



**Ph.D. Scheme and Syllabus
(2020-21)
Semester-I**

Paper code	Paper	Internal	External	Total	Credit
PEPHD(C)-101	Research Methods and Statistical Techniques in Physical Education	20	80	100	4
PEPHD(C)-102 (Elective)*	(i) Research based kinesiology and sports biomechanics	20	80	100	4
	(ii) Psycho-socio basis of physical education	20	80	100	
	(iii) Scientific principles of sports training	20	80	100	
PEPHD(C)-103 (i)	Research and Publication Ethics	12	48	60	2
PEPHD(C)-103 (ii)	Review of literature and seminar	-	-	40	2
			Total	300	12

*Student will opt. any one from the PEPHD(C)-102 paper.

Note: For more details regarding Credit and other Academic requirement Ordinance of the University may be referred.

Note: Paper Code: PEPHD(C)-103 (i)- Research and Publication Ethics is qualifying paper for scholar who have exempted for Ph.D. Course Work.

RESEARCH METHODS AND STATISTICAL TECHNIQUES IN PHYSICAL EDUCATION

PEPHD(C)-101

Time allowed: 3 Hours

Max Marks: 100
(External: 80, Internal: 20)

INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS

- a) Each unit shall have **two** questions and the students shall attempt **one** question from each unit.
(20x 4= 80 Marks)

UNIT-I

1. **Research:** meaning and its characteristics in physical education
2. Selection of problem, writing of title and objectives, Hypothesis and its form, limitation and delimitation of research problem, rationale of research study
3. **Experimental Designs:** Pre-experimental Designs, True Experimental Designs and Quasi Experimental Designs
4. **Sampling:** Population, Sample, Frame, Probability and Non- Probability Sampling Techniques, Sample size and sampling error

UNIT-II

1. **Research Tools:** Characteristics of a good research tools, Types of tools for data collection – standardised and non-standardised, Questionnaire, Interview, Observation, Psychological Test, Sociometric Techniques, Scales, and Inventories.
2. **Procedure of development** and standardization of tools, Methods for establishing reliability and validity.
3. **Silent features of writing research proposal/report** - Language & style, Precision, Consistency, Continuity, use of third person, use of tense, Use of headings, Table, Graph and Front page of thesis
4. **Research Report writing:** preparation of research proposal, research report, abstract, paper for publication and presentation.

UNIT-III

1. **Measures of Central Tendency** - Meaning and Calculation of mean, Median and Mode
2. **Measures of Variability** - Meaning and Calculation of Range, Quartile deviation, Mean deviation, Standard Deviation,
3. **Normal Probability Curve** – Characteristics of NPC, Properties of NPC, Skewness, Kurtosis
4. Using MS Excel and SPSS for data processing and analysis, Google form for data collection, Google Drive, Reference Manager

UNIT-IV

1. **Types of ‘t’ test** – One Sample t test, Independent Sample t test, dependent or paired t test
2. **ANOVA** – One-way analysis of Variance
3. **Correlation** – Karl Pearson Coefficient of Correlation, Spearman’s Rank Correlation Coefficient
4. Chi-square & Test of Independence

Suggested Readings:

- Kothari, C. R and Garg Gaurav (2014). *Research Methodology: Methods and Techniques*, 3rd Edition, New Age International Publishers.
- Kumar, R. (2005). *Research Methodology: A Step-By-Step Guide for Beginners*. 2nd Edition, Pearson Education.
- Pannerselvam, R. (2009). *Research Methodology*. Prentice Hall.
- Prathapan, K. (2014). *Research Methodology for Scientific Research*. IK International.
- Sansanwal, D.N. (2020). *Research Methodology and Applied Statistics*. Shipra Publisher.

Singh, Y.K. (2008). *Fundamentals of Research Methodology and Statistics*. New Age International Publishers.

Sansanwal, D.N. (2020). *Research Methodology and Applied Statistics*. Shipra Publisher. Verma, J.P.

(2019). *Statistics and Research Methods in Psychology with Excel*. Springer Nature Singapore Pte Ltd.

---. (2015). *Repeated Measures Design for Empirical Researchers*. John Wilkey& sons.

---. (2014). *Statistics for Exercise Science and Health with Microsoft Excel*. John Wilkey& sons.

---. (2012a). *Data Analysis in Management with SPSS Software*. Springer Science & Business Media.

---. (2012b). *Statistics for Psychology*. Tata McGraw Hill Education Private Limited.

**RESEARCH BASED KINESIOLOGY AND SPORTS BIOMECHANICS
PEPHD(C)-102 (i)**

Time allowed: 3 Hours

Max Marks: 100
(External: 80, Internal: 20)

INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS

- a) Each unit shall have **two** questions and the students shall attempt **one** question from each unit.
(20x 4= 80 Marks)

UNIT-I

Introduction and Trends in Kinesiology
Aims and objectives of Kinesiology.
Need and importance of Kinesiology in Physical Education.
Joints, Types of joints, Description of Human movement.
Axis and Planes – types and their interrelationship
Muscles and Role of muscles. Structural and classification of muscle.

UNIT-II

Introduction and Trends in Sports Biomechanics
Classification of force system.
Classes of Lever and their principles in sports and physical activities.
Concepts of Equilibrium and Stability.
Motions, Laws of motion, their application and Kinematics.

UNIT-III

Analysis of Techniques of Sports Movement
Analysis of static positions of the body
Sitting / Standing and Lying
Analysis of Locomotion.
Walking / Running and Jumping
Hopping or Leaping
Basic steps of Analysis Sport Technique
Development of Model
Observation
Identification of Faults
Evaluation of Faults
Instruction to the Performer

UNIT-IV

Analysis of Techniques with modern Equipments
Methods of analysis of sport skills:
Qualitative Methods
Quantitative Method
Methods of investigation:
Photo instrumentation: Camera, Films, Exposure Meters, Calibration of Camera Speed, Filming
Fundamentals, Films Analysis, Fundamentals of film analysis.
Others methods of investigation:
Goniometry
Accelerometers
Dynamometry

Electro-Myograph

Transaction Mode: Lecture, Demonstration, Group Discussion, Project Method, Seminar, Dialogue

Suggested Readings:

- Carl, J. Payton & Adrian, Burden. (2017). *Biomechanical Evaluation of Movement in Sport and Exercise*. The British Association of Sport and Exercise Sciences Guide, Routledge.
- Duane, Knudson. (2012). *Fundamentals of Biomechanics*. Springer publication; 2nd edition.
- Hoffman, S.J. (2005). *Introduction to Kinesiology*. Human Kinesiology Publication In.
- Knudson, D. (2007). *Fundamentals of Biomechanics*. SpringerPublication.
- Kumar, P. (2019). "Biomechanical Analysis of Forward Head Posture among Pondicherry University Research Scholars Based On the Laptop Working Hours: An Analytical Study". *International Journal of Emerging Technologies and Innovative Research*, 6 (6), 463-466.
- Kumar, P., & Singh, R. R. M. (2019). "Biomechanical analysis of anisomelia among the young children's in Puducherry". *Discrepancy (LLD)*, 330, 19.
- Peter, M. & Mc. Ginnis. (2013). *Biomechanics of Sport and Exercise*. Human Kinetic Publication, ThirdEdition.
- Raj Lakshmi, D. (2007). *Biomechanics for Sports and Games*. Sports Educational Technologies.
- Singh, R. R. M. (2019). "Biomechanical Analysis of Footprint Measurement among School Boys: A Positive Approach to Posture". *Journal of the Gujarat Research Society*, 21(1), 167-169.

PSYCHO-SOCIO BASIS OF PHYSICAL EDUCATION
PEPHD(C)-102 (ii)

Time allowed: 3 Hours

Max Marks: 100
(External: 80, Internal: 20)

INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS

- a) Each unit shall have **two** questions and the students shall attempt **one** question from each unit. (20x 4= 80 Marks)

UNIT-I

Introduction

Relationship of sport psychology with other sports sciences

Psychological Profiling of Sportsmen/Athletes

Self-regulation, Bio-feedback, Self Confidence and Self efficacy

Coping with stress and anxiety, Preparing athlete for major competition Goal setting and Sports Performance.

UNIT-II

Personality-based tests

Personality traits of Sportsmen and Theories of Personality

Anxiety – Types, Theories and Effect of Anxiety on performance

Effects of Spectators, society, family, etc. on sports performance, Personality Test: 16 PF, EPQ.

Interest, Attitude test

UNIT-III

Social Implications

Sociology of Sports as a separate discipline, inter-relation of sports and Sociology.

Social Significance of Sports, Social Evils- Drugs, Smoking, Violence, Inequality.

Psycho-Social implications and impact of organized youth sport.

Society as a web of social relationship, Place of sport and games in different societies, Role of Physical Education in the context of social problems.

Relationship of sports with social institutions- Family, School, Education system, Peer groups, Voluntary Association, Religion, Organized sports programmes for children.

UNIT-IV

Psychological Skills Training

PST and Sports Performance, Designing and Implementing PST Programme.

Common problems in Implementing PST Programme.

Importance of Psychological Skill Training Programme.

Imagery, Types of Imagery, VMBR, PMR, Autogenic Training, Deep Breathing, Guided Imagery.

Cognitive Technique for Building Confidence Concentration and Attention Control Training, Intervention strategies for activation techniques.

Transaction Mode: Lecture, Demonstration, Group Discussion, Project Method, Seminar,

Dialogue Suggested Readings:

Cox, R.H. (1998). *Sport Psychology – Concepts and Applications*. Iowa Champaign, IL. Human Kinetics Publishers.

Cratty, Bryant. J. (1973). *Movement Behavior and Motor Learning*. Philadelphia: Lea and Febiger.

DC Gonzalez, (2013). *The Art of Mental Training - A Guide to Performance Excellence*. Gonzo Lane Media Publisher.

John Perry, (2016). *Sports Psychology - A Complete Introduction*. Teach Yourself Publisher.

Ronald E. Smith, (2012). *Sport Psychology for Youth Coaches: Developing Champions in Sports and Life*. Rowman & Littlefield Publishers.

SCIENTIFIC PRINCIPLES OF SPORTS TRAINING
PEPHD(C)-102 (iii)

Time allowed: 3 Hours

Max Marks: 100
(External: 80, Internal: 20)

INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS

- a) Each unit shall have **two** questions and the students shall attempt **one** question from each unit. (20x 4= 80 Marks)

UNIT-I

Teaching, Training and Coaching: Meaning, aims & Characteristic

Principles of Training

Training Load: Meaning & characteristic of training load

Principles of Load & Adaptation, Judgment of Load

Over Load: Causes, Symptoms and tackling of over load and Altitude Training-Cross Training.

UNIT-II

Strength: Meaning, Importance & types of Strength, Methods & Precautions of Strengthtraining.

Endurance : Meaning, Importance & types of Endurance, Factors determining endurance, Methods of Endurance Training.

Speed: Meaning, Importance & types of Speed, Factors Determining Speed, Methods of speedtraining.

Flexibility: Meaning, Importance & types of flexibility, Factors Determining flexibility, Methods of flexibility development.

Co-ordinative Ability: Meaning, Importance & types of Co-ordinative ability, Factors determining Co-ordinative ability & Methods of development.

UNIT-III

Training Methods

Weight training, Circuit training

Continuous training, Interval training

Fartlek training

Repetition training- Isometric, Isotonic

Technical Training & Tactical Training: Meaning, Importance of Methods of Technical training.

Doping: Definition & type of doping.

UNIT-IV

Planning of training: Meaning of Planning, Importance, and Principles of Planning of types of Training Plans. Training plan, Macro cycle, Meso cycle, Micro cycle, short term and long-term plan.

Periodization: Meaning and its types, contents for various period of training, General Principles of training schedules. Single, Double and Multiple periodization. Factor influencing the Performance in Sports.

Transaction Mode: Lecture, Demonstration, Group Discussion, Project Method, Seminar,

Dialogue Suggested Reading:

Bompa, T. O., & Buzzichelli, C. (2018). *Periodization-: Theory and Methodology of Training*. Human kinetics.

Bompa, T., Bompa, T. O., & Carrera, M. (2005). *Periodization Training for Sports* (2nd Edition). Human Kinetics.

Jesudoss, S. J. (2015). *Principles of Sports Training*. Friends Publications. (ISBN-9789384603304).

Kurz, T. (2001). *Science of Sports Training: How to Plan and Control Training for Peak Performance*. Stadion.

Loehr, J. E. (1995). *PDF The New Toughness Training for Sports: Mental Emotional Physical Conditioning From One of The World Premier Sports Psychologists*. Online Book.

OBE, F. W. D. (2014). *Sports Training Principles: An Introduction To Sports Science*. Bloomsbury Publishing.

Viru, A. (2017). *Adaptation In Sports Training*. Routledge Publishers.

RESEARCH AND PUBLICATION ETHICS

PEPHD(C)-103 (i)

Time allowed: 3 Hours

Max Marks: 60
(External: 48, Internal: 12)

INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS

- a) Each unit shall have **two** questions and the students shall attempt **one** question from each unit. (12x 4= 48 Marks)

UNIT-I

Introduction to philosophy: definition, nature and scope, concept, branches
Ethics: definition, moral philosophy, nature of moral judgements and reactions
Ethics with respect to science and research, Intellectual honesty and research integrity,
Scientific misconducts: Falsification, Fabrication, and Plagiarism (FFP)
Redundant publications: duplicate and overlapping publications, salami slicing
Selective reporting and misrepresentation of data

UNIT-II

Publication ethics: definition, introduction and importance
Best practices / standards setting initiatives and guidelines: COPE, WAME, etc
Conflicts of interest
Publication misconduct: definition, concept, problems that lead to unethical behavior and vice versa, types, Violation of publication ethics, authorship and contributorship
Identification of publication misconduct, complaints and appeals Predatory publishers and journals

UNIT-III

Open access publications and initiatives
SHERPA/RoMEO online resource to check publisher copyright & self-archiving policies
Software tool to identify predatory publications
Journal finder / journal suggestion tools

UNIT-IV

Ethical Issues related to Physical Education, FFP, authorship, Conflicts of interest,
Complaints and appeals: examples and fraud from India and abroad
Use of plagiarism software like Turnitin, Urkund and other open source software tools.
Indexing databases, Citation databases: Web of Science, Scopus, etc.
Impact Factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite
Metrics: h-index, g index, i10 index, altmetrics

Suggested Reading:

Bird, A. (2006). *Philosophy of Science*. Routledge.

Chaddah, (2018) *Ethics in Competitive Research: Do not get scooped; do not get plagiarized*

MacIntyre, Alasdair (1967) *A Short History of Ethics* London

National Academy of Sciences, National Academy of Engineering and Institute of Medicine.

(2009). *On Being a Scientist: A Guide to Responsible Conduct in Research: Third Edition*.

National Academies Press

Resnik, D. B. (2011). What is ethics in research & why is it important. National Institute of Environmental Health Sciences, 1-10. Retrieved from

<https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm>

REVIEW OF LITERATURE AND SEMINAR
PEPHD(C)-103 (ii)

Max Marks: 40

Review of Literature

Importance, location of the research material – index, books, bibliography, reviews, abstract, critical and allied literature. Steps in reviewing literature and critically writing of review of literature

Seminar

The scholars shall review at least 25 research papers and shall submit the report as well as a presentation before committee.