DEPARTMENT OF PHYSICAL EDUCATION
SYLLABUS (SESSION: 2019-20)
MASTER OF PHYSICAL EDUCATION (M.P.ED.)
Semester-III[rd]

Title: Scientific Principles of Sports Training

Credits: 04
Max. Marks: 100
Sessional Marks: 30
Examination Marks: 70
Paper Code: PEM-3001
Duration: 2:30 Hours

Unit – I

Introduction

1.1 Training Load its features & principles
1.2 Load & factors of load, nature of execution of movement volume, intensity and density,
1.3 Overload, Causes , Symptoms and Remedial Measures of over load.
1.4 Supercompensation Cycle and Adaptation

Unit – II

Components of Physical Fitness

2.1 Speed: its characteristics, Type of Speed and factor determining Speed, Speed development.
2.2 Flexibility: its characteristics, Type of Flexibility and factor determining Flexibility, development of Flexibility.
2.3 Coordination: its characteristics, Type of coordinative abilities and factor determining coordinative abilities, development of coordinative abilities.
2.4 Effects of basic methods of conditioning

Unit – III

Technique & Tactics

3.1 Meaning of technique, skill and style, and Classification of Skills
3.2 Various phases of technique training.
3.3 Methods of technique training, causes of technical faults and their corrections.
3.4 Meaning of tactics, strategy, Principles of tactics and training of tactics.

Unit – IV

Doping

4.1 Doping: meaning, definition and classification of doping.
4.2 History of doping, health risks and side effects of doping.
4.3 Blood doping: meaning, method, effects and side effects of blood doping.
4.4 Doping control: anti doping organizations, IOC prohibited list of doping drugs and methods.

References:

- Beotra Alka, (2000), Drug Education Handbook on Drug Abuse in Sports. Delhi: Sports Authority of India.
- Bunn, J.N. (1998) Scientific Principles of Coaching, New Jersey Engle Wood Cliffs, Prentice Hall Inc.

- Cart, E. Klafs & Daniel, D. Arnheim (1999) Modern Principles of Athletic Training St. Louis C. V. Mosphy Company
- Daniel, D. Arnheim (1991) Principles of Athletic Training, St. Luis, Mosby Year Book
- David R. Mottram (1996) Drugs in Sport, School of Pharmacy, Liverpool: John Moore University.
- Gary, T. Moran (1997) – Cross Training for Sports, Canada : Human Kinetics
- Hardayal Singh (1991) Science of Sports Training, New Delhi, DVS Publications
- Jensen, C.R. & Fisher A.G. (2000) Scientific Basic of Athletic Conditioning, Philadelphia
- Ronald, P. Pfeiffer (1998) Concepts of Athletics Training 2nd Edition, London: Jones and
- Bartlett Publications Yograj Thani (2003), Sports Training, Delhi : Sports Publications

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DEPARTMENT OF PHYSICAL EDUCATION
SYLLABUS (SESSION: 2019-20)
MASTER OF PHYSICAL EDUCATION (M.P.ED.)
Semester-III[rd]

Title: Sports Medicine

Credits: 04
Max. Marks: 100
Sessional Marks: 30
Examination Marks: 70
Paper Code: PEM-3002
Duration: 2:30 Hours

Objectives: To Provide understanding of sports medicine approach and theoretical framework of Research and Development of Scientific Skill to deal with ethical issues and complexity of problems.

Unit - I

Introduction

1.1 Meaning, definition and importance of Sports Medicine, Definition and Principles of Therapeutic exercises.
1.2 Coordination exercise, Balance training exercise, Strengthening exercise, Mobilization exercise, Gait training,
1.3 Gym ball exercise Injuries: acute, sub-acute, and chronic.
1.4 Advantages and Disadvantages of PRICE, PRINCE therapy, Aquatic therapy.

Unit - II

Basic Rehabilitation

2.1 Basic Rehabilitation: Strapping/Tapping: Definition, Principles Precautions Contraindications.
2.2 Proprioceptive neuromuscular facilitation: Definition hold, relax, repeated contractions.
2.3 Show reversal technique exercises. Isotonic, Isokinetic, isometric stretching.
2.4 Definition. Types of stretching, Advantages, dangers of stretching, Manual muscle grading.

Unit - III

Injuries of Upper Extremity

3.1 Head Injuries: General concept, explanation of concussion
3.2 Neck Injuries: Mechanism of injuries, general approach.
3.3 Shoulder Injuries: Introduction to shoulder dislocation & rotator cuff injuries.
3.4 Lumbar Spine Injuries: General introduction to ligaments and muscular injuries, Complications of injuries to nervous tissues.

Unit - IV

Injuries of Lower Extremity

4.1 Low Back pain: Common causes, general care and prevention.
4.2 Knee Injuries: Introduction to injuries of main ligaments of knee and meniscus tear.
4.3 Ankle Injuries: Introduction to ankle sprains, grades of ankle sprain.
4.4 Overuse Injuries: General approach, brief explanation of shin splints, tennis elbow.

References:

1) Fritz, S. (2013)Sports & exercise massage. Elsevier mosbyISBN-13: 978-0323083829 ISBN-10: 032308382X
2) McKone, W. (1997). Osteopathic athletic health care. London: Chapman & Hall.ISBN-13: 978-
3) 0412590900ISBN-10: 0412590905
4) Magee, D. (2011). Athletic and sport issues in musculoskeletal rehabilitation. St. Louis, Mo.: Elsevier/Saunders.ISBN-13: 978-1416022640. ISBN-10: 1416022643 Page 79 of 88
5) Miniaci, A., & Iannotti, J. (2014). Disorders of the shoulder. Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins Health.ISBN-13: 978-1451130584. ISBN-10: 1451130589
6) Puddu, G., Giombini, A., & Selvanetti, A. (2001). Rehabilitation of sports injuries. Berlin: Springer.ISBN-13: 978-3540674757. ISBN-10: 3540674756 Pande. (1998). Sports Medicine. New delhi: Khel Shitya Kendra
7) The Encyclopedia of Sports Medicine. (1998). The Olympic B

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DEPARTMENT OF PHYSICAL EDUCATION
SYLLABUS (SESSION: 2019-20)
MASTER OF PHYSICAL EDUCATION (M.P.ED.)
Semester-III[rd]

Title: Health Education and Sports Nutrition

Credits: 04
Max. Marks: 100
Sessional Marks: 30
Examination Marks: 70
Paper Code: PEM-3003
Duration: 2:30 Hours

Course Objectives:

- To explain the students about the concept of holistic health and health management
- To describe the contemporary health issues and modern concept of nutrition.
- To apply practical principles of Health, health education and sport nutrition

Unit – I

Introduction to Health and Health Education:

1.1 Health Education: Its concept aims and objectives.
1.2 Inter-relationship between different components of Health.
1.3 History of Health in India, concept and various levels of Health Care of in India.
1.4 Latest trends in Health Education.
1.5 Primary Health Centre concept, three tier system of Health care in India.
1.6 Use of Audio-visual aids, method of individual, group, mass approaches of Health Education.
1.7 Medical care in rural and urban areas.
1.8 Health for all by 2000 A.D.
1.9 Role of Heredity and Genetics in achieving positive health.

Unit – II

Health Education Management Schools:

2.1 Social Health Services and School Health Programme.
2.2 Role of Physical Education Teacher, Principle, Class Teacher, Doctor.
2.3 Health appraisal: Meaning, aim, method.
2.4 Medical check-up/examination.
2.5 Common childhood diseases and their control.
2.6 First aid, accident & Prevention.
2.7 School Health administration and maintenance of records, Preparation of Health Card.
2.8 Healthful School living under fine clinics and road to health.

Unit – III

General Nutritional Concept:

3.1 Modern concept of sport nutrition.
3.2 Role of Nutrition in sport fitness and performance.
3.3 Fuel for muscular activities:
  - Protein
  - Carbohydrates
  - Fats
  - Micronutrients
  - Dietary fibers

3.4 Nutritional consideration of diet planning for athletes.
3.5 Recommendations of healthy nutrition for athletes.

Unit – IV

Nutritional Care Process and Management:

4.1 Fundamentals of meal planning in sport:
- Pre-event meal
- Post event meal
- Meal during periodization training

4.2 Fluid balance for optimum sport performance.

4.3 Anti-doping regulations and harmful effects of banned substances.

4.4 Classification of sports according to energy expenditure as per NIN recommendations.

4.5 Nutrition for female and junior athletes.

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Course Learning Outcomes:

- Understanding of the theoretical concept of holistic health, health education and sport nutrition.
- Explanation of the practical & theoretical implications of health education and sport nutrition plans.
- Evaluation process of different implications of health education and sport nutrition.
- Preparation of different modern sport nutrition and health education plans.

List of Practicum

1) Visit to factory in town area to note down the occupational hazards/accidents that occur due to working conditions and their preventive measures.
2) Visit to food product factory to prepare a report based on the observation of the process of preparation and nutritional values.
3) Visit to any one of the University residential dining hall for observation and to suggest steps to improve the hygiene there.

Teaching Learning Strategies: The class will be taught by using lectures and demonstration, seminars, classroom discussion, videos, charts and presentations method.

Activities: Lecture//Laboratory Work/ Field Work/ Outreach Activities/ Project Work/ Vocational Training/Viva/ Seminars/ Term Papers/Assignments/ Presentations/ Volunteering/Self-Study etc.

Assessment Rubric: Classroom Test, Project Work, Assignments, Presentations

Text & References:

1) Emily R. Foster, Karyn Hartiger& Katherine A. Smith, Fitness Fun, Human Kinetics Publishers 2002.
2) Lawrence, Debbie, Exercise to Music. A & C Black Publishers Ltd. 37, Sohe Square, London 1999
3) Robert Malt. 90 day fitness plan, D.K. publishing, Inc. 95, Madison Avenue, New York
4) Benardot, D. (2012).Advanced sports nutrition. Champaign, IL: Human Kinetics.ISBN 9781450401616
5) Burke, L. (2007).Practical sports nutrition. Champaign, IL: Human Kinetics ISBN. 9780736046954
6) Connolly, M. (2012).Skills-based health education. Sudbury, MA: Jones & Bartlett Learning. ISBN 9781449630201
7) Koelen, M., & Ban, A. (2004).Health education and health promotion.Wageningen,
8) Netherlands: Wageningen Academic Publishers. ISBN 9789076998442
9) Gilbert, G., Sawyer, R., & McNeill, B. (2011).Health education. Sudbury, Mass.: Jones and Bartlett Publishers. ISBN 9780763759292

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DEPARTMENT OF PHYSICAL EDUCATION
SYLLABUS (SESSION: 2019-20)
MASTER OF PHYSICAL EDUCATION (M.P.ED.)
Semester-III[rd]

Title: Sports Engineering (Elective)

Credits: 04
Max. Marks: 100
Sessional Marks: 30
Examination Marks: 70
Paper Code: PEM-3011
Duration: 2:30 Hours

Goal – to define the importance of engineering in the sports world and develop an understanding of different ways materials/designing can affect performance.

Unite: I

Goal – To define the importance of engineering in the sports world and develop an understanding of different sports analysis

1.1 Introduction to Sports Engineering
Chapter Reading : S.J. Haake Department of Mechanical Engineering, University of Sheffield, UK
1.2 Motion analysis using Videography
(Motion analysis using video *by carl j. Payton)*
(https://www.taylorfrancis.com/books/e/9781134109036/chapters/10.4324%2F9780203935750-7)

1.3 Biomechanics:-
1.3.1 Gait and Ergonomics
Chapter Reading: Biomechanical evaluation of movement in sports and exercises, Edited by: Carl J. Payton and Rogger M. Bertlett

Unite: II

Goal – To define the mechanical concept of engineering in the sports and biomechanics of daily activities
2.1 Introduction of Force and its measurement
2.2 Concept of Internal Force, Axial Force, Shear force and bending Movement
2.3 Mechanical Principles in waking movements
(Chapter reading: Biomechnical evaluation of movement in sports and exercises, Routledge 2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN)

Unite –III

Goal- To define the mechanical concept of materials in fitness and *Sports related instrumentation.*

3.1 Instrumentation and application in sports/fitness of Steam Bath, Sauna Bath and Jacuzzi Bath. (Practical application)

3.2 Materials in cricket

(J. SUBIC RMIT University, Melbourne, Australia A. J. COOKE Cooke Associates, Cambridge, UK)

3.2.1 Cricket ball (*Chapter 5 from Jenkins – Balls and Ballistics).*

3.2.1.1 Introduction - discuss the design necessities that go into balls materials and manufacturing.

3.2.1.2 Materials and construction of cricket balls

3.2.1.3 Analysis of cores/balls

3.2.2 Cricket bat

3.2.2.1 Introduction – discuss the design necessities that go into bats materials and manufacturing.

3.2.2.2 Performance of cricket bats

3.2.2.3 Materials and construction of cricket bats

(Chapter Reading: Jenkins, M. (2003). Materials in sports equipment. Cambridge, England: Woodhead Publishing Limited.)

Unite –IV

Goal: To define the mechanical concept of instrumentation in Sports:

4.1 Instrumentation and Software:

4.1.1 Motion Analysis (Procedure and application)

4.1.2 Electromyography

4.1.3 Pressure measurement

4.1.5 Sports Specific Instrumentation and software i.e. Athletic etc.

Required Readings:

Jenkins, M. (2003). Materials in sports equipment. Cambridge, England: Woodhead Publishing Limited.

Drowatzky, J. (1996). Ethical decision making in physical activity research. Champaign, IL: Versa Press.

Payton and Bertlett (2008). Biomechnical evaluation of movement in sports and exercises, Routledge 2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

Moritz and Haake (Eds.) (2017). The engineering of sports 06-07 , Springer Science-Business Media, LLC

Franz Konstantin Fuss, Aleksandar Subic, Martin Strangwood, Rabindra Mehta, (2013), Routledge Handbook of Sports Technology and Engineering,

https://www.routledgehandbooks.com/doi/10.4324/9780203851036.ch3

Caroline Adams, David James, Terry Senior, Tom Allen, Nick Hamilton (September 2018), Correction to: Effect of surrogate design on the measured stiffness of snowboarding wrist protectors

Pascal Hémon (September 2018), Hydrodynamic characteristics of sea kayak traditional paddles

Taishu Nakamura, Tasuku Miyoshi, Shota Sato, Motoki Takagi... (September 2018), Differences in soccer kicking type identified using principal component analysis

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