

VIDYASAGAR UNIVERSITY



Curriculum for 3-Year B.A. (General) in

Physical Education

Under Choice Based Credit System (CBCS)
[w.e.f 2018-2019]

**VIDYASAGAR UNIVERSITY BA
(General) in Physical Education
[Choice Based Credit System]**

Year	Semester	Course Type	Course Code	Course Title	Credit	L-T-P	Marks			
							CA	ESE	TOTAL	
1	I			SEMESTER-I						
		Core-1 (DSC-1A)		Foundation and History of Physical Education - Practical	6	4-0-4	15	60	75	
		Core-2 (DSC-2A)		Other Discipline (Discipline-2)/TBD	6		15	60	75	
		AECC-1 (Core)		English-I	6	5-1-0	15	60	75	
		AECC-1 (Elective)		English/MIL	2	1-1-0	10	40	50	
				Semester - I : Total	20					275
	II				SEMESTER-II					
		Core-3 (DSC-1B)		Management of Physical Education and Sports - Practical	6	4-0-4	15	60	75	
		Core-4 (DSC-2B)		Other Discipline (Discipline-2) /TBD	6		15	60	75	
		AECC-2 (Core)		MIL-I	6	5-1-0	15	60	75	
		AECC-2 (Elective)		Environmental Studies	4		20	80	100	
				Semester - 2 : Total	22					325

Year	Semester	Course Type	Course Code	Course Title	Credit	L-T-P	Marks			
							CA	ESE	TOTAL	
2	III	SEMESTER-III								
		Core-5 (DSC-1C)		Anatomy , Physiology and Exercise Physiology - Practical	6	4-0-4	15	60	75	
		Core-6 (DSC-2C)		Other Discipline (Discipline-2) /TBD	6		15	60	75	
		AECC-3 (Core)		English-II	6	5-1-0	15	60	75	
		SEC-1		SEC- 1: Indian Games and Racket Sports	2	0-0-4	10	40	50	
				Semester - 3 : Total	20					275
	IV	SEMESTER-IV								
		Core-7 (DSC-1D)		Health Education, Physical Fitness and Wellness - Practical	6	4-0-4	15	60	75	
		Core-8 (DSC-2D)		Other Discipline (Discipline-2) /TBD	6		15	60	75	
		AECC-4 (Core)		MIL- II	6	5-1-0	15	60	75	
		SEC-2		SEC- 2: Ball Games	2	0-0-4	10	40	50	
				Semester - 4 : Total	20					275

Year	Semester	Course Type	Course Code	Course Title	Credit	L-T-P	Marks			
3	V	SEMESTER-V						CA	ESE	TOTAL
		DSE-1A		Any one from Discipline -1(Physical Education)	6			15	60	75
		DSE-2A		Other Discipline (any one from Discipline -2) / TBD	6			15	60	75
		GE-1		TBD	6			15	60	75
		SEC-3		SEC- 3: Gymnastics and Yoga Or Computer application in education	2	0-0-4/ 1-1-0		10	40	50
				Semester - 5 : Total			20			
	VI	SEMESTER-VI								
		DSE-1B		Any one from Discipline -1(Physical Education)	6			15	60	75
		DSE-2B		Other Discipline (any one from Discipline - 2) / TBD	6			15	60	75
		GE-2		TBD	6			15	60	75
		SEC-4		SEC-4: Track and Field	2	0-0-4		10	40	50
				Semester - 6 : Total			20			
	Total in all Semester:					122				1700

CC = Core Course , AECC = Ability Enhancement Compulsory Course , GE = Generic Elective , SEC = Skill Enhancement Course , DSE = Discipline Specific Elective , CA= Continuous Assessment , ESE= End Semester Examination , TBD=To be decided , CT = Core Theory, CP=Core Practical , L = Lecture, T = Tutorial ,P = Practical , MIL = Modern Indian Language , ENVS = Environmental Studies ,

List of Core Courses and Electives

Core Course (CC)

- DSC- 1A: Foundation and History of Physical Education
DSC-1B: Management of Physical Education and Sports
DSC-1C: Anatomy, Physiology and Exercise Physiology
DSC-1D: Health Education, Physical Fitness and Wellness

Discipline Specific Electives (DSE)

- DSE-1A: Tests, Measurements and Evaluation in Physical Education
Or
DSE-1A: Psychology in Physical Education and Sports
Or
DSE-1A: Environmental Education
DSE-1B: Sports Training
Or
DSE-1B: Project Work

Skill Enhancement Course (SEC)

- SEC- 1: Indian Games and Racket Sports
SEC- 2: Ball Games
SEC- 3: Gymnastics and Yoga
Or
SEC-3: Computer Application in Education
SEC-4: Track and Field

Generic Elective (GE)

[Interdisciplinary for other Departments]

- GE-1: Modern Trends and Practices in Physical Education & Exercise Sciences
Or
GE-1: Foundation and History of Physical Education
Or
GE-1: Management of Physical Education and Sports
GE-2: Health Education and Tests & Measurements in Physical Education
Or
GE-2: Anatomy, Physiology and Exercise Physiology
Or
GE-2: Yoga Education

Core Courses (CC)

DSC-1A (CC-1): Foundation and History of Physical Education Credits 06

DSC1AT: Foundation and History of Physical Education Credits 04

Course Contents:

Unit- I: Introduction

- 1.1. Meaning, definition and scope of Physical Education.
- 1.2. Aims and objectives of Physical Education.
- 1.3. Misconception and modern concept of Physical Education.
- 1.4. Needs and importance of Physical Education in modern society.

Unit- II: Biological and Sociological Foundations of Physical Education

- 2.1. Biological Foundation- Meaning and definition of growth and development. Factors affecting growth and development. Differences of growth and development. Principles of growth and development.
- 2.2. Age- Chronological age, anatomical age, physiological age and mental age.
- 2.3. Sociological Foundation- Meaning and definition of Sociology, Society, Socialization in Physical Education and Sports, Sports Ethics.
- 2.4. Role of games and sports in National and International integration.

Unit- III: History of Physical Education

- 3.1 Historical development of Physical Education and Sports in India- Pre-Independence period and Post-Independence period.
- 3.2 Olympic Movement- Ancient Olympic Games and Modern Olympic Games.
- 3.3 Brief historical background of Asian Games and Commonwealth Games.
- 3.4 National Sports Awards- Arjuna Award, Rajiv Gandhi Khel Ratna Award, Dronacharya Award, Dhyanchand Award.

Unit- IV: Yoga Education

- 4.1 Meaning and definition of the term Yoga, types, aims, objectives and importance of Yoga.
- 4.2 History of Yoga.
- 4.3 Astanga Yoga
- 4.4 Hatha Yoga

DSC1AP: Field Practical

Credits 02

1. Marching- fall in attention, Stand at ease, stand easy, Eyes right, Eyes front, Right Turn, Left Turn, About Turn, Mark Time Mark, Forward Mark
2. Learn and demonstrate the technique of Suryanamaskar.
3. Development of physical fitness through Callisthenics and Aerobic activities.

Suggested Readings:

1. Graham, G. (2001) Teaching Children Physical Education: Becoming a Master Teacher. Human Kinetics, Champaign, Illinois, USA.
2. Kamlesh, M.L. & Singh, M.K. (2006) Physical Education (Naveen Publication).
3. Lau, S.K. (1999) Great Indian Players, New Delhi, Sports.

4. Lumpkin, A. (2007) Introduction to Physical Education, Exercise Science and Sports Studies, McGraw Hill, New York, USA.
5. Siedentop, D. (2004) Introduction to Physical Education, Fitness and Sport, McGraw Hill Companies Inc., New York, USA.
6. Shaffer, D.R. (2002) Development Psychology: Childhood and Adolescence. Thomson, Sydney, Australia.
7. Shukla, (2000) Mother on Education, National Council of Teacher Education, New Delhi.
8. Singh, A. et al. (2000) Essential of Physical Education, Kalyani Publishers, Ludhiana, Punjab.
9. Wuest, D.A. & C.A. Bucher (2006) Foundation of Physical Education, Exercise Science, and Sports. McGraw Hill Companies Inc.; New York, USA.
10. Fahey, T.D., M.P. Insel and W.T. Rath (2006) Fit & Well: Core Concepts and Labs in Physical Fitness, McGraw Hill, New York.
11. Kansal, D.K. (2012) A Practical Approach to Test Measurement and Evaluation Sports and Spiritual Science Publication, New Delhi.

DSC-1B (CC- 2): Management of Physical Education and Sports Credits 06

DSC1BT: Management of Physical Education and Sports Credits 04

Course Contents:

Unit- I: Introduction

- 1.1. Concept and definition of Sports Management.
- 1.2. Purpose of Sports Management, Importance of Sports Management,
- 1.3. Principles of Sports Management.
- 1.4. Sports Manager and his duties.

Unit- II: Tournaments

- 2.1. Tournaments: Meaning and definition, and types of tournaments (Knock-out, League, Combination, Challenge).
- 2.2. Procedure of drawing fixture.
- 2.3. Method of organizing Annual Athletic Meet and Play Day.
- 2.4. Method of organizing of Intramural and Extramural competition.

Unit- III: Facilities and Equipments

- 3.1 Method of calculation of Standard Athletic Track marking.
- 3.2 Care and maintenance of play ground and gymnasium.
- 3.3 Importance, care and maintenance of sports equipment.
- 3.4 Time Table: Meaning, importance and factors affecting school Physical Education Time Table.

Unit- IV: Leadership

- 4.1 Meaning and definition of leadership.
- 4.2 Qualities of good leader in Physical Education.
- 4.3 Types of Leadership.
- 4.4 Principles of leadership activities.

DSC1BP: Practical**Credits 02**

1. Lay out knowledge and Officiating ability of Track and field events
2. Lay out knowledge and Officiating ability of Games: Football, Kabaddi, Kho-Kho, Volleyball, Hand Ball, Net Ball, Throw Ball, Badminton and Table Tennis.
3. Gymnastic and Yoga Scoring

Suggested Readings :

- Broyles, F. J. & Rober, H. D. (1979). Administration of sports, Athletic programme: A Managerial Approach. New York: Prentice hall Inc.
- Bucher, C. A. (1983). Administration of Physical Education and Athletic programme. St. Lolis: The C.V. Hosby Co.
- Kozman, H.C. Cassidy, R. & Jackson, C. (1960). Methods in Physical Education. London: W.B. Saunders Co.
- Pandey, L.K. (1977). Methods in Physical Education. Delhe: Metropolitan Book Depo.
- Sharma, V.M. & Tiwari, R.H.: (1979). Teaching Methods in Physical Education. Amaravati: Shakti Publication.
- Thomas, J. P. (1967). Organization & administration of Physical Education. Madras: Gyanodayal Press.
- Tirunarayanan, C. & Hariharan, S. (1969). Methods in Physical Education. Karaikudi: South India Press.
- Voltmer, E. F. & Esslinger, A. A. (1979). The organization and administration of Physical Education. New York: Prentice Hall Inc.
- Singh, A. et al. (2010) Essential of Physical Education. Kalyayani Publishers.

DSC-1C (CC- 3): Anatomy, Physiology and Exercise Physiology**Credits 06****DSC1CT: Anatomy, Physiology and Exercise Physiology****Credits 04****Course Contents:****Unit- I: Introduction**

- 1.1. Meaning and definition of Human Anatomy, Physiology and Exercise Physiology.
- 1.2. Importance of Human Anatomy, Physiology and Exercise Physiology in Physical Education.
- 1.3. Cell- Structure and function.
- 1.4. Tissue- Types and functions.

Unit- II: Musculo-skeletal System

- 2.1. Skeletal System- Structure of Skeletal System. Classification and locations of bones and joints. Anatomical differences between male and female.
- 2.2. Muscular System- Type, location, function and structure of muscle.
- 2.3. Types of muscular contraction.
- 2.4. Effect of exercise and training on muscular system.

Unit- III: Circulatory System

- 3.1 Blood- Composition and function.
- 3.2 Heart- Structure and functions. Mechanism of blood circulation through heart.
- 3.3 Blood Pressure, Athletic Heart and Bradycardia.

3.4 Effect of exercise and training on circulatory system.

Unit- IV: Respiratory System

4.1 Structure and function of Respiratory organs.

4.2 Mechanism of Respiration.

4.3 Vital Capacity, O₂ Debt and Second Wind.

4.4 Effect of exercise and training on respiratory system.

DSC1CP: Practical

Credits 02

1. Assessment of BMI, and WHR.
2. Measurement of Blood Pressure, Vital Capacity, Respiratory rate, Heart Rate, Limb length, PEI, and Pick flow Rate.

Suggested Readings:

- Amrit Kumar, R, Moses. (1995). Introduction to Exercise Physiology. Madras: Poompugar Pathipagam.
- Clarke, D.H. (1975). Exercise Physiology. New Jersey: Prentice Hall Inc., Englewood Cliffs.
- David, L Costill. (2004). Physiology of Sports and Exercise. Human Kinetics.
- Fox, E.L., and Mathews, D.K. (1981). The Physiological Basis of Physical Education and Athletics. Philadelphia: Sanders College Publishing.
- Guyton, A.C. (1976). Textbook of Medical Physiology. Philadelphia: W.B. Sanders co. Richard, W. Bowers. (1989). Sports Physiology. WMC: Brown Publishers.
- Sandhya Tiwaji. (1999). Exercise Physiology. Sports Publishers.
- Shaver, L. (1981). Essentials of Exercise Physiology. New Delhi: Subject Publications.
- Vincent, T. Murche. (2007). Elementary Physiology. Hyderabad: Sports Publication.
- William, D. Mc Aradle. (1996). Exercise Physiology, Energy, Nutrition and Human Performance. Philadelphia: Lippincott Williams and Wilkins Company.

DSC-1D (CC- 4): Health Education, Physical Fitness and Wellness Credits 06

DSC1DT: Health Education, Physical Fitness and Wellness Credits 04

Course Contents:

Unit- I: Introduction

- 1.1. Concept, definition and dimension of Health.
- 1.2. Definition, aims, objectives and principles of Health Education.
- 1.3. Activities of Health Agencies- World Health Organization (WHO), United Nations Educational Scientific and Cultural Organization (UNESCO) and United Nations International Children's Emergency Fund (UNICEF)
- 1.4. School Health Program- Health Service, Health Instruction, Health Supervision, Health appraisal and Health Record, Personal hygiene.

Unit- II: Health Problems in India- Prevention and Control

- 2.1. Communicable Diseases- Malaria, Dengue and Chicken Pox and Diarrhea.



- 2.2. Non-Communicable Diseases- Obesity, Diabetes and Asthma.
- 2.3. Nutrition- Nutritional requirements for daily living. Preparation and Principles of Balance Diet. Health disorders due to deficiencies of Protein, Vitamins and Minerals.
- 2.4. Postural deformities- Causes and corrective exercises of Kyphosis, Lordosis, Scoliosis, Knock Knee, Flat Foot and Bow Legs.

Unit- III: Physical Fitness and Wellness

- 3.1 Physical Fitness- Meaning, definition and importance of Physical Fitness.
- 3.2 Components of Physical Fitness- Health and performance related Physical Fitness.
- 3.3 Concept of Wellness. Relationship between physical activities and wellness.
- 3.4 Ageing- Physical activities and its importance.

Unit- IV: Health and First-aid Management

- 4.1 First aid- Meaning, definition, importance and golden rules of First-aid.
- 4.2 Concept of sports injuries- Sprain, Strain, Fracture, Dislocation and Wound.
- 4.3 Management of sports injuries through the application of Hydro-therapy and Thermo-therapy.
- 4.4 Physiotherapy: Basic concept, types & principles. Management of sports injuries through the application of exercise and massage therapy.

DSC1DP: Practical

Credits 02

1. First aid - Triangular Bandage: Slings (Arm Sling, Collar & Cuff Sling), Roller Bandages: Simple Spiral, Reverse Spiral, Figure of Eight, Spica.
2. Practical Knowledge of Hydro-therapy, Thermo-therapy and Cryo-therapy.

Suggested Readings:

- Bucher, Charles A. "Administration of Health and Physical Education Programme".
- Delbert, Oberteuffer, et. al." The School Health Education".
- Ghosh, B.N. "Treaties of Hygiene and Public Health".
- Hanlon, John J. "Principles of Public Health Administration" 2003.
- Turner, C.E. "The School Health and Health Education".
- Moss et. al. "Health Education" (National Education Association of U.T.A.).
- Nemir A. "The School Health Education" (Harber and Brothers, New York).
- Nutrition Encyclopedia, edited by Delores C.S. James, The Gale Group, Inc.
- Boyd-Eaton S. et al (1989) The Stone Age Health Programme: Diet and Exercise as Nature Intended. Angus and Robertson.

Discipline Specific Electives (DSE)

DSE- 1A: Tests, Measurements and Evaluation in Physical Education Credits 06

DSE1AT: Tests, Measurements and Evaluation in Physical Education Credits 04

Course Contents:

Unit- I: Introduction

- 1.1. Concept of test, measurement & evaluation.
- 1.2. Criteria of good test.

- 1.3. Principles of evaluation.
- 1.4. Importance of Test, Measurement and Evaluation in Physical Education and Sports.

Unit- II: Measurements of Body Compositions and Somatotype Assessment

- 2.1 Body Mass Index (BMI) - Concept and method of measurement.
- 2.2. Body Fat - Concept and method of measurement.
- 2.3. Lean Body Mass (LBM) - Concept and method of measurement.
- 2.4. Somatotype- Concept and method of measurement.

Unit- III: Fitness Test

- 3.1 Kraus-Weber Muscular Strength Test
- 3.2 AAHPER Youth Fitness Test
- 3.3 Queens College Step Test
- 3.4 Harvard Step Test

Unit- IV: Sports Skill Test

- 4.1 Lockhart and McPherson Badminton Skill Test
- 4.2 Johnson Basketball Test Battery
- 4.3 McDonald Soccer Test
- 4.4 Brady Volleyball Test

DSE1AP: Practical

Credits 02

1. Assessment of somatotype and Body fat percentage (%)
2. Assessment of AAHPER Youth Fitness Test and Harvard Step Test.

Suggested Readings:

- Authors Guide (2013): ACSM's Health Related Physical Fitness Assessment Manual, USA: ACSM Publications.
- Collins, R.D., & Hodges P.B. (2001): A Comprehensive Guide to Sports Skills Tests and Measurement (2nd edition) Lanham: Scarecrow Press.
- Cureton T.K. (1947): Physical Fitness Appraisal and Guidance, St. Louis: The C. Mosby Company.
- Getchell B (1979): Physical Fitness A Way of Life, 2nd Edition New York.
- John Wiley and Sons, Inc Jenson, Clayne R and Cynt ha, C. Hirst (1980) Measurement in Physical Education and Athletics, New York, Macmillan Publishing Co. Inc.
- Kansal D.K. (1996): "Test and Measurement in Sports and Physical Education, New Delhi: DVS Publications.
- Krishnamurthy (2007): Evaluation in Physical Education and Sports, New Delhi; Ajay Verma Publication.
- Vivian H. Heyward (2005): Advance Fitness Assessment and Exercise Prescription, 3rd Edition, Dallas TX: The Cooper Institute for Aerobics Research.
- Wilmore JH and Costill DL. (2005) : Physiology of Sport and Exercise: 3rd Edition. Champaign IL: Human Kinetics.
- Yobu, A (2010): Test, Measurement and Evaluation in Physical Education in Physical Education and Sports. New Delhi; Friends Publications

Or

DSE- 1A: Psychology in Physical Education and Sports

Credits 06

Course Contents:**Unit- I: Introduction**

- 1.1. Meaning and definition Psychology.
- 1.2. Importance and scope of Psychology.
- 1.3. Meaning and definition Sports Psychology.
- 1.4. Need for knowledge of Sports Psychology in the field of Physical Education.

Unit- II: Learning

- 2.1. Meaning and definition of learning.
- 2.2. Theories of learning and laws of learning.
- 2.3. Learning curve: Meaning and types.
- 2.4. Transfer of learning- Meaning, definition type and factors affecting transfer of learning.

Unit- III: Psychological Factors

- 3.1 Motivation - Meaning, definition, type and importance of motivation in Physical Education and Sports.
- 3.2 Emotion- Meaning, definition, type and importance of emotion in Physical Education and Sports.
- 3.3 Personality- Meaning, definition and types, personality traits.
- 3.4 Role of physical activities in the development of personality.

Unit- IV: Stress and Anxiety

- 4.1 Stress- Meaning, definition and types of Stress.
- 4.2 Causes of Stress.
- 4.3 Anxiety- Meaning, definition and types of Anxiety.
- 4.4 Management of Stress and Anxiety through physical activity and sports.

DSE1AP: Practical**Credits 02**

1. Assessment of Personality, Stress and Anxiety.
2. Measurement of Reaction Time, Depth Perception and Mirror Drawing.

Suggested Readings:

- Authors Guide (2013): National Library of Educational and Psychological Test (NLEPT) Catalogue of Tests, New Delhi: National Council of Educational Research and Training Publication.
- Jain. (2002): Sports Sociology, Heal Sahety Kendre Publishers.
- Jay Coakley. (2001) Sports in Society – Issues and Controversies in International Education, Mc-Craw Seventh Ed.
- John D Lauther (2000): Psychology of Coaching. Ner Jersey: Prentice Hall Inc.
- John D. Lauther (1998) Sports Psychology. Englewood, Prentice Hall Inc.
- Miroslaw Vauks & Bryant Cratty (1999): Psychology and the Superior Athlete. London: The Macmillan Co.
- Richard, J. Crisp. (2000): Essential Social Psychology. Sage Publications.
- Robert N. Singer (2001): Motor Learning and Human Performance. New York: The Macmillan Co.
- Robert N. Singer. (1989): The Psychology Domain Movement Behaviour. Philadelphia: Lea and Febiger.

- Thelma Horn. (2002): Advances in Sports Psychology. Human Kinetic.
- Whiting, K, Karman, Hendry L.B & Jones M.G. (1999): Personality and Performance in Physical Education and Sports. London: Hendry Kimpton Publishers.

Or

DSE-1A: Environmental Education

Credits 06

DSE1AT: Environmental Education

Course Contents:

Unit-I: Environmental Education

1. Environmental Education: Concept, Characteristics, Components and Scope
2. Historical Background of Environmental Education

Unit-II: Education of Environmental Concepts

1. Concept of Environment and Ecosystem
2. Disasters: Natural and Man Made

Unit III: Environmental Education and Social Issues

1. Education for Sustainable development: From Unsustainable to Sustainable development.
2. Education of Urban Environment: Problems related to energy and water

Unit-IV: Approaches and Methods of Environmental Education

Approaches to Environmental Education: Interdisciplinary and Multidisciplinary Methods: Discussion, Seminar, And Workshop, Problem solving and Field survey.

Suggested Readings:

- Environmental Analysis of Water, Soil, Air by Saxena.
- Environmental Pollution and Bhopal Killing.
- Environmental Pollution of Cadmium by Rohatgi.
- Our Planet Our Health – WHO, Oxford Publications, 1992.
- Perspectives on Environment by I. R. Manners, M.W.M. Micksell
- Soil and water Conservation Engineering by Schwab, S. D., Frevert, R. K., Edminster, T.W. and Earns K. K. John Wiley and Sons.
- Water Pollution and Management by C. F. Vershney.

DSE – 1B: Sports Training

Credits 06

DSE1BT: Sports Training

Credits 04

Course Contents:

Unit- I: Introduction

1.1. Meaning and definition of Sports Training.

- 1.2. Aim and characteristics of Sports Training.
- 1.3. Principles of Sports Training.
- 1.4. Importance of Sports Training.

Unit- II: Principle of Training and Conditioning

- 2.1. Warming up and cooling down- Meaning, types and methods.
- 2.2. Conditioning - Concept of Conditioning and its principles.
- 2.3. Training Methods- Circuit Training, Interval Training, Weight Training.
- 2.4. Periodisation- Meaning, types, aim and contents of different periods.

Unit- III: Training Load and Adaptation

- 3.1 Training Load - Meaning, definition, types and factors of training load.
- 3.2 Components of training load.
- 3.3 Over Load - Meaning, causes, symptoms and tackling of over load.
- 3.4 Adaptation - Meaning and conditions of adaptation.

Unit- IV: Training Techniques

- 4.1 Strength - Means, types and methods of strength development.
- 4.2 Speed - Means, types and methods of speed development.
- 4.3 Endurance - Means, types and methods of endurance development.
- 4.4 Flexibility - Means, types and methods of flexibility development.

DSE1BP: PRACTICAL

Credits 02

1. Practical Experience of Weight Training and Circuit Training.
2. Measurement of Speed, Strength (Grip/Leg), Explosive Strength (Leg) and Flexibility.

Suggested Readings:

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

**O
r**

Guideline:

Assessment and Comparison of Body Composition and AAHPER Youth Fitness Components among Physical Education Students of Even Semesters in Under-Graduate Colleges affiliated to Vidyasagar University.

Outline of the Project Work:

- Introduction,
- Procedure,
- Results,
- Conclusions,
- Recommendations.

Body Composition Components:

1. Height,
2. Weight,
3. Body Mass Index (BMI),
4. Fat %,
5. Lean Body Mass (LBM).

AAHPER Youth Fitness Components:

1. Pull Ups (for boy) / Flexed Arm Hang (for girls),
2. Sit Ups,
3. 50 Yard Dash,
4. Standing Broad Jump,
5. Shuttle Run,
6. 600 Yard Run & Walk

Instructions:

1. Student group consisted of maximum four (04) members,
2. Number of students of both the college should be minimum 12 students each group,
3. Methodology of every test items should be written with Objective(s), Equipments, Test Administration and Scoring.
4. A group Photograph of all subjects of two college groups should be present on Project Work,
5. Every test item of all 11 components of individual subject should be present on Project Work,
6. Only average value of all eleven test items must have reflected on table,
7. Data should be presented on tabular form with unit,
8. Separate comparison table of all test items should be reflected,
9. Declaration and acknowledgement also be there.

Skill Enhancement Courses (SEC)

SEC- 1: Indian Games and Racket Sports (Practical)

Credits 02

Course Contents:

A. KABADDI

a. Fundamental skills

1. Skills in Raiding: Touching with hands, Use of leg-toe touch, squat leg thrust, side kick, mule kick, arrow fly kick, crossing of baulk line. Crossing of Bonus line.
2. Skills of holding the raider: Various formations, catching from particular position, different catches, catching formation and techniques.
3. Additional skills in raiding: Escaping from various holds, techniques of escaping from chain formation, offense and defence.
4. Game practice with application of Rules and Regulations.

b. Rules and their interpretations, and duties of the officials.

B. KHO-KHO

a. Fundamental skills

1. Skills in Chasing: Sit on the box (Parallel & Bullet toe method), Get up from the box (Proximal & Distal foot method), Give Kho (Simple, Early, Late & Judgment), Pole Turn, Pole Dive, Tapping, Hammering, Rectification of foul.
2. Skills in running: Chain Play, Ring play and Chain & Ring mixed play.
3. Game practice with application of Rules and Regulations.

b. Rules and their interpretations and duties of the officials.

C. BADMINTON

a. Fundamental skills

1. Basic Knowledge: Various parts of the Racket and Grip.
2. Service: Short service, Long service, Long-high service.
3. Shots: Over head shot, Defensive clear shot, Attacking clear shot, Drop shot, Net shot, Smash.
4. Game practice with application of Rules and Regulations.

b. Rules and their interpretations and duties of the officials.

D. TABLE TENNIS

a. Fundamental skills

1. Basic Knowledge: Various parts of the Racket and Grip (Shake Hand & Pen Hold Grip).
2. Stance: Alternate & Parallel.
3. Push and Service: Backhand & Forehand.
4. Chop: Backhand & Forehand.
5. Receive: Push and Chop with both Backhand & Forehand.
6. Game practice with application of Rules and Regulations.

B. Rules and their interpretations and duties of the officials.

SEC- 2: Ball Games (Practical)

Credits 02

Course Contents:

A. FOOTBALL

a. Fundamental Skills

1. Kicking: Kicking the ball with inside of the foot, Kicking the ball with Full Instep of the foot, Kicking the ball with Inner Instep of the foot, Kicking the ball with Outer Instep of the foot and Lofted Kick.
2. Trapping: Trapping- the Rolling ball, and the Bouncing ball with sole of the foot.
3. Dribbling: Dribbling the ball with Instep of the foot, Dribbling the ball with Inner and Outer Instep of the foot.
4. Heading: In standing, running and jumping condition.
5. Throw-in: Standing throw-in and Running throw-in.
6. Feinting: With the lower limb and upper part of the body.
7. Tackling: Simple Tackling, Slide Tackling.
8. Goal Keeping: Collection of Ball, Ball clearance- kicking, throwing and deflecting.
9. Game practice with application of Rules and Regulations.

b. Rules and their interpretation and duties of officials.

B. HANDBALL

a. Fundamental Skills

1. Catching, Throwing and Ball control,
2. Goal Throws: Jump shot, Center shot, Dive shot, Reverse shot.
3. Dribbling: High and low.
4. Attack and counter attack, simple counter attack, counter attack from two wings and center.
5. Blocking, GoalKeeping and Defensive skills.
6. Game practice with application of Rules and Regulations.

b. Rules and their interpretation and duties of officials.

B. BASKETBALL

a. Fundamental Skills

1. Passing: Two hand Chest Pass, Two hands Bounce Pass, One hand Baseball Pass, Side arm Pass, Overhead Pass, Hook Pass.
2. Receiving: Two hand receiving, One hand receiving, Receiving in stationary position, Receiving while Jumping and Receiving while Running.
3. Dribbling: How to start dribble, drop dribble, High Dribble, Low Dribble, Reverse Dribble, Rolling Dribble.
4. Shooting: Lay-up shot and its variations, One hand set shot, Two hands jump shot, Hook shot, Free Throw.
5. Rebounding: Defensive rebound and Offensive rebound.
6. Individual Defence: Guarding the player with the ball and without the ball, Pivoting.
7. Game practice with application of Rules and Regulations.

b. Rules and their interpretation and duties of officials.

C. VOLLEYBALL

a. Fundamental skills

1. Service: Under arm service, Side arm service, Tennis service, Floating service.
2. Pass: Under arm pass, Over head pass.
3. Spiking and Blocking.
4. Game practice with application of Rules and Regulations.

b. Rules and their interpretation and duties of officials.

D. NETBALL

a. Fundamental skills

1. Catching: one handed, two handed, with feet grounded and in flight.
2. Throwing (Different passes and their uses): One hand passes (shoulder, high shoulder, underarm, bounce, lob), two hand passes (Push, overhead and bounce).
3. Footwork: Landing on one foot, landing on two feet, Pivot, Running pass.
4. Shooting: One hand, forward step shot, and backward step shot.
5. Techniques of free dodge and sprint, sudden sprint, sprint and stop, sprinting with change at speed.
6. Defending: Marking the player, marking the ball, blocking, inside the circle, outside the circle. Defending the circle edge against the passing.
7. Intercepting: Pass and shot.
8. Game practice with application of Rules and Regulations.

b. Rules and their interpretation and duties of officials.

E. THROWBALL

a. Fundamental skills:

Overhand service, Side arm service, two hand catching, one hand overhead return, side arm return.

b. Rules and their interpretations and duties of official

SEC- 3: Gymnastics and Yoga (Practical)

Credits 02

Course Contents:

GYMNASTICS

1. Compulsory

- 1.1. Forward Roll
- 1.2. T-Balance
- 1.3. Forward Roll with Split leg
- 1.4. Backward Roll
- 1.5. Cart-Wheel

[Note: Perform the above Gymnastic skills continuously in the same sequence]

2. Optional

- 2.1. Dive and Forward Roll

- 2.2. Hand Spring
- 2.3. Head Spring
- 2.4. Neck Spring
- 2.5. Hand Stand and Forward Roll
- 2.6. Summersault

3. YOGA

3.1 Asanas

- 3.1.1 Ardhachandrasana
- 3.1.2. Brikshasana
- 3.1.3. Padahastanasana

3.2. Sitting Position

- 3.2.1. Ardhakurmasana
- 3.2.2. Paschimottanasana
- 3.2.3. Gomukhasana

3.3. Supine Position

- 3.3.1. Setubandhasana
- 3.3.2. Halasana
- 3.3.3. Matsyasana

3.4 Prone Position

- 3.4.1 Bhujangasana
- 3.4.2 Salvasana
- 3.4.3 Dhanurasana

3.5 Inverted Position

- 3.5.1 Sarbangesana
- 3.5.2 Shirsasana
- 3.5.3 Bhagrasana

[Note: One Asana is compulsory from each position]

4. Pranayama

- 4.1. Kapalbhathi
- 4.2. Bhramri
- 4.3. Anulam Vilom.

Or

SEC-3: Computer Application in Education

Credits 02

SEC3T: Computer Application in Education (Theory)

Course Contents:

Unit I:

MS office:

- MS Word

- MS Power Point
- MS Excel

Unit II:

- Concepts of information and communication technology; Universal access VS Digital Divide - issues and initiatives;
- Challenges of Integration of ICT in School; Aims and objectives of National Policy on Information and Communication Technology (ICT) in School Education in India.

Unit III:

- Components and Objectives of National Mission on Education, through ICT (NMEICT), Spoken Tutorials Gyan Darshan, Gyanvani, Sakshat Portal, e Gyan Kosh; Virtual laboratory and Haptic technology

Unit IV:

Internet

- Introduction to Internet
- E-mail, Search Engines, Info-Savvy Skills; Digital Age Skills, safe surfing mode

Unit V: Educational Resources

- Internet resources for different disciplines like natural sciences, social sciences, Humanities and Mathematics.
- General Introduction to E-learning, Mobile-learning, distance learning, On-line learning,
- Virtual University, Wikipedia, Massive Open Online Courses (MOOCs);
- Social networking

Unit VI: ICT Integrated Education

- On line Admissions
- Digital Lesson Designing
- Evaluation Rubrics
- E-Portfolios of Learners
- Time-Space-Personnel Management
- Learning Resources Management
- Web Based Instruction
- Office Automation
- E-guidance & counseling
- E-modules
- E-learning Resources

SEC- 4: Track and Field (Practical)

Credits 02

Course Contents:

1. Track Events

- 1.1. Starting Techniques: Standing start and Crouch start (its variations) use of Block.
- 1.2. Acceleration with proper running techniques.
- 1.3. Finishing technique: Run Through, Forward Lunging and Shoulder Shrug.
- 1.4. Relay Race: Starting, Baton Holding/Carrying, Baton Exchange in between zone, and Finishing.

2. Field events

- 2.1. Long Jump: Approach Run, Take-off, Flight in the air (Hang Style/Hitch Kick) and Landing.
- 2.2. High jump: Approach Run, Take-off, Bar Clearance (Straddle) and Landing.
- 2.3. Shot put: Holding the Shot, Placement, Initial Stance, Glide, Delivery Stance and Recovery (Perry O'Brien Technique).
- 2.4. Discus Throw: Holding the Discus, Initial Stance, Primary Swing, Turn, Release and Recovery (Rotation in the circle).
- 2.5. Javelin Throw: Grip, Carry, Release and Recovery (3/5 Impulse stride).

Generic Elective (GE) [Interdisciplinary for other Departments]

GE- 1: Modern Trends and Practices in Physical Education & Exercise Sciences

Credits 06

GE1T: Modern Trends and Practices in Physical Education & Exercise Sciences

Course Contents:

Unit- I: Introduction

- 1.1. Meaning, definition and importance of physical Education and Sports.
- 1.2. Aims, objectives and scope of Physical Education.
- 1.3. Types of sports and their utility in physical education.
- 1.4. Meaning, definition and importance of Physical fitness and Motor fitness. Difference between Physical fitness and Motor fitness. Components of Physical fitness.

Unit- II: Biological, Psychological and Sociological Foundations of Physical Education

- 2.1. Biological Foundation- Meaning and definition of growth and development. Factors affecting growth and development. Differences between growth and development. Principles of growth and development.
- 2.2. Meaning and definition of Psychology. Importance of Psychology in Physical Education. Qualities of good leader in Physical Education. Principles of leadership activities.
- 2.3. Sociological Foundation- Meaning and definition of Sociology. Social values and their importance. Socialization through Sports
- 2.4. Role of games and sports in National and International integration.

Unit- III: History of Physical Education

- 3.1 Historical development of Physical Education and Sports in India- Pre-Independence period and Post-Independence period.
- 3.2 Ancient Olympic Games
- 3.3 Modern Olympic Games.
- 3.4 Asian Games

Unit- IV: Exercise Sciences

- 4.1 Meaning, definition and importance Exercise and Exercise Physiology.
- 4.2 Effects of short and long term exercise on Muscular systems.
- 4.3 Effects of short and long term exercise on Circulatory System.
- 4.4 Effects of short and long term exercise on Respiratory System.

Suggested Readings :

- Kamlesh, M.L. & Singh, M.K. (2006) Physical Education (Naveen Publication).
- Lumpkin, A. (2007) Introduction to Physical Education, Exercise Science and Sports Studies, McGraw Hill, New York, USA.
- Siedentop, D. (2004) Introduction to Physical Education, Fitness and Sport, McGraw Hill Companies Inc., New York, USA.
- Shaffer, D.R. (2002) Development Psychology: Childhood and Adolescence. Thomson, Sydney, Australia.
- Shukla, (2000) Mother on Education, National Council of Teacher Education, New Delhi.
- Singh, A. et al. (2000) Essential of Physical Education, Kalyani Publishers, Ludhiana, Punjab.
- Wuest, D.A. & C.A. Bucher (2006) Foundation of Physical Education, Exercise Science, and Sports. McGraw Hill Companies Inc.; New York, USA.
- Fahey, T.D., M.P. Insel and W.T. Rath (2006) Fit & Well: Core Concepts and Labs in Physical Fitness, McGraw Hill, New York.
- Kansal, D.K. (2012) A Practical Approach to Test Measurement and Evaluation Sports and Spiritual Science Publication, New Delhi.
- Clarke, D.H. (1975). Exercise Physiology. New Jersey: Prentice Hall Inc., Englewood Cliffs.
- David, L Costill. (2004). Physiology of Sports and Exercise. Human Kinetics.

Or

GE-1: Foundation and History of Physical Education

Credits 06

GE1T: Foundation and History of Physical Education

Credits 04

Course Contents:

Unit- I: Introduction

- 1.1. Meaning, definition and scope of Physical Education.
- 1.2. Aim and objectives of Physical Education.
- 1.3. Misconception and Modern concept of Physical Education.
- 1.4. Need and Importance of Physical Education in modern society.

Unit- II: Biological and Sociological Foundations of Physical Education

- 2.1. Biological Foundation- Meaning and definition of growth and development. Factors affecting growth and development. Differences of growth and development. Principles of growth and development.
- 2.2. Age- Chronological age, anatomical age, physiological age and mental age.
- 2.3. Sociological Foundation- Meaning and definition of Sociology, Society, Socialization in Physical Education and Sports, Sports Ethic.
- 2.4. Role of games and sports in National and International integration.

Unit- III: History of Physical Education

- 3.1 Historical development of Physical Education and Sports in India- Pre-Independence period and Post-Independence period.
- 3.2 Olympic Movement- Ancient Olympic Games and Modern Olympic Games.
- 3.3 Brief historical background of Asian Games and Commonwealth Games.
- 3.4 National Sports Awards- Arjuna Award, Rajiv Gandhi Khel Ratna Award, Dronacharya Award, Dhyanchand Award.

Unit- IV: Yoga Education

- 4.1 Meaning and definition of the term Yoga, types, aim, objectives and important of Yoga.
- 4.2 History of Yoga.
- 4.3 Astanga Yoga
- 4.4 Hatha Yoga

DSC1AP: Practical

Credits 02

1. Marching- fall in attention, Stand at ease, stand easy, Eyes right, Eyes front, Right Turn, Left Turn, About Turn, Mark Time Mark, Forward Mark
2. Learn and demonstrate the technique of Suryanamaskar.
3. Development of physical fitness through Callisthenics and Aerobic activities.

Suggested Readings:

- Graham, G. (2001) Teaching Children Physical Education: Becoming a Master Teacher. Human Kinetics, Champaign, Illinois, USA.
- Kamlesh, M.L. & Singh, M.K. (2006) Physical Education (Naveen Publication).
- Lau, S.K. (1999) Great Indian Players, New Delhi, Sports.
- Lumpkin, A. (2007) Introduction to Physical Education, Exercise Science and Sports Studies, McGraw Hill, New York, USA.
- Siedentop, D. (2004) Introduction to Physical Education, Fitness and Sport, McGraw Hill Companies Inc., New York, USA.
- Shaffer, D.R. (2002) Development Psychology: Childhood and Adolescence. Thomson, Sydney, Australia.
- Shukla, (2000) Mother on Education, National Council of Teacher Education, New Delhi.
- Singh, A. et al. (2000) Essential of Physical Education, Kalyani Publishers, Ludhiana, Punjab.
- Wuest, D.A. & C.A. Bucher (2006) Foundation of Physical Education, Exercise Science, and Sports. McGraw Hill Companies Inc.; New York, USA.
- Fahey, T.D., M.P. Insel and W.T. Rath (2006) Fit & Well: Core Concepts and Labs in Physical Fitness, McGraw Hill, New York.

- ↗ Kansal, D.K. (2012) A Practical Approach to Test Measurement and Evaluation Sports and Spiritual Science Publication, New Delhi.

Or

GE-1: Management of Physical Education and Sports Credits 06

GE1T: Management of Physical Education and Sports Credits 04

Course Contents:

Unit- I: Introduction

- 1.1. Concept and definition of Sports Management.
- 1.2. Purpose of Sports Management, Important of Sports Management,
- 1.3. Principles of Sports Management.
- 1.4. Sports Manager and his duties.

Unit- II: Tournaments

- 2.1. Tournaments: Meaning and definition and types of tournaments (Knock-out, League, Combination, Challenge).
- 2.2. Procedure of drawing fixture.
- 2.3. Method of organising Annual Athletic Meet and Play Day.
- 2.4. Method of organising of Intramural and Extramural competition.

Unit- III: Facilities and Equipments

- 3.1 Method of calculation of Standard Athletic Track marking.
- 3.2 Care and maintenance of play ground and gymnasium.
- 3.3 Importance, care and maintenance of sports equipments.
- 3.4 Time Table: Meaning, importance and factors affecting school Physical Education Time Table.

Unit- IV: Leadership

- 4.1 Meaning and definition of leadership.
- 4.2 Qualities of good leader in Physical Education.
- 4.3 Types of Leadership.
- 4.4 Principles of leadership activities.

GE1P: Practical

Credits 02

1. Lay out knowledge and Officiating ability of Track and field events
2. Lay out knowledge and Officiating ability of Games: Football, Kabaddi, Kho-Kho, Volleyball, Hand Ball, Net Ball, Throw Ball, Badminton, and Table Tennis.
3. Gymnastic and Yoga Scoring

Suggested Readings:

- ↗ Broyles, F. J. & Rober, H. D. (1979). Administration of sports, Athletic programme: A Managerial Approach. New York: Prentice hall Inc.
- ↗ Bucher, C. A. (1983). Administration of Physical Education and Athletic programme. St. Lolis: The C.V. Hosby Co.

- ↗ Kozman, H.C. Cassidy, R. & Jackson, C. (1960).Methods in Physical Education. London: W.B. Saunders Co.
- ↗ Pandy, L.K. (1977). Methods in Physical Education. Delhe: Metropolitan Book Depo.
- ↗ Sharma, V.M. & Tiwari, R.H.: (1979). Teaching Methods in Physical Education. Amaravati: Shakti Publication.
- ↗ Thomas, J. P. (1967). Organization & administration of Physical Education. Madras: Gyanodayal Press.
- ↗ Tirunarayanan, C. & Hariharan, S. (1969). Methods in Physical Education. Karaikudi: South India Press.
- ↗ Voltmer, E. F. & Esslinger, A. A. (1979). The organization and administration of Physical Education. New York: Prentice Hall Inc.
- ↗ Singh, A. et al. (2010) Essential of Physical Education. Kalyayani Publishers.

GE-2: Health Education and Tests & Measurements in Physical Education

Credits 06

GE2T: Health Education and Tests & Measurements in Physical Education

Credits 04

Course Contents:

Unit- I: Introduction

- 1.1. Concept, definition and dimension of Health.
- 1.2. Definition, aim, objectives and principles of Health Education.
- 1.3. Health Agencies- World Health Organization (WHO), United Nations Educational Scientific and Cultural Organization (UNESCO).
- 1.4. Nutrition- Nutritional requirements for daily living. Balance Diet. Health disorders due to deficiencies of Vitamins and Minerals.

Unit- II: Health and First-aid Management

- 2.1 First aid- Meaning, definition, importance and golden rules of First-aid.
- 2.2 Concept of sports injuries- Sprain, Strain, Fracture, Dislocation and Wound.
- 2.3. Postural deformities- Causes and corrective exercise of Kyphosis, Lordosis, Scoliosis, Knock Knees and Flat Foot.
- 2.4. Hypo-kinetic Diseases and Physical Activities- Obesity and Diabetes
- 2.5 Management of sports injuries through the application of Hydro-therapy and Thermo-therapy.
- 2.6 Physiotherapy: Basic Concept, Types & Principles. Management of sports injuries through the application of Exercise and Massage therapy.

Unit- III: Measurement of Body Compositions and Somatotype Assessment

- 3.1 Body Mass Index (BMI) - Concept and method of measurement.
- 3.2 Body Fat - Concept and method of measurement.
- 3.3 Lean Body Mass (LBM) - Concept and method of measurement.
- 3.4 Somatotype - Concept and method of Assessment

Unit- IV: Fitness Test

- 4.1 Kraus-Weber Muscular Strength Test
- 4.2 AAHPER Youth Fitness Test
- 4.3 Queens College Step Test
- 4.4 Harvard Step Test

GE2P: Practical**Credits 02**

1. First aid- Triangular Bandage: Slings (Arm Sling, Collar & Cuff sling), Roller Bandages: Simple spiral, Reverse Spiral, figure of Eight, Spica.
2. Practical Knowledge of Hydro -therapy, Thermo - therapy and Cryo-therapy.
3. Assessment of somatotype and % body fat.
4. Assessment of AAHPER Youth Fitness Test and Harvard Step Test.

Suggested Readings:

- Bucher, Charles A. "Administration of Health and Physical Education Programme".
- Hanlon, John J. "Principles of Public Health Administration" 2003.
- Turner, C.E. "The School Health and Health Education".
- Nutrition Encyclopedia, edited by Delores C.S. James, The Gale Group, Inc.
- Boyd-Eaton S. et al (1989) The Stone Age Health Programme: Diet and Exercise as Nature Intended. Angus and Robertson.
- Terras S. (1994) Stress, How Your Diet can Help: The Practical Guide to Positive Health Using Diet, Vitamins, Minerals, Herbs and Amino Acids, Thorons.
- Collins, R.D., & Hodges P.B. (2001) A Comprehensive Guide to Sports Skills Tests and Measurement (2nd edition) Lanham: Scarecrow Press.
- John Wiley and Sons, Inc Jenson, Clayne R and Cynt ha, C. Hirst (1980) Measurement in Physical Education and Athletics, New York, Macmillan Publishing Co. Inc.
- Kansal D.K. (1996), "Test and Measurement in Sports and Physical Education, New Delhi: DVS Publications.
- Krishnamurthy (2007) Evaluation in Physical Education and Sports, New Delhi; Ajay Verma Publication.
- Vivian H. Heyward (2005) Advance Fitness Assessment and Exercise Prescription, 3rd Edition, Dallas TX: The Cooper Institute for Aerobics Research.
- Wilmore JH and Costill DL. (2005) Physiology of Sport and Exercise: 3rd Edition. Champaign IL: Human Kinetics.
- Yobu, A (2010), Test, Measurement and Evaluation in Physical Education in Physical Education and Sports. New Delhi; Friends Publications

Or**GE-2: Anatomy, Physiology and Exercise Physiology****Credits 06****GE2T: Anatomy, Physiology and Exercise Physiology****Credits 04****Course Contents:****Unit- I: Introduction**

- 1.1. Meaning and definition of Human Anatomy, Physiology and Exercise Physiology.

- 1.2. Importance of Human Anatomy, Physiology and Exercise Physiology in Physical Education.
- 1.3. Human Cell- Structure and function.
- 1.4. Tissue- Types and functions.

Unit- II: Musculo-skeletal System

- 2.1. Skeletal System- Structure of Skeletal System. Classification and location of bones and joints. Anatomical differences between male and female.
- 2.2. Muscular System- Type, location, function and structure of muscle.
- 2.3. Types of muscular contraction.
- 2.4. Effect of exercise and training on muscular system.

Unit- III: Circulatory System

- 3.1 Blood- Composition and function.
- 3.2 Heart- Structure and functions. Mechanism of blood circulation through heart.
- 3.3 Blood Pressure, Athletic Heart and Bradycardia.
- 3.4 Effect of exercise and training on circulatory system.

Unit- IV: Respiratory System

- 4.1 Structure and function of Respiratory organs.
- 4.2 Mechanism of Respiration.
- 4.3 Vital Capacity, O₂ Debt and Second Wind.
- 4.4 Effect of exercise and training on respiratory system.

GE2P: Practical

Credits 02

1. Assessment of BMI, and WHR.
2. Measurement of Blood pressure, Vital capacity, Respiratory rate, Heart rate, Limb length, PEI, and Pick flow Rate.

Suggested Readings:

- Amrit Kumar, R, Moses. (1995). Introduction to Exercise Physiology. Madras: Poompugar Pathipagam.
- Clarke, D.H. (1975). Exercise Physiology. New Jersey: Prentice Hall Inc., Englewood Cliffs.
- David, L Costill. (2004). Physiology of Sports and Exercise. Human Kinetics.
- Fox, E.L., and Mathews, D.K. (1981). The Physiological Basis of Physical Education and Athletics. Philadelphia: Sanders College Publishing.
- Guyton, A.C. (1976). Textbook of Medical Physiology. Philadelphia: W.B. Sanders co. Richard, W. Bowers. (1989). Sports Physiology. WMC: Brown Publishers.
- Sandhya Tiwaji. (1999). Exercise Physiology. Sports Publishers.
- Shaver, L. (1981). Essentials of Exercise Physiology. New Delhi: Subject Publications.
- Vincent, T. Murche. (2007). Elementary Physiology. Hyderabad: Sports Publication.
- William, D. Mc Aradle. (1996). Exercise Physiology, Energy, Nutrition and Human Performance. Philadelphia: Lippincott Williams and Wilkins Company.

Or

GE-2: Yoga Education

Credits 06

GE-2T: Yoga Education

Course Contents:

Unit –I:

- Basis of Yoga Meaning and Concept.
- Patanjala Yogasutra.
- Hathayoga Pradipika.

Unit –II:

- Concept of Yoga.
- Streams of Yoga.
- Raja Yoga: Eight Fold Path.
- Anand Mimamsa.

Unit –III:

- Theories of Yoga Practices.
- Asana.
- Pranayama.
- Kriyas.
- Dhyana.

Unit –IV:

- Practical Eight Step Method: Single Group and Double Group Practice.
- Asana.
- Pranayama.
- Relaxation Techniques

Suggested Readings:

- Gore, M.M. –Anatomy and Physiology of Yogic Practices; New Age Books, New Delhi,
- Coulter.H.David- Anatomy of Hathayoga; MLBD, New Delhi,
- Gharote, Manmath M. and Others- Application in Yoga; Lonavla,
- Saraswati, Swami Satyananda- Asana Pranayama & Mudra Bandha; Bihar School of Yoga, Munger,
- Tiwari, O.P.- Asana Why and How?; Kaivalyadhama, Lonavla
- Iyengar, B.K.S. Astadal Yoga Mala, (Vol. I-VIII); Allied Publishers Pvt. Ltd., Lucknow,

GE2P: Yoga Education (Practical)

Credits 02

Practicals: YOGA

1. Asanas

- 1 Ardhachandrasana
2. Brikshasana

3. Padahastasana

2. Sitting Position

1. Ardhakurmasana
2. Paschimottanasana
3. Gomukhasana

3. Supine Position

1. Setubandhasana
2. Halasana
3. Matsyasana

4. Prone Position

- 1 Bhujangasana
- 2 Salvasana
- 3 Dhanurasana

5. Inverted Position

- 1 Sarbangasana
- 2 Shirsasana
- 3 Bhagrasana

[Note: One Asana is compulsory from each position]

6. Pranayama

1. Kapalbhati
2. Bhramri
3. Anulam Vilom.