

RAJA MAHENDRA PRATAP SINGH ALIGARH (UP)



SYLLABUS

Pre-Ph.D. Course Work

Physical Education

(For Both University Campus & Affiliated College of University)

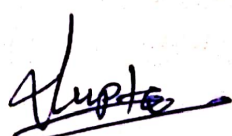
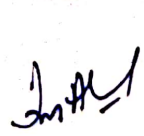
(As per Guidelines of University Grants Commission)

(w.e.f. the session 2025-26)

**Course Structure and allotment of papers for Doctor of Philosophy (Ph.D.) in
Physical Education.**

Marks: 100(End Semester 70 and In-semester: 30)

Total Marks : 400 Credit 18				
Course	Course Code	Course Title	Total Marks	Credit
Core Course-I	PHDPE 1010	Research and Publication Ethics (Common Curriculum to be provided by university)	100	2
Core Course-II	PHDPE 1020	Research Methodology in Physical Education	100	4
Core Course-III	PHDPE 1030	Computer Application	100	2
Optional Course IV (any one)	PHDPE 1040 (a)	Exercise Physiology	100	4
	PHDPE1040 (b)	Sports Psychology	100	4
	PHDPE1040 (c)	Sports Biomechanics	100	4
	PHDPE1040 (d)	Test, Measurement & Evaluation	100	4
	PHDPE1040 (e)	Sports Management	100	4
	PHDPE1040 (f)	Sports Training	100	4
	PHDPE1040 (g)	Sports Medicine	100	4
	PHDPE1040 (h)	Fitness and Wellness	100	4
	PHDPE1040 (i)	Yoga	100	4
	Or anyone need based course offered by the course teacher/supervisor			
		Total	400	12




Course Work Curriculum for
Ph.D. in Physical Education
Core Course: I
PHDPE 1010: Research & Publication Ethics
Total Credit: 2
Total Marks: 50

Distribution of Marks (Semester End/Practical/Internal): [35/15]
No. of Credit Hours and Module: 30 Hours & 04 Modules /Unit

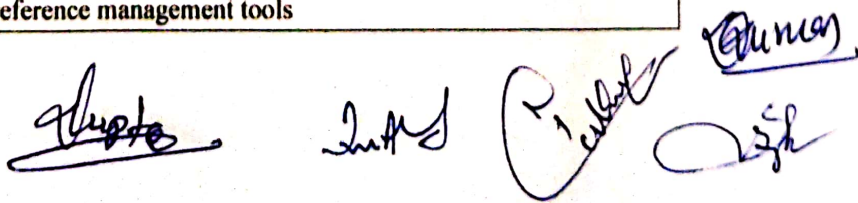
Objectives:

- To introduce research scholars to ethical principles in academic research.
- To develop awareness regarding publication ethics and research misconduct.
- To provide knowledge about plagiarism detection tools and citation practices.
- To familiarize scholars with quality research publications and indexing databases.

Unit	Topic	Contact Hours	Marks
I	Philosophy and Ethics of Research • Meaning, objectives and significance of research • Ethics in scientific research • Moral philosophy: ethical theories and principles, values in research • Scientific conduct: honesty, integrity, objectivity and transparency • Ethical issues in research involving human participants, animals and environment		
II	Research Misconduct and Publication Ethics • Definition and types of research misconduct: fabrication, falsification and plagiarism • Redundant publications: duplicate publication and salami slicing • Authorship ethics and criteria for authorship • Responsibilities of authors, reviewers and editors • Conflict of interest in research and publication		
III	Publication Practices and Journal Quality • Types of research publications: research articles, review papers, conference papers, books and book chapters • Quality parameters of journals: impact factor, citation index • Indexing databases and platforms: Scopus, Web of Science, Google Scholar, DOAJ • Predatory journals and publishers: identification and prevention • Open access publishing models		
IV	Plagiarism and Citation • Meaning and types of plagiarism • Academic integrity and plagiarism policies • Plagiarism detection tools: Turnitin, Urkund		

Suggested Practical / Assignments

- Identification of predatory journals
- Demonstration of plagiarism checking using available software
- Preparation of reference list using reference management tools



- Writing a short research article with proper citation and referencing

Suggested Readings

1. Bird, A. (2006). Philosophy of Science. Routledge.
2. Resnik, D. B. (1998). The Ethics of Science: An Introduction. Routledge.
3. Shamoo, A. E., & Resnik, D. B. (2015). Responsible Conduct of Research. Oxford University Press.
4. National Academy of Sciences (2009). On Being a Scientist: A Guide to Responsible Conduct in Research.
5. Day, R. A., & Gastel, B. (2012). How to Write and Publish a Scientific Paper. Cambridge University Press.

Evaluation Scheme

Internal Assessment / Assignment / Seminar: 15 Marks
End Semester Examination: 35 Marks

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**Course Work Curriculum for
Ph.D. in Physical Education**

Core Course: II

PHDPE 1020: Research Methodology in Physical Education

Total Credit: 4

Total Marks: 100

Distribution of Marks (Semester End/Practical/Internal): [70/30]

No. of Credit Hours and Module: 60 Hours & 04 Modules /Unit

Objectives:

- To give student knowledge of Research in Physical Education
- To acquaint the scholar with Philosophy of Research in Physical Education
- To enable scholar with different data collection tools and the procedure of developing them
- To enable the student to understand and apply different types and methods of research
- To build capacity for analyzing data and drawing subject specific inferences and insights.

Unit	Topic	Contact Hours	Marks
I	Foundations of Research • Meaning, objectives and significance of research. • Types of research: Basic, Applied, Descriptive, Analytical, Experimental and Exploratory research. • Interdisciplinary and multidisciplinary research. • Identification and formulation of research problem. • Review of literature: Sources, methods and organization. • Research design: Meaning, need and characteristics.		15
II	Research Methods and Data Collection • Quantitative and Qualitative research methods. • Sampling: Concept, types and sampling techniques. • Measurement and scaling techniques. • Reliability and validity of research instruments. • Use of secondary data and digital databases.		15
III	Data Analysis and Statistical Tools • Data processing: Editing, coding, classification and tabulation. • Descriptive statistics: Mean, median, mode and standard deviation • Correlation and regression analysis • Test methods: t-test, Chi-square test, ANOVA and WIENZK • Graphical and diagrammatic representation of data.		15
IV	Research Writing and Publication • Structure of thesis/dissertation. • Referencing styles: APA, MLA, Chicago, IEEE. • Citation and bibliography preparation. • Writing research papers for journals. • Presentation of research findings and academic communication • Reference management tools: Mendeley, Zotero, and EndNote		15

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Suggested Readings

- Kothari, C. R.-Research Methodology: Methods and Techniques
- Kumar, Ranjit - Research Methodology: A Step-by-Step Guide for Beginners
- Creswell, John W.-Research Design: Qualitative, Quantitative and Mixed Methods Approaches
- Booth, Wayne C. Colomb Gregory G. & Williams, Joseph M.-The Craft of Research
- Gupta, SP.-Statistical Methods.

Evaluation Scheme

Internal Assessment / Assignment / Seminar: 30 Marks

End Semester Examination: 70 Marks

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Core Course: III
PHDPE 1030: Computer Application
Total Credit: 2
Total Marks: 100

Distribution of Marks (Semester End/Practical/Internal): [35/15]
 No. of Credit Hours and Module: 30 Hours & 04 Modules /Unit

Objectives:

- To provide fundamental knowledge of computer to research scholars
- To provide the knowledge of applications required for documentation and presentation.
- The provide the knowledge of digital tools used in literature survey and scientific writing
- To provide the knowledge of Origin software

Unit	Topic	Contact Hours	Marks
I	Fundamentals of Computer and Operating Systems • Introduction to Computers: Components, Types and Applications • Hardware and Software Concepts • Operating Systems: Windows and Linux Basics • File Management and Data Storage • Computer Networks and Internet Basics • Cyber Security Awareness and Safe Computing Practices		
II	Office Applications for Academic Work Word Processing using MS Word/LibreOffice Writer • Formatting, Tables, Templates • Equation Editor and Symbols • References, Footnotes and Endnotes/Zotero • Preparation of Research Reports, Thesis and Articles using Word Processors Spreadsheet Applications using MS Excel/LibreOffice Calc • Data Entry and Management • Basic Statistical Functions • Graphs and Charts Presentation Tools using MS PowerPoint/LibreOffice Impress • Slide Design and Layout • Inserting Figures, Charts and Multimedia • Effective Academic Presentations		
III	Computer Applications in Research • Literature Search using Academic Databases • Use of Digital Libraries and Online Resources • Use of Internet Tools for Research Collaboration search • Open Access Journals and Repositories • Use of AI and Digital Tools in Academic Research • Online Submission of Research Papers and Thesis • Use of LaTeX for Scientific Documentation (Basic Introduction Lambda)		
IV	Data processing using Origin Basics of origin- • Origin workspace, importing ASCII/Excel data, Data Connectors		

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| <ul style="list-style-type: none"> • 2D plotting, 3D plotting, customizing axes, legends, and themes for publication • creating templates for repetitive data analysis • statistical analysis. <p>Peak fitting-</p> <ul style="list-style-type: none"> • Finding baselines, peak detection, and peak integration • Non-linear Curve Fitting using Gaussian, Lorentzian, Voigt functions • Deconvolution or separating overlapping peaks in spectra • Outputting peak parameters (Area, Position, FWHM). | | |
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Suggested Readings

1. Peter Norton-Introduction to Computers
2. Alexis Leon & Mathews Leon-Introduction to Computers
3. V. Rajaraman-Fundamentals of Computers
4. Kogent Learning-Office 365/Microsoft Office Step by Step
5. Wayne Winston-Microsoft Excel Data Analysis and Business Modeling
6. Leslie Lamport-LaTeX: A Document Preparation System
7. S.P. Gupta-Statistical Methods (for basic data analysis)
8. University Grants Commission-Research and Publication Ethica Guidelines

Evaluation Scheme

Internal Assessment/Assignment/Seminar: 15 Marks

End Semester Examination: 35 Marks

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Optional Course IV
PHDPE 1040 (a): EXERCISE PHYSIOLOGY

Total Credit: 4

Total Marks: 100

Distribution of Marks (Semester End/Practical/Internal): [70/30]
No. of Credit Hours and Module: 60 Hours & 04 Modules /Unit

Objectives:

- To understand the basic principles of physiology and Sports & Exercise Physiology
- To apply the knowledge in the field of physical education and movement activity.
- To analyze the practical knowledge during the practical situation.

Unit	Topic	Contact Hours	Marks
I	• Physiology of Endurance Performance: • Cardiovascular control during exercise, • Cardiovascular responses to endurance exercise, • Respiratory regulation during exercise, • Cardiovascular and respiratory adaptation to training.		15
II	• Physiology of Strength Performance • Generation of muscle force, • Factors influencing force generation, • Strength curve and rate of force development for various muscles • Physiological adaptation in response to resistance training, Delayed Onset Muscle Soreness(DOMS), Onset of Blood Lactate Accumulation (OBLA), Exercise Associated Muscle Cramps and Prevention (EAMC)		15
III	Bio-Energetic and Exercise Metabolism • Concept of Fuels to exercise and energy production • Metabolic responses to short-term exercise, Prolonged exercise, Incremental exercise • Metabolic equivalent (MET) • Second wind and EPOC (Excess Post-exercise Oxygen Consumption) • Mechanism of body temperature regulation, Physiological responses to exercise in acclimatization		15
IV	Biochemical and neuro endrocrlogical adaptations Biochemical aspect of metabolism before, during and after exercise • Lactate threshold • Blood hormone concentration, Hormonal regulation of exercise • Ergogenic aids and sports • Introduction to Sports Genetics, Exercise induces signal transduction		15

References:

- D. (1979). A Christine, M. D., (1999). *Physiology of Sports and Exercise*. USA: Human Kinetics.
- Conley, M. (2000). *Bioenergetics of Exercise Training*.
- T.R. Baechle, & R.W. Earle, (Eds.), *Essentials of Strength Training and Conditioning* (pp. 73-90). Champaign, IL: Human Kinetics.
- David, R. M. (2005). *Drugs in Sports*, (4th Ed). Routledge Taylor and Francis Group.

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- Gupta, A. P. (2010). *Anatomy and Physiology*. Agra: SumitPrakashan.
- Gupta, M. and Gupta, M. C. (1980). *Body and Anatomical Science*. Delhi: Swaran Printing Press.
- Guyton, A.C. (1996). *Textbook of Medical Physiology*, 9th edition. Philadelphia: W.B. Saunders.
- Hunter, M. *dictionary for physical educators*. In H. M. Borrow & R. McGee, (Eds.), *A Practical approach to measurement in Physical Education* (pp. 573-74). Philadelphia: Lea &Febiger.
- Karpovich, P. V. (n.d.). *Physiology of Muscular Activity*. London: W.B. Saunders Co.
- Lamb, G. S. (1982). *Essentials of Exercise Physiology*. Delhi: Surjeet Publication.
- Moorthy, A. M. (2014). *Anatomy, Physiology and Health Education*. Karaikudi: Madalayam Publications.
- Morehouse, L. E. & Miller, J. (1967). *Physiology of Exercise*. St. Louis: The C.V. Mosby Co.
- Pearce, E. C. (1962). *Anatomy and Physiology for Nurses*. London: Faber & Faber Ltd.
- Sharma, R. D. (1979). *Health and Physical Education*, Gupta Prakashan.
- Singh, S. (1979). *Anatomy and Physiology and Health Education*. Ropar: Jeet Publications.

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Optional Course
PHDPE 1040 (b): SPORTS PSYCHOLOGY

Total Credit: 4

Total Marks: 100

Distribution of Marks (Semester End/Practical/Internal): [70/30]

No. of Credit Hours and Module: 60 Hours & 04 Modules /Unit

Objectives:

- To reflect upon motivational psychology as applied to sports activities
- To formulate relevant constructs of exercise psychology
- To understand the influence of psychological factors on involvement and performance in sport, exercise and physical education settings.

Unit	Topic	Contact Hours	Marks
I	Basics of Sport & Exercise Psychology • Introduction: Meaning and Definition. Importance of Sport Psychology for Athletes, Coaches and other related to Sports Setting. • Biological foundation of behaviour: Structure and function of neuron, synapse and neurotransmitters • Nervous System a) Central Nervous system: Structure and function of brain and spinal cord b) Autonomic Nervous System: Structure and function c) Peripheral Nervous System: Structure and function • Muscular and Glandular system: Types and functions • Genetics and Behaviour: Chromosomal anomalies; Nature-nurture controversy (Twin studies and adoption studies)		15
II	Personality and Performance • Personality and Performance (Meaning, Definition and Structure of personality) • Genetic and Environmental Determinants of Personality and measurement. • Personality theories [Psychoanalysis, Humanistic, Trait Theories and models]Constitutional theories (Sheldon, Trait) and Social Learning (Bandura) • Personality and Performance in Sports (Ice Berg Profile by Morgan)		15
III	Motivation and Performance • Motivation & Goal Setting- Meaning, Definition and Structure of Motivation (Need, Drive) Biological basis of motivation. • Theories of motivation [Abraham Maslow, Need Achievement by McClelland] • Self- Determination model • Techniques for Developing Motivation, Goal Setting – Locke GST • Motivation-Performance Relationship		15
IV	Emotion and Performance • Meaning and Definition of Emotion, Biological basis of emotion: The Limbic system, Hormonalregulation of behavior • Meaning, Definition of Anxiety, Types of Anxiety		15

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| <ul style="list-style-type: none"> • Meaning, Definition and Nature of Arousal and Stress, Theories [Drive theory, Inverted -U theory & IZOF] • Emotion and Performance Relationship | | |
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References

- Ball, D. W. & Loy, J. W. (1975). *Sport and social order; Contribution to the sociology of sport*. London: Addison Wesley Publishing Co., Inc.
- Blair, J. & Simpson, R. (1962). *Educational psychology*, New York: McMillan Co.
- Cratty, B. J. (1968). *Psychology and physical activity*. Eaglewood Cliffs. Prentice Hall.
- Kamlesh, M.L. (1998). *Psychology in physical education and sport*. New Delhi: Metropolitan Book Co.
- Skinner, C. E., (1984.). *Education psychology*. New Delhi: Prentice Hall of India.
- William, F. O. & Meyer, F. N. (1979). *A handbook of sociology*. New Delhi: Eurasia Publishing House Pvt Ltd.
- P.D. Pathak, 2000 *Shiksha Manovidnyan*, Agra, Vinod Pustak Mandir
- S. K. Mangal (2005) *Shiksha Manovidnyan*, Ludhiana, Tandan Publication books markets.

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Optional Course
PHDPE 1040 (c): SPORTS BIOMECHANICS

Total Credit: 4

Total Marks: 100

Distribution of Marks (Semester End/Practical/Internal): [70/30]

No. of Credit Hours and Module: 60 Hours & 04 Modules /Unit

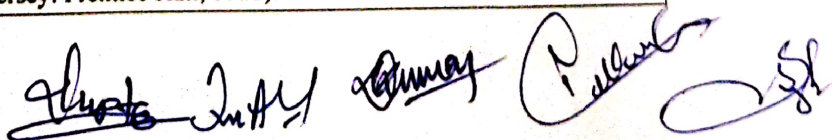
Objectives:

- To enable student to understand the science of Biomechanics and kinesiology in relation to human performance
- To enable student to analyze various fundamental movements and understanding the relevance of analysis
- Identify the relationship between kinematic and kinetic as they relate to the human performance
- Able to describe the cause and effect of various mechanics on Sports Performance.

Unit	Topic	Contact Hours	Marks
I	Fundamentals of Biomechanics • Definition of Biomechanics & Sports Biomechanics • Importance of Biomechanics for Physical Education Teacher, Coach & Athlete • Goals of Sports Biomechanics – Performance Enhancement, Technique, Equipment, Training, Injury Prevention and Rehabilitation • Trends in Biomechanics		15
II	Mechanical Concepts • Force - Meaning, definition, types and its application to sports activities • Lever - Meaning, definition, types and its application to human body. • Newton's Laws of Motion – Meaning, definition and its application to sports activities. • Projectile – Factors influencing projectile trajectory		15
III	Analysis of Basic movements and Sports Skills • Mechanical Analysis of Locomotion: Running, Walking, Jumping, • Skill Analysis of Track and Field Events • Skill Analysis of Various Sports Skills • Sports Equipments and Surfaces		15
IV	Video Analysis of Techniques and Skills • Video Film Analysis - Cinematography and Videography • Tools of Biomechanical Analysis - Electrography and Dynamography - LED's and Electromagnetic Markers - Force transducers and Pressure Sensors		15

Suggested Readings:

- Bunn, John W. Scientific Principles of Coaching, Second Edition. (Englewood cliffs, New Jersey: Prentice Hall, Inc. 1972)
- Hall, Susan J. Basic Biomechanics, Fourth Edition (Boston etc. : WCB/MC Graw- Hill Companies, 2004)
- Hay, James G. The Biomechanics of Sports Techniques, Fourth Edition (Englewood cliffs, New Jersey; Prentice Hall, 1993)
- Hay, James G. and Raid J. Gavin, Anatomy, Mechanics and Human motion, Second Edition (Englewood cliffs, New Jersey: Prentice Hall, 1988).



- Kreighbaum, Ellen and Barthels. Biomechanics – A qualitative Approach for studying Human movement. Third edition (New York: MC millan publishing company, 1990)
- Mc. Ginnis, Peter M. Biomechanics of Sport and Exercise, Second Edition (Champaign : Humankinetics publishers, 2005)
- Rai Ramesh, Biomechanics – Mechanical Aspects of human motion (Mohali Punjab :AgrimPublication, 2003)
- Robertson, D. Gordon E. et. al. Research Methods in Biomechanics. (Champaign etc : Humankinetics publishers, 2004)
- Knudson, D. (2007). Fundamentals of Biomechanics. Chico, USA: Springer Publication.
- Scott, M. G. Analysis of Human Motion. Newyork.

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Optional Course
PHDPE 1040 (d): Test, Measurement & Evaluation

Total Credit: 4

Total Marks: 100

Distribution of Marks (Semester End/Practical/Internal): [70/30]

No. of Credit Hours and Module: 60 Hours & 04 Modules /Unit

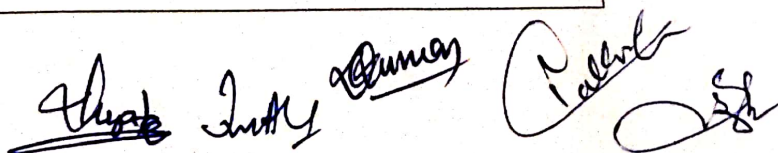
Objectives:

- To understand the concepts and relationship of test, measurement, and evaluation.
- To develop knowledge of various tests and measurement techniques in physical education.
- To analyze the criteria of a good test such as validity, reliability, and objectivity.
- To acquire skills in construction and administration of sports skill tests.
- To apply evaluation methods, norms, and grading systems in research and sports performance assessment.

Unit	Topic	Contact Hours	Marks
I	Foundations of Test, Measurement & Evaluation • Meaning, definition, and relationship among test, measurement, and evaluation • Functions and importance in physical education and sports • Common methods of measurement and everyday applications • Meaning, definition, importance, and classification of tests • Tools of measurement and evaluation in physical education		15
II	Testing Concepts and Criteria of Good Tests • Sports skill testing and general sports skill tests • Criteria of a good test: validity, reliability, objectivity, precision, feasibility • Comparative importance of test qualities • Psychological and skill testing in sports		15
III	Norms, Standards and Construction of Tests • Meaning and importance of norms and standards • Development of norms, scales, and standards in physical education • Construction and administration of sports skill tests • Steps and procedures for test construction • Skill evaluation methods and rating scales (subjective & objective)		15
IV	Evaluation, Measurement Scales and Grading • Levels of measurement: nominal, ordinal, interval, ratio • Evaluation methods and skill achievement procedures • Grading systems: meaning, types, and factors (cognitive, affective, psychomotor) • Weightage in grading and interpretation of results • Application of lab and field tests in performance evaluation		15

Suggested Readings:

- Barrow, H.M. R. McGee and K. A. Tritschler (1989), Practical Measurement in Physical Education and Sports, Lea & Febiger, Philadelphia, USA.
- Baumgartner, T.A. and A.S. Jackson (1995), Measurement for Evaluation in Physical Education & Exercise Science, WCB-Brown & Enchmark Publication, Madison, Wisconsin, USA.



- Chopra, D. (1993), Ageless Body, Time less Mind: A practical alternative to GROWING Old, Crown Publishers Inc. New York, USA (Indian Print by Runa & Co. & Gopsos Papers Ltd., Noida, U.P.)
- Kansal, D.K. (2006), Test, Measurement & Evaluation in Physical Educational Sports , Sports and Spiritual Science Publications, New Delhi.
- Miller, D.K. (2006), Measurement by the Physical Education: Why and How, WCB, Brown & Benchmark Publishers, Madison, Wisconsin, USA.
- Shaw, Dhananjay, Fundamental Statistics in Physical Education and Sports (1998, 2000, 2006) Sports Publication, New Delhi.

Chopra D.K. Kansal D.K. Miller D.K. Shaw Dhananjay

Optional Course
PHDPE 1040 (e): Sports Management

Total Credit: 4

Total Marks: 100

Distribution of Marks (Semester End/Practical/Internal): [70/30]
No. of Credit Hours and Module: 60 Hours & 04 Modules /Unit

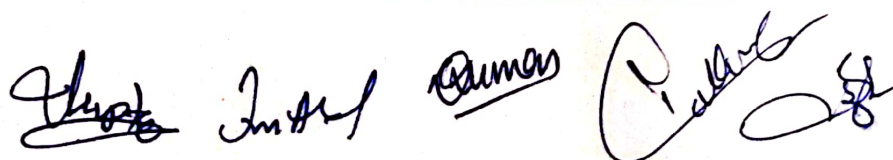
Objectives:

- To understand the fundamental concepts and principles of sports management.
- To develop knowledge of management approaches, styles, and global perspectives in sports.
- To acquire skills in planning, organizing, and managing sports events effectively.
- To understand facilities, equipment, and resource management in sports organizations.
- To apply financial, administrative, and legal aspects in sports management practices.

Unit	Topic	Contact Hours	Marks
I	Foundations of Sports Management • Definition, evolution, and curriculum of sports management • Career opportunities, professional preparation, and role of sports managers • Aims, objectives, and principles of sports management • Research theory and practice in sports management • Job specifications and working environment		15
II	Global Perspective and Management Approaches • International perspective: Asia, Australia, Africa, America, Europe • Management approaches: Classical, Behavioural, Systems, Contingency, Management Science • Management styles: Autocratic, Bureaucratic, Democratic, Spectator • Management Information System (MIS) • Media, public relations, and communication in sports		15
III	Event Management and Operations • Principles of event planning: organizing, directing, and evaluating • Facilities, equipment, personnel, and leadership • Promotion, marketing, budgeting, and risk management • Event evaluation, feedback, PR, and communication strategies • Crowd control, security, crisis management, and safety measures		15
IV	Facilities, Financial and Administrative Management • Management of sports facilities: indoor, outdoor, aquatic, and special populations • Fitness, health, and recreational facility management • Financial management: accounting, budgeting, sponsorship, and fundraising • Office management: records, reports, decision-making, conflict resolution • Legal aspects and prevention of issues in sports management		15

References

- Aggarwala Vira. Bharna (1992). Management Principles, Practices, Techniques II Edition





(Deep & Deep Publications – New Delhi).

- Chelladurai P. (1985). Sports Management Macr-Perspectives (Adelaide St., London Ontario).
- Davis, Kathleen. A. Sports Management: Successful Private Sector Business Strategies USA: WCB Inc.
- Goel, S.L., (1995). Modern Management Techniques (Deep & Deep Publications – New Delhi).
- Parkhouse, Bonnie (1991). The Management of Sports: Its Foundation and Application. St. Louis: Mosby-Year Book Inc.
- Plunkett, Richard. W. Supervision (1991) The Direction of People at Work. USA: Allyn and Bacon Inc.
- Sandhu, Kiran (1995) Sports Dynamic: Psychology, Sociology and Management. Galgotia publication: New Delhi
- Walker, Marcia, L. and Stortar, David K. (199). Sports Facility Management. London: Jones and Barlett Publishers

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Optional Course
PHDPE 1040 (I): Sports Training
Total Credit: 4
Total Marks: 100

Distribution of Marks (Semester End/Practical/Internal): [70/30]
No. of Credit Hours and Module: 60 Hours & 04 Modules /Unit

Objectives:

- To develop advanced understanding of training principles and methodologies.
- To enhance knowledge of physiological and biomechanical aspects of training.
- To enable scientific planning and monitoring of sports performance.
- To develop research-based approaches in training and coaching.

Unit	Topic	Contact Hours	Marks
I	Foundations of Sports Training • Meaning, definition, aims, and principles of sports training • Training load: components, intensity, volume, density • Types of training: technical, tactical, physical, psychological • Periodization: types and models (macro, meso, micro cycles)		15
II	Physiological and Biomechanical Basis • Physiological adaptations to training • Energy systems and their development • Strength, endurance, speed, flexibility, and coordinative abilities • Biomechanical principles in sports performance		15
III	Methods and Planning of Training • Methods of training: continuous, interval, circuit, fartlek, resistance training • Planning and designing training programmes • Monitoring training load and recovery • Overtraining, detraining, and tapering		15
IV	Performance Optimization and Research • Talent identification and development • Psychological preparation and mental training • Use of technology in sports training • Research trends and case studies in sports training		15

References

- Bompá, T. & Buzzichelli, C. – *Periodization: Theory and Methodology of Training*
- Matveyev, L. P. – *Fundamentals of Sports Training*
- Harre, D. – *Principles of Sports Training*
- Dick, F. W. – *Sports Training Principles*
- Baechle, T. & Earle, R. – *Essentials of Strength Training and Conditioning*

Dr. J. K. Jaiswal

Dr. J. K. Jaiswal

Optional Course
PHDPE 1040 (g): Sports Medicine

Total Credit: 4

Total Marks: 100

Distribution of Marks (Semester End/Practical/Internal): [70/30]
No. of Credit Hours and Module: 60 Hours & 04 Modules /Unit

Objectives:

- To understand medical aspects related to sports and physical activity
- To develop knowledge of injury prevention, care, and rehabilitation
- To enhance awareness of nutrition, doping, and health issues
- To apply scientific principles in athlete care and performance

Unit	Topic	Contact Hours	Marks
I	Introduction to Sports Medicine • Meaning, definition, and scope of sports medicine • Role of sports medicine in physical education and sports • Anatomy and physiology related to sports performance • Health-related fitness components		15
II	Sports Injuries and Prevention • Types of sports injuries: acute and chronic • Causes and mechanisms of injuries • Prevention strategies and protective measures • First aid and emergency care in sports		15
III	Rehabilitation and Therapeutic Modalities • Principles of rehabilitation • Therapeutic exercises and physiotherapy • Modalities: cryotherapy, thermotherapy, electrotherapy • Return-to-play criteria and injury management		15
IV	Nutrition, Doping and Health Issues • Sports nutrition: macro and micronutrients • Hydration and supplementation • Doping: concept, types, and prevention • Lifestyle diseases and exercise prescription		15

References

- Brukner, P. & Khan, K. – *Clinical Sports Medicine*
- McArdle, W., Katch, F. & Katch, V. – *Exercise Physiology*
- Anderson, M. – *Foundations of Athletic Training*
- Prentice, W. E. – *Principles of Athletic Training*
- Williams, M. H. – *Nutrition for Health, Fitness and Sport*

Shruti Ingle

P. Jadhav

**Optional Course
PHDPE 1040 (h): FITNESS AND WELLNESS**

Total Credit: 4

Total Marks: 100

**Distribution of Marks (Semester End/Practical/Internal): [70/30]
No. of Credit Hours and Module: 60 Hours & 04 Modules /Unit**

Objectives:

- To understand the modern concept of Health, Fitness and Wellness.
- To understand the concept of holistic health through fitness and wellness
- To orient students toward the approach of positive life style.
- To develop competencies for profile development, exercise guidelines adherence.
- To design different fitness training program for different age group and their application.
- To understand the role of nutrition in health, fitness and wellness.

Unit	Topic	Contact Hours	Marks
I	Fitness and Wellness • Concept of Fitness and Wellness and their significant in modern times. • Dimension of Health and fitness. • Physical Fitness – Types of Physical Fitness and • Components of Physical Fitness		15
II	Fitness development Concept and principles of Sports training, warm up and cooling down. • Concept of Training variables :Intensity, Volume, Load, Frequency and density • Means of Fitness Development – Aerobic and Anaerobic Exercises • Exercises and Heart Rate Zones for Various Aerobic Exercise Intensities		15
III	Fitness Assessment • Standard Measurements (Height, Weight, Heart Rate and Blood Pressure) • Body Composition: (BMI, WHR, Waist Circumference and Body Fat Percentage) • Physical Fitness component assessment test		15
IV	Nutrition and Exercise • Basic concept of Nutrition. Classification of Nutrition • Means and method of Calculation of Energy Expenditure and Dietary requirement • Concept of obesity, Principles of Diet Plan, Balanced diet • Exercise and Diet plan for Weight management , weight loss and weight Gain		15

References

- Christine. M. D. (1999). Physiology of sports and exercise. USA: Human Kinetics.
- Conley, M. (2000). Bioenergetics of exercise training. .
- David, R. M. (2005). Drugs in sports, (4th Ed). Routledge Taylor and Francis Group.
- Jeyaprakash, C. S. , Sports Medicine, J.P. Brothers Pub., New Delhi, 2003.
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- Methew, D.K. & Fox. E.I. (1971). Physiological basis of physical education athletics. Philadelphia: W Saunders Co.
- Pandey, P.K., (1987). Outline of sports medicine, New Delhi: J.P. Brothers Pub.
- Williams, J. G. P. (1962), Sports medicine. London: Edward Arnold Ltd.
- Sinku K. Singh (2018). Sports Injuries and Rehabilitations. *New Delhi: Khel Sahitya Kendra publishers and distributors*
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- Anju Ambast (2018). Prevention and Treatment of Sports Injuries. *New Delhi: Khel Sahitya Kendra publishers and distributors*
- Hoshiyar Singh (2017). Athletics Care and Rehabilitation (New Syllabus). *New Delhi: Khel Sahitya Kendra publishers and distributors*
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Optional Course
PHDPE 1040 (i): YOGA
Total Credit: 4

Total Marks: 100

Distribution of Marks (Semester End/Practical/Internal): [70/30]
No. of Credit Hours and Module: 60 Hours & 04 Modules /Unit

Objectives:

- To increase the knowledge of the students about Yoga and holistic development.
- To provide a practical knowledge on different yogic practices.
- To give a glimpse of ancient Yoga Philosophy.
- To impart some knowledge about the healing power of Yoga.

Unit	Topic	Contact Hours	Marks
I	Introduction of Yoga - Meaning and Definition of Yoga. - Concept of Yoga. - Misconceptions of Yoga. - Origin and Historical Development of Yoga.		15
II	Philosophical Perspective of Yoga - Ashtanga Yoga - Patanjali; The Yoga Sutras - Yoga in Bhagavad Gita - Karma Yoga, - Raja Yoga, - Jnana Yoga - Bhakti Yoga		15
III	Practical Application of Yoga - Principles of Yogic Practices. - Meaning of Asana, its classifications and principles. - Meaning of Pranayama, its types and principles. - Meaning of Kriya its types.		15
IV	Yoga for health - Role of Yoga in Management of Stress. - Concept of Balanced Diet. - Concept of Yogic Diet - Meaning and Concept of Yoga Therapy.		15

References:

- Indian Philosophy Datta and Chatterjee
- Yoga Darshan DR.S.V. Karandikar
- Ancient Indian Culture: Edited by Mohan Chand, Department of Sanskrit And Literature Ramjas College, University of Delhi
- Patanjali Yoga-Sutra: Dr. P.V. Karambelkar
- Hatha Pradipika Dr. M.L.Gharote
- Ghrenda Samhita Swami Digambarji.
- Yoga for Stress Relief Bharat Thakur.
- Managing Stress H.S. Srinivas
- Food for Health Mool Raj
- Aahar Vidnyam Satyapal

Supriya Inayat Khan
College