J.P., Treatment and Prevention f athletic injuries.
4. Johnson W.R. Science and Medicine of Exercise and Sports (New York; Harper and Brother Publishers).
5. Encyclopedia of sports Science and Medicine (New York: Macmillan Co.,).
6. William J.G.P. Sports Medicine (London: Edward Arnold Publisher).

DPES 905 -SPORTS PSYCHOLOGY

UNIT I : The history and development of psychology- meaning –nature-scope of sports psychology

UNIT II: Psychology of motor learning: measuring of the term, perceptual motor learning, the retention of motor skills, transfer of skill, measurement of learning and learning curve. Attention and its role in learning motor skills.

UNIT III: Children in sports: early psychological experience, motivation of children in sport,child and coach, children and competitive sports.

UNIT IV: Personality of sports men and coach: nature of personality, the issues of heredity in personality, personality traits and sportsmen, assessment of personality traits, the coach and his personality.

UNIT V: Motivation in Sports: Theories of motivation, achievement motivation, level of aspiration and achievement, methods and assessing aspiration level, motivation and participation in physical activity, drop outs in sports.

UNIT VI: Socio psychological dimension of sports: sports performance in groups, team cohesion sociometry in sports, leadership in sports, sports audience and their effect on performance.

UNIT VII: Psychology of competition: psychological characteristics of pre-during and post competition (anxiety, fear, frustration) mental training. Psychological preparation for competition- autogenc training.

UNIT VII: Aggression and activation of performance.

a. Theories of aggression
b. Aggression in athletic competition
c. Activation in sports.

REFERENCE BOOKS

1. Vanke Mirolave and Bryant Cratty J, Psychology and the Superior Athletic (London: The mililain co.).
2. Gratty Bryant J., Psychology in Contemporary Leadership (Eaglewood Cliffs, New Jersey: Prentice Hall Inc.).
3. Suin Richard M., Psychology in Sports Methods and Application (Delhi Surjeet Publications).
4. Lee Wekyn Tackh, Judi Al Bliner, Psychology of Coaching, Theory and Application (Delhi: Surjeet Publications)
5. Gratty Bryant J., Movement Behavior and Motor Learning (Philadelphia: Lee and febiger, 1989).
6. Gratty Bryant J., Career Potential in Physical Activity (Eaglewood Cliffs, New Jersey: Prentice Hall Inc.1981).
7. Gratty Bryant J., Psychology in Contemporary Sports (Eaglewood Cliffs, New Jersey: Prentice Hall Inc.)
8. Singer Robert N. Motor learning and Human Performance (New York: Mc Mililain Company, 1975).
9. J.H. Schultz and W. Luther, Autogenic Therapy (New York and London: Grune and Stratton).
10. Cox, Richard H., Sports Psychology Concepts and Application (WMC Brown Publihers, 1985).

DPES 906 - BIOMECHANICS & KINESIOLOGY

Unit – 1 Introduction

Meaning, Definition, Scope of Biomechanics, Important of Biomechanics, Trend in Biomechanics, Analysis of fundamental Skills and Sports Skills, Video film Analysis, Cinematography and Videography.

Unit – 2 Bio-mechanics in skill analysis

Tools of Biomechanical Analysis, Electrography and Dynamography, LED's and Electromagnetic Markers, Force transducers and Pressure Sensors, Skill analysis Athletic – Field events, Athletic – Track Events, Athletic – Jumping events, Skill analysis of various sports. Analysis sports equipment and surface.

Unit –3 Laws of Motion

Laws of Motion, Lever and Elasticity, Newton's laws of Motion, Angular Analogues of Newton's Laws of Motion:First, Second & Third Laws, Centripetal and Centrifugal force, Factor Affecting Centripetal and centrifugal force, Lever and its types, Mechanical Advantage of Lever

Unit -4 Plane and Axes of Human body

Meaning, Importance, Definition and scope of Kinesiology, Fundamental concepts of plane and axes and their relationship, Kinesiological terminologies of different Body movements.

Unit –5 Kinematics of Human Movements

Linear Kinematics of Human Movement (Meaning and Explanation), Angular Kinematics of Human Movement (Meaning and Explanation), Factors affecting human's performance (Water Resistance, Air Resistance and Spin). Mechanical Analysis of Fundamental Motor Skills

REFERENCE BOOKS;

1. Hay ,J (1981). The biomechanics of sport techniques. New jersy; prentice Hall
2. Bunn .J.W. (1981) scientific principal of coaching. Engewood; cliffs. Prentice Hall
3. McGinnis,P.M. (2005). Biomechanics of sport exercises. USA; Human Kinetics.
4. Sunderrajan ,G.S.Biomechanics of sport and games. Ludhiyana ;Tondon Publication .
5. Susan, J.H (2003) . Basic Biomechanics .(4th End) Mc.Graw hill Publication
6. Rajlashmi, D. (2007) biomechanics for sport and games. Sport Education Technologies
7. Hoffman S.J. (2005) Introduction to Kinesioloy.human kinesiology Publication.
8. Uppal A.K. and Lawrence, M.P. kinesiology. New Delhi .FrindsPublication;India .
9. Knudson, D. (2007) Fundamentals of biomechanice .chico,USA ;springer Publication
10. Scott,M.G. Analysis of Human Motion. Newyork

DPES 907- Applied Yoga

UNIT- I Philosophy and scope of Yoga – History of Yoga – vedas – Bhagavad Gita Yoga suthras – Tirumandiram – Hatha Yoga Pradipikca – Yoga Yajnavalkya Samtrita – Yoga Rahasya – Misconceptions and clarifications on Yoga – Paths of Yoga –Astanga Yoga.

UNIT – II Benefits of, Asanas, Pranayama, Mndras, Bandhas, Meditation – Kriyas, Suryanamaskar Benefits of Yogic practices on Human systems: - Skeletal, Muscular, Neural, Circulatory, Respiratory, Endocrinal, Digestine, Reproductive and Execretory systems – suitable Yogic

practices for children, Adolescents and old age, Yoga for women, Adult and Specialpopulation.

UNIT – III Yoga and Mind – Existence of Nadis and chakras – Role of Yoga on personality – Yoga diet, Yoga for fitness, Wellness and total wellbeing – Yoga, vahares, Religions and Spiritrality – Yoga for Super conscionsness.

UNIT- IV Yoga therapy – Yoga and various systems of medicine – Naturapathy – Siddha – Allopathyand Ayurveda

UNIT – V Yoga and Health – Yoga and diseases – Integrate Yogic modules for general health of Menand Women. Yogic practices for Hypertension, Asthma, Back pain, Arthritis, Constipation, Diabetes, Obesity, Psychological disorders, Women disorders – Integrated modules of Yoga, Alternative medicine and Therapies for diseases.

REFERENCES:

1. Iyengar (1989) Light on Yoga, London, Unwin paper backs
2. Shivanantha Saraswati (1975) Yogic therapy, Gandhi: Brahmacharya yogeswar umachalyogashram.
3. Rishi Vivekananda (2006) practical yoga psychology, munger : Yoga publication Trust.
4. Satyananda Saraswati Swami (2007) Kundalini Tantra, Munger : Yoga Publication Trust.
5. Mengal S.K. (1991) Psychological Foundations of Education, Iudhana: Prakash brothers.
6. Visharadananda Swami (2007) Human values, Bangalore:Swami Vivekanda yoga prakashana.
7. Dhayananda Saraswati Swamy (2008), The value of vaues, Chennai:Arsha vidya Centre.
8. Vivekananda Swami (2005) Hinduism Chennai: Sri Ramakrishna Math.
9. Mahajan Vidya Dhar(1976) History of India New Delhi: S.Chand & Co.,
10. Satyananda Saraswati Swami (2008) Asana, Pranayama Mudra Bandha Munger: YogaPublications Trust.
11. Chandrasekaran K. (1999) Sound health through yoga sedapatti: Premkalyan publications.
12. Krisnaraman (1998) A Matter of Health Chennai: Eastwst Books (Madras) Pvt. Ltd.

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