



Sem	Part	Course	Title	Ins. Hrs	Credit	Exam. Hours	Marks		Total
							Int.	Ext.	
I	I	Language Course – I (LC) – Tamil*/Other Languages +#		6	3	3	25	75	100
	II	English Language Course - I (ELC)		6	3	3	25	75	100
	III	Core Course – I (CC)	Foundation of Physical Education and Sports	6	6	3	25	75	100
		Core Practical – I (CP)	Major Games I & II (Major Games-I: Basketball, Badminton and Kabaddi)	3	-	-	-	-	-
		First Allied Course –I (AC)	Anatomy and Physiology	4	4	3	25	75	100
		First Allied Course – II (AP)	Yoga and indigenous activities I & II (Yoga and indigenous activities-I: Yoga)	3	---	---	---	---	---
	IV	Value Education		2	2	3	25	75	100
<b>TOTAL</b>				<b>30</b>	<b>18</b>				<b>500</b>
II	I	Language Course – II (LC) - Tamil*/Other Languages +#		6	3	3	25	75	100
	II	English Language Course – II (ELC)		6	3	3	25	75	100
	III	Core Course – II(CC)	Health Education and First Aid	6	6	3	25	75	100
		Core Practical – I (CP)	<b>Major Games I &amp; II</b> (Major Games – II: Volleyball, Table Tennis and Kho-Kho)	3	3	3	40	60	100
		First Allied Course – II (AP)	<b>Yoga and indigenous activities I &amp; II</b> (Yoga and indigenous activities-II: Dands, Baithaks, Lezium& Minor games)	3	3	3	40	60	100
		First Allied Course – III (AC)	Yoga Education	4	2	3	25	75	100
	IV	Environmental Studies		2	2	3	25	75	100
<b>TOTAL</b>				<b>30</b>	<b>22</b>				<b>700</b>
III	I	Language Course – III (LC) Tamil*/Other Languages +#		6	3	3	25	75	100
	II	English Language Course - III (ELC)		6	3	3	25	75	100
	III	Core Course – III (CC)	Exercise Physiology	6	6	3	25	75	100
		Core Practical – II (CP)	Major Games III & IV (Major Games – III Hockey, Handball and Cricket)	3	-	-	-	-	-
		Second Allied Course – I (AC)	Sports Management	4	4	3	25	75	100
		Second Allied Course – II (AP)	Mass Demonstration activities I & II (Mass Demonstration activities-I: Marching & Callisthenics)	3	---	---	---	---	---
	IV	Non Major Elective I – for those who studied Tamil under Part I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto 10th +2 but opt for other languages in degree programme		2	2	3	25	75	100
<b>TOTAL</b>				<b>30</b>	<b>18</b>				<b>500</b>

IV	I	Language Course –IV (LC) Tamil*/Other Languages +#		6	3	3	25	75	100	
	II	English Language Course – IV (ELC)		6	3	3	25	75	100	
	III	Core Course – IV (CC)	Sports Psychology and Sociology		5	5	3	25	75	100
		Core Practical – II (CP)	<b>Major Games – III &amp; IV</b> (Major Games – IV: Tennis, Ball Badminton and Football )		3	3	3	40	60	100
		Second Allied Practical–II (AP)	<b>Mass Demonstration activities I &amp; II</b> (Mass Demonstration activities-II: Light Apparatus & aerobics)		3	3	3	40	60	100
		Second Allied Course – III (AC)	Computer Education		3	2	3	25	75	100
	IV	Non Major Elective II – for those who studied Tamil under Part I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto 10 <sup>th</sup> +2 but opt for other languages in degree programme		2	2	3	25	75	100	
		Skill Based Elective I		2	2	3	25	75	100	
	<b>TOTAL</b>				<b>30</b>	<b>23</b>				<b>800</b>
	V	III	Core Course – V (CC)	Kinesiology and Biomechanics	5	5	3	25	75	100
Core Course – VI (CC)			Science of Sports Training	5	5	3	25	75	100	
Core Course – VII (CC)			Theories of Games	5	5	3	25	75	100	
Core Practical – III (CP)			Athletics - Track Events	4	3	3	40	60	100	
Major Based Elective – I			Research and Basic Statistics / Nutritional care	5	5	3	25	75	100	
IV		Skill Based Elective – II		2	2	3	25	75	100	
		Skill Based Elective – III		2	2	3	25	75	100	
		Soft Skills Development		2	2	3	25	75	100	
<b>TOTAL</b>				<b>30</b>	<b>29</b>				<b>800</b>	
VI	III	Core Course – VIII (CC)	Test and Measurement in Physical Education	6	6	3	25	75	100	
		Core Course – IX (CC)	Theories of Track and Field	6	6	3	25	75	100	
		Core Practical – IV (CP)	Athletics - Field Events	5	4	3	40	60	100	
		Major Based Elective–II	Fitness and Wellness / Recreation and Camping	6	6	3	25	75	100	
		Major Based Elective–III	Modern Trends in Physical Education / Olympic movement	6	6	3	25	75	100	
	V	Extension Activities		-	1	-	-	-	-	
		Gender Studies		1	1	3	25	75	100	
<b>TOTAL</b>				<b>30</b>	<b>30</b>				<b>600</b>	
<b>GRAND TOTAL</b>				<b>180</b>	<b>140</b>				<b>3900</b>	

Language Part – I	-	4
English Part –II	-	4
Core Paper	-	9
Core Practical	-	4
Allied Paper	-	4
Allied Practical	-	2
Non-Major Elective	-	2
Skill Based Elective	-	3
Major Based Elective	-	3

Environmental Studies	-	1	
Value Education	-	1	
Soft Skill Development	-	1	
Gender Studies	-	1	
Extension Activities	-	1	(Credit only)

\* for those who studied Tamil upto 10<sup>th</sup> +2 (Regular Stream)

+ Syllabus for other Languages should be on par with Tamil at degree level.

# those who studied Tamil upto 10<sup>th</sup> +2 but opt for other languages in degree level under Part I should study special Tamil in Part IV.

\*\* Extension Activities shall be outside instruction hours.

Non Major Elective I & II – for those who studied Tamil under Part I.

- a) Basic Tamil I & II for other language students
- b) Special Tamil I & II for those who studied Tamil upto 10<sup>th</sup> or +2 but opt for other languages in degree programme.

Note:

	Internal Marks	External Marks
1. Theory	25	75
2. Practical	40	60
3. Separate passing minimum is prescribed for Internal and External marks		

### **FOR THEORY**

The passing minimum for CIA shall be 40% out of 25 marks [i.e. 10 marks]  
The passing minimum for University Examinations shall be 40% out of 75 marks [i.e. 30 marks]

### **FOR PRACTICAL**

The passing minimum for CIA shall be 40% out of 40 marks [i.e. 16 marks]  
The passing minimum for University Examinations shall be 40% out of 60 marks [i.e. 24 marks]

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# **BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI - 620 024.**

## **B.Sc. Physical Education, Health Education and Sports Course Structure under CBCS**

(Applicable to the candidates admitted from the academic year 2016-2017 onwards)

### **Admission Guidelines**

#### **1. Duration**

The duration of the B.Sc. Physical Education, Health Education and Sports shall be three year programme consisting of six semesters.

#### **2. Eligibility**

Applicants should have passed the +2 examination of the Government of Tamil Nadu or any other equivalent examination recognized by the Government of Tamil Nadu or approved by the Bharathidasan University. School representation in any games or sports is preferred for the applicants.

The candidates should not have completed 21 years of age as on 1<sup>st</sup> July. However relaxation of 3 years may be given for SC / ST alone.

#### **3. Admission**

Admission shall be made on the basis of ranking for a total of 150 marks as detailed below.

1.	Qualifying examination	25 marks
2.	Participation in Sports and games	25 marks
3.	Sports proficiency test	50 marks
4.	Physical fitness test a. 100 mts – 20 marks b. Shot put – 15 marks c. Long Jump – 15 marks	50 marks

#### **4. Qualifying Examination (Maximum marks: 25)**

The marks to be awarded for qualifying examination is to be calculated as under: Marks obtained in part - III at the Degree level should be reduced to a maximum of 25.

For example, if a candidate has secured 400 marks out of 600 in part - III at the Degree level, his marks for the qualifying examination is

$$\left( \frac{400 \times 25}{600} \right) = 16.66.$$

## **5. Participation in Sports and Games (Maximum marks: 25)**

The norms for award of marks for the sports and games participation are furnished hereunder:

Any one which is applicable / advantageous.

1.	Representation for the Country / National placing (I,II,III and IV)	25
2.	State Representation (Form-II / IV in games/sports)	20
3.	Inter Division (Participation) BDS /RDS Inter District (Participation) / CBSC CLUSTER	15
4.	Pongal / District (BDS /RDS)	10
5.	Inter-School Representation	05

**Note:** Participation marks are awarded only to Sports discipline, which is part of Inter-University competitions under auspices of Association of Indian Universities (AIU).

## **6. Sports proficiency test (Maximum marks: 50)**

The applicant should choose any one of the following games (Badminton, Ball Badminton, Basketball, Cricket, Football, Handball, Hockey, Kabaddi, Kho-Kho& Volleyball) for assessment.

## **7. Medical Certificate**

All applicants should submit along with the application a latest Medical Certificate issued by a Government Doctor not below the rank of a Civil Surgeon to the effect that the candidate is fit to undergo strenuous activities.

## **8. Reservation policy**

The Government of Tamil Nadu rules of reservation of seats must be scrupulously followed.

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## **CORE COURSE I**

### **FOUNDATION OF PHYSICAL EDUCATION AND SPORTS**

#### **Objectives**

- To study and understand the fundamental concepts of Physical Education and contributions of allied sciences.
- To acquire the knowledge of history of Physical Education.

#### **UNIT - I INTRODUCTION TO PHYSICAL EDUCATION**

Meaning and Definition of Education and Physical Education. Need, Nature and Scope of Physical Education. Physical training and Physical culture.

#### **UNIT - II MULTIPLE DEVELOPMENTS AND LEARNING**

Aim and Objectives of Physical Education. Development of Physical, Cognitive, Neuro-muscular, Affective, Social, Emotional, Spiritual and Recreational. Theories of Learning. Laws of Learning.

#### **UNIT - III PHYSICAL EDUCATION AND ALLIED SCIENCES**

Scientific basis Physical Education. Contribution of Allied Sciences – anatomy, Physiology, Biomechanics, Kinesiology, Sports Medicine, Psychology, Sociology and Computer Science.

#### **UNIT - IV HISTORY OF PHYSICAL EDUCATION**

History of Physical Education in Sparta and Athens. Olympic Games: Ancient, Modern – Origin – Organisation and conduct of the game – Olympic Flag, Torch, Oath, Emblem and Motto.

#### **UNIT - V SPORTING INSTITUTIONS AND AWARDS**

Recent developments in India: SAI, NSNIS, SNIPES, LNIPE. Sports Academics: Awards and Scholarships: Arjuna Award, Dhronocharya Award, Rajiv Gandhi Khel Ratna Award – International and National Competitions: Asian Games, SAF, SGF, RDS, and BDS.

#### **TEXT BOOKS**

1. Bucher, Charles A., (1983). *Foundations of Physical Education*. St. Louis: The C.V. Mosby Company.
2. Thirunarayanan, C. and Hariharan, S., (1990). *Analytical History of Physical Education*. Karaikudi:C.T. & S.H. Publications.

#### **REFERENCE BOOKS**

1. Kamlesh, M.L., (1988). *Physical Education: Facts and Foundation*. New Delhi: P.B. Publications.
2. Sharma, O.P., (1998). *History of Physical Education*. New Delhi: Khel Shitya Kendra.
3. Wakharkar, D.G., (1967). *Manual of Physical Education in India*. Bombay: Pearl Publications Pvt. Ltd.

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**CORE PRACTICAL I**  
**MAJOR GAMES I & II**

*Semester-I (Major Games - I : Basketball, Badminton and Kabaddi)*  
*Semester-II (Major Games - II : Volleyball, Table tennis and Kho-Kho)*

**Objectives**

- To provide adequate practice on fundamental, advance skills and techniques in selected sports discipline.
- To train on coaching, officiating and marking in selected sports discipline.

**UNIT – I FUNDAMENTAL AND ADVANCE SKILLS**

Fundamental and advance – skills, techniques, drills and lead-up games in Basketball, Badminton, Kabaddi, Volleyball, Table tennis and Kho-Kho.

**UNIT - II PLAYING ABILITY / PERFORMANCE**

Assessment of playing ability / performance - Basketball, Badminton, Kabaddi, Volleyball, Table tennis, and Kho-Kho. Specific conditioning / training for above said sports disciplines.

**UNIT – III MARKING**

Layout & markings of court/field - Basketball, Badminton, Kabaddi, Volleyball, Table tennis and Kho-Kho.

**UNIT – IV OFFICIATING**

Rules and interpretations, duties of the officials, official signals, system of officiating, equipment specifications and score sheet for above said sports disciplines.

**UNIT – V RECORD NOTE**

Preparation of record for Basketball, Badminton, Kabaddi, Volleyball, Table tennis and Kho-Kho. History, organisational set-up at International, national and state level sports bodies, skill, technique, tactics, major competitions for above said sports disciplines.

**TEXT BOOKS**

1. Anand. R.L. (1986). *Play field manual*, Patiala: NIS publication.
2. *Book of rules of games and sports*, (2005). New Delhi: National Council of Y.M.C.A of India.
3. Rao, E.Prasad (2002). *The complete hand book on Kabaddi*. Vizianagaram: Jagadamba publication.

**REFERENCE BOOKS**

1. Colberk A.L. (1966). *Modern Basketball-A Fundamental Analysis of Skills and Tactics*. London: Nicholas Kaya.
2. Dhanaraj, V. Hubert, (1991). *Volleyball – A Modern Approach*. Patiala: Sainoris
3. Part, Davic, (1979) *Better Badminton Learn in yourself Book*. London : Orient Paper Books.
4. Perinbaraj, S.B., & et al. (2009). *Play field: Dimensions and its requirements*, Karaikudi: Vinis publication.
5. Rao, C. V. (1971). *Kabaddi*, Patials, N.I.S. Publications.
6. Yadav, Yogesh. (1969). *Kho-Kho*, Maharashtra Kho-Kho Association.

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**FIRST ALLIED COURSE I**  
**ANATOMY AND PHYSIOLOGY**

**Objectives**

- To provide basic knowledge about human anatomy and physiology.
- To study the various systems in the human body and their functions.

**UNIT - I INTRODUCTION TO ANATOMY AND PHYSIOLOGY**

Meaning of Anatomy and Physiology – Need and Scope of Anatomy and Physiology in Physical Education. Cell – Structure and Functions. Tissues – Types and Function. Muscular System – Types of Muscles: Skeletal Muscle, Cardiac Muscle, and Smooth Muscle.

**UNIT - II SKELETAL SYSTEM**

Skeleton: Meaning and Functions – Bones: Classification and Functions - General Features of Various Bones: Vertebral Column, Pelvic Bone, Radius and Ulna, Scapula, Femur and Bones of Skull – Joints: Definition and Classification of Joints.

**UNIT - III NERVOUS AND DIGESTIVE SYSTEMS**

Nervous System: Neuron – Central Nervous System (CNS): Brain and Spinal Cord – Peripheral Nervous System (PNS): Cranial Nerves and Spinal Nerves. Digestive System: Structure & Functions – Digestive Process – Liver, Pancreas – Functions.

**UNIT - IV RESPIRATORY AND CIRCULATORY SYSTEMS**

Respiratory System – Respiration – Respiratory Track – Alveoli – Lungs: Structure & Functions – Gas Exchange – Vital Capacity. Circulatory System – Heart: Structure & Functions – Cardiac Cycle, Cardiac Output and Stroke Volume.

**UNIT - V ENDOCRINE SYSTEMS**

Endocrine Glands – Functions of Endocrine Glands: Pituitary, Thyroid, Para-Thyroid, Thymus, Pancreas, Adrenal & Sex – their role, in growth, development and regulations of body functions.

**TEXT BOOKS**

1. Guyton A.C., (1969). *Functions of the Human Body*. London: W.B. Saunders Company.
2. Pearce, Evelyn B., (1979) *Anatomy and physiology for Nurses*. London: Faber and Faber Ltd.
3. Prarce, J.W., (1984). *Anatomy for students and Teachers of Physical Education*. Edward Arnold & Co. London.
4. Srivastava et. al, (1976). *Text Book of Practical Physiology*. Calcutta: Scientific Book Agency.

**REFERENCE BOOKS**

1. Gupta, A.P., (2010). *Anatomy and physiology*. Agra: Sumit Prakashan.
2. Moorthy, A.M., (2014). *Anatomy Physiology and Health Education*. Karaikudi: Madalayam publication.
3. Sivaramakrishnan, S., (2002). *Anatomy and Physiology*. New Delhi: Friends Publication.
4. Wilmore, Jack H and Costill, David L. (1994). *Physiology of Sports and Exercise*. Human kinetics.
5. Wilson, Kathleen J. W. (1987). *Anatomy and Physiology, Health and illness*. 6<sup>th</sup>Ed. Churchill Livingstone Edinburgh.

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## **FIRST ALLIED COURSE II**

### **YOGA AND INDIGENOUS ACTIVITIES I & II**

Semester - I (Yoga and indigenous activities – I : Yoga)

Semester - II (Yoga and indigenous activities – II : Dands, Baithaks, Lezium & Minor games)

#### **Objectives**

- To acquire the practical knowledge of yogic practices.
- To provide practical exposure in selected indigenous activities.

#### **UNIT – I ASANA**

Asanas: Relaxative asanas – Shavasana, Makarasana, Meditative asanas: Padmasana, Vajrasana Cultural asanas: Bhujangasana, Dhanurasana, Saravangasana, Halasana, Thadasana, Patchimottasana.

#### **UNIT – II PRANAYAMA**

Pranayama: Nadi suddhi, Ujjayi, Kapalabhati, Sitali, Sitkari.

#### **UNIT – III MEDITATION**

Meditation: Silent, Mantra, Object and Breathing.

#### **UNIT – IV DANDS, BAITHAKS AND LEZIUM**

Dands & Baithaks. Exercise with Lezium

#### **UNIT – V MINOR GAMES**

Selected minor games.

#### **TEXT BOOKS**

1. Iyengar, B.K.S., (2001). *Yoga the path to holistic health*. Dorling: Kindersley
2. Saraswati, Niranjanananda., (2010). *Prana and Pranayama*. Mungaer: Bihar School of Yoga.
3. Gharote, M.L. & Ganguly, H. (1988). *Teaching methods for yogic practices*. Lonawala: Kaivalayadhama.

#### **REFERENCE BOOKS**

1. Athichan, A, et. al., (2007). *Hand book of Indigenous Activities*. Karaikudi: Vinsi publication.
2. Chandrasekaran, K., (1999). *Sound Health through Yoga*. Sedapatti: Prem Kalyan publication.
3. Mariayyah, P., (2000). *Suriyanamaskar*. Perunthurai: Jaya Publishing House.
4. Mathew, Thomas., (2009). *150 Minor Games*. Karaikudi: Vinsi publication.

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## **CORE COURSE II**

### **HEALTH EDUCATION AND FIRST AID**

#### **Objectives**

- To provide the fundamentals concepts of Health Education and Safety Education.
- To enable the students to understand the various communicable diseases and first aid.

#### **UNIT – I INTRODUCTION TO HEALTH EDUCATION**

Meaning and definition of Health Education – Aim, Scope of Health Education - role of International Organizations (WHO, UNICEF), National, State Level Health Organizations.

#### **UNIT – II MENTAL HEALTH**

Meaning of mental health - factors of mental health - mental health problem of college student - principles of mental health - characteristics of a health personality.

#### **UNIT – III COMMUNICABLE DISEASES**

Communicable Diseases - Causes, modes of spread – Prevention of Tuberculosis, Malaria, Small box, Chicken box and AIDS.

#### **UNIT – IV SAFETY EDUCATION**

Definition of Safety Education- factors affecting Safety Education – Need and Importance of Safety Education - Safety in Play fields, Swimming pool, Gymnasium.

#### **UNIT – V FIRST AID**

Definition - Importance of First Aid - Athletic injuries: Sprain, Strain, Contusion, Fracture, Dislocation, Muscle Cramp, Abrasion and Puncture.

#### **TEXT BOOKS**

1. Wellgoose. (1977). *Health Teaching in secondary Carl.E. Schools*: W.B. Saunders.
2. Wilson, Kathleen J. W. (1987). *Anatomy and Physiology, Health and illness*. 6th Edition. Churchill Livingstone Edinburgh.

#### **REFERENCE BOOKS**

1. Anderson .T. Mc. Clerg, (1961). *Human Kinetics and Analyzing Body Movements*, London: William Heinman Medical Books Ltd.
2. Frank, H. &Walter, H., (1976). *Turners school health education*. Saint Louis: The C.V. Mosby Company.
3. Nemir, A. (n.d.). *The school health education*. New York:Harber and Brothers.
4. Prarce, J.W. (1984). *Anatomy for students and Teachers of Physical Education*, Edward Arnold & Co.

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## FIRST ALLIED COURSE III

### YOGA EDUCATION

#### Objectives

- To understand the fundamental concepts of yogic practices.
- To study the selected yogic practices and its impact on selected systems in the body.

#### UNIT – I INTRODUCTION TO YOGA

Meaning and Definition of Yoga. Aims and objectives of Yoga. Historical background of yoga. Contributions of Thirumoolar & Patajali. Need and importance of Yoga in Physical Education and Sports. School of Yoga: Kaivalyadhama, Bihar School of Yoga and SVYASA. International Yoga day.

#### UNIT – II LIMBS AND TYPES OF YOGA

Eight limbs of Yoga: Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi. Types of Yoga: Karma Yoga, Jnana Yoga, Hatha Yoga, Raja Yoga and Bhakthi Yoga. Principles of practicing asana, pranayama and meditation.

#### UNIT – III ASANAS

Technique, Methods & Benefits – **Asana**: Relaxative asanas – Shavasana, Makarasana; Meditative asanas: Padmasana, Vajrasana Cultural asanas – Thadasana, Patchimottasana, Bhujangasana, Artha Matsyendrasana, Dhanurasana, Saravangasana and Halasana. Technique and benefits of Suryanamaskar.

#### UNIT – IV PRANAYAMAS AND MEDITATIONS

Technique, Methods & Benefits - **Pranayama**: Naddi Suddhi, Sitali & Sitkari. **Meditation**: Object Meditation & Breathing Meditation. Meaning of Mudra, Bhandas & Kriya.

#### UNIT – V INFLUENCES OF YOGIC PRACTICES

Difference between Yogic practices and Physical exercises. Yoga and Sports. Impact of Yogic practices on Cardio-Respiratory system, Nervous system and Endocrine system.

#### TEXT BOOKS

1. Author's guide, (2003). *Yoga – The Science of Holistic living*. Chennai: Vivekananda Kendra Prakashana trust
2. Bhowmil, Sanjib kumar. (2012). *A text book on Yoga and Health*. Delhi: Sports publication.
3. Gharote, M.L. & Ganguly, H. (1988). *Teaching methods for yogic practices*. Lonawala: Kaivalyadhama.
4. Iyengar, B.K.S. (2001). *Yoga the path to holistic health*, Dorling Kindersley.
5. Saraswati, Niranjanananda. (2010). *Prana and Pranayama*, Mungaer: Bihar School of Yoga.

#### REFERENCE BOOKS

1. Chandrasekaran, K., (1999). *Sound Health through Yoga*. Sedapatti: Prem Kalyan Publications.
2. Feuersten, Georg. (2002). *The yoga tradition*, Delhi: Motilal banarsidass publishers.
3. Iyengar, BKS., (2003). *The Art of Yoga*. New Delhi: Harper Collins Publishers.
4. Mariayyah, P., (2000). *Suriyanamaskar*. Perunthurai: Jaya Publishing House.
5. Shankar, G. (1998). *Holistic approach of yoga*. New Delhi: Aditya Publishers.
6. Tummers, Nanette, E., (2009) *Teaching Yoga for Life*. Champaign: Human Kinetics.

**CORE COURSE III**  
**EXERCISE PHYSIOLOGY**

**Objectives**

- To understand the value of exercise physiology and its relationship towards higher performance.
- To study the influences of exercises on various systems.

**UNIT – I INTRODUCTION TO EXERCISE PHYSIOLOGY**

Definition of Exercise Physiology. Nature, Aim and Scope of Exercise Physiology. Physical Fitness and Physiological fitness. Physiological bases warm-up and cool down-conditioning and training. Improvement in sports equipment, emergence of Physiotherapy sports medicine.

**UNIT – II ENERGY SYSTEM**

Introduction to energy system, aerobic and anaerobic energy, ATP-P1-ADP. Relationship between nutrition and energy. Sliding filament theory.

**Unit – III MUSCULAR PHYSIOLOGY**

Muscular Physiology – Structural Properties of skeletal muscles – Types of muscles. Muscle fiber types – slow – twitch and fast – twitch (A,B,C) –slow oxidative and fast glycolytic. Fiber distribution (percentage of fibers) and performance – anaerobic and aerobic activity. Hypertrophy and hyperplasia of muscles types of muscle contraction.

**UNIT – IV CARDIOVASCULAR SYSTEM AND ITS IMPROVEMENT THROUGH EXERCISE**

Shape and structure of the heart - heart beat, pulse rate and stroke volume. Cardiac cycle – cardiac out-put before and after activity. Stroke volume response to exercise, regulation of stroke volume, diastolic and systolic, Electrocardiogram.

**UNIT – V RESPIRATORY SYSTEM AND ITS DEVELOPMENT THROUGH EXERCISE**

Respiratory process- internal and external phase – pulmonary ventilation. Lungs and its structural properties. Mechanics of breathing – respiratory muscles and training – minute ventilation – ventilation at rest. Ventilation during exercise – diffusion of gases exchange of gases in the lungs and tissues. Vital capacity, residual capacity. Exercise to develop endurance capacities.

**TEXT BOOKS**

1. Srivastava et. al, (1976). *Text Book of Practical Physiology*. Calcutta: Scientific Book Agency
2. Wilson, Kathleen J. W. (1987). *Anatomy and Physiology, Health and illness*. 6th Edition. Churchill Livingstone Edinburgh.

**REFERENCE BOOKS**

1. Gupta, A.P., (2010). *Anatomy and physiology*. Agra: Sumit Prakashan
2. Pearce, Evelyn B., (1979) *Anatomy and physiology for Nurses*. London: Faber and Faber Ltd.
3. Sivaramakrishnan, S., (2002). *Anatomy and Physiology*. New Delhi: Friends Publication.
4. Wilmore, Jack H and Costill, David L. (1994). *Physiology of Sports and Exercise*. Human kinetics.

**CORE PRACTICAL II**  
**MAJOR GAMES III & IV**

Semester - III (Major Games - III : Hockey, Handball and Cricket)  
Semester - IV (Major Games - IV : Tennis, Ball Badminton and Football)

**Objectives**

- To provide meaningful training on fundamental and advance skills and techniques in selected sports discipline.
- To train on coaching, officiating and marking in selected sports discipline.

**UNIT – I FUNDAMENTAL AND ADVANCE SKILLS**

Fundamental and advance – skills, techniques, drills and lead-up games in Hockey, Handball, Cricket, Tennis, Ball Badminton and Football.

**UNIT – II PLAYING ABILITY / PERFORMANCE**

Assessment of playing ability / performance - Hockey, Handball, Cricket, Tennis, Ball Badminton and Football.

**UNIT – III MARKING**

Layout & markings of court/field - Hockey, Handball, Cricket, Tennis, Ball Badminton and Football.

**UNIT – IV OFFICIATING**

Rules and interpretations, duties of the officials, official signals, system of officiating, equipment specifications and score sheet for above said sports disciplines.

**UNIT – V RECORD NOTE**

Preparation of record for Hockey, Handball, Cricket, Tennis, Ball Badminton and Football. History, organisational set-up at International, national and state level sports bodies, skill, technique, tactics and major competitions for above said sports disciplines.

**TEXT BOOKS**

1. Aibara, E.B., (1975). *Cricket*. Patiala: National Institute of Sports
2. Anand. R.L. (1986). *Play field manual*, Patiala: NIS publication.
3. *Book of rules of games and sports*, (2005). New Delhi: National Council of Y.M.C.A of India.

**REFERENCE BOOKS**

1. Kirubakar.G.S., and Glory.J. (2009). *Play Ball Badminton*. Chennai: SS Publication.
2. Perinbaraj, S.B., & et al. (2009). *Play field: Dimensions and its requirements*, Karaikudi: Vinis publication.
3. Reita, Clanton and Phyl, Dwight Mary (1997) *Team Handball Steps to Success*. Human Kinetics
4. Thompson, William, (1996). *Teaching Soccer*. Delhi: Surjeet Publications.
5. Wein, Horts, (1979). *The Science of Hockey*. London: Pelham Books.

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## **SECOND ALLIED COURSE I**

### **SPORTS MANAGEMENT**

#### **Objectives**

- To educate on sports management and its various dimensions.
- To help to develop managerial skills among Physical Education students.

#### **UNIT – I INTRODUCTION TO SPORTS MANAGEMENT**

Meaning and definition of Sports Management and its functions. Importance and Historical Background of Sports Management. Interpersonal Roles in Manpower planning. Meaning of Recruitment. Sports Organization.

#### **UNIT – II ORGANISATION**

Nature, Principles and Purpose of Organization – Systems of Organization – Leadership: Meaning - Personal Traits – Attitude and Behaviour approach – Qualities of a Leader – Positional power.

#### **UNIT – III MOTIVATION AND PUBLIC RELATION**

Concepts and Need of Motivation in Sports Organization – Job feedback – Types of Public Relation – Role of Government, Media, and Conference – Finances – Qualities of Good Public Relation Organization.

#### **UNIT – IV GUIDANCE**

Concepts, Objectives and Need for Strategies for Vocational Guidance; Principles – Approaches – Career Talk – Industrial visit – Personal, Social, Vocational Counseling, Social Guidance; Purpose-Types of Social Problems – Social Needs and Social Life. Personal Guidance: Concepts, Purpose – Emotional Characteristics of Adolescents.

#### **UNIT - V FINANCE**

Infrastructure – Equipment – Salaries and Wages – Raising of Funds – Budget, Record maintenance and Purchase of Equipment - Advantages – Essentials – Types of Budget – Research and Development, Budget – Funds collection prices.

#### **TEXT BOOKS**

1. Janet A. Wessel, Luke Keely, (1986). Achievement – Based Curriculum Development in Physical Education: Lea & Febiger.
2. Tirunaryanan, C. & Hariharan, S. (1969). *Methods in Physical Education*. Karaikudi: South India Press.

#### **REFERENCE BOOKS**

1. Broyles, F. J. & Rober, H. D. (1979). *Administration of sports, Athletic programme: A Managerial Approach*. New York: Prentice hall Inc.
2. Kozman, H.C. Cassidy, R. & Jackson, C. (1960). *Methods in Physical Education*. London: W.B. Saunders Co.
3. Samiran, Chakrabarty, (1998) Sports Management. Delhi Sports: Publications.
4. Thomas, J. P.(1967). *Organization & administration of Physical Education*. Madras: Gyanodayal Press.
5. Voltmer, E. F. & Esslinger, A. A. (1979). *The organization and administration of Physical Education*. New York: Prentice Hall Inc.

## **SECOND ALLIED COURSE II**

### **MASS DEMONSTRATION ACTIVITIES I & II**

Semester - III (Mass Demonstration activities – I : Marching & Callisthenics)  
Semester - IV (Mass Demonstration activities – II : Light apparatus & aerobics)

#### **Objectives**

- To educate and provide hand on training for mass demonstration activities.
- To develop co-ordination, rhythm and precision in physical activities with help of light apparatus.

#### **UNIT – I CALLISTHENICS**

Callisthenics exercises - with verbal command, drum and music (2, 4, 8 & 16 counts).

#### **UNIT – II MARCHING**

Marching - Quick march and halt. Marching with about turn. Marching with salute.

#### **UNIT – III INDIAN CLUBS AND WANDS**

Light apparatus exercises - with verbal command, drum and music (2, 4, 8 & 16 counts) - Indian Clubs and Wands. Standing Exercise, Jumping Exercise, Moving Exercise and combination of these exercises with wands and Indian clubs.

#### **UNIT – IV HOOPS AND DUMBBELLS**

Light apparatus exercises - with verbal command, drum and music (2, 4, 8 & 16 counts) – Hoops and dumbbells. Standing Exercise, Jumping Exercise, Moving Exercise and combination of these exercises with Hoops and dumbbells.

#### **UNIT – V PYRAMID AND AEROBICS**

Formation of Pyramid. Aerobics with music.

#### **TEXT BOOKS**

1. Athichan, A, et. al., (2007) *Hand book of Indigenous activities*. Karaikudi: Vinsi publication.
2. Tirunaryanan, C. and Hariharan. S, (1993). *Methods in Physical Education*. Karaikudi: South India Press.

#### **REFERENCE BOOKS**

1. Mathew, Thomas., (2009). *150 Minor Games*. Karaikudi: Vinsi publication.
2. Perinbaraj, Bevinson. S. (2006). *Methods in Physical Education*. Karaikudi: Vinsi publication.
3. Thomas, J.P., (1969). *Physical Education Lesson*. Madras: Gnanodya press.

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**CORE COURSE IV**  
**SPORTS PSYCHOLOGY AND SOCIOLOGY**

**Objectives**

- To understand the role of Sports Psychology and Sociology in Physical Education and Sports.
- To study the influences of psychology factors in Physical Education and Sports.

**UNIT – I      SPORTS PSYCHOLOGY**

Meaning and scope of Sports Psychology - Importance of Sports Psychology – types of psychology. Motor learning - factors that effect on motor learning, stages of learning theories, role of perception in physical education and sports

**UNIT – II      ANXIETY, STRESS AND PERSONALITY**

Definition and Meaning of Anxiety - nature of anxiety - Types of anxiety – Definition and meaning of stress - nature of stress - Types of stress. Anxiety, Stress, Arousal and their effects on sports performance. Meaning and definition of personality - Measuring the personality - Personality and Sports performance.

**UNIT – III      MOTIVATION AND MENTAL PREPARATION STRATEGIES**

Definition of motivation: Types of motivation - Factors influencing motivation - Motivational techniques and its impact on sports performance. Mental Preparation Strategies: Preparatory arousal, Attention focus, Self- talk, Relaxation, Imaginary. Aggression and Sports.

**UNIT – IV      INTRODUCTION TO SOCIOLOGY**

Meaning, Scope and nature of Sociology. Physical Education and Sports as a social phenomenon product of culture and its relationship with other elements of culture. Social significance of sports. Sports and social problems.

**UNIT – V      LEADERSHIP IN SPORTS**

Meaning and Definition of leadership – Types of leadership - Qualities of a Leader - Need & Importance of leadership in Physical Education & Sports.

**TEXT BOOKS**

1. Alderman, R.S. (1974). *Psychological behavior in Sports*, Philadelphia: Saunders Company .
2. Cratty, B. J., (1968). *Psychology and Physical activity*. Eaglewood Cliffs. Prentice Hall.
3. Cratty, Bryant, J. (1975). *Psychology of Contemporary Sports*, Englewood Cliffs, N,J, prentice Hall Inc.

**REFERENCE BOOKS**

1. Butt, Doras Susan, (1989). *Psychology of Sports*, New York: Van. Nostrand Reinhold Co.
2. Cratty, Bryant, J. (1975). *Movement Behaviour and Motor Learning*, Philadelphia: Lea & Fogger.
3. Kamlesh, M.L. (1998). *Psychology in Physical Education and Sport*, New Delhi: Metropolitan Book Co.
4. Mathew,Gita (1997). *Sports Psychology*. Karaikudi: Shaju and Shiju Brother publication.
5. Orlick, Terry (1980). *In pursuit of Excellence*, Champaign : Human Kinetics
6. Weinberg, Robert S and Gould, Daniel (1995). *Foundations of Sport and Exercise Psychology*. Champaign : Human Kinetics.



## **SECOND ALLIED COURSE III**

### **COMPUTER EDUCATION**

#### **Objectives**

- To provide basic knowledge about Computer and its applications.
- To understand the fundamentals of internet and its usages.

#### **Unit – I INTRODUCTION TO COMPUTER**

Computer – Meaning and definition - Components of Computer – Central Processing Unit, Monitor, Keyboard and Mouse, Other input/output devices. Computer memory.

#### **Unit – II SOFTWARE AND HARDWARE**

Concepts of Software and hardware. Concept of Computing, Data and Information. Introduction to Word document, spread sheet, power point and PDF.

#### **Unit – III INTERNET**

Introduction to Internet and World Wide Web. E-mail, Mail attachment, Downloading, Chat, Website. Search Engines.

#### **Unit – IV E-RESOURCES**

Online & offline e-resources. e-journal, e-book, e-library, data base.

#### **Unit – V COMPUTER APPLICATIONS**

Uses of Computer. Application of computer and internet in Physical Education & Sports.

#### **TEXT BOOKS**

1. Deitel.H.M., Deital, P.J. and Goldberg, A.B. (2005) *Internet & World Wide Web How to program* (3 Ed) New Delhi: Prentice Hall India Private Limited.

#### **REFERENCE BOOKS**

1. Rajasekar . S. (2005) *Computer Education and Educational Computing*, Hyderabad: Neel Kamal Publications
2. Snell, Ned., (1998) *Sams Teach Yourself The Internet Starter kit in 24 hours*. New Delhi: Techmedia.

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**CORE COURSE V**  
**KINESIOLOGY AND BIOMECHANICS**

**Objectives**

- To understand human movements through Kinesiology and Biomechanics.
- To know the mechanical advantages applied in Sports.

**UNIT – I INTRODUCTION TO KINESIOLOGY AND BIOMECHANICS**

Definition & Meaning of Kinesiology & Biomechanics - Scope - Need and importance of Kinesiology and Biomechanics - Historical development of Kinesiology and Biomechanics.

**UNIT – II ORIGIN, INSERTION AND ACTION OF THE MUSCLES**

Involvement of various muscles during different fundamental and auxiliary movements of hip, knee, shoulder, elbow joint, shoulder girdle and trunk region. Origin, insertion and action of the muscles with special reference to the following muscles: Pectoralis major – Deltoid – Biceps – Sartorius - Quadriceps.

**UNIT – III LINEAR KINEMATICS & KINETICS**

Definition & meaning - Distance, displacement, speed, velocity, acceleration due to gravity, inertia, mass, force, weight, momentum. Newton's law of motion – Law of Inertia, Law of acceleration, Law of action and reaction. Forms of motion – Linear, Angular and General motion.

**UNIT – IV LEVELS**

Definitions & meaning - angular distance, angular displacement, angular velocity, angular acceleration. Levers – Types of levers, Advantages of levers in sports movement. Definition of Centre of gravity and its importance.

**UNIT – V FORCE**

Force – Definition of forces, types of forces, internal and external forces, centripetal and centrifugal force. Biomechanical analysis of walking, running, jumping and throwing.

**TEXT BOOKS**

1. Hay, J. (1993). *The Biomechanics of Sports Techniques*. New Jersey: Prentice Hall Inc.
2. Thompson. (1998). *Structural Kinesiology*. New York: McGraw-Hill.
3. Wells, Katherine F., and Kathryn, Luttgens. (1976). *Kinesiology the scientific basis of human motion*. Philadelphia: Saunders Company

**REFERENCE BOOKS**

1. Gladys, Scott., M. (2005). *Text book in Kinesiology*. New York: Warren's Books.
2. Peter, McGinnis. (2005). *Biomechanics of Sport and Exercise*. Champaign: Human Kinetics.
3. Shaw, Dhananjay., (1998). *Pedagogic Kinesiology*, Delhi: Sports publication.
4. Susan, J., Hall. (2004). *Basic Biomechanics*. New York: McGraw Hill Education.

**CORE COURSE VI**  
**SCIENCE OF SPORTS TRAINING**

**Objectives**

- To educate the fundamental concepts of sports training.
- To prepare the sports person for high performance in competition.

**UNIT – I SPORTS TRAINING & TRAINING LOAD**

Definition and Meaning of Sports training – Meaning of Coaching - Aim and Objectives of Sports training - Principles of Sports training. Load, Recovery, Intensity, Density, Duration and Frequency -Over Load, Fatigue - causes, symptoms and remedial measures.

**UNIT – II TRAINING METHODS**

Principles of training concern to fitness & sports - Types of different training method - Circuit training - Fartlek training - Interval training - Weight training – Plyometric training - Muscle Contraction - Isometric, Isotonic, Isokinetic.

**UNIT – III DEVELOPMENT OF MOTOR COMPONENTS**

Definition, importance, classification & methods of development - Strength – Endurance – Speed –Flexibility - Coordinative abilities.

**UNIT – IV TECHNICAL & TACTICAL PREPARATION**

Technique: Meaning, definition and importance - Stage of technical development, correction of faults - Methods of technique training - Strategy & tactics: Meaning and importance. Methods of Tactical training - Principles of attack & defence.

**UNIT – V PLANNING AND PERIODISATION**

Meaning and importance of planning - Types of Plan: Short term, Medium term and long-term training programme. Periodisation: Meaning & importance - Types of Periodisation. Warming-up and cooling down.

**TEXT BOOKS**

1. Bompa, Tudor O. (1990). *Periodization theory and methodology of training*. (4Ed) Champaign: Human Kinetics
2. Harre, Dietrich, (ed). (1982) *Principles of sports training*. Berlin. Sportverlag,
3. Matreyev, I. (1982) *Fundamentals of sports training*. Berlin. Sportverlag,
4. Singh, Hardayal, (1995). *Science of Sports training*. New Delhi: D.V.S. Publications.

**REFERENCE BOOKS**

1. Anderson, Bob., Pearl, Bill., and Burke, Edmund R., (2001). *Getting in Shape Workout Programs for Men & Women*. Mumbai: Jaico Publishing House.
2. Baechle, Thomas. R, & Earle, Roger. W., (2000). *Essentials of Strength training and Conditioning*. Champaign: Human Kinetics.
3. Brooks, Douglas. S., (2004). *The Complete Book of Personal training*. Champaign: Human Kinetics.
4. Fahey, Thomas. D., (2005). *Weight training basics*. New York: McGraw-Hill.
5. Sandler, David., (2010). *Fundamental Weight training*. Champaign: Human Kinetics.
6. Uppal, A,K. (2009). *Science of sports training*. New Delhi: Publishers of books on physical education & sports sciences.

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**CORE COURSE VII**  
**THEORIES OF GAMES**

**Objectives**

- To impart the theoretical knowledge on wide range such as origin, growth, development and organisation set-up at various levels of selected games.
- To know the markings, rules and regulations of selected games.

**UNIT – I HISTORY**

Origin and development - Basketball, Cricket, Football, Hockey, Volleyball and Kabaddi.

**UNIT – II MARKING**

Layout & markings of field / court - Basketball, Cricket, Football, Hockey, Volleyball and Kabaddi.

**UNIT – III RULES AND REGULATION**

Rules and their interpretations of Basketball, Cricket, Football, Hockey, Volleyball and Kabaddi.

**UNIT – IV MECHANICS OF OFFICIATING**

Duties of officials – official signals, system of officiating, score sheet - Basketball, Cricket, Football, Hockey, Volleyball and Kabaddi.

**UNIT – V SPORTS BODIES**

International, national and state level sports bodies. International Olympic committee, Indian Olympic association. Organisational setup of various sports bodies.

**TEXT BOOKS**

1. Aibara, E.B., (1975). *Cricket*. Patiala: National Institute of Sports
2. Anand. R.L. (1986). *Play field manual*, Patiala: NIS publication.
3. *Book of rules of games and sports*, (2005). New Delhi: National council of Y.M.C.A of India.
4. Rao, C. V. (1971). *Kabaddi*, Patials, N.I.S. Publications.

**REFERENCE BOOKS**

1. Colberk A.L. (1966). *Modern Basketball-A Fundamental Analysis of Skills and Tactics*. London: Nicholas Kaya.
2. Dhanaraj, V. Hubert, (1991). *Volleyball – A Modern Approach*. Patiala: Sainsoris
3. Perinbaraj, S.B., & et al. (2009). *Play field: Dimensions and its requirements*, Karaikudi: vinis publication.
4. Rao, E.Prasad (2002). *The complete hand book on Kabaddi*. Vizianagaram: Jagadamba publication.
5. Wein, Horts, (1979). *The Science of Hockey*. London: Pelham Books.

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**CORE PRACTICAL III**  
**ATHLETICS - TRACK EVENTS**

**Objectives**

- To train for track events on scientific and systematic lines.
- To provide knowledge on coaching, officiating and marking for track events.

**UNIT – I FUNDAMENTAL AND ADVANCE SKILLS**

Fundamental and advance skills, techniques, drills and lead-up games / activities – Sprints, Middle distance, Long distances, Relays, Steeple chase, Walking races, Hurdles and Cross country.

**UNIT – II PERFORMANCE**

Assessment of performance - Sprints, Middle distance, Long distances, Relays, Steeple chase, Walking races, Hurdles and Cross country events. Specific conditioning / training for above said events.

**UNIT – III MARKING**

Markings of 200 m and 400 m track. Specific marking for Sprints, Middle distance, Long distances, Relays, Steeple chase, Walking races, Hurdles and Cross country events. Equipment's and their specifications.

**UNIT - IV OFFICIATING**

Rules and interpretations, duties of the officials, official signals and score sheet for Sprints, Middle distance, Long distances, Relays, Steeple chase, Walking races, Hurdles and Cross country events.

**UNIT – V RECORD NOTE**

Preparation of record for Sprints, Middle distance, Long distances, Relays, Steeple chase, Walking races, Hurdles and Cross country events. History, organisational set-up at International, national and state level athletic federation / association, technique, World & Olympic records and other major competitions.

**TEXT BOOKS**

1. Anand. R.L. (1986). *Play field manual*, Patiala: NIS publication.
2. *Book of rules of games and sports*, (2005). New Delhi: National Council of Y.M.C.A of India.

**REFERENCE BOOKS**

1. Conling, David, (1980) *Athletics*, London: Robert Hale
2. Joseph, Rogers L. (2000) *USA Track & Field Coaching Manual*. Champaign: Human Kinetics Publications.
3. Perinbaraj, S.B., & et al. (2009). *Play field: Dimensions and its requirements*, Karaikudi: Vinis publication.

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## MAJOR BASED ELECTIVE I

### 1. RESEARCH AND BASIC STATISTICS

#### Objectives

- To understand the fundamentals of research and statistics.
- To have fair idea about application of statistics in Physical Education.

#### UNIT – I INTRODUCTION TO RESEARCH

Meaning and definition of Research. Need and Importance of Physical Education and Sports. Classification and Methods of Research. Meaning of Hypothesis - formulation of Hypothesis – Types of hypothesis.

#### UNIT – II RESEARCH PROBLEM

Research Problem: Criteria for selecting and locating research problem. Sampling: meaning of sample- types of sample. Research design: meaning – need of research design. Related Literature: Need of related literature in research.

#### UNIT – III INTRODUCTION TO STATISTICS

Meaning and definition of statistics. Need and Importance of Statistics in Physical Education – Types of statistics. Data - Quantitative and qualitative data.

#### UNIT – IV MEASURES OF CENTRAL TENDENCY

Frequency Distribution. Meaning of the Measures of Central tendency. Uses of measures of central tendency in Physical Education. Meaning and definition of Mean, Median and Mode. Computation of mean, median and mode for ungrouped data and discrete data.

#### UNIT – V MEASURES OF VARIABILITY

Meaning of measures of variability. Uses of measures of variability in Physical Education. Meaning and definition of Range, Quartile deviation, Average deviation and Standard deviation. Computation of Measures of Variability: Range, Quartile deviation, Average deviation and Standard deviation.

#### TEXT BOOKS

1. Clarke, David H. and Clake H.N.Hares. (1986). *Research Process in Health Education Physical Education and Recreation*. Englewood Cliffs, New Jersey, Prentice Hall, Inc.
2. Rothstein, Anne., L. (1985) *Research Design and Statistics for Physical Education*. New Jersey: Prentice Hall.

#### REFERENCE BOOKS

1. Diane, C., Blankenship. (2010). *Applied Research and Evaluation Methods in Recreation*. Champaign: Human kinetics.
2. Gupta, (1982) *Advanced Practical Statistics*. New Delhi : Chand & Co.
3. Jerry, R., Thomas, Jack, K., Nelson & Stephen, J., Silverman. (2010). *Research methods in Physical Activity. Sixth Edition*. Champaign: Human Kinetics.
4. Shaw, Dhananjay (2007). *Fundamental statistics in Physical Education & Sports sciences*, New Delhi: sports publication.
5. Wilks, S.S., (1984) *Elementary Statistical Analysis*. Calcutta: IBH publishing Co.

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## MAJOR BASED ELECTIVE I

### 2. NUTRITIONAL CARE

#### Objectives

- To understand the values of food and its classification.
- To suggest appropriate diet for sport person.

#### UNIT – I INTRODUCTION TO NUTRITION

Food and Nutrition: Classification of foods. Meaning and definition of Sports Nutrition. Basic Nutrition guidelines. Role of nutrition in sports. Factor to consider for developing nutrition plan.

#### UNIT – II NUTRIENTS: INGESTION TO ENERGY METABOLISM

Carbohydrates, Protein, Fat-Meaning, classification and its function. Role of carbohydrates, Fat and protein during exercise. Vitamins, Minerals, Water-Meaning, classification and its function. Role of hydration during exercise, water balance, Nutrition-daily caloric requirement and expenditure.

#### UNIT – III FOOD AND MACRO-NUTRIENTS:

Functions of food – Nutritional, Emotional, Social, and Classification of food. Sources, Functions, Deficiency and excess effects of carbohydrates, protein, fat and water.

#### UNIT – IV BALANCE DIET

Definition - Balanced Diet - Principles of preparing the balanced diet. Balanced diet for Indian Players / School children. Malnutrition and Adulteration of food.

#### UNIT – V DIET ANALYSIS

Pre Competition, Competition and Post Competition meals. Diet analysis and planning. Fluid intake during exercise. Nutrition for Special Population.

#### TEXT BOOKS

1. Srilakshmi, B. (2012) *Nutrition science*. Delhi: New Age International (p) Limited Publishers.
2. Srilakshmi, B. (2015) *Human Nutrition* (For B.Sc., Nursing students) Delhi: New Age International (p) Limited Publishers.

#### REFERENCE BOOKS

1. Bessesen, D.H. (2008). Update on obesity .J Clin Endocrinol Metab.93 (6), 2027-2034.
2. Butryn, M .L., Phelan , S., & Hill, J.O. (2007). Consistent self- monitoring of weight : a key component of successful weight loss maintenance .Obesity (Silver Spring).15 (12), 3091-3096.
3. DeMaria, E.J.(2007). Bariatric surgery for morbid obesity. N Engl J Med,356(21),2176-2183.

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## **CORE COURSE VIII**

### **TEST AND MEASUREMENT IN PHYSICAL EDUCATION**

#### **Objectives**

- To impart the fundamentals of Test, Measurement and Evaluation.
- To understand various fitness tests and sports skill tests.

#### **UNIT – I INTRODUCTION TO TEST, MEASUREMENT AND EVALUATION**

Meaning and definition of Test, Measurement and Evaluation in Physical Education. Need and importance of Test, Measurement and Evaluation in Physical Education.

#### **UNIT – II TEST CLASSIFICATION AND ADMINISTRATION**

Classification of test - Sports Knowledge test. Standardised and Teacher made test - Skill test classification - Objective test - subjective test - qualities of the test - Administration of the test. Criteria of test selection-Validity, reliability, Objectivity, Norms, Administrative feasibility.

#### **UNIT – III PHYSICAL FITNESS TEST**

Strength test – Bend knee sit ups test. Flexibility test – Sit and reach test. Speed test – 50 mts run. Cardio respiratory Endurance - Cooper 12 minute Run / Walk test. Explosive strength test – Standing broad jump

#### **UNIT – IV MOTOR FITNESS TEST**

AAHPERD Youth Fitness test. Motor fitness – JCR test. Barrow motor ability test. Harward step test. Beep test.

#### **UNIT – V SPORTS SKILL TEST**

Johnson Basketball ability test. McDonald soccer test. Brady Volleyball test. Henry Friedel field Hockey test. Badminton French Short Serve test.

#### **TEXT BOOKS**

1. Barrow, Harold M. Rosomany (1964). *A physical approach to measurement in physical education*, Philadelphia: Lea and Febiger
2. Clarke, H. (1967). *Application of measurement in Health and Physical Education*. Prentice Hall Inc.
3. Donald, Mathews K. (1977). *Measurement in Physical Education*. London W.S. Saunders Company.

#### **REFERENCE BOOKS**

1. Bosco, James S. (1983). *Measurement and Evaluation in Physical Education and Sports*. New Jersey: Prentice Hall Inc.
2. Kansal, K. Devinder (2012). *A practical approach to test, measurement and evaluation*. New Delhi: SSS publication
3. Michael, P. Reiman, Robert C. Manske (2009), *Functional Testing in Human Performance*, United states of America: Human kinetics.
4. Safrit, Margarat J. (1986). *Measurement in Physical Education and Exercise Science*. St. Louis: Times Mirror Mosby College publishing.
5. Yobu, A, (1988). *Test, Measurement and Evaluation*. Madras: Rajmohan pathippagam.



## **CORE COURSE IX**

### **THEORIES OF TRACK AND FIELD**

#### **Objectives**

- To impart the theoretical knowledge on markings, officiating in track and field events.
- To know the history and organisational set-up of athletics federation at various levels.

#### **UNIT – I HISTORY**

Origin and development of track and field events.

#### **UNIT – II MARKING**

Layout & markings of 200 and 400 metres track. Marking for field events.

#### **UNIT – III RULES AND REGULATION**

Rules and their interpretations of all track and field events including Combined events, Steeple chase and Cross country.

#### **UNIT – IV MECHANICS OF OFFICIATING**

Duties of officials – official signals, score sheet – all track and field events including Combined events, Steeple chase and Cross country.

#### **UNIT – V SPORTS FEDERATION / ASSOCIATION**

Organisational setup of International, national and state level federations / association. Marathon race. Major competitions. World and Olympic records.

#### **TEXT BOOKS**

1. Anand. R.L. (1986). *Play field manual*, Patiala: NIS publication.
2. *Book of rules of games and sports*, (2005). New Delhi: National Council of Y.M.C.A of India.
3. Bosen, Ken O. (1994). *Track & Field Fundamental Techniques*, Patiala: MS Publication.

#### **REFERENCE BOOKS**

1. Conling, David, (1980) *Athletics*, London: Robert Hale
2. Joseph, Rogers L. (2000) *USA Track & Field Coaching Manual*. Champaign: Human Kinetics Publications.
3. Mariayyah, P., (2005). *Track and Field*, Coimbatore: Teachers publication.
4. Perinbaraj, S.B., & et al. (2009). *Play field: Dimensions and its requirements*, Karaikudi: Vinis publication.

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## **CORE PRACTICAL IV**

### **ATHLETICS - FIELD EVENTS**

#### **Objectives**

- To provide training for athletic field events on scientific and systematic lines.
- To impart knowledge on coaching, officiating and marking for track events.

#### **UNIT – I FUNDAMENTAL AND ADVANCE SKILLS**

Fundamental and advance skills, techniques, drills and lead-up games for jumps throws and combined events.

#### **UNIT – II PERFORMANCE**

Assessment of performance – jumps, throws and combined events. Specific conditioning / training for above said events.

#### **UNIT – III MARKING**

Markings of jumps, throws and combined events. Specific marking for jumps, throws and combined events. Equipment's and their specifications.

#### **UNIT – IV OFFICIATING**

Rules and interpretations, duties of the officials, official signals and score sheet for jumps, throwing and combined events.

#### **UNIT – V RECORD NOTE**

Preparation of record for jumps throwing and combined events. Technique and major competitions for jumps, throws and combined events. Organisational set-up at International, national and state level Olympic association History, World & Olympic records and other major competitions.

#### **TEXT BOOKS**

1. Anand. R.L. (1986). *Play field manual*, Patiala: NIS publication.
2. *Book of rules of games and sports*, (2005). New Delhi: National Council of Y.M.C.A of India.

#### **REFERENCE BOOKS**

1. Conling, David, (1980) *Athletics*, London: Robert Hale
2. Joseph, Rogers L. (2000) *USA Track & Field Coaching Manual*. Champaign: Human Kinetics Publications.
3. Perinbaraj, S.B., & et al. (2009). *Play field: Dimensions and its requirements*, Karaikudi: Vinis publication

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## MAJOR BASED ELECTIVE II

### 1. FITNESS AND WELLNESS

#### Objectives

- To impart the fundamental concepts of Health, Wellness, Fitness and Physical fitness.
- To acquire the practical knowledge of training, its types and assessment of Physical fitness.

#### UNIT – I FITNESS

Meaning & Definition: Fitness, Mental fitness and Physical fitness – General & Specific fitness – Need & importance of Physical fitness – Types: Performance related Physical fitness and Health related Physical fitness – Performance related Physical fitness Components (Speed, Strength, Endurance, Agility, Power and Flexibility) - Health related Physical fitness Components (Cardio-respiratory Endurance, Muscular Strength, Muscular Endurance, Flexibility and Body Composition).

#### UNIT – II PHYSICAL FITNESS ACTIVITIES

Warm-up – General & Specific warming-up – advantages of warming-up. Cool down exercise & its benefits. Exercise, Training and Conditioning. Walking – Jogging – Running - Spot running – Bounding strides – High knee – Fast arms - Hopping – Skipping - Stepping on the bench - Side stepping – Sand running, Uphill running - Swimming – Cycling - Free hand exercises .

#### UNIT – III TRAINING METHODICS

Aerobics exercises, anaerobic exercises, weight training, stretching exercises and circuit training. Basic method of conditioning: Continuous method (Slow & Fast) - Interval methods (Intensive & Extensive). Repetition method - Resistance training (own body weight, with partners, with equipments) - Playing sports & games.

#### UNIT – IV HEALTH AND WELLNESS

Meaning and definition of Health, Wellness and Nutrition. Need and importance of good Health. Human Anatomy - Skeletal system and Muscular system. Disease Management – Obesity – Diabetes - Heart ailments – Arthritis.

#### UNIT – V ASSESSMENT OF PHYSICAL FITNESS

AAPHERD Physical Fitness Test Battery. Body Mass Index and its Evaluation. Muscular Strength – Muscular endurance – Cardio-respiratory Endurance.

#### TEXT BOOKS

1. Dick, Frank W. (2006). *Sports training Principals* Fourth Edition. New Delhi: Friends Publication.
2. Harre, Dietrich, (1982). *Principles of Sports training*, (ed). Berlin. Sportverlag.
3. Singh, Hardayal. (1995). *Science of Sports training* .New Delhi: D.V.S. Publications.
4. Uppal, A.K. (2009). *Science of Sports Training*. New Delhi: Friends Publication.

#### REFERENCE BOOKS

1. Baechle, Thomas. R, & Earle, Roger. W., (2000). *Essentials of Strength Training and Conditioning*, Champaign: Human Kinetics.
2. Brooks, Douglas. S., (2004). *The Complete Book of Personal Training*, Champaign: Human Kinetics.
3. James and Leona Hart, (2000). *Fitness and Wellness*, New Delhi: Goodwill Publishing House.

## **MAJOR BASED ELECTIVE II**

### **2. RECREATION AND CAMPING**

#### **Objectives**

- To provide opportunities for a diverse range of recreation.
- To study the fundamentals of camping.

#### **UNIT – I INTRODUCTION TO RECREATION**

Definition, scope and significance of recreation. Philosophy and objective of recreation. Relationship of play; work leisure theories of play and recreation. Types of recreation – indoor, outdoor, active, passive, commercial, rural recreation.

#### **UNIT – II HISTORICAL DEVELOPMENT OF RECREATION**

Recreation in primitive culture – Greek period, Roman period and Middle ages. Development of Recreation in U.S.A. Recreation in India since Independence. Sources of funding of Recreational activities

#### **UNIT – III INFLUENCE OF RECREATION IN SOCIAL INSTITUTIONS**

Various agencies which provide recreation in India. Family, Educational institutions, Community/ Cultural Religious organizations. Qualities & qualifications of a good recreation leader.

#### **UNIT – IV PROGRAMME PLANNING IN RECREATION**

General Principles of programme construction. Types of Recreational activities – indoor and outdoor games Arts and Crafts. Hobbies – Introduction to hobbies. Types of hobbies- drama, music, aquatics, dancing, nature study and hiking.

#### **UNIT – V CAMPING**

Scope and significance of Camping. Types of Camps. Selection and lay-out of camp sites, organization and administration of camps. Facilities and Equipments required for the smooth conduct of Camp. Leadership ;and supervision. Camp programme and activities during the Camp. Evaluation of camp work.

#### **TEXT BOOKS**

1. Maryhalen, Vannier (1959). *Methods and Material in Recreation leadership*: Philadelphia: W.B. Saunders company.
2. Shivers J.S., (1964). *Principles and practices of Recreational services*, London: Mac Melon Company.

#### **REFERENCE BOOKS**

1. Kelly, JR (1982). *Leisure*. Englwood Cliffs N.J: Prentice Hall Inc.
2. Kran, R.G. (1964). *Recreation and the schools*. New York: Mac melon company.
3. *Recreation areas: Their Design and equipments*. (1958) New York: Ronal Press.

## **MAJOR BASED ELECTIVE III**

### **1. MODERN TRENDS IN PHYSICAL EDUCATION**

#### **Objectives**

- To provides details of various programmes in Physical Education and career option.
- To know the modern trends in sports infrastructure facilities.

#### **UNIT – I PHYSICAL EDUCATION PROGRAMME**

Physical Education Teacher Training programme in India: B.Sc., B.P.Ed., M.P.Ed., Research programme: M.Phil., Ph.D. Coaching programmes: NIS Certificate, Diploma and M.S.

#### **UNIT – II AVENUES FOR PLACEMENTS**

School: Physical Education Teacher, Physical Director, RIPE, CIPE. College & University: Asst. Director of Physical Education, Deputy Director of Physical Education, Director of Physical Education, Assistant Professor, Associate Professor, Professor, Principal – Sports Council: Coaches, DSO, RSM, DGM and GM.

#### **UNIT – III MODERN SPORTS FACILITIES**

Play area – synthetic track – Turf field – Toro flex surface – Grass field – Wooden surface – Indoor stadium – Structure and facilities – Flood lit matches.

#### **UNIT - IV SPORTS INFRASTRUTURE**

Assistance for building infrastructure – playfields, Gymnasium, Swimming pool, Stadium and Equipments – Assistance for coaching and training programme – Rural and urban – different levels – advance training and coaching – Assistance for competitions – District, State, National, International – Incentives.

#### **UNIT – V TALENT IDENTIFICATION**

Talent Identification in sports and games – The compulsory Physical Education programme in Schools and Colleges.

#### **TEXT BOOKS**

1. Bunn, John W. (1955). Scientific Principles of Coaching. New York: Prentice Hall Inc.
2. Charles, Bucher A., (1972). Foundations of Physical Education. Saint Louis: The C.V.Kosby Company.

#### **REFERENCE BOOKS**

1. Hey, James, G., (1973). The Biomechanics of Sports Techniques, Prentice Hall Inc. Englewood Cliffs N.S.
2. Singh, Ajmer., et. al. (2005). *Essential of Physical Education*. New Delhi: Kayani Publication.

## MAJOR BASED ELECTIVE III

### 2. OLYMPIC MOVEMENT

#### Objectives

- To provide basic knowledge of Olympic movement.
- To study the ancient and modern Olympics and India's achievements in modern Olympics.

#### UNIT – I ORIGIN OF OLYMPIC MOVEMENT

Philosophy of Olympic movement. The early history of the Olympic movement. The significance stages in the development of the modern Olympic movement.

#### UNIT – II VALUES AND SIGNIFICANCE OF OLYMPICS

Educational and cultural values of the Olympic movement. Significance of Olympic Ideals, Olympic Rings, Olympic Flag. Marathon run.

#### UNIT – III ANCIENT AND MODERN OLYMPIC GAMES

Ancient and modern Olympics. Olympic protocol for member countries. Olympic code of Ethics. Olympism in action. Sports for all.

#### UNIT – IV DIFFERENT OLYMPIC GAMES

Origin, hosted nations & cities and list of sports disciplines in Para Olympic Games, Summer Olympics, Winter Olympics and Youth Olympic Games. Doping – WADA.

#### UNIT – V COMMITTEES OF OLYMPIC GAMES

International Olympic Committee - Structure and Functions. National Olympic Committees and their role in Olympic movement. Summer Olympic medal winners of India. International Para Olympic committee.

#### TEXT BOOKS

1. Singh, Ajmer., et. al. (2005). *Essential of Physical Education*. New Delhi: Kayani Publication.
2. Burbank, J.M., Andranovich, G.D. & Heying Boulder, C.H. (2001). *Olympic dreams: the impact of mega-events on local politics*: Lynne Rienner.

#### REFERENCE BOOKS

1. Anand, Shyam. (2013). *Upkar's UGC NET/JRF/SET Physical Education*. Agra: Upkar Prakashan
2. Osborne, M.P (2004). *Magic tree house fact tracker: Ancient Greece and the Olympic: A non-fiction companion to magic tree house: hour of the Olympic*. New York: Random House Books for Young Readers.

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