

Appendix-68  
Resolution No. 27 {27-1 (27-1-10)}

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Department of Physical Education

Semester-IV

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**SEMESTER- 4**  
**BSc-PE-DSC-10(4) (DSC)**  
**SPORTS SOCIOLOGY**  
**DSC**

**SPORTS SOCIOLOGY**

Sl. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical		
1.	SPORTS SOCIOLOGY	04	03	0	01	XII Pass	NIL

**Objective:**

To provide the knowledge and applications of Sports sociology as well as to familiarize the learners with the culture and sport, Socialization and sports, Gender and sports, Stratification as well as sports education with application point of view.

**Learning Outcomes:**

At the end of the course the student will be able to-

1. Acquire the knowledge of meaning and importance of sports sociology and inculcate the knowledge of various theories in order to apply in best suitable modern aspects.
2. Understand the concept of culture and sports along with its components to deal with cultural lag.
3. Recognize the basic differences between various feminist theories in sport in order to understand the development of women in sports at present day context.
4. Apply the knowledge and practices of social mobility and stratification in the emergence of commercial and professional sports.
5. Understand the importance and applications of sports sociology.
6. Articulate sociological perspectives with sports.
7. Inculcate the sports culture in their life & society.
8. Establish the relationship between society and sports.
9. Analyze gender inequality in sports and application of the same for equality.
10. Understand the significance of socialization through games and sports for the development of the society.

**Theory Syllabus**

**UNIT I - Introduction**

**(09 Hours)**

- 1.1 Meaning and importance of sociology and sports sociology
- 1.2 Sports as social phenomenon
- 1.3 Functional theory and sports
- 1.4 Conflict theory and sports
- 1.5 Interaction theories and Sports

**UNIT II - Culture and sports (09 Hours)**

- 2.1 Concept of sports culture and its characteristic
- 2.2 Sports culture and its components
- 2.3 Sports club culture
- 2.4 Cultural lag and sports

**UNIT III - Socialization and sports (09 Hours)**

- 3.1 Concept of Socialization and Sports Socialization
- 3.2 Type of socialization
- 3.3 Agents of socialization
- 3.4 Importance of socialization

**UNIT IV - Gender and Sports (09 Hours)**

- 4.1 Meaning and Concept of Gender, Liberal feminist theory and sports, Radical feminist theory and sports.
- 4.2 Marxist feminist theory and sports
- 4.3 Third Gender (Transgender) and Sports
- 4.4. Development of Women in Sports in India

**UNIT V - Stratification and sports (09 Hours)**

- 5.1 Meaning and concept of stratification and sports
- 5.2 Types of sports stratification
- 5.3 Social mobility and sports
- 5.4 Emergence of commercial and professional sports

**Practical (30 Hours)**

- 1. Conduct a survey on the status of sports in society/ community of a given area of context.
- 2. Measurement of Group Dynamics.
- 3. Application of Methods and Scales for selection of Leader/ Captain in games & sports setup.
- 4. Measurement of Social Desirability.

**References:**

- 1. Bhusan, V. and Sachdeva, An Introduction to Sociology, Delhi: Kitab, 2003.
- 2. Coaplay, Joy. J., Sport In Society, Issues And Controversies, Mcgraw Hill International edition 1997
- 3. Dictionary of sociology, Penguin reference
- 4. Donald. W. Ball and John W. Joy, Sport and Social Order: Contributions to the Sociology of Sports, Addison Wesley Publishing company 1975
- 5. Freeman. S. and Boyes R., Sports beyond the iron curtain, London Protcus Publishing Company 1980
- 6. Gultmann, A., Sport Spectators, Colombia University, New York 1986

7. Hosue, J., Tomlinson, A., Whannel, G., Undertaking Sport – An Introduction To The Sociology And Cultural Analysis of Sport, Routbdge, New York 1999
8. IGNOU, The Study of Society - Understanding Sociology, Delhi - IGNOU, 2007.
9. Inkeles, A. Ed., What Is Sociology, New Delhi : Prentice Hall, 1997.
10. Jain, Rachna, Sports Sociology, New Delhi: Khel Sahitaya Kendra, 2005.
11. Knop,P.D., Engstrow, L.M., Sbisstadd, B., Uleiss, M.R., World Wide Trends In Youth Sport, Human Kinetics 1996
12. Learning Experience in Sociology of Sport by Lusan L. Greendoefer, C.A. Hasbroob, Human Kinetics Books Champaign, Illions U.S.A. 1991
13. Loy,J.W., Mc pherson , B.D., Kenyon, G., Sport And Social Systems, A Guide To The Analysis Problems Litreture, Addison wesley publishing company Messachuslls 1978
14. Maguire, J. and Young JAI, K., Theory, Sport and Society , Elsevier Ltd. 2005
15. Majuardar, B., and Morgan Reutledge, J. A., Sport in South Asian Society Past and Present edited, New York and London 2005
16. Mc Pherson, B.D., Curtis,J.E., and Loy, J.W., The Social Significance of Sport, Human Kinetics books Champaign Illinois U.S.A.1989
17. Mitchell, G.D. Ed., Dictionary of Sociology, U.K : Routledge, 1999.
18. Moping Sense of Sports, by Ellis Cashmore Routeedge, New York, 2000
19. Panomaryow, N.I., Sport and Society, Progress Publication Moscow-1981
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21. Redmond, G., Sport and Politics,. Human Kinetics publishers, In Champaign, Illinois 1986
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23. Sandhu, Kanwaljit Singh, Sport Sociology, New Delhi : Friends Pub., 2000.
24. Sege, G.H Power And Radiology In American Sport, A Critical Perspective, Human Kinetics 1998
25. Sharma, R. N, Urban Sociology, New Delhi : Surjeet Pub., 1993.
26. Shoebridge, M., Women in Sports, a selected biography, Mansell publishing Ltd. London and New York 1987
27. Singh, Bhupinder, Sports Sociology, New Delhi : Friends, 2004.
28. Singh, J.P., Samaajshastra Avdharanaaye Aur Sidhaant, Prentis Hall of India New Delhi 1999
29. Snyder, E.E. and Prentis Hall Jersey, Social aspect of Sport, 1978
30. Sports in Contemporary Society: An ethnology worth publications, New York-2001
31. Stanly eitzan and George H. Sage, Sociology of world American Sports, Bastow, M. A: W C B/Mcgraw Hill 1997
32. Kumar, Dharmander, Fundamentals of Sports Sociology, Writer choice,2022
33. Singh, Rajbir, Khel Samaj shastra (Part-1, 2, 3 and 4) Sports Publication,2010
34. Turner, B., Cambridge Dictionary of Sociology, U.K., Cambridge, U.N. Press., 2006

**SEMESTER- 4**  
**BSc-PE-DSC-11(4) (DSC)**  
**BIOMECHANICS**  
**DSC**

Sl. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
2.	Biomechanics	04	3	0	1	XII Pass	NIL

**Objective:**

The objective of this course is to provide an understanding with practical skills to the learners about Sports Biomechanics and its applications to sports as well as to develop the foundation of sports biomechanics for performance analysis and improvement.

**Learning Outcomes:**

1. The learners will be able to understand the fundamental concepts and practices related to Sports Biomechanics.
2. The learners will be able to develop an understanding for practical applications of the fundamental structure of movement with related mechanics and its principles.
3. The learners will be able to analyze the sport movements and design movement-oriented exercise for improvement of performance.
4. The learners will be able to develop the program for improving performance as an innovative approach applying biomechanics.
5. The learners will be able to apply the knowledge and skills related to science of movement to create a strong foundation for better sports performance and research.

**SYLLABUS**

**PART-A: THEORY**

**Unit – I Introduction to Sports Biomechanics (08 Hours)**

- Meaning and Definition of Sports Biomechanics.
- Importance of Sports Biomechanics to Physical Education Teacher, Athletes and Sports Coaches.
- Terminology of Fundamental Movements
- Fundamental concepts of Centre of Gravity, Equilibrium, Line of Gravity

**Unit – II Mechanical Concepts (10 Hours)**

- 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 (linear and angular).
- Projectile – Factors influencing projectile trajectory.

**Unit – III Kinematics of Human Movement (08 Hours)**

- Linear Kinematics – Distance and Displacement, speed and velocity, Acceleration
- Angular kinematics – Angular Distance and Displacement, Angular Speed and velocity, Angular Acceleration.

#### **Unit – IV Kinetics of Human Movement**

**(09 Hours)**

- Linear Kinetics – Inertia, Mass, Momentum, Friction.
- Angular Kinetics – Moment of Inertia, Couple, Stability.

#### **Unit – V Biomechanical Principles**

**(10 Hours)**

- The Principle of the Optimum Path of Acceleration.
- The Principle of the Initial Force.
- The Principle of Reaction.
- The Principle of Conservation of Momentum.

#### **PART-B: PRACTICALS**

**(30 Hours)**

1. Evaluation of Velocity- Time Graph.
2. Determination of Centre of Gravity by Reaction Board Method.
3. Determination of Centre of Gravity by Joint Point Method.
4. Determination of Centre of Gravity by Main Point Method.
5. Determination of Centre of Combined Gravity (Joint Point Method).
6. Demonstration of the Principle of Conservation of Angular Momentum.
7. Demonstration of the Principle of Action and Reaction.

#### **Suggested Readings:**

1. Shaw, D. (2003). Sports Biomechanics. Khel Sahitya Kendra.
2. Shaw, D. (2022). Biomechanics and Kinesiology of Human Motion. Khel Sahitya Kendra.
3. Shaw, D. (2007). Mechanical Basis of Bio-Mechanics. Sports Publication.
4. Shaw, D. (2018). Pedagogic Kinesiology. Sports Publication.
5. Shaw, D. & Kumar, G. (2022). Kinesiology of Exercises with Apparatus. Khel Sahitya Kendra.
6. Shaw, D. & Mathur, N. (2022). Kinesiology of Freehand Exercises. Sports Publication.
7. Bunn, J. W. (1972). Scientific Principles of Coaching. Englewood Cliffs, N.J.: Prentice Hall Inc.
8. Hay, J. G. & Reid, J. G. (1982). The Anatomical and Mechanical basis of Human Motion. Englewood Cliffs, N.J.: prentice Hall Inc.
9. Hay, J. G. & Reid, J. G. (1988). Anatomy, Mechanics and Human Motion. Englewood Cliffs, N.J.: prentice Hall Inc.
10. Hay, J. G. (1970). The Biomechanics of sports techniques. Englewood Cliffs, N.J.: Prentice Hall, Inc.
11. Simonian, C. (1911). Fundamentals of Sport Biomechanics. Englewood Cliffs, N.J.: Prentice Hall Inc.

**SEMESTER- 4**  
**BSc-PE-DSC-12(4) (DSC)**  
**EXERCISE PRESCRIPTION FOR HEALTH AND FITNESS**  
**DSC**

Sl. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical		
3.	EXERCISE PRESCRIPTION FOR HEALTH AND FITNESS	04	03	0	01	XII Pass	NIL

**Objective:**

The objective of this course is to provide an understanding, skill and practices to the learners about exercise prescription for health and fitness.

**Learning Outcomes:**

At the end of the course the student will be able to-

1. Acquire the knowledge and practices of exercise prescription on the behalf of health status.
2. Deal with differentiation and relation between exercise & physical activity.
3. Understand and demonstrate the direct and indirect health benefits of the exercise
4. Get understanding and applications of acronyms FITT (Frequency, Intensity, Time (duration), type (Mode of Exercise) (Training principles for batter training)

**Theory Syllabus****UNIT I -****(09 Hours)**

- 1.1 Background of exercise prescription to non-sports person, basis of exercise prescription and measurement of motivation for physical exercise/activity health status
- 1.2 Physical personality in relation to physique, attitude, interests.
- 1.3 Exercise for recreation, health, fitness, wellness and competition.

**UNIT II -****(09 Hours)**

- 2.1 Meaning and definition of exercise & physical activity
  - 2.1.1 Differences between exercise & physical activity (chronic and acute effect for adaptation)
  - 2.1.2 Relation between exercise & physical activity

**UNIT III -****(09 Hours)**

- 3.1 Health benefits of exercise, exercise as pro-active health care.

3.2 Exercise for prevention of heart disease, osteoporosis, diabetes type-II, hypertension, obesity etc.

#### **UNIT IV -**

**(09 Hours)**

4.1 Necessity of exercise prescription

4.1.1 Sedentary population

4.1.2 Different-population

4.1.3 Self-responsibilities and behaviour change stages for exercise regularity

#### **UNIT V -**

**(09 Hours)**

5.1 Steps for exercise prescription.

5.2 Exercise, stress test, physical fitness test,

5.3 Understanding acronyms FITT (Frequency, Intensity, Time (duration), Type (Mode of Exercise)).

5.4 Principles of fitness training

#### **PART- B Practical Syllabus**

**(30 Hours)**

1. Assessment of fitness (At least three)
2. Assessment of physical activity readiness of a person
3. Measurement of health status
4. Prescribing exercise / Programme
5. Evaluation of an exercise Programme

#### **References:**

1. American College of Sports Medicine (2000). ACSM's Guidelines for Exercise Testing and Prescription. Lippincott Williams & Wilkins. Philadelphia. USA.
2. Corbin C G Welk W Corbin & K Welk (2005). Concepts of Fitness and Wellness. McGraw Hill Company. New York. USA.
3. Goldberg L and DL Elliot (2002). The Power of Exercise. National Health & Wellness Club. USA.
4. Hales D (2006). An Invitation to Health. Thomson Wadsworth. Belmont. California. USA.
5. Harrison GA, Weiner JS Tanner JM and. Barnicot NA (1984). Human Biology. Oxford University Press. Oxford. U.K.
6. Howley ET and BD Franks (2003). Health Fitness Instructors Handbook, Human Kinetics. Champaign. Illinois. USA
7. Kolecki JE and DQ Thomas (2007). Activities and Assessment Manual. Jones and Bartlett Publishers. Sandburg. Massachusetts. USA.
8. Powers S and E Howley (2006). Exercise Physiology- Theory and Applications. McGraw Hill Co. New York. USA.
9. Thomas DQ and JE Kotecki (2007). Physical Activity and Health –An Interactive Approach. Jones and Bartlett Publishers. Sndbury. Masschusett. USA.
10. USDHHS (2000) Healthy People 2010: National Health Services (USDHHS). Washingtons D.C. USA.



## Semester-IV

**NOTE: Choose a maximum of two DSE papers (Games/ Sports), One DSE paper is compulsory, not repeating from semester I, II & III (DSC/ DSE).**

**BSc-PE-DSE-3 or 4 (4)-101:  
ATHLETICS**

Sr. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
1	Athletics	04	2	0	2	XII Pass	NIL

**Objective:** - The Students will acquire knowledge and understanding of a specific sport/ games in regard to practices, skills and practical in which an individual wish to excel.

**Learning Outcome:** -The students will attain knowledge, understanding, interpreting and analyzing proficiency in a game of one's choice.

After the Completion of First Month:

The student will be able to gain knowledge with respect to Historical Development, Organizational Structure and Playfield Technology of the respective sport/game.

After the Completion of Second Month:

A student will be able to understand, application and interpret the rules of game as well as game knowledge in the areas of psychological and physiological basis of Warming up and technical aspects of coaching.

After the Completion of Third Month:

A student will be able to learn and acquire various skills of sports / game, gain knowledge about different techniques of fitness and skills of evaluation as well as the evaluation of player's performance. The technical practice of sprint races, middle and long distance races, hurdles races, jumping event- long jump, throwing events- shot put, hammer throw.

After the Completion of Fourth Month:

A student will be learning about various fitness components and its forms. Further, the student will be able to practice and improve performance on the basis of knowledge and skill gained in understanding various fitness components. Track marking and marking of different arenas for selected events as in unit-III.

## THEORY SYLLABUS

(30 hrs lectures)

**Unit-I****(08 hrs lectures)**

- Historical Development and Modern Trends (National and International Level)
- Organisational Structure (State, National and International Level)
- Playfield Technology – Marking and Construction of the playfields.

**Unit-II****(08 hrs lectures)**

- Rules and their interpretation of the sport.
- Warming up and psychological as well as physiological basis of Warming up, Cooling down and its effect.
- Techniques of Coaching – Pep talk, Pre, during and Post match competition Coaching.

**Unit-III****(07 hrs lectures)**

- Basic skills and techniques of the Sports/Game- – sprint races, middle and long distance races, hurdles races, jumping event- long jump, throwing events- shot put, hammer throw.
- Motor Fitness Components Testing
- Skill/Technique Evaluation
- Evaluation of Player's Performance.

**Unit-IV****(07 hrs lectures)**

- Introduction to Physical and Motor Fitness components related to sport: Strength, Speed, Endurance, Coordinative Abilities and Flexibility.
- Track marking and marking of different arenas for selected events in unit-III.

Practical Syllabus - (60 hrs.)

1. Learning and demonstrating various skills/techniques of sports- sprint races, middle and longdistance races, hurdles races, jumping event- long jump, throwing events- shot put.
2. Learning to demonstrate various tests to evaluate motor components as listed in unit IV above.
3. Track marking and marking of different arenas for selected events in unit-III.

SUGGESTED READINGS:

- Chauhan VS (1999). Khel Jagat Mein Athletics. A.P. Pub, Jalandhar.
- Bompa O. Tudor and Half G. Gregory. (2009) "Periodization Theory and Methodology of Training" Human kinetics. NY.
- Evans DA (1984). Teaching Athletics. Hodder, London.
- Fox EL (1998). Physiological Basis of Physical Education and Athletics Brown Pub.
- Gothi E (2004). Teaching & Coaching Athletics. Sport Pub., New Delhi.
- Gupta R. (2004). Layout & Marking of Track & Field. Friends Publications. India. New Delhi.
- Handbook-Rules and Regulation. International Athletic Federation (2010).
- Herb Amato, DA ATC et al (2002). Practical Exam Preparation Guide of Clinical Skills of Athletic Training. Slack Incorporated. 1<sup>st</sup> ed., USA.
- Kumar, Pardeep. (2008). Historical Development of Track & Field. Friends Publication. New Delhi
- Maughan, R. and Gluson, M. (2004). The Biomechanical Basics of Athletic Performance. Oxford University Press, U.K.
- Prentice, W. and Arnheim, D. (2005). Arnheim's Principles of Athletic Training 12<sup>th</sup> Ed. McGrawHill. in place of Knight (1988).
- Renwick GR (2001). Play Better Athletics. Sports Pub, Delhi.
- Singh, Hardayal. (1919). Science of Sports Training. DVS Publication, N. Delhi.
- Vanaik A. (2017). Officiating and Coaching, Friends Publication. New Delhi.

**Semester IV**  
**BSc-PE-DSE-3 or 4 (4)-102:**  
**BADMINTON**

Sr. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
2	Badminton	04	2	0	2	XII Pass	NIL

**Objective:** - The Students will acquire knowledge and understanding of a specific sports / game in which an individual wishes to excel.

**Learning Outcomes:** -The student attains knowledge, understanding, interpreting and analyzing proficiency in a game of one's choice.

After the Completion of First Month:

A student will be able to gain knowledge with respect to Historical Development, Organisational Structure and Playfield Technology of a sport/game.

After the Completion of Second Month:

A student will be able to understand and interpret the rules of game as well as game knowledge in the areas of physiological basis of Warming up and technical aspects of coaching.

After the Completion of Third Month:

A student will be able to learn and acquire various skills of sports/game, gain knowledge about different techniques evaluation as well as the evaluation of player's performance.

After the Completion of Fourth Month:

A student will be learning about various fitness components and its forms. Further, the student will be able to practice and improve performance on the basis of knowledge gained in understanding various fitness components and its testing.

**THEORY SYLLABUS**

**(30 hrs lectures)**  
**(08 hrs lectures)**

**Unit-I**

- Historical Development and Modern Trends (National and International Level)
- organizational Structure (State, National and International Level)
- Playfield Technology – Marking and Construction of the playfields.

**Unit-II**

**(08 hrs lectures)**

- Rules and their interpretation.
- Warming up and physiological basis of Warming up and its effect on performance.
- Cooling down and its effect.

**Unit-III**

**(07 hrs lectures)**

- Techniques of Coaching – Pep talk, Pre, during and Post match coaching.
- Basic skills and techniques of the Sports/Game.
- Skill/Technique Evaluation
- Evaluation of Player's Performance.

## Unit-IV

**(07 hrs lectures)**

- Introduction to Physical and Motor Fitness components: Strength, Speed, Endurance, Coordinative Abilities and Flexibility.
- Motor Fitness Components Testing of above components.

## Practical Syllabus -

**(60 hrs.)**

Learning and demonstrating various skills/techniques of sports.

Learning to demonstrate various tests to evaluate motor components as listed in unit IV above.

## SUGGESTED READINGS:

1. Bloss, M.V. et al (2000). Badminton. McGraw Hill, USA.
2. Bompa O Tudor and Halff G. Gregory. (2009) "Periodization Theory and Methodology of Training" Human kinetics. NY.
3. Brahm's Bernd-Voler. (2010). Badminton Handbook. Mayer & Mayer Sports: UK. Unit-II, III & IV-p-9-14.
4. Daris Pal. (1988). Badminton-The complete practical guide. Dairs & Charles Inc.:USA. Unit-II-p-1-28 III- p-29-88, 109-152 & IV-p-97-108
5. Downey J (1990). How to Coach Badminton. Collins Pub. London.
6. Golds, M. (2002). Badminton: Skills of the Game. Growood Press, USA.
7. Grice, T. (2007). Badminton: Steps to Success. 2<sup>nd</sup> Ed. Human Kinetics, USA.
8. Gupta R. Kumar P. and Tyagi S. (2008). Textbook on Teaching Skill and Prowess (Part- I & II). Friends Publication. New Delhi.
9. Hoeger, W.W. Kand & Hoeger, S.A. (1997). Principles and Labs for physical fitness. (2<sup>nd</sup> Edi.). Morton Publishing Company. USA. Unit- II- p-127, 178-187, Unit- p-10-194.
10. Singh, Hardayal. (1991). Science of Sport Training. D.V.S Pub. Delhi.
11. Singh, MK. (2007). Comprehensive Badminton. Friends Pub. New Delhi.
12. Vanaik A. (2005). Playfield Manual, Friends Publication. New Delhi.
13. Vanaik A. (2017). Officiating and Coaching, Friends Publication. New Delhi.

**Semester IV**  
**BSc-PE-DSE-3 or 4 (4)--103:**  
**BASKETBALL**

Sr. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
3	Basketball	04	2	0	2	XII Pass	NIL

**Objective:** - The Students will acquire knowledge and understanding of a specific sport/game in which an individual wish to excel.

**Learning Outcome:** -The student attains knowledge, understanding, interpreting and analyzing proficiency in a game of one's choice.

After the Completion of First Month:

A student will be able to gain knowledge with respect to Historical Development, Organisational Structure and Playfield Technology of a sport/game.

After the Completion of Second Month:

A student will be able to understand and interpret the rules of game as well as game knowledge in the areas of physiological basis of Warming up and technical aspects of coaching.

After the Completion of Third Month:

A student will be able to learn and acquire various skills of sports/game, gain knowledge about different techniques evaluation as well as the evaluation of player's performance.

After the Completion of Fourth Month:

A student will be learning about various fitness components and its forms. Further, the student will be able to practice and improve performance on the basis of knowledge gained in understanding various fitness components and its testing.

**THEORY SYLLABUS**

**(30 hrs lectures)**

**Unit-I**

**(07 hrs lectures)**

- Historical Development and Modern Trends (National and International Level)
- Organisational Structure (State, National and International Level)
- Playfield Technology – Marking and Construction of the playfields.

**Unit-II**

**(08 hrs lectures)**

- Rules and their interpretation.
- Warming up and physiological basis of Warming up and its effect on performance.
- Cooling down and its effect.

**Unit-III**

**(07 hrs lectures)**

- Techniques of Coaching – Pep talk, Pre, during and Post match coaching.
- Basic skills and techniques of the Sports/Game.
- Skill/Technique Evaluation
- Evaluation of Player's Performance.

**Unit-IV**

**(08 hrs lectures)**

- Introduction to Physical and Motor Fitness components: Strength, Speed, Endurance, Coordinative Abilities and Flexibility.
- Motor Fitness Components Testing of above components.

**Practical Syllabus -****(60 hrs.)**

Learning and demonstrating various skills/techniques of sports.

Learning to demonstrate various tests to evaluate motor components as listed in unit IV above.

**SUGGESTED READINGS**

- Bompa O. Tudor and Halff G. Gregory. (2009) “Periodization Theory and Methodology of Training” Human kinetics. NY.
- Drewett, J. (2007). How to Improve at Basketball. Crabtree Publishing Co., USA.
- Goldstein, S. (1998). Basketball Fundamentals. 2<sup>nd</sup> Ed. Golden Aura Publishing, USA.
- Jain Naveen (2003). Play and Learn Basket Ball. Khel Sahitya Kendra. New Delhi.
- Nat BB (1997). Conditioning Coaches Association. NBA Power Conditioning. Human Kinetics.
- Sharma OP (2003). Basket Ball Skills and Rules. Khel Sahitya Kendra, Delhi.
- Singh, Hardayal. (1919). Science of Sports Training. DVS Publication, N. Delhi.
- Wilmore & Costill (2004). Physiology of Sports & Exercise. Human Kinetics, US

Semester IV  
BSc-PE-DSE-3 or 4 (4)--104:  
CRICKET

Sr. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
4	Cricket	04	2	0	2	XII Pass	NIL

**Objective:** - The Students will acquire knowledge and understanding of a specific sport/game in which an individual wish to excel.

**Learning Outcomes:** -The student attains knowledge, understanding, interpreting and analyzing proficiency in a game of one’s choice.

After the Completion of First Month:

A student will be able to gain knowledge with respect to Historical Development, Organisational Structure and Playfield Technology of a sport/game.

After the Completion of Second Month:

A student will be able to understand and interpret the rules of game as well as game knowledge in the areas of physiological basis of Warming up and technical aspects of coaching.

After the Completion of Third Month:

A student will be able to learn and acquire various skills of sports/game, gain knowledge about different techniques evaluation as well as the evaluation of player’s performance.

After the Completion of Fourth Month:

A student will be learning about various fitness components and its forms. Further, the student will be able to practice and improve performance on the basis of knowledge gained in understanding various fitness components and its testing.

**THEORY SYLLABUS**

Unit-I	<ul style="list-style-type: none"><li>• Historical Development and Modern Trends (National and International Level)</li><li>• Organisational Structure (State, National and International Level)</li><li>• Playfield Technology – Marking and Construction of the playfields.</li></ul>	(07 hrs lectures)
Unit-II	<ul style="list-style-type: none"><li>• Rules and their interpretation.</li><li>• Warming up and physiological basis of Warming up and its effect on performance.</li><li>• Cooling down and its effect.</li></ul>	(08 hrs lectures)
Unit-III	<ul style="list-style-type: none"><li>• Techniques of Coaching – Pep talk, Pre, during and Post match coaching.</li><li>• Basic skills and techniques of the Sports/Game.</li><li>• Skill/Technique Evaluation</li><li>• Evaluation of Player’s Performance.</li></ul>	(07 hrs lectures)
Unit-IV	<ul style="list-style-type: none"><li>• Introduction to Physical and Motor Fitness components: Strength, Speed, Endurance, Coordinative Abilities and Flexibility.</li><li>• Motor Fitness Components Testing of above components.</li></ul>	(08 hrs lectures)

**PRACTICAL SYLLABUS -****(60 hrs.)**

Learning and demonstrating various skills/techniques of sports.

Learning to demonstrate various tests to evaluate motor components as listed in unit IV above.

**SUGGESTED READINGS**

1. Amarnath M. (1996). Learn to Play Good Cricket. UBS Publishers. New Delhi.
2. Bompa O. Tudor and Halff G. Gregory. (2009) "Periodization Theory and Methodology of Training" Human kinetics. NY.
3. Boycott, G. (2010). Play Cricket the Right Way. Great Northern Books Limited, U.K.
4. Cricket (2008). Sports Skills: Cricket Fielding (Know the Game). A & C Black Publishers.
5. Gupta, K. (2006). How to Play Cricket. Goodwill Publishing House, New Delhi.
6. Hobbs, J. (2008). The Game of Cricket As it should be played. Jepson Press, USA.
7. Jain R. (2003). Fielding Drills in Cricket. Khel Sahitya Kendra. New Delhi.
8. Rachna (2002). Coaching Successfully: Cricket. Khel Sahitya Kendra. New Delhi.
9. Singh, Hardayal. (1919). Science of Sports Training. DVS Publication, N. Delhi.
10. Sharma P. (2003). Cricket. Shyam Parkashan. Jaipur.
11. Vanaik A. (2017). Officiating and Coaching, Friends Publication. New Delhi



**Semester IV**  
**BSc-PE-DSE-3 or 4 (4)-105:**  
**FOOTBALL**

Sr. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
5	Football	04	2	0	2	XII Pass	NIL

**Objective:** - The Students will acquire knowledge and understanding of a specific sport in which an individual wish to excel.

**Learning Outcomes:** -The student attains knowledge, understanding, interpreting and analyzing proficiency in a game of one's choice.

After the Completion of First Month:

A student will be able to gain knowledge with respect to Historical Development, Organisational Structure and Playfield Technology of a sport/game.

After the Completion of Second Month:

A student will be able to understand and interpret the rules of game as well as game knowledge in the areas of physiological basis of Warming up and technical aspects of coaching.

After the Completion of Third Month:

A student will be able to learn and acquire various skills of sports/game, gain knowledge about different techniques evaluation as well as the evaluation of player's performance.

After the Completion of Fourth Month:

A student will be learning about various fitness components and its forms. Further, the student will be able to practice and improve performance on the basis of knowledge gained in understanding various fitness components and its testing.

### THEORY SYLLABUS

#### Unit-I

(08 hrs lectures)

- Historical Development and Modern Trends (National and International Level)
- Organisational Structure (State, National and International Level)
- Playfield Technology – Marking and Construction of the playfields.

#### Unit-II

(08 hrs lectures)

- Rules and their interpretation.
- Warming up and physiological basis of Warming up and its effect on performance.
- Cooling down and its effect.

#### Unit-III

(07 hrs lectures)

- Techniques of Coaching – Pep talk, Pre, during and Post match coaching.
- Basic skills and techniques of the Sports/Game.
- Skill/Technique Evaluation
- Evaluation of Player's Performance.

#### Unit-IV

(07 hrs lectures)

- Introduction to Physical and Motor Fitness components: Strength, Speed, Endurance, Coordinative Abilities and Flexibility.
- Motor Fitness Components Testing of above components.

**PRACTICAL SYLLABUS –****(60 hrs.)**

Learning and demonstrating various skills/techniques of sports.

Learning to demonstrate various tests to evaluate motor components as listed in unit IV above.

**SUGGESTED READINGS**

1. American Football Coaches Association (2002). The Football Coaching Bible. 1<sup>st</sup> Ed., Human Kinetics, USA.
2. Bompa O. Tudor and Halff G. Gregory. (2009) "Periodization Theory and Methodology of Training" Human kinetics. NY.
3. Carling, C., Williams, M. and Reilling, T. (2006). Handbook of Soccer Match Analysis: A Systematic Approach to Improving Performance. Routledge Publishers, USA.
4. Long, H. and Czarnecki, J. (2007). Football for Dummies. For Dummies Publisher, USA.
5. N Kumar (2003). Play and Learn Football. K.S.K. New Delhi.
6. Reilly, T. (2006). The Science Training Soccer: A Scientific Approach to Developing Strength, Speed and Endurance. Routledge Publisher, USA.
7. Reilly, T. and J.C.D. Arau (2008). Science and Football V: The Proceedings of the 5<sup>th</sup> World Congress on Sports Science and Football, Volume 5.
8. Singh, Hardayal. (1919). Science of Sports Training. DVS Publication, N. Delhi.
9. Sharma OP (2001). Teaching and Coaching –Football. Khel S.K. Delhi.
10. Vanaik A. (2017). Officiating and Coaching, Friends Publication. New Delhi

**Semester IV**  
**BSc-PE-DSE-3 or 4 (4)-106:**  
**GYMNASTICS**

Sr. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
6	Gymnastics	04	2	0	2	XII Pass	NIL

**Objective:** -The Students will acquire knowledge and understanding of a specific sport in which an individual wish to excel.

**Learning Outcomes:** -The student attains knowledge, understanding, interpreting and analyzing proficiency in a game of one's choice.

After the Completion of First Month:

A student will be able to gain knowledge with respect to Historical Development, Organisational Structure and Playfield Technology of a sport/game.

After the Completion of Second Month:

A student will be able to understand and interpret the rules of game as well as game knowledge in the areas of physiological basis of Warming up and technical aspects of coaching.

After the Completion of Third Month:

A student will be able to learn and acquire various skills of sports/game, gain knowledge about different techniques evaluation as well as the evaluation of player's performance.

After the Completion of Fourth Month:

A student will be learning about various fitness components and its forms. Further, the student will be able to practice and improve performance on the basis of knowledge gained in understanding various fitness components and its testing.

### THEORY SYLLABUS

Unit-I	<ul style="list-style-type: none"> <li>Historical Development and Modern Trends (National and International Level)</li> <li>Organisational Structure (State, National and International Level)</li> <li>Playfield Technology – Marking and Construction of the playfields.</li> </ul>	(07 hrs lectures)
Unit-II	<ul style="list-style-type: none"> <li>Rules and their interpretation of the sport.</li> <li>Warming up and psychological basis of Warming up.</li> <li>Cooling down and its effect.</li> <li>Techniques of Coaching – Pep talk, Pre, during and Post match coaching.</li> </ul>	(08 hrs lectures)
Unit-III	<ul style="list-style-type: none"> <li>Basic skills and techniques of the Artistic Gymnastics, trampoline, parko and rhythmic</li> <li>Motor Fitness Components Testing</li> <li>Skill/Technique Evaluation</li> <li>Evaluation of Player's Performance.</li> </ul>	(08 hrs lectures)
Unit-IV	<ul style="list-style-type: none"> <li>Introduction to Physical and Motor Fitness components related to sport: Strength, Speed, Endurance, Coordinative Abilities and Flexibility.</li> </ul>	( 07 hrs lectures)

**PRACTICAL SYLLABUS -**

(60 hrs.)

- Learning and demonstrating various skills/techniques of Artistic Gymnastics, trampoline, parko and rhythmic.
- Learning to demonstrate various tests to evaluate motor components as listed in unit IV above.

**SUGGESTED READINGS**

1. Bompa O. Tudor and Halff G. Gregory. (2009) "Periodization Theory and Methodology of Training" Human kinetics. NY.
2. Brown (2009). How to Improve at Gymnastics. Crabtree Publishing Co., USA.
3. Chakraborty S and Sharma L (1995). Fundamental of Gymnastics. D.V.S. Pub. New Delhi.
4. Chakraborty S (1995). Fundamental of Gymnastics. DVS Pub. New Delhi.
5. Chakraborty S (1998). Women's Gymnastics. Friends Pub.Delhi.
6. Code of Points Trampoline Gymnastics (2005). Federation Int. DE Gymnastics
7. Federation International Gymnastics (2006). Federation Int. DE Gymnastics
8. Harvey FJ (1998). Physical Exercises & Gymnastics. Khel Sahitya. New Delhi.
9. Jain R (2005). Play and Learn Gymnastics. Khel SahitayaKendra
10. Mitchell, D., Davis, B. and Lopez, R. (2002). Teaching Fundamental GymnasticsSkills. Human Kinetics, USA.
11. Price, R.G. (2006). The Ultimate Guide to Weight Training for Gymnastics. 2<sup>nd</sup>Ed. Sportsworkout.com.
12. Schlegel, E. and Dunn, CR. (2001). The Gymnastics Book: The Young Performer's Guide to Gymnastics. Firefly Books, USA.
13. Smither Graham (1980). Behing the Science of Gymnastics. London.
14. Singh, Hardayal. (1919). Science of Sports Training. DVS Publication, N. Delhi.
15. Stickland, L.R. (2008). Gender Gymnastics. Trans Pacific Press, Japan.
16. Vanaik A. (2017). Officiating and Coaching, Friends Publication. New Delhi

**Semester IV**  
**BSc-PE-DSE-3 or 4 (4)-107:**  
**HANDBALL**

Sr. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
7	Handball	04	2	0	2	XII Pass	NIL

**Objective:** - The Students will acquire knowledge and understanding of a specific sport in which an individual wish to excel.

**Learning Outcomes:** -The student attains knowledge, understanding, interpreting and analyzing proficiency in a game of one's choice.

After the Completion of First Month:

A student will be able to gain knowledge with respect to Historical Development, Organisational Structure and Playfield Technology of a sport/game.

After the Completion of Second Month:

A student will be able to understand and interpret the rules of game as well as game knowledge in the areas of physiological basis of Warming up and technical aspects of coaching.

After the Completion of Third Month:

A student will be able to learn and acquire various skills of sports/game, gain knowledge about different techniques evaluation as well as the evaluation of player's performance.

After the Completion of Fourth Month:

A student will be learning about various fitness components and its forms. Further, the student will be able to practice and improve performance on the basis of knowledge gained in understanding various fitness components and its testing.

**THEORY SYLLABUS**

**Unit-I**

**(08 hrs lectures)**

- Historical Development and Modern Trends (National and International Level)
- Organisational Structure (State, National and International Level)
- Playfield Technology – Marking and Construction of the playfields.

**Unit-II**

**(08 hrs lectures)**

- Rules and their interpretation.
- Warming up and physiological basis of Warming up and its effect on performance.
- Cooling down and its effect.
- Techniques of Coaching – Pep talk, Pre, during and Post match coaching.

**Unit-III**

**(07 hrs lectures)**

- Basic skills and techniques of the Sports/Game.
- Skill/Technique Evaluation
- Evaluation of Player's Performance.

**Unit-IV**

**(07 hrs lectures)**

- Introduction to Physical and Motor Fitness components: Strength, Speed, Endurance, Coordinative Abilities and Flexibility.
- Motor Fitness Components Testing of above components.

**PRACTICAL SYLLABUS-**

(60 hrs.)

Learning and demonstrating various skills/techniques of sports.

Learning to demonstrate various tests to evaluate motor components as listed in unit IV above.

**SUGGESTED READINGS**

1. Bompa O. Tudor and Halff G. Gregory. (2009) "Periodization Theory and Methodology of Training" Human kinetics. NY.
2. Jain D (2003). Play & Learn Handball. Khel Sahitya Kendra. New Delhi.
3. Kleinman, I. (2009). Complete Physical Education Plans. 2<sup>nd</sup> Ed. Human Kinetics, USA.
4. Page, J. (2000). Ball Games. Lerner Sports Publisher, USA.
5. Phillips, B.E. (2009). Fundamental Handball. Kessinger Publishers, USA.
6. Schmottlach N Mcmanama J (1997). Physical Education Handbook. 9th Edition. Allyn & Bacon.London.
7. Schmottlach, N. and McManama (2005). Physical Education Activity Handbook. Benjamin Cummings, USA.
8. Singh, Hardayal. (1919). Science of Sports Training. DVS Publication, N. Delhi.
9. Surhone, L.M. et al (2010). Team Handball. Betascript Publishing, USA
10. Vanaik A. (2005). Playfield Manual, Friends Publication. New Delhi
11. Vanaik A. (2017). Officiating and Coaching, Friends Publication. New Delhi

**Semester IV**  
**BSc-PE-DSE-3 or 4 (4)-108:**  
**HOCKEY**

Sr. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
8	Hockey	04	2	0	2	XII Pass	NIL

**Objective:** - The Students will acquire knowledge and understanding of a specific sport in which an individual wish to excel.

**Learning Outcomes:-**The student attains knowledge, understanding, interpreting and analyzing proficiency in a game of one's choice.

After the Completion of First Month:

A student will be able to gain knowledge with respect to Historical Development, Organisational Structure and Playfield Technology of a sport/game.

After the Completion of Second Month:

A student will be able to understand and interpret the rules of game as well as game knowledge in the areas of physiological basis of Warming up and technical aspects of coaching.

After the Completion of Third Month:

A student will be able to learn and acquire various skills of sports/game, gain knowledge about different techniques evaluation as well as the evaluation of player's performance.

After the Completion of Fourth Month:

A student will be learning about various fitness components and its forms. Further, the student will be able to practice and improve performance on the basis of knowledge gained in understanding various fitness components and its testing.

## THEORY SYLLABUS

### Unit-I

(08 hrs lectures)

- Historical Development and Modern Trends (National and International Level)
- Organisational Structure (State, National and International Level)
- Playfield Technology – Marking and Construction of the playfields.

### Unit-II

(08 hrs lectures)

- Rules and their interpretation.
- Warming up and physiological basis of Warming up and its effect on performance.
- Cooling down and its effect.
- Techniques of Coaching – Pep talk, Pre, during and Post match coaching.

### Unit-III

(07 hrs lectures)

- Basic skills and techniques of the Sports/Game.
- Skill/Technique Evaluation
- Evaluation of Player's Performance.

### Unit-IV

(07 hrs lectures)

- Introduction to Physical and Motor Fitness components: Strength, Speed, Endurance, Coordinative Abilities and Flexibility.
- Motor Fitness Components Testing of above components.

**PRACTICAL SYLLABUS-**

(60 hrs)

Learning and demonstrating various skills/techniques of sports.

Learning to demonstrate various tests to evaluate motor components as listed in unit IV above.

**SUGGESTED READINGS**

1. Bompa O. Tudor and Halff G. Gregory. (2009) "Periodization Theory and Methodology of Training" Human kinetics. NY.
2. International Hockey Federation, Rules of the Game of Hockey with Guidance for Players and Umpires. International Hockey Federation.
3. Jain D (2003). Hockey Skills & Rules. khel Sahitya Kendra . New Delhi.
4. Narang P (2003). Play & Learn Hockey. Khel Sahitya Kendra. New Delhi.
5. Pecknold, R. and Foeste, A. (2009). Hockey : Essential Skills. McGraw Hills, USA.
6. Rossiter, S. (2003). Hockey the NHL Way : Goaltending Illustrated Edition. Sterling Publishers, USA.
7. Singh, Hardayal. (1919). Science of Sports Training. DVS Publication, N. Delhi.
8. Walter, R. and Johnson, M. (2009). Hockey Plays and Strategies. Human Kinetics, USA.
9. Weekes, D. (2003). The Biggest Book of Hockey Trivia. Greystone Books, USA.
10. Wukovits, J.F. (2000). History of Hockey 1<sup>st</sup> Ed. Lucent Books, USA.
11. Vanaik A. (2005). Playfield Manual, Friends Publication. New Delhi
12. Vanaik A. (2017). Officiating and Coaching, Friends Publication. New Delhi



**Semester IV**  
**BSc-PE-DSE-3 or 4 (4)-109:**  
**JUDO**

Sr. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
9	Judo	04	2	0	2	XII Pass	NIL

**Objective:** - The Students will acquire knowledge and understanding of a specific sport in which an individual wish to excel.

**Learning Outcomes:** -The student will attain knowledge, understanding, interpreting and analyzing proficiency in a game of one's choice.

After the Completion of First Month:

A student will be able to gain knowledge with respect to Historical Development, Organisational Structure and Playfield Technology of a sport/game.

After the Completion of Second Month:

A student will be able to understand and interpret the rules of game as well as game knowledge in the areas of physiological basis of Warming up and technical aspects of coaching.

After the Completion of Third Month:

A student will be able to learn and acquire various skills of sports/game, gain knowledge about different techniques evaluation as well as the evaluation of player's performance.

After the Completion of Fourth Month:

A student will be learning about various fitness components and its forms. Further, the student will be able to practice and improve performance on the basis of knowledge gained in understanding various fitness components and its testing.

**THEORY SYLLABUS**

**Unit-I**

**(08 hrs lectures)**

- Historical Development and Modern Trends (National and International Level)
- Organisational Structure (State, National and International Level)
- Playfield Technology – Marking and Construction of the playfields.

**Unit-II**

**(08 hrs lectures)**

- Rules and their interpretation.
- Warming up and physiological basis of Warming up and its effect on performance.
- Cooling down and its effect.

**Unit-III**

**(07 hrs lectures)**

- Techniques of Coaching – Pep talk, Pre, During and Post match Coaching.

- Basic skills and techniques of the Sports/Game.
- Skill/Technique Evaluation
- Evaluation of Player's Performance.

**Unit-IV**

**(07 hrs lectures)**

- Introduction to Physical and Motor Fitness components: Strength, Speed, Endurance, Coordinative Abilities and Flexibility.
- Motor Fitness Components Testing of above components.

**PRACTICAL SYLLABUS-**

(60 hrs.)

Learning and demonstrating various skills/techniques of sports.

Learning to demonstrate various tests to evaluate motor components as listed in unit IV above.

**SUGGESTED READINGS**

1. Bompa O. Tudor and Halff G. Gregory. (2009) "Periodization Theory and Methodology of Training" Human kinetics. NY.
2. Diago, T. (2005). Kodokan Judo Throwing Techniques. Kodansha International Publishers, Japan.
3. Harrison EJ (2002). Coaching Successfully Judo. Sports. Delhi.
4. Jain D (2003). Play and Learn Judo. Khel Sahitaya Kendra. New Delhi.
5. Law, M. (2009). Falling Hard : A Journey into the World of Judo. Trumpeter Publisher, Japan.
6. Putin, V., Shestakov, V. ad Levitsky, A. (2004). Judo : History, Theory and Practice. Blue Snake Books, Moscow.
7. Singh, Hardayal. (1919). Science of Sports Training. DVS Publication, N. Delhi.
8. Takahashi, M. (2005). Mastering Judo. Human Kinetics, USA.

**Semester IV**  
**BSc-PE-DSE-3 or 4 (4)-110:**  
**KABADDI**

Sr. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
10	Kabaddi	04	2	0	2	XII Pass	NIL

**Objective:** - The Students will acquire knowledge and understanding of a specific sport in which an individual wish to excel.

**Learning Outcomes:** -The student will attain knowledge, understanding, interpreting and analyzing proficiency in a game of one's choice.

After the Completion of First Month:

A student will be able to gain knowledge with respect to Historical Development, Organisational Structure and Playfield Technology of a sport/game.

After the Completion of Second Month:

A student will be able to understand and interpret the rules of game as well as game knowledge in the areas of physiological basis of Warming up and technical aspects of coaching.

After the Completion of Third Month:

A student will be able to learn and acquire various skills of sports/game, gain knowledge about different techniques evaluation as well as the evaluation of player's performance.

After the Completion of Fourth Month:

A student will be learning about various fitness components and its forms. Further, the student will be able to practice and improve performance on the basis of knowledge gained in understanding various fitness components and its testing.

## THEORY SYLLABUS

### Unit-I

- Historical Development and Modern Trends (National and International Level) **(08 hrs lectures)**
- Organisational Structure (State, National and International Level)
- Playfield Technology – Marking and Construction of the playfields.

### Unit-II

- Rules and their interpretation. **(08 hrs lectures)**
- Warming up and physiological basis of Warming up and its effect on performance.
- Cooling down and its effect.

### Unit-III

- Techniques of Coaching – Pep talk, Pre, During and Post match Coaching.
- Basic skills and techniques of the Sports/Game. **(07 hrs lectures)**
- Skill/Technique Evaluation
- Evaluation of Player's Performance.

### Unit-IV

- Introduction to Physical and Motor Fitness components: Strength, Speed, Endurance, Coordinative Abilities and Flexibility. **(07 hrs lectures)**
- Motor Fitness Components Testing of above components.

**PRACTICAL  
SYLLABUS-****(60 hrs.)**

Learning and demonstrating various skills/techniques of sports.

Learning to demonstrate various tests to evaluate motor components as listed in unit IV above.

**SUGGESTED READINGS**

- Bompa O. Tudor and Halff G. Gregory. (2009) “Periodization Theory and Methodology of Training” Human kinetics. NY.
- Kumar, Dharmander. (2018). Kabaddi and It’s Playing Techniques. Writers Choice, New Delhi.
- Mishra , S.C. (2007). Teach Yourself Kabaddi. Sports Publications, New Delhi.
- Rao CV (1983). Kabaddi. Native Indian Sports. NSNIS. Patiala Publisher
- Rao EP (1994). Modern Coaching in Kabaddi.D.V.S.Pub
- Singh, Hardayal. (1919). Science of Sports Training. DVS Publication, N. Delhi.
- Syal, M. (2004). Kabaddi Teaching. Prerna Parkashan, New Delhi.
- Vanaik A. (2017). Officiating and Coaching, Friends Publication. New Delhi.

**Semester IV**  
**BSc-PE-DSE-3 or 4 (4)-111:**  
**KHO-KHO**

Sr. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
11	Kho-Kho	04	2	0	2	XII Pass	NIL

**Objective:** - The Students will acquire knowledge and understanding of a specific sport in which an individual wish to excel.

**Learning Outcomes:** -The student will attain knowledge, understanding, interpreting and analyzing proficiency in a game of one's choice.

After the Completion of First Month:

A student will be able to gain knowledge with respect to Historical Development, Organisational Structure and Playfield Technology of a sport/game.

After the Completion of Second Month:

A student will be able to understand and interpret the rules of game as well as game knowledge in the areas of physiological basis of Warming up and technical aspects of coaching.

After the Completion of Third Month:

A student will be able to learn and acquire various skills of sports/game, gain knowledge about different techniques evaluation as well as the evaluation of player's performance.

After the Completion of Fourth Month:

A student will be learning about various fitness components and its forms. Further, the student will be able to practice and improve performance on the basis of knowledge gained in understanding various fitness components and its testing.

## **THEORY SYLLABUS**

### **Unit-I**

- Historical Development and Modern Trends (National and International Level) **(08 hrs lectures)**
- Organisational Structure (State, National and International Level)
- Playfield Technology – Marking and Construction of the playfields.

### **Unit-II**

- Rules and their interpretation. **(08 hrs lectures)**
- Warming up and physiological basis of Warming up and its effect on performance.
- Cooling down and its effect.
- Techniques of Coaching – Pep talk, Pre, During and Post match Coaching.

### **Unit-III**

- Basic skills and techniques of the Sports/Game. **(07 hrs lectures)**
- Skill/Technique Evaluation
- Evaluation of Player's Performance.

### **Unit-IV**

- Introduction to Physical and Motor Fitness components: Strength, Speed, Endurance, Coordinative Abilities and Flexibility. **(07 hrs lectures)**
- Motor Fitness Components Testing of above components.

**PRACTICAL SYLLABUS-**

(60 hrs.)

Learning and demonstrating various skills/techniques of sports.

Learning to demonstrate various tests to evaluate motor components as listed in unit IV above.

**SUGGESTED READINGS**

1. Bompa O. Tudor and Halff G. Gregory. (2009) "Periodization Theory and Methodology of Training" Human kinetics. NY.
2. Chakrabarty G (2002). Kho - Kho Aveloken. Khel Sahitya Kendra. Delhi.
3. Panday L (1982). Kho - Kho Sarvaswa. Metropolitan. New Delhi
4. Singh, Hardayal. (1919). Science of Sports Training. DVS Publication, N. Delhi.
5. Vanaik A. (2005). Playfield Manual, Friends Publication. New Delhi
6. Vanaik A. (2017). Officiating and Coaching, Friends Publication. New Delhi

**Semester IV**  
**BSc-PE-DSE-3 or 4 (4)-112:**  
**VOLLEYBALL**

Sr. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
12	Volleyball	04	2	0	2	XII Pass	NIL

**Objective:** - The Students will acquire knowledge and understanding of a specific sport in which an individual wishes to excel.

**Learning Outcomes:** -The student will attain knowledge, understanding, interpreting and analyzing proficiency in a game of one's choice.

After the Completion of First Month:

A student will be able to gain knowledge with respect to Historical Development, Organisational Structure and Playfield Technology of a sport/game.

After the Completion of Second Month:

A student will be able to understand and interpret the rules of game as well as game knowledge in the areas of physiological basis of Warming up and technical aspects of coaching.

After the Completion of Third Month:

A student will be able to learn and acquire various skills of sports/game, gain knowledge about different techniques evaluation as well as the evaluation of player's performance.

After the Completion of Fourth Month:

A student will be learning about various fitness components and its forms. Further, the student will be able to practice and improve performance on the basis of knowledge gained in understanding various fitness components and its testing.

## THEORY SYLLABUS

### Unit-I

- Historical Development and Modern Trends (National and International Level) **(08 hrs lectures)**
- Organisational Structure (State, National and International Level)
- Playfield Technology – Marking and Construction of the playfields.

### Unit-II

- Rules and their interpretation. **(08 hrs lectures)**
- Warming up and physiological basis of Warming up and its effect on performance.
- Cooling down and its effect.
- Techniques of Coaching – Pep talk, Pre, During and Post match Coaching.

### Unit-III (07 hrs lectures)

- Basic skills and techniques of the Sports/Game.
- Skill/Technique Evaluation
- Evaluation of Player's Performance.

### Unit-IV (07 hrs lectures)

- Introduction to Physical and Motor Fitness components: Strength, Speed, Endurance, Coordinative Abilities and Flexibility.
- Motor Fitness Components Testing of above components.

**PRACTICAL SYLLABUS -**

(60 hrs.)

Learning and demonstrating various skills/techniques of sports.

Learning to demonstrate various tests to evaluate motor components as listed in unit IV above.

**SUGGESTED READINGS**

1. American Volleyball Coaches Association (2005). Volleyball : Skills & Drills. Human Kinetics,USA.
2. Bompa O. Tudor and Halff G. Gregory. (2009) "Periodization Theory and Methodology of Training" Human kinetics. NY.
3. FIVB (1996). Backcourt Spiking in Modern Volley Ball. FIVB.Chennai.
4. Kenny, B. and Gregory, C. (2006). Volleyball : Steps to Success. Human Kinetics,USA.
5. Saggar SK (1994). Cosco Skills Statics - Volley Ball. Sport Publication. Delhi.
6. Scates AE (1993). Winning Volley Ball. WC Brown.USA.
7. Scates, A. and Linn, M. (2002). Complete Conditioning for Volleyball. Human Kinetics,USA.
8. Shondell, D. and Reynaud, C. (2002). The Volleyball Coaching Bible. Human Kinetics,USA.
9. Singh, Hardayal. (1919). Science of Sports Training. DVS Publication, N. Delhi.
10. The National Alliance for Youth Sports (2009). Coaching Volleyball. For Dummies Publishers,USA.
11. Volleyball, USA (2009). Volleyball : Systems and Strategies. Human Kinetics,USA.
12. Vanaik A. (2017). Officiating and Coaching, Friends Publication. New Delhi



**Semester IV**  
**BSc-PE-DSE-3 or 4 (4)-113:**  
**YOGA**

Sr. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
13	Yoga	04	2	0	2	XII Pass	NIL

**Objective:** -The Students will acquire knowledge and understanding of a specific sport in which an individual wish to excel.

**Learning Outcome:** -The student will attain knowledge, understanding, interpreting and analyzing proficiency in a game of one's choice.

After the Completion of First Month:

The Students will develop the understanding and knowledge of Origin of yoga, definition and scope of yoga, limitations and misconceptions, importance of yoga in physical education and other fields, Yoga asana completion at: - State, National, International, SGFI, AIU etc. Philosophical aspects of Yoga. Pre-Vedic, Vedic period; Buddhism, Upanishad period, Jainism & tantra, qualifications, qualities and responsibilities of a coach, Duties/responsibilities of technical official, Scoring system and judgment criteria, Protocols for referees, judges and officials.

The student will learn about the prayer.

After the Completion of Second Month:

The Students will develop the understanding and knowledge of Meaning, techniques, precautions & effects of the following:-Asanas : padmasana, vajrasana, sidhasana, paschimottasana, halasana, sarvangasana, shalabhasana, ardh-matsyendrasana, bhujangasana, tadasana, vrikshasana, matsyasana, gomukhasana, ushtrasana, shavasana, makarasana, vrishchikasana, dhanurasana, purna matsyendrasana, chakrasana, ek pad sikandasana, bakasana, mayurasana, shirshasana Pranayama : anulom-vilom, bhastrika, suryabhedhen pranayama, sheetali, sheetkari, bhramari, ujjayi Shatkarma : neti, dhauti, nauli, basti, kunjla, kapal bhati, shankh prakshalana Bandhas : jalandhar, uddiyana, mool bandha.

The student will be able to perform Asanas, pranayama, shatkarma, bandha.

After the Completion of Third Month:

The Students will gain knowledge of Disease wise treatment through yoga therapy- Asthma, high & low B.P, diabetes, obesity, heart disease, insomnia, arthritis, backache & female disease.

The student will learn Yoga-nidra/relaxation techniques

After the Completion of Fourth Month:

The Students will gain knowledge of Diet & constitution, components of nutrition, water, natural diet, balanced diet, fasting-its benefits, types & preparation. Importance of vegetarianism in yogic diet.

The student will learn Visit to yoga centers/institutes

### THEORY SYLLABUS

#### UNIT-I

(07 hrs lectures)

- Origin of yoga, definition and scope of yoga, limitations and misconceptions of Yoga
- Importance of yoga in physical education and other fields
- Yoga asana competition at: - State, National, International, SGFI, AIU etc.

#### UNIT-II

(07 hrs lectures)

- Philosophical aspects of Yoga-Pre-Vedic, Vedic period; Buddhism, Upanishad period, Jainism & tantra
- Qualifications, qualities and responsibilities of a coach,
- Duties/responsibilities of technical official, Scoring system and judgment criteria,

- Protocols for referees, judges and officials.

## UNIT-III

(09 hrs lectures)

- Meaning, techniques, precautions & effects of the following:-
- Asanas : padmasana, vajrasana, sidhasana, paschimottanasa, halasana, sarvangasana, shalabhasana, ardh-matsyendrasana, bhujangasana, tadasana, vrikshasana, matsyasana, gomukhasana, ushtrasana, shavasana, makarasana, vrishchikasana, dhanurasana, purna matsyendrasana, chakrasana, ek pad sikandasana, bakasana, mayurasana, shirshasana
- Pranayama : anulom-vilom, bhasrika, suryabhedhen pranayama, sheetali, sheetkari, bhramari, ujjayi
- Shatkarma : neti, dhauti, nauli, basti, kunjali, kapal bhati, shankh prakshalana
- Bandhas : jalandhar, uddiyana, mool bandha

## UNIT-IV

( 07 hrs lectures)

- Disease wise treatment through yoga therapy- Asthma, high & low B.P, diabetes, obesity, heart disease, insomnia, arthritis, backache & female disease
- Diet & Nutrition, components of nutrition, water, natural diet, balanced diet, fasting-its benefits, types & preparation, importance of vegetarianism in yogic diet.

**PRACTICALS SYLLABUS**

(60 hrs.)

1. Prayer
2. Asanas, pranayama, shatkarma, bandha (as mentioned in theory)
3. Yoga-nidra/relaxation techniques
4. Visit to yoga centers/institutes

**SUGGESTED READINGS**

- Anand Omprakash (2001). Yog Dawra Kaya Kalp, Kanpur. Sewasth Sahitya Perkashan
- Iyengar, B.K.S. (1995). Light on Yoga : The Bible of Modern Yoga. Schocken Publishers, USA.
- Kaminoff, L. et al (2007). Yoga Anatomy. Human Kinetics, USA.
- Kirk, M. (2005). The Hatha Yoga Illustrated. Human Kinetics, USA.
- Sharma JP and Ganesh S(2007). Yog Kala Ek Prichya. Friends Publication. New Delhi
- Sharma J. P. (2007). Manav jeevan evam yoga. Friends Publication. New Delhi.
- Sharma Jai Prakash And Sehgal Madhu(2006). Yog-Shiksha. Friends Publication. Delhi.
- Sharma Jai Prakash and Rathore Bhupender Singh (2007). Yoga Ke Tatva. Friends Publication. Delhi
- Mukerji, A.P. (2010). The Doctorine and Practice of Yoga. General Books, LLC, New Delhi.
- Norton, W.W. (2010). Yoga for Osteoporosis : The Complete Guide. W.W. Norton & Company, USA.
- Sarin N (2003). Yoga Dawara Rogoon Ka Upchhar. Khel Sahitya Kendra
- Sri Swami Rama, (2001). Breathing. Rishikesh Sadhana Mandir Trust.
- Swami Ram (2000). Yoga & Married Life. Rishikesh Sadhana Mandir Trust
- Swami Swatma Ram: Patanjali Yoga Sutra
- Swami Veda Bharti (2000). Yoga Polity. Economy and Family. Rishikesh Sadhana Mandir Trust
- Text Book Hath Yoga Pradipika
- Text Book Patanjali Yoga Sutra

**SEMESTER- IV**  
**BSc-PE-GE-4 (4)-304:**  
**YOGA AND STRESS MANAGEMENT**  
**GE**

Sl. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/Practice		
1	YOGA AND STRESS MANAGEMENT	04	3	0	1	XII Pass	NIL

**Learning objective:**

The objective of this course is to provide the understanding of Yoga and stress management through practical knowledge skill and practices with enough scope of creativity/Innovations.

**Learning outcomes:**

At the end of the syllabus the student will be able to-

1. Understand the concept of stress management through various practises like yoga.
2. Demonstrate different asanas to achieve healthy lifestyle.
3. Apply Pranayama and Shat karmas to reduce day to day stress in our life.
4. Management of Stress by using different yogic relaxation techniques.
5. Develop Physical Fitness Program to manage stress. Based on yoga

**PART – A Theory Syllabus**

**SYLLABUS**

**Unit-1: INTRODUCTION**

**(9 hrs. Lectures)**

- 1.1 Meaning, Definition and Importance of Yoga.
- 1.2 Origin and Historical development of Yoga.
- 1.3 Concept of the importance of Yogic Diet.

**Unit-II: YOGA-ASANAS**

**(9 hrs. lectures)**

- 2.1 Ashtanga Yoga (Maharishi Patanjali): Meaning and importance.
- 2.2 Supine Position Asanas (Ardh-Halasana, Sarvangasana, Pawanmuktasana); Prone Position Asanas (Bhujangasana, Salabhasana, Dhanurasana)

2.3 Sitting Asanas (Ardh Matsyendrasana, Paschimotanasana, SuptaVajrasana); Standing Asanas (Utkatasana, , Trikonasana and Tadasana).

### **Unit-III: PRANAYAMAS AND SHAT KARMAS**

**(9 hrs. lectures)**

**3.1** Meaning, Procedure, Precautions and Benefits of the following Pranayamas: Anulom-Vilom, Suryabhedh, Bhrameri, Sheetal, Sheetkari Pranayamas.

**3.2** Meaning, Procedure, Precautions and Benefits of the following Shatkarmas: Kapalabhati, Trataka and Neti (Jal and sutra).

**3.3** Relevance of yoga for holistic health development in the society.

### **Unit-IV: STRESS MANAGEMENT**

**(9 hrs. lectures)**

**3.1** Concept, Causes and Effects of Stress.

**3.2** Non-communicable diseases (due to stress), Stress prevention and good health.

**3.3** Stress Management through relaxation techniques (autogenic training and progressive muscle relaxation, deep breathing, meditation), and sports, recreational, adventure sports, physical activities and developing healthy relationships as coping strategies.

### **Unit V: HOLISTIC HEALTH DEVELOPMENT AND STRESS MANAGEMENT**

**(9 hrs. lectures)**

**5.1** Physiology of stress and mind.

**5.2** Holistic well-being and dimensions of holistic health: physical, emotional, social, mental, spiritual, and environmental.

**5.3** Planning and maintaining a Personal Fitness Program.

### **PART – B Practical Syllabus**

**(30 Hours)**

1. Suryanamaskar and any four asanas.
2. Pranayamas (any one).
3. Practice Meditation for 10-15 minutes.
4. Assessment of stress (Questionnaire-PSQ)

### **Suggested Readings:**

1. Arora S., Agarwal M. (2022), “**Yoga & Stress Management**”, Khel Sahitya Kendra ISBN: 978-93-90461-38-7.
2. Pawar,B., Gosain,N., Sharma,S.(2021), “**Yoga & Stress Management**”, Friends Publications. New Delhi (India) ISBN-978-81-7216-579-6.

3. Saini, N. (2020). **“Yoga & Stress Management”**, Friends Publications. New Delhi. ISBN: 978-93-88457-58-3
4. Arora S., Agarwal M. (2020), **“Yoga Skills”**, Khel Sahitya Kendra ISBN: 978-81-947808-4-7.
5. Pahuja M., Pahuja S., Panda S. (2020), **““Yoga & Stress Management”**, Friends Publications. New Delhi (India) ISBN-978-8195365593.
6. Gupta, B., Chakravortty, S.K., ., Chakravortty, Munesh., (2019) **“Yoga & Stress Management”**, Friends Publications. New Delhi (India) ISBN-978-81-7216-568-0.
7. **“Anger and Stress Management”**. God’s Way. Calvary Press, USA.
8. Swate Y B (2009). **“Anger Management”**. Sage Publication. New Delhi.
9. NCERT & CBSE publication and reading for stress management.
10. Davis M. et al (2008). **“The Relaxation and Stress Reduction”** workbook. Harbinger Publications, USA
11. Greenberg J.S. (2008). **“Comprehensive Stress Management”**. McGraw Hill, USA
12. HippE. (2008). **“Fighting Invisible Tigers: Stress Management for Teens”**. Free Spirit Publishing, USA.
13. Petee F (2006). **“Anger Management”**. Pentagon. Press. New York. U.S.A.
14. Gupta Rashmi (2015), **“Yoga and Pranayam Exercise”**. Aryan Publication.
15. Gupta Rashmi (2016), **“Yogaasana and pranayama abhayas”**. Aryan Publication.
16. Shaw D. (2018) **“Fundamental Statistics in Physical Education and Sports Sciences”** Sports Publication, ISBN: 81-86190-57-0.
17. Shaw D. (2020) **“Physical Education Practical Manual for Class XI”** Prachi Publication, ISBN : 978-8193-7698-0-5.
18. Shaw D. (2020) **“Physical Education for Class XII”** Prachi Publication, ISBN : 978-81-7730-848-8.
19. Shaw D. (2020) **“Physical Education for Class XI”** Prachi Publication, ISBN : 978-81-7730-847-1.
20. Shaw D. (2020) **“Physical Education Practical Manual for Class XII”** Prachi Publication, ISBN : 978-81-937698-1-2.
21. Shaw D. (2020) **“Parable Global English Hindi Dictionary of Physical Education & Sports Sciences”** Khel Sahitya Kendra, ISBN : 978-93-90461-18-9.
22. Shaw D. (2020) **“Yoga Asanas and their Benefits”** Sports Publication, ISBN : 978-81-9436-11-9-0.

**SEMESTER- IV**  
**BSc-PE-GE- 4(4)-303:**  
**INJURY PREVENTION AND REHABILITATION IN ATHLETICS**

Sl. No.	Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
			Lecture	Tutorial	Practical/ Practice		
2	<b>INJURY PREVENTION AND REHABILITATION IN ATHLETICS</b>	04	3	0	1	XII Pass	NIL

**Learning objective:**

The objective of this course is to provide the understanding, skill and practices related to injury prevention and rehabilitation in athletics along with enough scope of creativity/Innovations.

**Learning outcomes:**

At the end of the syllabus the student will be able to-

1. Understand the concept of injury prevention and rehabilitation in athletes.
2. Apply the principles of rehabilitation for fast and better recovery in collaborative work of athlete, coaches and medical professionals.
3. Identify and classify the particular injury in order to deal or suggest to apply suitable exercise and other related aids.
4. Practice related modalities (e.g., heat therapy, cold therapy, electrical stimulation) used in rehabilitation.
5. Apply functional training and return-to-play criteria

**PART – A Theory Syllabus**

**SYLLABUS**

**Unit-1: INTRODUCTION TO INJURY PREVENTION AND REHABILITATION**  
**(9 hrs. Lectures)**

- 1.1 Overview of injury prevention and rehabilitation in athletes
- 1.2 Importance of injury prevention and rehabilitation in sports
- 1.3 Principles of injury prevention and rehabilitation

1.4 Role of athletes, coaches, and medical professionals in injury prevention and rehabilitation

**Unit-II: COMMON SPORTS INJURIES**

**(9 hrs. lectures)**

2.1 Identification and classification of common sports injuries

2.2 Causes and risk factors associated with sports injuries

2.3 Understanding the mechanisms of injury

2.4 Assessment and diagnosis of sports injuries

2.5 Introduction to treatment modalities for different types of injuries

**Unit-III: INJURY PREVENTION STRATEGIES**

**(9 hrs. lectures)**

3.1 Pre-season preparation and conditioning programs

3.2 Warm-up and cool-down protocols

3.3 Proper technique and form to minimize injury risk

3.4 Equipment selection and fitting for injury prevention

3.5 Nutritional considerations for injury prevention

**Unit-IV: REHABILITATION TECHNIQUES**

**(9 hrs. lectures)**

4.1 Overview of the rehabilitation process

4.2 Goals of rehabilitation and its stages.

4.3 Rehabilitation exercises and techniques for specific injuries (e.g., sprains, strains, fractures)

4.4 Modalities used in rehabilitation (e.g., heat therapy, cold therapy, electrical stimulation)

4.6 Functional training and return-to-play criteria

**Unit V: PSYCHOSOCIAL ASPECTS OF INJURY PREVENTION AND REHABILITATION**

**(9 hrs. lectures)**

5.1 Psychological impact of sports injuries

5.2 Strategies for coping with injury and promoting mental resilience

5.3 Role of social support in the recovery process

5.4 Injury prevention and rehabilitation education for athletes, coaches, and parents

5.5 Ethical considerations in injury prevention and rehabilitation

**PART – B Practical Syllabus****(30 Hours)**

1. Preparation of first aid box.
2. Application of PRICE and sports massage.
3. Demonstration of functional training.
4. Development of rehabilitation / Exercise Programme.
5. Preparation of warming up and cooling down exercise to prevent injury in general context.
6. Preparation of warming up and cooling down exercise to prevent injury in specific context.

**Suggested Readings:**

1. Brukner, P., & Khan, K. (2017). Clinical sports medicine. McGraw-Hill Education.
2. Sherry, M. A., & Best, T. M. (2004). A comparison of 2 rehabilitation programs in the treatment of acute hamstring strains. *Journal of Orthopaedic & Sports Physical Therapy*, 34(3), 116-125.
3. Myer, G. D., Faigenbaum, A. D., Chu, D. A., Falkel, J., & Ford, K. R. (2011). Integrative training for children and adolescents: Techniques and practices for reducing sports-related injuries and enhancing athletic performance. *The Physician and Sportsmedicine*, 39(1), 74-84.
4. Bahr, R., & Holme, I. (2003). Risk factors for sports injuries—a methodological approach. *British Journal of Sports Medicine*, 37(5), 384-392.
5. Lephart, S. M., Ferris, C. M., Riemann, B. L., & Myers, J. B. (2002). Gender differences in strength and lower extremity kinematics during landing. *Clinical Orthopaedics and Related Research*, 401, 162-169.
6. Myer, G. D., Ford, K. R., Brent, J. L., & Hewett, T. E. (2006). The effects of plyometric versus dynamic stabilization and balance training on lower extremity biomechanics. *The American Journal of Sports Medicine*, 34(3), 445-455.
7. Petersen, J., Thorborg, K., Nielsen, M. B., Budtz-Jørgensen, E., & Hölmich, P. (2011). Preventive effect of eccentric training on acute hamstring injuries in men's soccer: a cluster-randomized controlled trial. *The American Journal of Sports Medicine*, 39(11), 2296-2303.
8. Hewett, T. E., Myer, G. D., & Ford, K. R. (2004). Anterior cruciate ligament injuries in female athletes: Part 1, mechanisms and risk factors. *The American Journal of Sports Medicine*, 32(2), 396-408.
9. Hootman, J. M., & Dick, R. (2004). Agel J. Epidemiology of collegiate injuries for 15 sports: summary and recommendations for injury prevention initiatives. *Journal of Athletic Training*, 39(3), 311-319.
10. Shaw, D. (2021). Athletic Care and Rehabilitation (A Sports Medicine Prespective). Sports Publication.
11. Soligard, T., Steffen, K., Palmer, D., Alonso, J. M., Bahr, R., Lopes, A. D., ... & Engebretsen, L. (2016). Sports injury and illness incidence in the Rio de Janeiro 2016 Olympic Summer Games: A prospective study of 11274 athletes from 207 countries. *British Journal of Sports Medicine*, 51(17), 1265-1271.