

**CHOICE BASED CREDIT SYSTEM  
(CBCS)**

**COURSE SCHEME & SYLLABUS**

**For  
Under Graduate Programme**

**Bachelor of Arts (B.A.)**

**with**

**PHYSICAL EDUCATION**

(Effective from Academic Year 2016 – 17 Onwards)



**DEPARTMENT OF PHYSICAL EDUCATION  
HIMACHAL PRADESH UNIVERSITY  
SUMMER HILL, SHIMLA**

**171 005**

## Choice Based Credit System

### B.A. with Physical Education

	<b>Core Course (12)</b>	<b>Ability Enhancement Compulsory Course (AECC) (2)</b>	<b>Skill Enhancement Course (SEC) (4)</b>	<b>Discipline Specific Elective (DSE) (4)</b>	<b>Generic Elective (GE) (2)</b>
<b>I</b>	English/Hindi/MIL-1	(English/Hindi/MIL Communication)/ Environmental Science			
	Introduction to Physical Education (PED101TH)				
	DSC-2A				
<b>II</b>	Hindi/MIL/ English-1	Environmental Science/ (English/Hindi/MIL Communication)			
	Olympic Movement and Organisation of Tournaments (PED201TH)				
	DSC-2B				
<b>III</b>	English/Hindi/MIL-2		Sports Medicine, Physiotherapy and Rehabilitation (PED302TH)		
	Human Anatomy and Physiology (PED301TH)				
	DSC-2C				
<b>IV</b>	Hindi/MIL/ English-2		Sports Training (PED402TH)		
	Sports Psychology (PED401TH)				
	DSC-2D				
<b>V</b>			Specialisation in Volleyball (PED501PR) Or Specialisation in Football (PED502PR) Or Specialisation in Kabaddi (PED503PR)	Recreation (PED504TH) Or Kinesiology and Biomechanics (PED505TH)	Health Education and Nutrition (PED506TH)
				DSE-2A	
<b>VI</b>			Specialisation in Athletics (PED601PR)	Methods of Teaching in Physical Education (PED602TH) Or Officiating and Coaching (PED603TH)	Yoga (PED604TH)
				DSE-2B	

**Note: Practical Paper will not have tutorials.**

<b>Semester-wise Outline of the Courses</b>					
<b>Semester</b>	<b>Course Opted</b>	<b>Course Name</b>	<b>Course Code</b>	<b>Credits</b>	
<b>I</b>	Core Course-I	English/Hindi/MIL-1		6	
	Core Course-II	Introduction to Physical Education	PED101TH	4	
	Core Course-II (Practical)	Athletics and Game-I	PED101PR	2	
	Core Course-III	DSC-2A		6	
	Ability Enhancement Compulsory Course-I	(English/Mil Communications)/ Environmental Science		4	
<b>II</b>	Core Course-IV	Hindi/MIL/ English-1		6	
	Core Course-V	Olympic Movement and Organisation of Tournaments	PED201TH	4	
	Core Course-V (Practical)	Athletics and Game-II	PED201PR	2	
	Core Course-VI	DSC-2B		6	
	Ability Enhancement Compulsory Course-II	(English/Mil Communications)/ Environmental Science		4	
<b>III</b>	Core Course-VII	English/Hindi/MIL-2		6	
	Core Course-VIII	Human Anatomy and Physiology	PED301TH	4	
	Core Course-VIII (Practical)	Athletics and Game-III	PED301PR	2	
	Core Course-IX	DSC-2C		6	
	Skill Enhancement Course-1 (SEC-1)	Sports Medicine, Physiotherapy and Rehabilitation	PED302TH	4	
<b>IV</b>	Core Course-X	Hindi/MIL/ English-2		6	
	Core Course-XI	Sports Psychology	PED401TH	4	
	Core Course-XI (Practical)	Athletics and Game-IV	PED401PR	2	
	Core Course-XII	DSC-2D		6	
	Skill Enhancement Course-2 (SEC-2)	Sports Training	PED402TH	4	
<b>V</b>	Skill Enhancement Course-3 (SEC-3) {Practical}	a) Specialization in Volleyball b) Specialization in Football c) Specialization in Kabaddi	} Any One	PED501PR PED502PR PED503PR	4
	Discipline Specific Elective-1	Recreation Or Kinesiology and Biomechanics	} Any One	PED504TH PED505TH	6
	Discipline Specific Elective-2	DSE-2A			6
	Generic Elective-1 (GE-1)	Health Education and Nutrition		PED506TH	6

<b>VI</b>	Skill Enhancement Course-4 (SEC-4) {Practical}	Specialization in Athletics	PED601PR	4
	Discipline Specific Elective-3	Methods of Teaching in Physical Education Or Officiating and Coaching	} Any One PED602TH PED603TH	6
	Discipline Specific Elective-4	DSE-2B		6
	Generic Elective-2 (GE-2)	Yoga	PED604TH	6
<b>Total Credits</b>				<b>132</b>

# **B.A. with Physical Education**

## **Core Course (4 Compulsory Papers along with Practicals)**

### **Semester I**

1. Introduction to Physical Education
2. Athletics and Game-I (Core Course-Practical)

### **Semester II**

1. Olympic Movement and Organisation of Tournaments
2. Athletics and Game-II (Core Course-Practical)

### **Semester III**

1. Human Anatomy and Physiology
2. Athletics and Game-III (Core Course-Practical)

### **Semester IV**

1. Sports Psychology
2. Athletics and Game-IV (Core Course-Practical)

## **Skill Enhancement Course (4 Compulsory Papers)**

### **Semester III**

1. Sports Medicine, Physiotherapy and Rehabilitation

### **Semester IV**

1. Sports Training

### **Semester V (Any one of the following)**

1. Specialisation in Volleyball (Practical)
2. Specialisation in Football (Practical)
3. Specialisation in Kabaddi (Practical)

### **Semester VI**

1. Specialisation in Athletics (Practical)

## **Discipline Specific Elective Course (2 Compulsory Papers)**

### **Semester V (Any one of the following)**

1. Recreation
2. Kinesiology and Biomechanics

### **Semester VI (Any one of the following)**

1. Methods of Teaching in Physical Education
2. Officiating and Coaching

## **Generic Elective Course (2 Compulsory Papers)**

### **Semester V**

1. Health Education and Nutrition

### **Semester VI**

1. Yoga

# Course Evaluation

## 1. Theory Examination

Theory examination evaluation system shall have the following two components:

- A. **Continuous Comprehensive Assessment (CCA)** accounting for 30% of the final grade that a student gets in a course; and
- B. **End-Semester Examination (ESE)** accounting for the remaining 70% of the final grade that the student gets in a course (except in case of 40 marks theory paper where 30 marks of practical will be added in the grand total of 70 marks).

- A. **Continuous Comprehensive Assessment (CCA)**: This would have the following components:

**Continuous Comprehensive Assessment (CCA) Pattern: Maximum Marks Allotted: 30**

Mid Term Test* (Marks)	Seminars/ Assignments/ Tutorials/ Class Test/ (Marks)	Attendance (Marks)	Total Marks
15	10	5	30

\* The pattern of examination for conducting the Mid Term Test shall be same as prescribed for the end semester examination.

- A. **End-Semester Examination (ESE)**: The remaining 70% of the final grade of the student in a course will be on the basis of an end-semester examination (ESE) that shall be of three hours duration and will be covering the whole syllabus of the course. The question paper format and marks distribution scheme for 70 marks theory paper and 40 marks theory paper will be as specified below:

- i) **End Semester Examination Format (for 70 Marks Theory Paper):**

**End Semester Examination Scheme:**

Maximum Marks Allotted	Minimum Pass Marks	Time Allotted
70	32	3 Hours

**Paper Setting Format:**

Section	No. of Questions	Syllabus Coverage	Nature of Questions	Questions to be Attempted	Maximum Marks
A	10	Whole	MCQ/True-False/Fill in the blanks or such type	10 (1 mark each)	10
	5	Whole	Short answer type (25-50 words)	5 (4 marks each)	20
B	2	Unit I	Long answer type	1 (10 marks each)	10
C	2	Unit II	Long answer type	1 (10 marks each)	10
D	2	Unit III	Long answer type	1 (10 marks each)	10
E	2	Unit IV	Long answer type	1 (10 marks each)	10
<b>Total (A+B+C+D+E)</b>					<b>70</b>

## ii) End Semester Examination Format (for 40 Marks Theory Paper):

### End Semester Examination Scheme:

Maximum Marks Allotted	Minimum Pass Marks	Time Allotted
40	18	3 Hours

### Paper Setting Format:

Section	No. of Questions	Syllabus Coverage	Nature of Questions	Questions to be Attempted	Maximum Marks
A	8	Whole	MCQ/True-False/Fill in the blanks or such type	8 (1 mark each)	8
B	2	Unit I	Long answer type	1 (8 marks each)	8
C	2	Unit II	Long answer type	1 (8 marks each)	8
D	2	Unit III	Long answer type	1 (8 marks each)	8
E	2	Unit IV	Long answer type	1 (8 marks each)	8
<b>Total (A+B+C+D+E)</b>					<b>40</b>

## 2. Practical Examination

Practical examination evaluation system will also have the CCA and ESP components at par with the theory examination as follows (except in case of 30 marks ESP examination where there will be no CCA):

- A. Continuous Comprehensive Assessment (CCA)** accounting for 30% of the final grade that a student gets in a practical course and its evaluation pattern would be same as mentioned above for the theory examination.
- B. End-Semester Practical (ESP) Examination** accounting for the remaining 70% of the final grade that a student gets in a practical course and will be based on an end semester practical (ESP) examination that shall be of three hours duration and will be covering the whole syllabus of the course. Its evaluation would be based upon the components: written lab work, markings of playfields/athletic track, demonstration of the skills, viva-voce and practical record. The marks distribution scheme for 30 marks end semester practical examination and 70 marks end semester practical examination will be as specified below:

### i) End Semester Practical Examination Scheme (for 30 Marks Practical):

#### Marks Allocation Scheme for End Semester Practical Examination:

Practical Examination Components	Maximum Marks	Minimum Pass Marks	Time Allotted
Playfield/Track Markings	07	14	3 Hours
Demonstration of Skills	08		
Practical Record	10		
Viva-Voce	05		
<b>Total</b>	<b>30</b>		

**ii) End Semester Practical Examination Scheme (for 70 Marks Practical):**

**Marks Allocation Scheme for End Semester Practical Examination:**

<b>Practical Examination Components</b>	<b>Maximum Marks</b>	<b>Minimum Pass Marks</b>	<b>Time Allotted</b>
Written Lab Work	20	32	3 Hours
Demonstration of Skills	20		
Playfield/Track Markings	10		
Practical Record	10		
Viva-Voce	10		
<b>Total</b>	<b>70</b>		

**Note:-**

1. A student will have to pass **both** the components i.e. CCA and ESE/ESP separately to become eligible to be declared successful in a course. The pass percentage will be 45% i.e. 14 marks out of 30 in CCA/ESP, 18 marks out of 40 in ESE and 32 marks out of 70 in ESE/ESP.
2. There will be no CCA in case of 30 marks practical.



# **COURSE CONTENTS IN DETAIL**

## **SEMESTER-I**

### **THEORY COURSE**

**COURSE CODE: PED101TH**

**(CORE COURSE-I)**

**Credits: 4**

**(L=44+T=16+P=0) =60**

**Marks: (ESE=40+CCA=30) =70**

### **INTRODUCTION TO PHYSICAL EDUCATION**

#### **Unit-I Introduction**

1. Meaning, Definition, Need and Scope of Physical Education.
2. Aim and Objectives of Physical Education.
3. Importance of Physical Education in present era.
4. Misconceptions about Physical Education.
5. Relationship of Physical Education with General Education.

#### **Unit-II**

1. Historical Development of Physical Education in India (Pre-Independence).
2. Physical Education in India (Post-Independence).
3. Contribution of Akhadas, Vyayamshalas and Y.M.C.A.
4. Modern Perspectives: Career Avenues, National awards and Honours, Arjuna Award, Rajiv Gandhi Khel Ratna Award, Dronacharya Award, M.A.K.A. Trophy.

#### **Unit-III Biological Basis of Physical Education**

1. Growth and Development, Differences between growth and development, Factors affecting growth and development.
2. Anatomical and Physiological Differences between Male and Female.
3. Effects of Heredity and Environment on Growth and Development.

#### **Unit-IV Emerging Trends in Physical Education**

1. Career opportunities in Physical Education and Sports:
  - a. As a Physical Education teacher.
  - b. Coach / trainee.
  - c. Gym instructor.

- d. Physiotherapist.
  - e. Psychologist.
  - f. Dietitian.
  - g. Sports administrator/manager
  - h. Rehabilitator
- 2. Adventure Sports
  - 3. Water Sports
  - 4. Fast growing professional in sports

**References:**

- 1. Barrow, Harold M., "Man and Movement: Principles of Physical Education", Lea and Febiger, Philadelphia, 1983.
- 2. Bucher, Charles A. & Wuest, Deborah A., "Foundations of Physical Education and Sports", 11<sup>th</sup> Edition, The CV Mosby Co., St. Louis, 1991.
- 3. Krishna Murthy V. & Paramesara Ram, N., "Educational Dimensions of Physical Education", 2<sup>nd</sup> Revised edition, Print India, New Delhi, 1990.

**SEMESTER-I**  
**PRACTICAL COURSE**

**COURSE CODE: PED101PR**

**{CORE COURSE-I (Practical)}**

**Credits: 2**

**{L=8+T=0+P=44(22\*)} =30**

**Marks: 30**

**ATHLETICS AND GAME-I**

**1. Athletics**

**i) Event (Shot put and Long jump):**

- (a) Introduction of event and brief history.
- (b) Basic skills and techniques.
- (c) IAAF rules and regulations.
- (d) Equipment required for the event.
- (e) No. of officials required and duties of officials.
- (f) Techniques of the event.
- (g) Teaching stages of the event.
- (h) Preparation and filling of score sheet.
- (i) Marking of the shot put/long jump field.

**2. Game**

**ii) Badminton/Weightlifting: (Any one)**

- (a) History of the game.
- (b) Measurement and preparation of the playfield.
- (c) Equipment required for the game.
- (d) Fundamental skills and lead-up games.
- (e) Techniques, strategies and system of play.
- (f) Rules and regulations of the game.
- (g) National and International tournaments associated with the game.
- (h) Team/Individual records (World, Olympic, Asian and National Level) of the game.
- (i) Awards associated with the game.
- (j) Knowledge of score sheets.
- (k) Signals of officiating.

**SEMESTER-II**  
**THEORY COURSE**

**COURSE CODE: PED201TH**

**Credits: 4**

**(CORE COURSE-II)**

**(L=44+T=16+P=0) =60**

**Marks: (ESE=40+CCA=30) =70**

**OLYMPIC MOVEMENT AND ORGANIZATION OF TOURNAMENTS**

**Unit-I Olympics Games, Asian Games and Commonwealth Games**

1. Olympic Movement: Ancient and Modern Olympics Games.
2. Importance of Olympic Games, Objectives of Olympic, Olympic Motto, Emblem, Flag, Olympic Torch and Awards.
3. Asian Games: Historical background of Asian Games.
4. Performance of India at Olympic Games, World Championship, Asian Games and Commonwealth Games.

**Unit-II Promotion of Physical Education and Sports in India**

1. Promotion of Physical Education and Sports: Policies, Schemes, Awards & Honours and Awardees.
2. Role of IOA, SAI, NSNIS and Khelo Bharat Abhiyan in the development of Physical Education and Sports in India.
3. Causes of deterioration of Sports Performance.
4. Indian National Sports Policy and Sports Policy of Himachal Pradesh.
5. Eminent Indian Sports Personalities of different games.

**Unit-III Intramurals and Extramurals**

1. Intramurals :
  - i) Its importance and planning.
  - ii) Events of competitions, time and facility factor.
2. Extramurals :
  - ii) Planning and conduct.
  - iii) Outcomes of participations (Educational).
  - iv) Limitations in participations.
  - v) Selection and training of teams.
  - vi) Participation, finance and other aspects.

#### **Unit-IV Organisation of Tournaments**

1. Concept and definition of tournament.
2. Kind of Tournaments: Knock-Out and League Tournament. Draw of Fixture, their Merits and Demerits.
3. Protocols to organise college's Annual Athletic Meet.

#### **References:**

1. Carto, J.E.L. And Calif, S.D. [ed], "Medicine & Sport Science: Physical Structure of Olympic Athletes", London: Karger, 1984.
2. Cliw, Gifford, "Summer Olympic", 2004.
3. Daw, Anderson, "The Story of the Olympics", 2008.
4. Maranirs, David, "Rome 1960: The Olympics that Changed the World", 2008.
5. Osborne, Manpope, "Ancient Greece and the Olympic", 2004.
6. Perrottet, Tony, "The Naked Olympics: The True Story of the Ancient Games", 2004.
7. Singh, M.K., "Indian Women and Sports", Rawat Publication, 1991.

**SEMESTER-II**  
**PRACTICAL COURSE**

**COURSE CODE: PED201PR**

**{CORE COURSE-II (Practical)}**

**Credits: 2**

**{L=8+T=0+P=44(22\*)} =30**

**Marks: 30**

**ATHLETICS AND GAME-II**

**1. Athletics**

**i) Event (Sprints):**

- (a) Introduction of event and brief history.
- (b) Basic skills and techniques.
- (c) IAAF rules and regulations.
- (d) Equipment required for the event.
- (e) No. of officials required and duties of officials.
- (f) Techniques of the event.
- (g) Teaching stages of the event.
- (h) Preparation and filling of score sheet.
- (i) Marking of the track.

**2. Game**

**ii) Basketball/Table Tennis: (Any one)**

- (a) History of the game.
- (b) Measurement and preparation of the playfield.
- (c) Equipment required for the game.
- (d) Fundamental skills and lead-up games.
- (e) Techniques, strategies and system of play.
- (f) Rules and regulations of the game.
- (g) National and International tournaments associated with the game.
- (h) Team/Individual records (World, Olympic, Asian and National Level) of the game.
- (i) Awards associated with the game.
- (j) Knowledge of score sheets.
- (k) Signals of officiating.

**SEMESTER-III**  
**THEORY COURSE**

**COURSE CODE: PED301TH**

**Credits: 4**

**(CORE COURSE-III)**

**(L=44+T=16+P=0) =60**

**Marks: (ESE=40+CCA=30) =70**

**HUMAN ANATOMY AND PHYSIOLOGY**

**Unit-I**

1. Basic concept of Anatomy and Physiology.
2. **Muscular System:** Types of muscles, Structure and functions of muscles, Types of muscular contraction-Isotonic, isometric and isokinetic contractions and Effects of exercises and training on muscular System.
3. **Skeletal System:** Introduction, Functions and Importance of Skeletal System, Types of Bones-Skull, Upper and Lower Limbs and Trunk and Effects of exercises and training on Skeletal System.

**Unit-II**

1. **Respiratory System:** Introduction, Structure and Function, Types of respiration, Organs of respiration, Mechanism of Respiration and Measurements of Ventilation and Effects of exercises and training on Respiratory System.
2. **Circulatory System:** Structure of the Heart, Chambers of Heart, Arteries, Veins and Capillaries, Systematic and Pulmonary Circulation, Functions of Heart, Cardiac Output, Heart Rate, Stroke Volume, Blood Volume, Blood Flow, Athlete's Heart and Effects of exercises and training on Circulatory System.

**Unit-III**

1. **Digestive System:** Introduction, Importance of digestion, Functions and process of digestion, Organs of Digestive system, Mechanism of Digestive system, Effects of exercises and training on Digestive System.
2. **Nervous System:** Structure and Function of Brain and Spinal Cord, Autonomous Nervous System, Peripheral Nervous System, Nerve Cell, Receptor, Motor Unit and Reflex Action and Effects of exercises and training on Nervous System.

**Unit-IV**

1. Meaning and definition of Physiology and Exercise Physiology.

2. Need and importance of exercise physiology in the field of Physical Education.
3. Energy sources:
  - a. Definition of energy
  - b. Adenocine triphosphate (ATP)
  - c. Creatine phosphate
  - d. Metabolism
  - e. Fatigue
4. Fatigue and factors responsible for fatigue.

**References:**

1. Jain, A. K. (2002). Anatomy & Physiology for Nurses, Arya Publishers, Delhi.
2. Moried, E. N., (2007). Essential of Human Anatomy & Physiology (ed.), 8th Dorling Kindersley, India.
3. Prives, M. et al. (2004). Human Anatomy, Vol. I & II, Paragon, Delhi.
4. Seeley, et al. (2008). Anatomy & Physiology, McGraw Hill, Boston.
5. Tortora (2003). Principles of Anatomy & Physiology, New York: John Willy & Sons.
6. William, C. S. (2000). Essentials of Human Anatomy & Physiology, Benjamin.



**SEMESTER-III**  
**PRACTICAL COURSE**

**COURSE CODE: PED301PR**

**{CORE COURSE-III (Practical)}**

**Credits: 2**

**{L=8+T=0+P=44(22\*)} =30**

**Marks: 30**

**ATHLETICS AND GAME-III**

**1. Athletics**

**i) Event (High jump and Javelin):**

- (a) Introduction of event and brief history.
- (b) Basic skills and techniques.
- (c) IAAF rules and regulations.
- (d) Equipment required for the event.
- (e) No. of officials required and duties of officials.
- (f) Techniques of the event.
- (g) Teaching stages of the event.
- (h) Preparation and filling of score sheet.
- (i) Marking of the shot high jump/javelin field.

**2. Game**

**ii) Handball/Boxing: (Any one)**

- (a) History of the game.
- (b) Measurement and preparation of the playfield/arena.
- (c) Equipment required for the game.
- (d) Fundamental skills and lead-up games.
- (e) Techniques, strategies and system of play.
- (f) Rules and regulations of the game.
- (g) National and International tournaments associated with the game.
- (h) Team/Individual records (World, Olympic, Asian and National Level) of the game.
- (i) Awards associated with the game.
- (j) Knowledge of score sheets.
- (k) Signals of officiating.

**SEMESTER-III**  
**THEORY COURSE**

**COURSE CODE: PED302TH**

**(SEC-I)**

**Credits: 4**

**(L=44+T=16+P=0) =60**

**Marks: (ESE=70+CCA=30) =100**

**SPORTS MEDICINE, PHYSIOTHERAPY AND REHABILITATION**

**Unit-I Sports Medicine**

1. Sports Medicine: Meaning, definition, aims, objectives, modern concepts and importance.
2. Injuries: Type of sports injuries, prevention of injuries in sports, common sports injuries and their diagnosis.
3. First Aid: Meaning, objectives and precautionary measures while giving first aid.
4. Treatment of Laceration, Blisters, Contusion, Strain, Sprain, Fracture, Dislocation and Cramps.

**Unit-II Common Accidents and Ergogenic Aids**

1. Emergency treatment for common accidents: Drowning, Burning, Insect stings & bitings, Snake bite, Dog bite, Poisoning, Unconsciousness, Fainting, Hysteria, Sunstroke, Shock, Electric shock and Acid burn.
2. Ergogenic aids in sports and their ill effects :
  - a. Anabolic agents
  - b. Stimulants
  - c. Beta blockers
  - d. Narcotic analgesics
  - e. Diuretics
  - f. Blood doping

**Unit-III Physiotherapy**

1. Physiotherapy: Definition, guiding principles of physiotherapy and importance of physiotherapy.
2. Massage: History of massage, types of massage and physiological effect of massage.

**Unit-IV Hydrotherapy and Thermotherapy**

1. Hydrotherapy: Introduction and demonstration of treatments of Cryotherapy, Contrast Bath, Whirlpool Bath , Steam Bath , Sauna Bath and Hot Water Fomentation.

2. Thermotherapy: Introduction and demonstration of treatment of thermotherapy.

**References:**

1. Jain, A. K. (2002). Anatomy & Physiology for Nurses, Arya Publishers, Delhi.
2. Moried, E. N. (2007). Essential of Human Anatomy & Physiology (ed.), 8th Dorling Kindersley, India.
3. Prives, M. et al. (2004). Human Anatomy, Vol. I & II, Paragon, Delhi.
4. Seeley et al. (2008). Anatomy & Physiology, McGraw Hill, Boston.
5. Tortora (2003). Principles of Anatomy & Physiology, New York: John Willy & Sons.
6. William, C. S. (2000). Essentials of Human Anatomy & Physiology, Benjamin.
7. Wilson and Waugh (1996). Anatomy & Physiology in Health & Illness, Churchill Livingstone.

**SEMESTER-IV**  
**THEORY COURSE**

**COURSE CODE: PED401TH**

**Credits: 4**

**(CORE COURSE-IV)**

**(L=44+T=16+P=0) =60**

**Marks: (ESE=40+CCA=30) =70**

**SPORTS PSYCHOLOGY**

**Unit-I Introduction**

1. Meaning of psychology and sports psychology.
2. Definition, scope and importance of sports psychology.
3. Goals of sports psychology.
4. Psychological factors affecting sports performance.

**Unit-II Growth and Development**

1. Concept of growth and development.
2. Physical, mental, social, intellectual and emotional development in infancy, later childhood and adolescence stages.
3. Learning: meaning, definition and nature of learning.
4. Laws of learning and learning curve.
5. Theories of learning.

**Unit-III Motivation**

1. Meaning and definition of motivation.
2. Types of motivation and motivation in learning.
3. Individual differences its type and nature.
4. Determinants of individual difference:
  - a. Heredity
  - b. Environment
5. Intelligence, its meaning and types.

**Unit-IV Personality**

1. Personality: Meaning of personality, definition and personality characteristics.
2. Factors affecting personality and dimensions of personality.
3. Classification of personality traits.
4. Emotion, anxiety and stress management in sports.

5. Role of sports in the development of personality.

**References:**

1. Cohen, R. J. and Swerdlik, M. E. (2002). Psychological testing and Assessment: An Introduction to Tests and Measurement, McGraw Hill, New York: U.S.A.
2. Cox, R. H. (2002). Sport Psychology, McGraw Hill, London.
3. Dixit, S. (2006). Khel-Manovigyan, Sports Publications. Delhi.
4. Mortin, G. L. (2003). Sports Psychology, Sports Science Press, USA.
5. Sahni, S. P. (2005). Psychology and Its Application in Sports, D.V.S. Delhi.
6. Verma, V. (1999). Sport Psychology & All Round Development, Sport Publications: New Delhi.
7. Wann, D. L. (1997). Sport Psychology, Prentice Hall: New Jersey.

**SEMESTER-IV**  
**PRACTICAL COURSE**

**COURSE CODE: PED401PR**

**{CORE COURSE-IV (Practical)}**

**Credits: 2**

**{L=8+T=0+P=44(22\*)} =30**

**Marks: 30**

**ATHLETICS AND GAME-IV**

**1. Athletics**

**i) Event (Discus throw and Triple jump ):**

- (a) Introduction of event and brief history.
- (b) Basic skills and techniques.
- (c) IAAF rules and regulations.
- (d) Equipment required for the event.
- (e) No. of officials required and duties of officials.
- (f) Techniques of the event.
- (g) Teaching stages of the event.
- (h) Preparation and filling of score sheet.
- (i) Marking of the discus throw/triple jump field.

**2. Game**

**ii) Hockey/Judo: (Any one)**

- (a) History of the game.
- (b) Measurement and preparation of the playfield/arena.
- (c) Equipment required for the game.
- (d) Fundamental skills and lead-up games.
- (e) Techniques, strategies and system of play.
- (f) Rules and regulations of the game.
- (g) National and International tournaments associated with the game.
- (h) Team/Individual records (World, Olympic, Asian and National Level) of the game.
- (i) Awards associated with the game.
- (j) Knowledge of score sheets.
- (k) Signals of officiating.

**SEMESTER-IV**  
**THEORY COURSE**

**COURSE CODE: PED402TH**

**(SEC-2)**

**Credits: 4**

**(L=44+T=16+P=0) =60**

**Marks: (ESE=70+CCA=30) =100**

**SPORTS TRAINING**

**Unit-I**

1. Sports Training: Introduction, Meaning and Definition of Sports Training.
2. Aim and Objectives of Sports Training.
3. Principles of Sports Training, System of Sports Training.
4. Basic Performance, Good Performance and High Performance Training.

**Unit-II**

1. Concept of warming-up and cooling down.
2. Physiological basis of warming-up and cooling down.
3. Training Components: Speed, Strength, Endurance, Flexibility and Co-ordination.
4. Types and methods for the development of training components.

**Unit-III**

1. Training Process: Training Load, Definition and Types of Training Load.
2. Principles of Intensity and Volume.
3. Technical Training: Meaning and Methods of Technical Training.
4. Tactical Training: Meaning and Methods of Tactical Training.

**Unit-IV**

1. Training Programming and Planning: Periodization, Meaning and types of Periodization.
2. Aim and Content of Periods-Preparatory, Competition and Transitional.
3. Planning a training session.
4. Talent Identification and Development.

**References:**

1. Baechle, T. R, & Earle, R. W. (2000). Essentials of Strength Training and Conditioning. Human Kinetics, USA.
2. Bompa, T. O. (1994). Theory and Methods of Training-A Key to Athletic Performance (3rd Ed.), Kandwall, Hunt Publication Co.

3. Bompa. T.O. and G. Gregory Hett (2009). Periodization: Theory and Methodology of Training.
4. Dick, F. W. (1999). Sport Training Principles, A and C Black. London.
5. Singh, Hardayal (1991). Science of Sport Training, D.V.S Publication, Delhi.
6. Singh, M. K. (2008). Comprehensive Badminton (Scientific Training), Friends Publication: New Delhi.



**SEMESTER-V**  
**PRACTICAL COURSE**

**COURSE CODE: PED501PR**

**{SEC-3 (Practical)}**

**Credits: 4**

**{L=15+T=0+P=90(45\*)} =60**

**Marks: (ESP=70+CCA=30) =100**

**SPECIALIZATION IN VOLLEYBALL**

**Unit-I**

1. History of game, measurement and preparation of the play field and equipment required for game.
2. Fundamental skills and lead-up games.
3. Techniques, strategies and method of play.
4. Rules and regulations of the game.
5. National and International tournaments associated with the game.
6. Team/Individual records (World, Olympic, Asian and National Level) of the game.
7. Awards associated with the game.
8. Duties of the officials.
9. Technical Equipment for officiating.
10. Knowledge of the score sheets.
11. Signals of officiating.

**Unit-II**

1. General and specific warming-up and cooling down.
2. Long-term and short-term preparation for the decisive volleyball competitions.
3. Psychological qualities and preparation of a volleyball player.
4. Offensive, defense system in play, service and reception pattern.
5. Individual, group and team tactics.
6. Diet and nutrition for a volleyball player.
7. Coordination among the manager, coach, doctor, psychologist and players.

**Unit-III**

1. Teaching of volleyball skills.
2. Preparing a lesson plan.
3. Specific training methods for different playing positions.

4. Counseling during competitions.
5. Information and publicity of the competition, writing press release and reports.
6. Facility management, quality control of equipment and player's kit, risk management, medical check-up, medical aid and insurance.
7. Personnel management and interpersonal communication skills.

#### **Unit-IV**

1. Injuries associated with the game: Ankle sprain, finger injuries, shoulder dislocation, knee displacement.
2. Preventive and safety measures, P.R.I.C.E., Rehabilitation and physiotherapy.
3. Training means for development of different components of physical fitness i.e. Speed, Strength, Endurance, Flexibility, Coordinative ability.

#### **References**

1. American Volleyball Coaches Association (2005). Volleyball: Skills & Drills. Human Kinetics, Champaign, U.S.A.
2. FIVB (1996). Backcourt Spiking in Modern Volleyball. FIVB, Chennai.
3. Sagar, S. K. (1994). Cosco Skills Statics-Volleyball. Sports Publication, Delhi.
4. Scates, A. E. (1993). Winning Volleyball.

**SEMESTER-V**  
**PRACTICAL COURSE**

**COURSE CODE: PED502PR**

**{SEC-3 (Practical)}**

**Credits: 4**

**{L=15+T=0+P=90(45\*)} =60**

**Marks: (ESP=70+CCA=30) =100**

**SPECIALIZATION IN FOOTBALL**

**Unit-I**

1. History of game, measurement and preparation of the play field and equipment required for game.
2. Fundamental skills and lead-up games.
3. Techniques, strategies and method of play.
4. Rules and regulations of the game.
5. National and International tournaments associated with the game.
6. Team/Individual records (World, Olympic, Asian and National Level) of the game.
7. Awards associated with the game.
8. Duties of the officials.
9. Technical Equipment for officiating.
10. Knowledge of the score sheets.
11. Signals of officiating.

**Unit-II**

1. General and specific warming-up and cooling down.
2. Long-term and short-term preparation for the decisive football competitions.
3. Psychological qualities and preparation of a football player.
4. Offensive, defense system in play, service and reception pattern.
5. Individual, group and team tactics.
6. Diet and nutrition for a football player.
7. Coordination among the manager, coach, doctor, psychologist and players.

**Unit-III**

1. Teaching of football skills.
2. Preparing a lesson plan.

3. Specific training methods for different playing positions.
4. Counseling during competitions.
5. Information and publicity of the competition, writing press release and reports.
6. Facility management, quality control of equipment and player's kit, risk management, medical check-up, medical aid and insurance.
7. Personnel management and interpersonal communication skills.

#### **Unit-IV**

1. Injuries associated with the game: Ankle sprain, finger injuries, shoulder dislocation, knee displacement.
2. Preventive and safety measures, P.R.I.C.E., Rehabilitation and physiotherapy.
3. Training means for development of different components of physical fitness i.e. Speed, Strength, Endurance, Flexibility, Coordinative ability.

#### **References**

1. Kumar, N. (2003). Play and Learn Football. K.S.K., New Delhi.
2. Reilly. T. (1988). Science and Football. E.N. Sports Ltd., London.
3. Sharma, O. P. (2001). Teaching and Coaching-Football. Khel Sahitya Kendra, Delhi.
4. Shellito, K. (1988). Personal Best Football. William Collins & Sons, London.
5. Thani, Y. (2002). Coaching Successfully Football. Khel Sahitya Kendra, Delhi.
6. Williams, J. (1988). The Roots of Football.

**SEMESTER-V**  
**PRACTICAL COURSE**

**COURSE CODE: PED503PR**

**{SEC-3 (Practical)}**

**Credits: 4**

**{L=15+T=0+P=90(45\*)} =60**

**Marks: (ESP=70+CCA=30) =100**

**SPECIALIZATION IN KABADDI**

**Unit-I**

1. History of game, measurement and preparation of the play field and equipment required for game.
2. Fundamental skills and lead-up games.
3. Techniques, strategies and method of play.
4. Rules and regulations of the game.
5. National and International tournaments associated with the game.
6. Team/Individual records (World, Olympic, Asian and National Level) of the game.
7. Awards associated with the game.
8. Duties of the officials.
9. Technical Equipment for officiating.
10. Knowledge of the score sheets.
11. Signals of officiating.

**Unit-II**

1. General and specific warming-up and cooling down.
2. Long-term and short-term preparation for the decisive kabaddi competitions.
3. Psychological qualities and preparation of a kabaddi player.
4. Offensive, defense system in play, service and reception pattern.
5. Individual, group and team tactics.
6. Diet and nutrition for a kabaddi player.
7. Coordination among the manager, coach, doctor, psychologist and players.

**Unit-III**

1. Teaching of kabaddi skills.
2. Preparing a lesson plan.

3. Specific training methods for different playing positions.
4. Counseling during competitions.
5. Information and publicity of the competition, writing press release and reports.
6. Facility management, quality control of equipment and player's kit, risk management, medical check-up, medical aid and insurance.
7. Personnel management and interpersonal communication skills.

#### **Unit-IV**

1. Injuries associated with the game: Ankle sprain, finger injuries, shoulder dislocation, knee displacement.
2. Preventive and safety measures, P.R.I.C.E., Rehabilitation and physiotherapy.
3. Training means for development of different components of physical fitness i.e. Speed, Strength, Endurance, Flexibility, Coordinative ability.

#### **References**

1. Mishra, S.C. (2007). Teach Yourself Kabaddi. Sports Publications, New Delhi.
2. Rao, C.V. (1983). Kabaddi: Native Indian Sports. NSNIS, Patiala.
3. Rao, E. P. (1994). Modern Coaching in Kabaddi. D.V.S. Publications.
4. Syal, M. (2004). Kabaddi Teaching. Prerna Parkashan, New Delhi.

**SEMESTER-V**  
**THEORY COURSE**

**COURSE CODE: PED504TH**

**(DSE-1)**

**Credits: 6**

**(L=65+T=25+P=0) =90**

**Marks: (ESE=70+CCA=30) =100**

**RECREATION**

**Unit-I**

1. Meaning of Recreation, aims and objectives of Recreation.
2. Physical education and recreation.
3. Need and importance of recreation in modern age.
4. Arrangement of recreation centres.

**Unit-II**

1. Concept and meaning of camp, aims and objectives of camp.
2. Types of camp.
3. Agencies promoting camp.
4. Educative value of camp.

**Unit-III**

1. Types and nature of recreation.
2. Recreation providing agencies and recent changes in the recreational activities.
3. Responsibilities of a recreational manager.

**Unit-IV**

1. Meaning, importance and utilities of picnic.
2. Organization of picnic and essentials for picnic and factors affecting its organization.
3. Educative value of picnic.

**References:**

1. Organisation and Administration & Recreation in Physical Education, Tandon Publication: Ludhiana.
2. Administration of Physical Education and Athletics Program. Charles, A. Bucher.
3. Butter, George. Introduction to Community Recreation, McGraw Hill Book Company Inc, New York. 3<sup>rd</sup> edition, 1959.

**SEMESTER-V**  
**THEORY COURSE**

**COURSE CODE: PED505TH**

**(DSE-1)**

**Credits: 6**

**(L=65+T=25+P=0) =90**

**Marks: (ESE=70+CCA=30) =100**

**KINESIOLOGY AND BIOMECHANICS**

**Unit-I**

1. Meaning and importance of Kinesiology.
2. Meaning and importance of Biomechanics.
3. Joints, their types and movements around joints.

**Unit-II**

1. Fundamental anatomical position, planes and axis.
2. Kinesiological classification of muscles.
3. Role of different muscles: Agonist, Antagonist, Mover, Stabilizer, Fixator and Neutralizer.

**Unit-III**

1. Description of biomechanical terms: Velocity, Acceleration, Angular Velocity, Angular Acceleration, Linear and Angular Motion, Kinetics and Kinematics, Force, Pressure, Gravity, Friction, Work, Power, Torque and Parabolic Path.

**Unit-IV**

1. Newton's Laws of Motion and their implication in sports.
2. Mechanical Levers and their Implication in sports and physical education.
3. Meaning and concept of Equilibrium and Centre of Gravity.

**References:**

1. Jensen et. al., "Applied Kinesiology and Biomechanics" 3<sup>rd</sup> Edition, McGraw Hill Book Company, 1984.
2. Piscopo et.al., "Kinesiology: Science of Movement", John Wiley & Sons, Inc., New York, 1981.
3. Wells, et.al, "Kinesiology: Scientific Basis of Human Motion", 3<sup>rd</sup> Edition, Saunders College, Philadelphia, 1976.
4. Rasch et. al., "Kinesiology and Applied Anatomy: The Science of Human Movement", 6<sup>th</sup> Edition, Lea & Febiger Philadelphia, 1978.



**SEMESTER-V**  
**THEORY COURSE**

**COURSE CODE: PED506TH**

**(GE-1)**

**Credits: 6**

**(L=65+T=25+P=0) =90**

**Marks: (ESE=70+CCA=30) =100**

**HEALTH EDUCATION AND NUTRITION**

**Unit-I Introduction**

1. Concept of health, meaning, definition and scope of health education.
2. Objective of health education.
3. Principles of health education.
4. Need and significance of health education.

**Unit-II Personal Health and Hygiene**

1. Meaning of personal hygiene.
2. Personal care of:
  - a. Skin.
  - b. Hair.
  - c. Ear.
  - d. Eyes.
  - e. Nose.
  - f. Teeth.
  - g. Feet.
  - h. Cloths.
3. Eliminating of body wastes.
4. Rest, sleep and relaxation.
5. Effect of alcohol and smoking on health.

**Unit-III School Health Programme and Nutrition**

**1. Healthful School Living:**

- a. Place and location of school.
- b. Buildings.

- c. Infrastructure and facilities.
- d. Safety measures.

**2. Health Supervision/Services:**

- a. Physical medical examination and their follow up.
- b. Health inspection of students.
- c. Centers of communicable disease.

**3. Health Instructions Related To:**

- a. Personal care.
- b. Communicable disease.
- c. Nutrition.
- d. Healthful living.

**4. Nutrition:**

- a. Balanced diet and its elements:
  - i. Carbohydrates, Proteins, Fats, Vitamins, Minerals, Salts and Water.
- b. Daily energy/calorie requirements of healthy person.

**Unit-IV Communicable Diseases**

- 1. Meaning and definition of communicable disease.
- 2. Mode of transmission, prevention and cure and sanitation of communicable disease.
- 3. Common Communicable Diseases:
  - a. Influenza.
  - b. Malaria.
  - c. Small pox.
  - d. Tuberculosis.
  - e. Typhoid.
  - f. Cholera.
  - g. Measles.

**References:**

- 1. Klander H. F., "School Health Education", The Mac Millan Co. 1962.
- 2. Pande P.K. and Gango Padhyay S.R., "Health Education for School Children."

3. S. Dheer and Others, "Introduction to Health Education, AP Publishers, 9 Books Market Chowk Adda, Tanda, Jalandhar, 1989.
4. Nebmir. A., "The School Health Education", New York: Harper and Brothers.
5. Park, JE and Park, K., "Text Books of Preventive and Social Medicine" 10<sup>th</sup> Edition, Banarsi Dass Bhanot, Jabalpur, 1985.

**SEMESTER-VI**  
**PRACTICAL COURSE**

**COURSE CODE: PED601PR**

**{SEC-4 (Practical)}**

**Credits: 4**

**{L=15+T=0+P=90(45\*)} =60**

**Marks: (ESP=70+CCA=30) =100**

**SPECIALIZATION IN ATHLETICS**

**Unit-I**

1. Introduction to athletics.
2. Historical developmental of athletics, Ancient Olympics and Modern Olympics games.
3. Historical review of track and field with special reference to India.
4. National and International level athletics championships: Olympic Games, Asian games, IAAF-World Championship, Commonwealth Games, National Games, Open National, Youth National and Inter-Universities athletics championships.

**Unit-II**

1. Athletic track and its types.
2. Procedure and methods to mark the track (200m, 400m).
3. Marking and construction of Shot Put, Discus Throw, Javelin throw and Hammer throw arena.
4. Specification and construction of Long Jump, Triple Jump high jump and pole vault pit/runways etc.
5. Selected National and International personalities in athletics.
6. Need, importance and procedure of Warming-up and Cooling down.
7. First aid and rehabilitation of athletics injuries.

**Unit-III**

1. **Track Events:** Brief background, technique, training and important motor components of the following track events:
  - i) Sprints races: 100m, 200m, 400m; Hurdle Races: High Hurdle and Low Hurdle and Steeple Chase.
  - ii) Middle and Long Distance Races; Combined Events: Decathlon and Heptathlon; Relay Races and Marathon.

2. **Fields Events:** Brief background, technique, training and important motor components of the following field events:
  - i) Shot put, Discus throw, Javelin throw and Hammer Throw.
  - ii) Long Jump, Triple Jump, High Jump and Pole vault.

#### **Unit-IV**

1. Technical training and practice of following events:
  - i) Sprints Starting techniques, finishing techniques.
  - ii) Shot put, Discus throw and Javelin throw ( Basic Teaching Stages)
  - iii) Long Jump, Triple Jump High Jump and Pole vault( Basic Teaching Stages)
  - iv) Record files, calculations of straight, radius and staggers of standard tracks.
  - v) Relays: Holding of the baton and various types of baton exchange (visual and non-visual).

#### **References**

1. Ken O. Bosen. Track & Field for Beginners. Metropolitan Books, New Delhi.
2. Kumar, Pardeep. (2008). Historical Development of Track and Field. Friends Publication, New Delhi
3. Malhotra, A. K. (1980). A Guide to be an Athlete. Krishna Publications, New Delhi.
4. Mohan, V. M. Athletics for Beginners. Metropolitan Book, Delhi.
- Quercetani, R. (2000). Athletics: A History of Modern Track & Field. Sep Editrice Publishers, Milano, Italy.

**SEMESTER-VI**  
**THEORY COURSE**

**COURSE CODE: PED602TH**

**(DSE-2)**

**Credits: 6**

**(L=65+T=25+P=0) =90**

**Marks: (ESE=70+CCA=30) =100**

**METHODS OF TEACHING IN PHYSICAL EDUCATION**

**Unit-I**

1. Meaning and importance of methods of teaching in Physical Education.
2. Principles of teaching methods and different methods of teaching.
3. Factors affecting teaching methods.
4. Lesson Planning: Lesson plan, objectives and types of lesson plan.
5. Principles of lesson plan and values of lesson plan.
6. Class activity/Recreational part (Assembly, Revision, Reassembly and Dismissal).

**Unit-II**

1. Teaching aids, meaning, its importance in physical education, types of teaching aids and use and improvisation of apparatus.
2. Presentation technique, criterion of presentation technique and qualities of good presenter.
3. Factors influencing presentation technique.

**Unit-III**

1. Teaching Skills:
  - i) Lecture method.
  - ii) Command method.
  - iii) Discussion method.
  - iv) Project method.
  - v) Demonstration method.
  - vi) Imitation method.

**Unit-IV**

1. Class formation, its values and types of class formation.

2. Supervision and inspection of teaching methods.
3. Methods of supervision and qualities of a supervisor.
4. Evaluation of teaching methods.
5. Need and importance of evaluation.

**References:**

1. Kamlesh, M. L. and Sangral M.S., Methods in Physical Education, Parkash Brothers, 5-6 Book Market Ludhiana, 1986.
2. Bucher, C.A., Administration of Physical Education and Athletics Programme, St. Louis: The C.V. Mosby Co., 1979.
3. Organization and Management of Physical education and Sports, Rex Book Store, USA.
4. Chelladurai, P., Sport Management: Macro Perspectives. London, ON: Sports Dynamics, 1985.

**SEMESTER-VI**  
**THEORY COURSE**

**COURSE CODE: PED603TH**

**(DSE-2)**

**Credits: 6**

**(L=65+T=25+P=0) =90**

**Marks: (ESE=70+CCA=30) =100**

**OFFICIATING AND COACHING**

**Unit-I**

1. Introduction of officiating and coaching and its importance in games and sports.
2. Principles of officiating and coaching.
3. Outlook of officials and coaches towards management, players and spectators.
4. Measures for improving the standards of officiating and coaching.

**Unit-II**

1. Philosophy of coaching.
2. Coach as a Mentor, duties of a coach in general- Pre, during and post-game situations and responsibilities of a coach on and off the field.
3. Psychological aspects during competition and coaching.

**Unit-III**

1. Philosophy of officiating.
2. Duties of official in general, pre, during and post-game situations.
3. Technical and Tactical preparation of an official.
4. Ethics of officiating.

**Unit-IV**

1. Qualities and qualification of an efficient coach and official.
2. Current status of coaching and officiating in India.
3. Measures for improving the standard of coaching and officiating in India.
4. Role of impartial officiating and coaching in maintaining integrity and values of sports.

**References:**

1. Bunn, J. W. (1968). The Art of Officiating Sports, Prentice Hall: Englewood Cliffs, N. J., USA.
2. Bunn, J. W. (1972). Scientific Principles of Coaching, Prentice Hall: Englewood Cliffs, N. J., USA.
3. Dyson, G. H. (1963). The Mechanics of Athletics, University of London Press Ltd.: London.



4. Lawther, J.D. (1965). *Psychology of Coaching*, Prentice Hall: New York.
5. Singer, R. N. (1972). *Coaching Athletics & Psychology*, New York: McGraw Hill Book Company.

**SEMESTER-VI**  
**THEORY COURSE**

**COURSE CODE: PED604TH**

**(GE-2)**

**Credits: 6**

**(L=65+T=25+P=0) =90**

**Marks: (ESE=70+CCA=30) =100**

**YOGA**

**Unit-I**

1. Meaning and concept of Yoga.
2. Aim, objectives and Importance of Yoga.
3. Types of Yoga.
4. Importance of yoga in the modern world.

**Unit-II**

1. Asanas and their importance.
2. Classification of asanas:
  - a. Meditative
  - b. Relaxative
  - c. Cultural
3. General techniques and benefits of the following:  
Padmasana, Vajrasana, Halasana, Bhujangasana, Sarvangasana, Chakrasana,  
Dhanurasana, Salabhasana, Paschimotanasana, Mayurasana and Shirshasana.
4. Technique and benefits of Surya Namaskar.
5. Difference between yoga and general exercises.

**Unit-III**

1. Pranayama: meaning, objectives and types of pranayama.
2. Physiological values of pranayama.
3. Surya namaskar, its methodology and importance.
4. Yoga for the cure of Disease and Postural Deformities.

**Unit-IV**

2. Sudhi Kiryas: Introduction, objectives and types of sudhi kriyas.
3. Physiological values of sudhi kriyas and Importance of sudhi kriyas.
4. Mudras and Bandhs, types and importance of mudras and bandhs.

5. General principles of yoga.

**References**

1. Iyenger, B. K. S., “Light on Yoga”(ed.), George Allen & Unwin, Great Britain 1982.
2. Sharma, P. D., “Yoga, Yogasana and Pranayama for Health”, Navneet Publication (I) Limited, Ahemdabad,1984.
3. Anand, O. P., “Yoga Dwara Kaya Kalp”, Swasth Sahitya Parkashan, Kanpur, 2001.
4. Datey, K. K. et al., “Yoga and Your Heart”, Jaico Publishing House, Bombay, 2<sup>nd</sup> Edition, 1987.