

**Rashtra Sant Tukadoji Maharaj
Nagpur University, Nagpur**

**CBS : Bachelor of Physical
Education
(B.P.Ed.) CURRICULUM
(For Two Years)**

**Proposed Direction, Regulations
and CBS B.P.Ed. Curriculum
Semester - I to IV**

Effect From:- 2015-2017

SCHEME OF EXAMINATION**SEMESTER - I**

Paper	Subject	Internal	External	Total Marks
	<u>THEORY (400)</u>			
CC-101	History, Principles and foundation of Physical Education	30	70	100
CC-102	Anatomy and Physiology	30	70	100
CC-103	Health Education and Environmental Studies	30	70	100
EC-101/102	Olympic Movement/Officiating and Coaching (Elective)	30	70	100
	<u>PRACTICAL (400)</u>			
PC-101	Track and Field (Running Events)	30	70	100
PC-102	Swimming/Gymnastics/Shooting	30	70	100
PC-103	Indigenous Sports: Kabaddi/ Malkhambh/ lezim / March past (Any of one out of these)	30	70	100
PC-104	Mass Demonstration Activities: Kho-Kho / dumbbells / tipri / wands / hoop /umbrella (Any one out of these)	30	70	100
	Total	240	560	800

SEMESTER -II

Paper	Subject	Internal	External	Total Marks
	<u>THEORY (400)</u>			
CC-201	Yoga Education	30	70	100
CC-202	Educational Technology and Methods of Teaching in Physical Education	30	70	100
CC-203	Organization and Administration	30	70	100
EC-201/202	Contemporary issues in physical education, fitness and wellness/ Sports Nutrition and Weight Management (Elective)	30	70	100
	<u>PRACTICAL (300)</u>			
PC-201	Track and Field (Jumping Events)	30	70	100
PC-202	Yoga/Aerobics / Swimming / Gymnastics (Any of the two out of these)	30	70	100
PC-203	Racket Sports: Badminton/ Table Tennis/ Squash/ Tennis (Any of the two out of these)	30	70	100
	<u>TEACHING PRACTICE (100)</u>			
TP-201	Teaching Practice (Classroom and outdoor)	30	70	100
	Total	240	560	800

SEMESTER –III

Paper	Subject	Internal	External	Total Marks
	<u>THEORY (400)</u>			
CC-301	Sports Training	30	70	100
CC-302	Computer Applications in Physical Education	30	70	100
CC-303	Sports Psychology and Sociology	30	70	100
EC-301/302	Sports Medicine, Physiotherapy and Rehabilitation/Curriculum Design (Elective)	30	70	100
	<u>PRACTICAL (300)</u>			
PC-301	Track and Field (Throwing Events)	30	70	100
PC-302	Combative Sports : Martial Art, Karate, Judo, Fencing, Boxing, Taekwondo, Wrestling (Any two out of these)	30	70	100
PC-303	Team Games: Baseball, Cricket, Football, Hockey, Softball, Volleyball, Handball, Basketball, Netball (Any two of these)	30	70	100
	<u>TEACHING PRACTICE (100)</u>			
TP-301	Teaching Practice (Teaching Lesson Plans for Racket Sport/ Team Games/Indigenous Sports)	30	70	100
	Total	240	560	800

SEMESTER -IV

Paper	Subject	Internal	External	Total Marks
	<u>THEORY (400)</u>			
CC-401	Measurement and Evaluation in Physical Education	30	70	100
CC-402	Kinesiology and Biomechanics	30	70	100
CC-403	Research and Statistics in Physical Education	30	70	100
EC-401/402	Theory of sports and games(Specifically sports and games specialization)/Sports Management (Elective)	30	70	100
	<u>PRACTICAL (200)</u>			
PC-401	Track and Field/Swimming /Gymnastics (Any of one out of these)	30	70	100
PC-402	Kabaddi/ Kho-Kho/ Baseball/ Cricket/ Football/Hockey/Softball/ Volleyball/ Handball/ Basketball/ Netball/ Badminton/ Table Tennis/ Squash/ Tennis (Any of one out of these)	30	70	100
	<u>TEACHING PRACTICE (200)</u>			
TP-401	Sports Specialization: Coaching lessons Plans Track and Field/Swimming /Gymnastics (Any of one out of these)	30	70	100
TP-402	Game specialization Coaching lessons: Kabaddi/ Kho-Kho/ Baseball/ Cricket/Football/Hockey /Softball/ Volleyball/ Handball/ Basketball/ Netball/ Badminton/ Table Tennis/ Squash/ Tennis (Any of one out of these)	30	70	100
	Total	240	560	800

B. P. Ed. – Outline of Syllabus

Semester – I

Theory Courses

CC-101 HISTORY, PRINCIPLES AND FOUNDATION OF PHYSICAL EDUCATION

Unit – 1: Introduction

- Meaning, Definition and Scope of Physical Education ○ Aims and Objective of Physical Education
- Importance of Physical Education in present era. ○ Misconceptions about Physical Education.
- Relationship of Physical Education with General Education.○ Physical Education as an Art and Science.

Unit- 2 – Historical Development of Physical Education in India

- Indus Valley Civilization Period. (3250 BC–2500 BC) ○ Vedic Period (2500 BC–600 BC)
- Early Hindu Period (600 BC–320 AD) and Later Hindu Period (320 AD–1000 AD) ○ Medieval Period (1000 AD–1757 AD)
- British Period (Before 1947)
- Physical Education in India (After 1947)
- Contribution of Akhadas and Vyayamshals ○ Y.M.C.A. and its contributions.

Unit- 3- Foundation of Physical Education

- Philosophical foundation:
- Idealism, Pragmatism, Naturalism, Realism, Humanism, Existentialism and Indian Philosophy and Culture.
- Fitness and wellness movement in the contemporary perspectives
- Sports for all and its role in the maintenance and promotion of fitness.

Unit-4- Principles of Physical Education

- Biological
 - Growth and development
 - Age and gender characteristics
 - Body Types
 - Anthropometric differences
- Psychological
 - Learning types, learning curve
 - Laws and principles of learning
 - Attitude, interest, cognition, emotions and sentiments

- **Sociological**
 - Society and culture
 - Social acceptance and recognition
 - Leadership
 - Social integration and cohesiveness

References:

Bucher, C. A. (n.d.) *Foundation of physical education*. St. Louis: The C.V. Mosby Co.

Deshpande, S. H. (2014). *Physical Education in Ancient India*. Amravati: Degree college of Physical education.

Kanwar, R.C. (2015) *History, Principles and Foundations of Physical Education*. Nagpur: Amit Brothers Publications

Budhe, A. (2013)*Principles and History of Physical Education*. Delhi; Sports Publications
Mohan, V. M. (1969). *Principles of physical education*. Delhi: Metropolitan Book Dep.

Nixon, E. E. & Cozen, F.W. (1969). *An introduction to physical education*. Philadelphia: W.B. Saunders Co.

Obertuffer, (1970).*Delbert physical education*. New York: Harper & Brothers Publisher.

Sharman, J. R. (1964). *Introduction to physical education*. New York: A.S. Barnes & Co.

William, J. F. (1964). *The principles of physical education*. Philadelphia: W.B. Saunders Co.

Semester I

Theory Courses

CC-102 ANATOMY AND PHYSIOLOGY

UNIT-I

- Brief Introduction of Anatomy and physiology in the field of Physical Education. ○ Introduction of Cell and Tissue.
- The arrangement of the skeleton – Function - of the skeleton – Ribs and Vertebral column and the extremities – joints of the body and their types
- Gender differences in the skeleton. ○ Types of muscles.

UNIT-II

- Blood and circulatory system: Constituents of blood and their function – Blood groups and blood transfusion, clotting of blood, the structure of the heart-properties of the heart muscle, circulation of blood, cardiac cycle, blood pressure, Lymph and Lymphatic circulation. Cardiac output.
- The Respiratory system: The Respiratory passage – the lungs and their structure and exchange of gases in the lungs, mechanism of respiration (internal and external respiration) lung capacity, tidal volume.
- The Digestive system: structure and functions of the digestive system, Digestive organs, Metabolism,
- The Excretory system: Structure and functions of the kidneys and the skin.
- The Endocrine glands: Functions of glands pituitary, Thyroid, Parathyroid. Adrenal, Pancreatic and the sex glands.
- Nervous systems: Function of the Autonomic nervous system and Central nervous system. Reflex Action,
- Sense organs: A brief account of the structure and functions of the Eye and Ear.

UNIT-III

- Definition of physiology and its importance in the field of physical education and sports. ○ Structure, Composition, Properties and functions of skeletal muscles. ○ Nerve control of muscular activity: ○ Neuromuscular junction
- Transmission of nerve impulse across it. ○ Fuel for muscular activity
- Role of oxygen- physical training, oxygen debt, second wind, vital capacity.

UNIT-IV

- Effect of exercise and training on cardiovascular system. ○ Effect of exercise and training on respiratory system.
- Effect of exercise and training on muscular system
- Physiological concept of physical fitness, warming up, conditioning and fatigue. ○ Basic concept of balanced diet–Diet before, during and after competition.

References:

- Gupta, A. P. (2010). *Anatomy and physiology*. Agra: Sumit Prakashan.
- Gupta, M. and Gupta, M. C. (1980). *Body and anatomical science*. Delhi: Swaran Printing Press.
- Guyton, A.C. (1996). Textbook of Medical Physiology, 9th edition. Philadelphia: W.B. Saunders.
- Kanwar, R.C. (2015) *Anatomy and Physiology*. Nagpur: Amit Brothers Publications
- Budhe, A. ,Agrawal, K (2013) *Anatomy, Physiology & Health Education* .Delhi; Sports Publications
- Karpovich, P. V. (n.d.). *Philosophy of muscular activity*. London: W.B. Saunders Co.
- Lamb, G. S. (1982). *Essentials of exercise physiology*. Delhi: Surjeet Publication.
- Moorthy, A. M. (2014). *Anatomy physiology and health education*. Karaikudi: Madalayam Publications.
- Morehouse, L. E. & Miller, J. (1967). *Physiology of exercise*. St. Louis: The C.V. Mosby Co.
- Pearce, E. C. (1962). *Anatomy and physiology for nurses*. London: Faber & Faber Ltd.
- Sharma, R. D. (1979). *Health and physical education*, Gupta Prakashan.
- Singh, S. (1979). *Anatomy of physiology and health education*. Ropar: Jeet Publications.

Semester I

Theory courses

CC-103 HEALTH EDUCATION AND ENVIRONMENTAL STUDIES

Unit – I Health Education

- Concept, Dimensions, Spectrum and Determinants of Health
- Definition of Health, Health Education, Health Instruction, Health Supervision○ Aim, objective and Principles of Health Education
- Health Service and guidance instruction in personal hygiene

Unit – II Health Problems in India

- Communicable and Non Communicable Diseases
- Obesity, Malnutrition, Adulteration in food, Environmental sanitation, Explosive Population,
- Personal and Environmental Hygiene for schools
- Objective of school health service, Role of health education in schools
- Health Services – Care of skin, Nails, Eye health service, Nutritional service, Health appraisal, Health record, Healthful school environment, first- aid and emergency care etc.

Unit – III Environmental Science

- Definition, Scope, Need and Importance of environmental studies.
- Concept of environmental education, Historical background of environmental education, ○ Celebration of various days in relation with environment.
- Plastic recycling & probation of plastic bag / cover.
- Role of school in environmental conservation and sustainable development.

Unit – IV Natural Resources and related environmental issues:

- Water resources, food resources and Land resources
- Definition, effects and control measures of:
- Air Pollution, Water Pollution, Soil Pollution, Noise Pollution, Thermal Pollution ○ Management of environment and Govt. policies , Role of pollution control board.

References:

- Agrawal, K.C. (2001). *Environmental biology*. Bikaner: Nidhi publishers Ltd.
- Frank, H. & Walter, H., (1976). *Turners school health education*. Saint Louis: The C.V. Mosby Company.
- Kanwar, R.C. (2015) *Health Education and Environmental Studies*. Nagpur: Amit Brothers Publications
- Nemir, A. (n.d.). *The school health education*. New York: Harber and Brothers.
- Odum, E.P. (1971). *Fundamental of ecology*. U.S.A.: W.B. Saunders Co.

Semester – I
Theory courses
EC-101 OLYMPIC MOVEMENT (ELECTIVE)

Unit – I Origin of Olympic Movement

- Philosophy of Olympic movement
- The early history of the Olympic movement
- The significant stages in the development of the modern Olympic movement
- Educational and cultural values of Olympic movement

Unit – II Modern Olympic Games

- Significance of Olympic Ideals, Olympic Rings, Olympic Flag
- Olympic Protocol for member countries
- Olympic Code of Ethics
- Olympism in action
- Sports for All

Unit – III Different Olympic Games

- Para Olympic Games
- Summer Olympics
- Winter Olympics
- Youth Olympic Games

Unit – IV Committees of Olympic Games

- International Olympic Committee - Structure and Functions
- National Olympic committees and their role in Olympic movement
- Olympic commission and their functions
- Olympic medal winners of India

Reference:

- Osborne, M. P. (2004). *Magic tree house fact tracker: ancient greece and the olympics: a nonfiction companion to magic tree house: hour of the Olympics*. New York: Random House Books for Young Readers.
- Burbank, J. M., Andranovich, G. D. & Heying Boulder, C. H. (2001). *Olympic dreams: the impact of mega-events on local politics*: Lynne Rienner
- Durge, R.R., Joshi, A.R. (2015) *Olympic Movement* : Nagpur : Amit Brothers Publications

Semester – I

Theory courses

EC-102 OFFICIATING AND COACHING

(Elective) Unit- I: Introduction of Officiating and coaching

- **Concept of officiating and coaching**
- **Importance and principles of officiating**
- **Relation of official and coach with management, players and spectators** ○
- Measures of improving the standards of officiating and coaching**

Unit- II: Coach as a Mentor

- **Duties of coach in general, pre, during and post game.** ○ **Philosophy of coaching**
- **Responsibilities of a coach on and off the field** ○
- Psychology of competition and coaching**

Unit- III: Duties of Official

- **Duties of official in general, pre, during and post game.** ○
- Philosophy of officiating**
- **Mechanics of officiating—position, singles and movement etc.** ○ **Ethics of officiating**

Unit- IV: Qualities and Qualifications of Coach and Official

- **Qualities and qualification of coach and official**
- **General rules of games and sports**
- **Eligibility rules of intercollegiate and inter-university tournaments, preparation of TA, DA bills**
- **Integrity and values of sports**

Reference Books:

Bunn, J. W. (1968). *The art of officiating sports*. Englewood cliffs N.J. Prentice Hall. Bunn, J.

W. (1972). *Scientific principles of coaching* Englewood cliffs N. J. Prentice Hall. Dyson, G.

H. (1963). *The mechanics of athletics*. London: University of London

Kanwar, R.C. (1991) *Officiating and Coaching*. Nagpur: Amit Brothers Publications

Press Ltd. Dyson, G. H. (1963). *The mechanics of Athletics*. London: University of London

Press Ltd. Lawther, J.D. (1965). *Psychology of coaching*. New York: Pre. Hall.

Singer, R. N. (1972). *Coaching, athletic & psychology*. New York: M.C. Graw Hill.

Semester – II

Theory Courses

CC-201 YOGA EDUCATION

Unit – I: Introduction

- Meaning and Definition of Yoga ○
- Aims and Objectives of Yoga
- Yoga in Early Upanisads
- The Yoga Sutra: General Consideration
- Need and Importance of Yoga in Physical Education and Sports

Unit - II: Foundation of Yoga

- The Astanga Yoga: Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi
- Yoga in the Bhagavadgita - Karma Yoga, Raja Yoga, Jnana Yoga and Bhakti Yoga

Unit - III Asanas

- Effect of Asanas and Pranayama on various system of the body
- Classification of asanas with special reference to physical education and sports ○ Influences of relaxative, meditative posture on various system of the body ○ Types of Bandhas and mudras
- Type of kriyas

Unit – IV Yoga Education

- Basic, applied and action research in Yoga
- Difference between yogic practices and physical exercises ○
- Yoga education centers in India and abroad ○ Competitions in Yogasanas

References:

- Brown, F. Y.(2000). *How to use yoga*. Delhi: Sports Publication.
- Gharote, M. L. &Ganguly, H. (1988). *Teaching methods for yogic practices*. Lonawala: Kaixydahmoe.
- Rajjan, S. M. (1985). *Yoga strengthening of relaxation for sports man*. New Delhi: Allied Publishers.
- Shankar,G.(1998). *Holistic approach of yoga*. New Delhi: Aditya Publishers.
- Shekar,K. C. (2003). *Yoga for health*. Delhi: Khel Sahitya Kendra.

Semester – II

Theory Courses

CC-202 EDUCATIONAL TECHNOLOGY AND METHODS OF TEACHING IN PHYSICAL EDUCATION

Unit – I Introduction

- Education and Education Technology- Meaning and Definitions
- Types of Education- Formal, Informal and Non- Formal education.
- Educative Process
- Importance of Devices and Methods of Teaching.

Unit – II Teaching Technique

- Teaching Technique – Lecture method, Command method, Demonstration method, Imitation method, project method etc.
- Teaching Procedure – Whole method, whole – part – whole method, part – whole method.
- Presentation Technique–Personal and technical preparation
- Command- Meaning, Types and its uses in different situations.

Unit – III Teaching Aids

- Teaching Aids–Meaning, Importance and its criteria for selecting teaching aids.
- Teaching aids – Audio aids, Visual aids, Audio – visual aids, Verbal, Chalk board, Charts, Model, Slide projector, Motion picture etc
- Team Teaching–Meaning, Principles and advantage of team teaching.
- Difference between Teaching Methods and Teaching Aid.

Unit – IV Lesson Planning and Teaching Innovations

- Lesson Planning–Meaning, Type and principles of lesson plan.
- General and specific lesson plan.
- Micro Teaching–Meaning, Types and steps of micro teaching.
- Simulation Teaching - Meaning, Types and steps of simulation teaching.

Reference:

- Bhardwaj, A. (2003). *New media of educational planning*. New Delhi: Sarup of Sons.
- Bhatia, & Bhatia, (1959). *The principles and methods of teaching*. New Delhi: Doaba House.
- Budhe, A. (2013) *Educational Methodology*. Delhi; Sports Publications.
- Kochar, S.K. (1982). *Methods and techniques of teaching*. New Delhi: Sterling Publishers Pvt. Ltd.
- Kanwar, R.C. (2008) *Methods in Physical Education*. Nagpur: Amit Brothers Publications
- Kavishwar, D.P. *Methods in Physical Education*. Nagpur; S.M. Publisher
- Sampath, K., Pannirselvam, A. & Santhanam, S. (1981). *Introduction to educational technology*. New Delhi: Sterling Publishers Pvt. Ltd.
- Walia, J.S. (1999). *Principles and methods of education*. Jullandhar: Paul Publishers.

Section II

Methodology of Special Subject

**(1) Sports Coaching (2) English (3) Marathi (4) Hindi (5) History (6) Geography
(7) Science (8) Economics**

The Syllabus for each is as given below

(1) Sports Coaching

- 1. Aims, Objectives and specifications of coaching sports, skills and techniques.**
- 2. Different methods of coaching sports skills.**
- 3. Class organization**
- 4. Stages of skill teaching**
- 5. Coaching aids and devices : Charts, Models, Film-strips, Posters, Motion Films, Gadgets, Flannelography, Epidiascope, Overhead Projector**
- 6. Principles of the selection and use of A.V. aids in coaching sports skills.**
- 7. Lead up games : Need and importance**
- 8. Preparation of sports coaching lesson**
 - (a) Various parts of lesson**
 - (b) Basic requirement for the lesson**

Books recommended

Bounder , J. B. : How to be a Successful Coach

Geoffrey Dyson : The Mechanics of Athletics

John Bunn : Scientific Principles of Coaching

J. P. Thomas : Physical Education Lessons

Kanwar R. C. (2008) Sports Coaching Amit Brothers Publications Nagpur

Kozman, Gassiy Jakson : Methods in Physical Education.

Lawther, J. D. : Psychology of Coaching

(2) English

(3)

1. The place of English in the curriculum of Secondary Schools.
2. Aims and objectives of teaching the subject as a compulsory language – The stage at which to begin study and the time to be devoted.
3. Different aspects of the Teaching of English –
 - a. Types of reading, oral and silent reading, their objective and how to improve reading.
 - b. Poetry, place of poetry teaching, choice of poems, methods of teaching, recitation, chorus reading.
 - c. Composition – Oral, Written, Comprehension – Methods of correction, teaching, spelling.
 - d. Grammar – Place of Grammar in the teaching of English, Method of teaching –
 - i. Grammar, formal and functional grammar.
 - ii. The difficulties of English : Word order, Sentence patterns, the usage, language exercise.
 - e. Supplementary reading. Intensive and extensive readers. Use of the Library.
 - f. Dictation : Its objectives, planning a dictation lesson.
 - g. Translation, paraphrase, précis writing.
4. Critical study of the English Syllabus at the higher and lower levels, essentials of a good text book.
5. Method of Teaching – The direct Method, Dr. West's Method. The Grammar translation method, New Direct (Structural) approach, the comprehensive method.
6. Lessons planning with reference to different types of lesson.
7. The teaching of handwriting.
8. Teaching aids and devices, Pictures, Charts Models, Film strips the Gramophone, Radio, Cinema, Tape Recorder, Linguaphone, Flash cards, Dictator, Dramatisation, Debates, Story telling. Pen-Friendship, Language games, B.B. work Dialogues, Celebration of Festivals.
9. Co-curricular activities, Excursions Class magazines.
10. Evaluation procedure in English, Preparation of New type tests in English.
11. The qualities and qualifications of the teaching of English.
12. Phonetics : English speech, accent and intonation. Difficulties of pronunciation.

Books recommended :

1. T.K.N. Menon & Patel : The Teaching of English as a Foreign Language, Acharaya Book Depot, Baroda.
2. Gurry : Teaching of English as a Foreign Language, Orient Longman.
3. Frisby : The Teaching of English, Oxford University Press.
4. French : Teaching of English Abroad.

(6) History

1. Meaning and scope of History. The place of History in the school curriculum.
2. Times, objectives and specifications of teaching History. Criteria of good syllabus –
 - (a) Chronological
 - (b) Periodical
 - (c) Concentric
 - (d) Lines development
 - (e) Local History
 - (f) World History
 - (g) Current events –
3. Essentials of a good Text Book in History Study of the prescribed course in History for High School classes in Maharashtra.
4. Different methods of teaching History –
 - (a) Story telling method
 - (b) Discussion method
 - (c) Text Book method
 - (d) Lecture method
 - (e) Project method
 - (f) Dalton Plan
 - (g) Source method
 - (h) Problem method
 - (i) Biographical method
5. Teaching aids and devices –
Charts, Maps, Graphs, Models, Discussions, Questions, Poems, Novels, Ballads, Picture, Inscriptions, Historical documents and time line.
6. Co-curricular activities
Visit of places of historical importance, Lectures, Note making, note taking and parallel reading, Dramatisation.
7. Correlation of History with other school subjects.
8. Education for National Integration and International understanding through teaching of History
9. Evaluation preparation of text items.
10. Qualities and qualification of the History Teacher.

Books recommended :

1. The Teaching of History : V.D. Ghatge, Oxford University Press
2. The Teaching of History : Johnson, Macmillan Co., Bombay
3. Creative Teaching of History : Ghose, K. D., Oxford University Press
4. Teaching of History : Kochhar, Sterling Publisher, Jallunder.

(7) Geography

1. Meaning and scope of Geography. The place of Geography in school curriculum.
2. Aims, Objectives and Specification of teaching Geography with special emphasis on National Integration and International understanding.
3. Criteria of a good syllabus and text book in Geography. Grammar of Geography. Study of local and regional Geography. Study of the prescribed course in Geography in schools of Maharashtra State.
4. Different methods of teaching Geography –
 - (a) Observation method
 - (b) Story telling method
 - (c) Journey method
 - (d) Excursion method
 - (e) Laboratory method
 - (f) Regional method
 - (g) Project method
5. Map reading and map making.
6. Teaching aids and devices – Maps, Charts, Diagrams, Models, Globe, Epidiascope, Films, Pictures, Specimens, Atlases and Schools Broadcast.
7. Co-curricular activities – Excursions, Lectures, note making, note taking, parallel reading, preparing albums, stamp collecting and Geography clubs.
8. Correlation of Geography with other school subjects.
9. Evaluation – preparation of test items.
10. Qualities and qualifications of the Geography Teacher. Books recommended
 1. Principles and Practice of Geography Teaching : Barnard, University Tutorial Press Ltd., London
 2. Teaching of Geography : Gospel, University Press, London
 3. Teaching of Geography in India : Verma, University Publication, Jallunder
 4. Suggestions for Teaching Geography : Maonee, Oxford University Press.
 5. Source Book of Teaching Geography : UNESCO (UNESCO, Longman)

(8) Science

1. Importance and place of science in the School curriculum.
2. Aims, Objectives and specifications of teaching Science.
3. Criteria of good syllabus and text books in Science. Study of the prescribed Course in Science for High School classes in Maharashtra State.
4. Lesson planning in Science.
5. Method of teaching Science – Lecture, Historical, Demonstration, Laboratory, Heuristic and problem methods.
6. Contribution of the Dalton Plan and the Project method to the teaching of the Science –
 - a. Special problems and methods of Nature, Study and General Science.
 - b. Correlation of various branches of Science with one another and with other School Subjects.
7. Laboratory and its equipment, improvised apparatus.
8. Co-curricular Activities
 - a. Visits to Work-shops, Factories and other places of Scientific Interest.
 - b. School Museum
 - c. Science Clubs and Science Fairs
9. Aids to teaching Science – Charts, Models, Specimens, Film Projector, Epidiascope, Radio and Tape-Recorder.
10. Qualities and qualification of the Science Teacher
11. Evaluation – Preparation of test items.

Books recommended –

1. H. N. Sunder (UNESCO) : Teaching of General Science in Topical Secondary School, Oxford University.
2. Ghanshamdas : The Teaching of Physics and Chemistry in India, Oxford University Press, London.
3. T.S. Nagpal : The Teaching of Science, Krishna Brothers, Amritsar, Lundhiana.
4. D.R. Dawing : Introduction to Teaching of Science, Hilt Rinchart Winston Terouts.
5. Sharma & Sharma : Teaching of Science, S.Chand, New Delhi

(9) Economics

Objectives :

- 1. To acquaint the student-teachers with the objectives of teaching Economics**
- 2. To develop necessary skills in the preparation and use of teaching aids**
- 3. To initiate the student-teachers to the various methods of Economics.**
- 4. To develop competence in the use of various tools of evaluation.**

Unit-wise Breakup of the Syllabus

Unit I :

- (a) The place of economics in education, aim and objectives of teaching Economics in Secondary School such as responsible citizenship, understanding, economic role of Governments, understanding economics, phenomenon, help to perform one's role as a producers or consumer to grasp the inter-dependence of man in modern times to think critically, to participate in the economic development of the country.**
- (b) Place of economics in Secondary School and relation of the same with other subjects.**
- (c) The presentation of economics at different stages in School as a Part of community living in Primary as a part of Social Studies in the Secondary, as a separate subject in the Higher Secondary. Approach to the teaching of economics in the Schools.**

Unit II :

Methods of teaching Economics, narration, text-book, survey, project, discussion, field trips, case study, preparation and interpretation of data through time series, graphs, pie and bar diagrams, pictographs, advantages, adaptation and scope of these methods.

Unit III :

Audio-visual aids used in Economics Teaching maps, charts, model, graphs, diagrams, films-films trips, radio.

Unit IV :

Economics room and museum, necessary equipment.

Unit V :

Qualities and qualifications of a good Economics, Teacher, his professional equipment.

Unit VI :

Preparation and criteria of framing Syllabus.

Preparation and criteria of framing syllabus in Economics at different levels, Criteria of a good Text-book in the subject, Study of present Syllabus and Text-book.

Unit VII :

Preparation of the year's plan, unit plans and daily lesson plan-objectives, learning experience, teaching points, methods used.

Unit VIII :

Evaluation and testing procedures in the teaching of Economics, knowledge of achievement test and preparation of unit tests.

Reference Books

1. Teaching of Economics : B.S. Kanwar
2. Organizing Social Studies in Secondary Schools, 'Binning & Other (McGraw Hill)
3. The Teaching of Economics in Secondary School : Assistant Masters Association (Cambridge University Press, 1971)
4. H.S.C. Syllabus of M. S. Board of Secondary Education, Shivaji Nagar, Poona – 10
5. Hand Bill

Semester – II

Theory Courses

CC-203 ORGANIZATION AND ADMINISTRATION IN PHYSICAL EDUCATION

Unit – I: Organization and administration

- **Meaning and importance of Organization and Administration in physical education**
- **Qualification and Responsibilities of Physical Education teacher and pupil leader**
- **Planning and their basic principles,**
- **Program planning: Meaning, Importance, Principles of program planning in physical education.**
- **Functions of Planning, organizing, staffing, directing, communicating, co-ordination, controlling, evaluating and innovating.**

Unit- II: Office Management, Record, Register & Budget

- **Office Management: Meaning, definition, functions and kinds of office management**
- **Records and Registers: Maintenance of attendance Register, stock register, cash register, physical efficiency record, Medical examination Record.**
- **Budget: Meaning, Importance of Budget making,**
- **Criteria of a good Budget, Sources of Income, Expenditure, Preparation of Budget.**

Unit-III: Facilities, & Time-Table Management

- **Facilities and equipment management: Types of facilities Infrastructure-indoor, out door.**
- **Care of school building, Gymnasium, swimming pool, Play fields, Play grounds**
- **Equipment: Need, importance, purchase, care and maintenance.**
- **Time Table Management: Meaning, Need, Importance and Factor affecting time table.**

Unit-IV: Competition Organization

- **Importance of Tournament,**
- **Types of Tournament and its organization structure - Knock-out Tournaments, League or Round Robin Tournaments, Combination Tournament and challenge Tournament.**
- **Organization structure of Athletic Meet**
- **Sports Event Intramurals & Extramural Tournament planning**

References:

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. Louis: The C.V. Mosby Co.

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Kozman, H.C. Cassidy, R. & Jackson, C. (1960). *Methods in Physical Education*. London: W.B. Saunders Co.

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- Thomas, J. P.(1967). *Organization & administration of Physical Education*. Madras: Gyanodayal Press.**
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- Voltmer, E. F. &Esslinger, A. A. (1979).*The organization and administration of Physical Education*.New York: Prentice Hall Inc.**

Semester – II

Theory Courses

EC-201 CONTEMPORARY ISSUES IN PHYSICAL EDUCATION, FITNESS AND WELLNESS (ELECTIVE)

Unit – I Concept of Physical Education and Fitness

- **Definition, Aims and Objectives of Physical Education, fitness and Wellness**
- **Importance and Scope of fitness and wellness**
- **Modern concept of Physical fitness and Wellness**
- **Physical Education and its Relevance in Inter Disciplinary Context.**

Unit – II Fitness, Wellness and Lifestyle

- **Fitness–Types of Fitness and Components of Fitness**
- **Understanding of Wellness**
- **Modern Lifestyle and Hypo kinetic Diseases–Prevention and Management**
- **Physical Activity and Health Benefits**

Unit – III Principles of Exercise Program

- **Means of Fitness development–aerobic and anaerobic exercises**
- **Exercises and Heart rate Zones for various aerobic exercise intensities**
- **Concept of free weight Vs Machine, Sets and Repetition etc**
- **Concept of designing different fitness training program for different age group.**

Unit – IV Safety Education and Fitness Promotion

- **Health and Safety in Daily Life**
- **First Aid and Emergency Care**
- **Common Injuries and their Management**
- **Modern Life Style and Hypo-kinetic Disease–Prevention and Management**

References:

- Difiore, J.(1998). *Complete guide to postnatal fitness*. London: A & C Black,.**
- Giam, C.K &The, K.C. (1994). *Sport medicine exercise and fitness*. Singapore: P.G. Medical Book.**
- Mcglynn, G., (1993). *Dynamics of fitness*. Madison: W.C.B Brown.**
- Sharkey, B. J.(1990). *Physiology of fitness*, Human Kinetics Book.**

Semester II

Theory courses

EC-202 SPORTS NUTRITION AND WEIGHT MANAGEMENT (ELECTIVE)

Unit – I Introduction to Sports Nutrition

- **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 Nutrition and Weight Management

- **Meaning of weight management Concept of weight management in modern era Factor affecting weight management and values of weight management**
- **Concept of BMI (Body mass index), Obesity and its hazard, Myth of Spot reduction, Dieting versus exercise for weight control, Common Myths about Weight Loss**
- **Obesity–Definition, meaning and types of obesity,**
- **Health Risks Associated with Obesity, Obesity - Causes and Solutions for Overcoming Obesity.**

Unit – IV Steps of planning of Weight Management

- **Nutrition–Daily calorie intake and expenditure, Determination of desirable body weight**
 - **Balanced diet for Indian School Children, Maintaining a Healthy Lifestyle**
 - **Weight management program for sporty child, Role of diet and exercise in weight management, Design diet plan and exercise schedule for weight gain and loss**
- References:**

Bessesen, D. H. (2008). Update on obesity. *J ClinEndocrinolMetab.*93(6), 2027-2034.

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.

**Chu, S.Y. & Kim, L. J. (2007). Maternal obesity and risk of stillbirth:
a metaanalysis. *Am J Obstet Gynecol*, 197(3), 223-228.**

DeMaria, E. J. (2007). Bariatric surgery for morbid obesity. *N Engl J Med*, 356(21), 2176-2183.

**Dixon, J.B., O'Brien, P.E., Playfair, J. (n.d.). Adjustable gastric banding and conventional
therapy for type 2 diabetes: a randomized controlled trial. *JAMA*. 299(3), 316-323.**

Semester – III
Theory Courses
CC-301 SPORTS TRAINING

Unit – I Introduction to Sports Training

- Meaning and Definition of Sports Training
- Aim and Objective of Sports Training
- Principles of Sports Training
- System of Sports Training – Basic Performance, Good Performance and High Performance Training

Unit – II Training Components

- Strength–Mean and Methods of Strength Development
- Speed–Mean and Methods of Speed Development
- Endurance - Mean and Methods of Endurance Development
- Coordination–Mean and Methods of coordination Development
- Flexibility–Mean and Methods of Flexibility Development

Unit – III Training Process

- Training Load- Definition and Types of Training Load
- Principles of Intensity and Volume of stimulus
- Technical Training–Meaning and Methods of Technique Training
- Tactical Training–Meaning and Methods of Tactical Training

Unit – IV Training programming and planning

- Periodization–Meaning and types of Periodization
- Aim and Content of Periods–Preparatory, Competition, Transitional etc.
- Planning–Training session
- Talent Identification and Development

Reference:

- Dick, W. F. (1980). *Sports training principles*. London: Lepus Books.
- Harre, D. (1982). *Principles of sports training*. Berlin: Sporulated.
- Jensen, R. C. & Fisher, A.G. (1979). *Scientific basis of athletic conditioning*. Philadelphia: Lea and Fibiger, 2nd Edn.
- Kanwar, R.C. (1999) *Scientific Methods of Training and Coaching*. Nagpur: Amit Brothers Publications
- Matvyew, L.P. (1981). *Fundamental of sports training*. Moscow: Progress Publishers.
- Singh, H. (1984). *Sports training, general theory and methods*. Patials: NSNIS.
- Uppal, A.K., (1999). *Sports Training*. New Delhi: Friends Publication.

Semester III

Theory Courses

CC-302 COMPUTER APPLICATIONS IN PHYSICAL EDUCATION

Unit – I: Introduction to Computer

- Meaning, need and importance of information and communication technology (ICT).
Application of Computers in Physical Education
- Components of computer, input and output device
- Application software used in Physical Education and sports

Unit – II: MS Word

- Introduction to MS Word
- Creating, saving and opening a document
- Formatting Editing features Drawing table ,
- page setup, paragraph alignment, spelling and grammar check printing option, inserting page number, graph, footnote and notes

Unit – III: MS Excel

- Introduction to MS Excel
- Creating, saving and opening spreadsheet
- creating formulas
- Format and editing features adjusting columns width and row height understanding charts.

Unit – IV: MS Power Point

- Introduction to MS Power Point
- Creating, saving and opening a ppt. file
- format and editing features slide show , design , inserting slide number
- picture ,graph ,table
- Preparation of Power point presentations

Referances:

Irtegov, D. (2004). *Operating system fundamentals*. Firewall Media.

Marilyn, M.& Roberta, B.(n.d.).*Computers in your future*. 2nd edition, India: Prentice

Hall. Milke, M.(2007). *Absolute beginner's guide to computer basics*.Pearson Education

Asia.Sinha, P. K. &Sinha, P. (n.d.).*Computer fundamentals*.4th edition, BPB Publication.

Semester – III

Theory Courses

CC-303 SPORTS PSYCHOLOGY AND SOCIOLOGY

Unit -I: introduction

- **Meaning, Importance and scope of Educational and Sports Psychology**
- **General characteristics of Various Stages of growth and development**
- **Types and nature of individual differences; Factors responsible -Heredity And environment**
- **Psycho-sociological aspects of Human behavior in relation to physical education and sports**

Unit-II: Sports Psychology

- **Nature of learning, theories of learning, Laws of learning, Plateau in Learning; & transfer of training**
- **Meaning and definition of personality, characteristics of personality, Dimension of personality, Personality and Sports performance**
- **Nature of motivation: Factors influencing motivation; Motivation and techniques and its impact on sports performance.**
- **Mental Preparation Strategies: Attention focus, Self- talk, Relaxation, Imaginary.**
- **Aggression and Sports, Meaning and nature of anxiety, Kinds of anxiety**
- **Meaning and nature of stress; Types of stress, Anxiety, Stress, Arousal and their effects on sports performance**

Unit-III: Relation between Social Science and Physical Education.

- **Orthodoxy, customs, Tradition and Physical Education.**
- **Festivals and Physical Education.**
- **Socialization through Physical Education.**
- **Social Group life, Social conglomeration and Social group, Primary group and Remote group.**

Unit- 4 Culture : Meaning and

- Importance.**
- **Features of culture,**
- **Importance of culture.**
- **Effects of culture on people life style.**
- **Different methods of studying Observation/ Inspection method, Questionnaire method, Interview method**

References:

- Ball, D. W. & Loy, J. W. (1975). *Sport and social order; Contribution to the sociology of sport*. London: Addison Wesley Publishing Co., Inc.
- Blair, J.& Simpson, R.(1962). *Educational psychology*, New York:McMillan Co. Cratty, B. J.(1968). *Psychology and physical activity*. Eaglewood Cliffs. Prentice Hall.

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- Kanwar, R.C. (2014) *Sports Psychology*. Nagpur: Amit Brothers Publications
- Budhe, A. ,Agrawal, K (2013) *Educational and Sports Psychology*.Delhi; Sports Publications
- Loy, J. W., Kenyon, G. S. & McPherson, B. D. (1981). *Sports culture and society*. Philadelphia: Lea &Febiger.
- Mathur, S.S., (1962). *Educational psychology*.Agra. Vinod Pustak Mandir. Skinnner, C. E., (1984.). *Education psychology*. New Delhi: Prentice Hall of India.
- William, F. O.&Meyer, F. N. (1979). *A handbook of sociology*. New Delhi: Eurasia Publishing House Pvt Ltd.

Semester – III

Theory Courses

EC-301 SPORTS MEDICINE, PHYSIOTHERAPY AND REHABILITATION (ELECTIVE)

Unit-I: - Sports Medicine:

- Sports Medicine: Meaning, Definition, Aims, Objectives, Modern Concepts and Importance.
- Athletes Care and Rehabilitation: Contribution of Physical Education Teachers and Coaches.
- Need and Importance of the study of sports injuries in the field of Physical Education
- Prevention of injuries in sports–Common sports injuries–Diagnosis–
- First Aid - Treatment - Laceration – Blisters – Contusion - Strain – Sprain – Fracture – Dislocation and Cramps – Bandages – Types of Bandages – trapping and supports.

Unit-II: Physiotherapy

- Definition – Guiding principles of physiotherapy, Importance of physiotherapy, Introduction and demonstration of treatments - Electrotherapy – infrared rays – Ultraviolet rays –short wave diathermy – ultrasonic rays.

Unit-III: Hydrotherapy:

- Introduction and demonstration of treatments of Cry therapy, Thermo therapy, Contrast Bath, Whirlpool Bath – Steam Bath – Sauna Bath – Hot Water Fomentation – Massage: History of Massage – Classification of Manipulation (Swedish System) physiological Effect of Massage.

Unit-IV: Therapeutic Exercise:

- Definition and Scope – Principles of Therapeutic Exercise – Classification, Effects and uses of Therapeutic exercise – passive Movements (Relaxed, Forced and passive - stretching) – active movements (concentric, Eccentric and static) application of the therapeutic exercise: Free Mobility Exercise – Shoulder, Elbow – Wrist and Finger Joints – Hips, Knee, ankle and Foot joints – Trunk. Head and Neck exercises.

References:

- Christine, M. D., (1999). *Physiology of sports and exercise*. USA: Human Kinetics.
- Conley, M. (2000). *Bioenergetics of exercise training*. In T.R. Baechle, & R.W. Earle, (Eds.), *Essentials of Strength Training and Conditioning* (pp. 73-90). Champaign, IL: Human Kinetics.
- David, R. M. (2005). *Drugs in sports*, (4th Ed). Routledge Taylor and Francis Group.
- Hunter, M. D. (1979). *A dictionary for physical educators*. In H. M. Borrow & R. McGee, (Eds.), *A Practical approach to measurement in Physical Education* (pp. 573-74). Philadelphia: Lea &Febiger.

Jeyaprakash, C. S., Sports Medicine, J.P. Brothers Pub., New Delhi, 2003.

Khanna, G.L., (1990). *Exercise physiology & sports medicine*. Delhi:Lucky Enterprises. Mathew, D.K. & Fox, E.L, (1971).*Physiological basis of physical education and athletics*.

Philadelphia:W.B. Saunders Co.

Pandey, P.K., (1987). *Outline of sports medicine*, New Delhi: J.P. Brothers Pub.

Williams, J. G. P. (1962). *Sports medicine*. London: Edward Arnold Ltd.

Semester – III

Theory Courses

EC-302 CURRICULUM DESIGN

(Elective) UNIT-I Modern concept of the curriculum

- Need and importance of curriculum, Need and importance of curriculum development, the role of the teacher in curriculum development.
- Factors affecting curriculum - Social factors - Personnel qualifications - Climatic consideration - Equipment and facilities -Time suitability of hours.
- National and Professional policies, Research finding

UNIT-II Basic Guide line for curriculum construction; contest (selection and expansion).

- Focalization
- Socialization
- Individualization
- Sequence and operation
- Steps in curriculum construction.

UNIT-III Curriculum-Old and new concepts, Mechanics of curriculum planning.

- Basic principles of curriculum construction.
- Curriculum Design, Meaning, Importance and factors affecting curriculum design.
- Principles of Curriculum design according to the needs of the students and state and national level policies.
- Role of Teachers

UNIT-IV Under-graduate preparation of professional preparation.

- Areas of Health education, Physical education and Recreation.
- Curriculum design-Experience of Education, Field and Laboratory.○Teaching practice.
- Professional Competencies to be developed-Facilities and special resources for library, laboratory and other facilities.

Reference:

- Barrow, H. M. (1983). *Man and movement: principles of physical education*. Philadelphia: Lea and Febiger.
- Bucher, C. A. (1986). *Foundation of physical education*: St. Louis: The C. V. Mosby & Company.
- Cassidy, R. (1986). *Curriculum development in physical education*. New York: Harper & Company.

Cowell, C.C. & Hazelton, H.W. (1965). *Curriculum designs in physical education*. Englewood Cliffs: N.J. prentice Hall Inc.

Larson, L.A. (n.d.). *Curriculum foundation in physical education*. Englewood Cliffs: N.J. Prentice Hall Inc.

Underwood, G. L. (1983). *The physical education curriculum in secondary school: planning and implementation*. England: Taylor and Francis Ltd.

Willgoose, C.E. (1979). *Curriculum in physical education*. 3rd Ed. Englewood Cliffs.: N.J. Prentice Hall, Inc.

Semester – IV

Theory Courses

CC-401 MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION

Unit- I Introduction to Test & Measurement & Evaluation

- Meaning of Test & Measurement & Evaluation in Physical Education
- Need & Importance of Test & Measurement & Evaluation in Physical Education
- Principles of Evaluation

Unit- II Criteria; Classification and

Administration of test ○ Criteria of good Test

- Criteria of tests, scientific authenticity (reliability, objectivity, validity and availability of norms)
- Type and classification of Test
- Administration of test, advance preparation–Duties during testing–Duties after testing.

Unit- III Physical Fitness

Tests ○ AAHPER youth fitness test

○ National physical Fitness Test
○ Indiana Motor

Fitness Test

- JCR test
- U.S Army Physical Fitness Test

Unit- IV Sports Skill Tests

○ Lockhart and McPherson
badminton test ○ Johnson
basketball test

○ McDonald
soccer test ○

S.A.I volleyball test ○ S.A.I

Hockey test

References:

- Bangsbo, J. (1994). *Fitness training in football: A scientific approach*. Bagsvaerd, Denmark: Ho+Storm.
- Barron, H. M., & Mchee, R. (1997). *A practical approach to measurement in physical education*. Philadelphia: Lea and Febiger.
- Barron, H.M. & Mchee, R. (1997). *A Practical approach to measurement in physical education*. Philadelphia: Lea and Febiger.

Awasare, Vivek G. & Joshi, A.R. (2015) Test, Measurement & Evaluation in Physical Education, Nagpur : Amit Brothers Publications

Charde, S.K., Hussain, Showkat & Kanwar, A.R. (2013) Test, Measurement and Evaluation in Physical Education, Nagpur: Amit Brothers Publications

Kansal, D.K. (1996). *Test and measurement in sports and physical education*. New Delhi: D.V.S. Publications.

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Pheasant, S. (1996). *Body space: anthropometry, ergonomics and design of work*. Taylor & Francis, New York.

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Sodhi, H.S., &Sidhu, L.S. (1984). *Physique and selection of sports- a kinanthropometric study*. Patiala: Punjab Publishing House.

Semester – IV
Theory Courses

CC-402 KINESIOLOGY AND BIOMECHANICS

Unit – I Introduction to Kinesiology and Sports Biomechanics

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

Unit – II Fundamental Concept of Anatomy and

Physiology ○ Classification of Joints and Muscles

- Types of Muscle Contractions
- Posture–Meaning, Types and Importance of good posture.
- Fundamental concepts of following terms- Angle of Pull, All or None Law, Reciprocal Innovation

Unit – III Mechanical Concepts

- Force - Meaning, definition, types and its application to sports activities ○
- Lever - Meaning, definition, types and its application to human body.
- Newton's Laws of Motion–Meaning, definition and its application to sports activities.○Projectile–Factors influencing projectile trajectory.

Unit – IV Kinematics and Kinetics of Human Movement

- Linear Kinematics–Distance and Displacement, speed and velocity, Acceleration
- Angular kinematics – Angular Distance and Displacement, Angular Speed and velocity, Angular Acceleration.
- Linear Kinetics–Inertia, Mass, Momentum, Friction.○Angular Kinetics–Moment of inertia ,Couple, Stability.

Reference:

- Bunn, J. W. (1972). *Scientific principles of coaching*. Englewood Cliffs, N.J.: Prentice Hall Inc.
- Hay, J. G. & Reid, J. G.(1982). *The anatomical and mechanical basis of human motion*. Englewood Cliffs, N.J.: prentice Hall Inc.
- Hay, J. G. & Reid, J. G.(1988). *Anatomy, mechanics and human motion*. Englewood Cliffs, N.J.: prentice Hall Inc.
- Hay, J. G. (1970). *The biomechanics of sports techniques*. Englewood Cliffs, N.J.: Prentice Hall, Inc.
- Madiwale, M.S. (2014) *Kinesiology*. Nagpur: Amit Brothers Publications
- Choudhary, S., Awasare, V., Datarkar, V., Bhadra, T.(2015) *Kinesiology/Biomechanics made Easy*. Sholapur (M.S.) WizcraftPublications and Distribution Pvt. Ltd.
- Simonian, C.(1911). *Fundamentalsof sport biomechanics*. Englewood Cliffs, N.J.: Prentice Hall Inc.

Semester – IV
Theory Courses
CC-403 RESEARCH AND STATISTICS IN PHYSICAL EDUCATION

Unit-I Introduction to Research

- Definition of Research
- Need and importance of Research in Physical Education and Sports.
- Scope of Research in Physical Education & Sports.
- Classification of Research
- Research Problem, Meaning of the term, Location and criteria of Selection of Problem, Formulation of a Research Problem, Limitations and Delimitations.

Unit-II Survey of Related Literature

- Need for surveying related literature.
- Literature Sources, Library Reading
- Research Proposal, Meaning and Significance of Research Proposal.
- Preparation of Research proposal / project.
- Research Report: A group project is to be undertaken by a small batch of students under the supervision of a teacher, wherein it is expected to survey school facilities of physical education, health assessment programme evaluation, fitness status of the students, staff and other stakeholders etc. and submit the report to the institution.

Unit-III Basics of Statistical Analysis

- Statistics: Meaning, Definition, Nature and Importance
- Class Intervals: Raw Score, Continuous and Discrete Series, Class Distribution, Construction of Tables
- Graphical Presentation of Class Distribution: Histogram, Frequency Polygon, Frequency Curve. Cumulative Frequency Polygon, Ogive, Pie Diagram

Unit- IV Statistical Models in Physical Education and Sports

- Measures of Central Tendency: Mean, Median and Mode-Meaning, Definition, Importance, Advantages, Disadvantages and Calculation from Group and Ungrouped data
- Measures of Variability: Meaning, importance, computing from group and ungroup data
- Percentiles and Quartiles: Meaning, importance, computing from group and ungroup data

References:

Best, J.W. (1963). *Research in education*. U.S.A.: Prentice Hall.

Bompa, T. O. & Haff, G. G. (2009). *Periodization: theory and methodology of training*, 5th ed. Champaign, IL: Human Kinetics.

Brown, L. E., & Ferrigno, V. A. (2005). *Training for speed, agility and quickness*, 2nd ed. Champaign, IL: Human Kinetics.

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- Carl, E. K., & Daniel, D. A. (1969). *Modern principles of athletes training*. St. Louis: St. Louis's Mosby Company.
- Clark, H. H., & Clark, D. H. (1975). *Research process in physical education*. Englewood cliffs, New Jersey: Prentice Hall, Inc.
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- Uppal, A. K. (1990). *Physical fitness: how to develop*. New Delhi: Friends Publication.
- Verma, J. P. (2000). *A text book on sports statistics*. Gwalior: Venus Publications.

Semester – IV
Theory Courses

EC-401 THEORY OF SPORTS AND GAMES (ELECTIVE)

UNIT-I INTRODUCTION

General Introduction of specialized games and sports– ○

Athletics,

- Badminton,
- Basketball, ○

Cricket,

- Football,
- Gymnastic, ○

Hockey,

- Handball,
- Kabaddi,
- Kho-Kho,
- Tennis,
- Volleyball and
- Yoga.

Each game or sports to be dealt under the following heads

- History and development of the Game and Sports ○

Ground preparation, dimensions and

marking ○ Standard equipment and their
specifications ○ Ethics of sports and
sportsmanship

UNIT-II Scientific Principles of coaching: (particular sports and game specific)

- Motion – Types of motion and Displacement, Speed, Velocity, Acceleration, Distance and Newton's Law of motions.
- Force–Friction, Centripetal and Centrifugal force, Principles of force. ○ Equilibrium and its types
- Lever and its types
- Sports Training–Aims, Principles and characteristics.
- Training load–Components, Principles of load, Over Load (causes and symptoms).

UNIT-III Physical fitness components: (particular sports and game specific)

○ Speed and its

types ○ Strength and
its types

○ Endurance and its

types ○ Flexibility and
its types

○ Coordinative ability and its types

- Training methods: - Development of components of physical fitness and motor fitness through following training methods (continuous method, interval method, circuit method, fartlek /speed play and weight training)

UNIT-IV Conditioning exercises and warming up.

- Concept of Conditioning and warming up.
- Role of weight training in games and sports.
- Teaching of fundamental skill & their mastery (technique, tactic and different phases of skill acquisition).
- Recreational and Lead up games
- Strategy–Offence and defense, Principles of offence and defense.

References:

Bunn, J. W. (1968). *The art of officiating sports*. Englewood cliffs N.J. Prentice Hall.

Bunn, J. W. (1972). *Scientific principles of coaching*. Englewood cliffs N. J. Prentice

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Semester – IV

Theory Courses

EC-402 SPORTS MANAGEMENT

Unit-I

- **Nature and Concept of Sports Management.**
- **Progressive concept of Sports management.**
- **The purpose and scope of Sports Management.**
- **Essential skills of Sports Management.**
- **Qualities and competencies required for the Sports Manager.**
- **Event Management in physical education and sports.**

Unit-II

- **Meaning and Definition of leadership**
- **Leadership style and method.**
- **Elements of leadership.**
- **Forms of Leadership.**
 - **Autocratic**
 - **Laissez-faire**
 - **Democratic**
 - **Benevolent Dictator**
- **Qualities of administrative leader.**
- **Preparation of administrative leader.**
- **Leadership and Organizational performance.**

Unit-III

- **Sports Management in Schools, colleges and Universities.**
- **Factors affecting planning**
- **Planning a school or college sports programme.**
- **Directing of school or college sports programme.**
- **Controlling a school, college and university sports programme.**
 - **Developing performance standard**
 - **Establishing a reporting system**
 - **Evaluation**
 - **The reward/punishment system**

Unit-IV

- **Financial management in Physical Education & sports in schools, Colleges and Universities.**
- **Budget–Importance, Criteria of good budget, Steps of Budget making**
- **Principles of budgeting**

REFERENCES:

- Ashton, D. (1968). *Administration of physical education for women*. New York: The Ronal Press Cl.
- Bucher, C.A. *Administration of physical education and athletic programme*. 7th Edition, St. Louis: The C.V. Mosby Co.
- Daughtrey, G. & Woods, J.B. (1976). *Physical education and intramural programmes, organisation and administration*. Philadelphia U.S.A. : W.B. Saunders Cp.
- Earl, F. Z, & Gary, W. B. (1963). *Management competency development in sports and physicaleducation*. Philadelphia: W. Lea and Febiger.

Part – B
Practical Courses
Semester – I

PC - 101

Track and Field:

Running Event

- Starting techniques: Standing start, Crouch start and its variations, Proper use of blocks.
- Finishing Techniques: Run, Through, Forward lunging, Shoulder Shrug
- Ground Marking, Rules and Officiating
- Hurdles:
 - Fundamental Skills- Starting, Clearance and Landing Techniques.
 - Types of Hurdles
 - Ground Marking and Officiating.

Relays: Fundamental Skills

- Various patterns of Baton Exchange
- Understanding of Relay Zones
- Ground Marking
- Interpretation of Rules and Officiating.

PC 102

Gymnastics: Floor Exercise

- Forward Roll, Backward Roll, Sideward Roll, different kinds of scales, Leg Split, Bridge, Dancing steps, Head stand, Jumps-leap, scissors leap.
- Vaulting Horse
- Approach Run, Take off from the vault board, Cat Vault, Squat Vault.

PC – 102

Swimming: Fundamental Skills

- Entry into the pool.
- Developing water balance and confidence
- Water fear removing drills.
- Floating-Mushroom and Jelly fish etc.
- Gliding with and without kickboard.
- Introduction of various strokes
- Body Position, Leg, Kick, Arm pull, Breathing and Coordination.
- Start and turns of the concerned strokes.
- Introduction of Various Strokes.
- Water Treading and Simple Jumping.

- Starts and turns of concerned strokes.
- Rules of Competitive swimming-officials and their duties, pool specifications, seeding heats and finals, Rules of the races.

PC – 102

Shooting Fundamental Skills

- Basic stance, grip, Holding rifle/ Pistol, aiming target
- Safety issues related to rifle shooting
- Rules and their interpretations and duties of officials

(Any one out of three)

PC – 103 Indigenous sports:

Kabaddi: Fundamental Skills

- Skills in Raiding-Touching with hand, various kicks, crossing of baulk line, Crossing of Bonus line, luring the opponent to catch, Pursuing.
- Skills of Holding the Raider-Variations formations, Catching from particular position, Different catches, Luring the raider to take particular position so as to facilitate catching, catching formations and techniques.
- Additional skills in raiding-Bringing the antis in to particular position, Escaping from various holds, Techniques of escaping from chain formation, Combined formations in offence and defense.
- Ground Marking, Rules and Officiating

PC – 103

Malkhambh and Light Apparatus:

- Lathi-Two counts exercises, Four Count exercises, eight count exercises, sixteen count exercises.
- GhatiLezuim-AathAawaaz, Bethakawaaz, AagePaon, Aagekadam, Do pherawaaz, Chaupherawaaz, Kadamtal, Pavitra, Uchhakpavitra, Kadampavitra.
- Mass P.T. Exercises-Two count, four count and eight count exercises.
- Hindustani Lezuim-Char Awaaz, EkJagah, AantiLagaav, Pavitra, Do Rukh, ChauRukh, Chaurukhbethak, Momiya.
- Drill and Marching
- Malkhamb-Salaami, Hold, Saadiudi, Bagaludi, Dashrangudi, Bagliudi, Veludi, Soyodoro, Phirki, Padmasana, T.Balance, Pataka, Landing.
- Rope Malkhamb-Salaami, PadmasanaChadh, Katibandh1-2, Sadiadhi, Rikebpakkad, Rikebpagniadhi, Kamaradhi, Nakkikasadhi, Kamaradhi, Nakkikasadhi, Urubandhtedhi, Sadibagli, Do hatibagli, Kamarbandhbagli, nakkikasbagli, Dashrang, Hanuman pakad, Gurupakkad, various padmasana, Landing.

PC - 104

KhoKho:

- General skills of the game-Running, chasing, Dodging, Faking etc.
- Skills in chasing-Correct Kho, Moving on the lanes, Pursuing the runner, Tapping the inactive runner, Tapping the runner on heels, Tapping on the pole, Diving, Judgement in giving Kho, Rectification of Foul.
- Skills in Running-Zigzag running, Single and double chain, Ring play, Rolling in the sides, Dodging while facing and on the back, fakes on the pole, fake legs, body arm etc, Combination of different skills.
- Ground Marking
- Rules and their interpretations and duties of officials.

PC – 104

Dumbbells/ Wands/ Hoop/ Umbrella/ Tipri: Fundamentals skills

- Apparatus/ Light apparatus Grip
- Attention with apparatus/ Light apparatus
- Stand-at-ease with apparatus/ light apparatus
- Exercise with verbal command, drum, whistle and music – Two count, Four count, Eight count and Sixteen count.
- Standing Exercise
- Jumping Exercise
- Moving Exercise
- Combination of above all

Semester –

II PC – 201

Track and Field

Athletics: Jumping Events

- High Jump (Straddle Roll)
- Approach Run,
- Take off
- Clearance over the bar.
- Landing

PC – 202

Gymnastics:

- **Parallel Bar:**
 - **Mount from one bar**
 - **Straddle walking on parallel bars.**
 - **Single and double step walk**
 - **Perfect swing**
 - **Shoulder stand on one bar and roll forward.**
 - **Roll side**
 - **Shoulder stand**
 - **Front on back vault to the side(dismount)**

Horizontal /Single Bar:

- **Grip**
- **Swings**
- **Fundamental Elements**
- **Dismount**
- **Uneven Parallal Bar:**

Grip

- **Swings**
- **Fundamental Elements**
- **Dismount**

PC – 202

Yoga:

- **SuryaNamaskara,**
- **Pranayams**
- **CorrectiveAsanas**
- **Kriyas**
- **Asanas**
 - **Sitting**
 - **Standing**
 - **Laying Prone Position,**
 - **Laying Spine Position**

PC – 202

Swimming:

Introduction of water polo game

- **Fundamental skills** ○
- Swimm with the ball** ○
- Passing**
- **Catching**
- **Shooting**
- **Goal keeping**
- **Rules of the games and responsibility of officials**
Introduction of Diving sports.
- **Basic Diving Skills from spring boards**
- **Basic Diving Skills from platform**

PC – 202

Aerobics: Introduction of Aerobics

- **Rhythmic Aerobics - dance**
- **Low impact aerobics** ○
- High impact aerobics** ○
- Aerobics kick boxing**
- **Postures–Warm up and cool down**
- **THR Zone – Being successful in exercise and adaptation to aerobic workout.**

PC - 203

Badminton: Fundamental Skills

- **Racket parts, Racket grips,**
Shuttle Grips.○ **The basic stances.**
- **The basic strokes-Serves, Forehand-overhead and underarm, Backhand-overhead and underarm**
- **Drills and lead up games**
- **Types of games-Singles, doubles, including mixed**
doubles.○ **Rules and their interpretations and duties of officials.**

PC - 203

Table Tennis: Fundamental Skills

- The Grip-The Tennis Grip, Pen Holder Grip.
- Service-Forehand, Backhand, Side Spin, High Toss.
- Strokes-Push, Chop, Drive, Half Volley, Smash, Drop-shot, Balloon, Flick Shot, Loop Drive.
- Stance and Ready position and foot work.
- Rules and their interpretations and duties of officials.

PC – 203

Squash Fundamental Skills

- Service- Under hand and Over hand ○
- Service Reception
- Shot- Down the line, Cross Court ○
- Drop
- Half Volley
- Tactics–Defensive, attacking in game
- Rules and their interpretations and duties of officials.

PC – 203

Tennis: Fundamental Skills.

- Grips- Eastern Forehand grip and Backhand grip, Western grip, Continental grip, Chopper grip.
- Stance and Footwork.
- Basic Ground strokes- Forehand drive, Backhand drive.○Basic service.
- Basic Volley.
- Over-head Volley.○Chop
- Tactics–Defensive, attacking in game
- Rules and their interpretations and duties of officials.

Semester – III

PC – 301

Track and fields (Throwing Events)

- Discus Throw, Javelin, Hammer throw, shot-put
- Basic Skills and techniques of the Throwing events ○

Ground Marking / Sector Marking

- Interpretation of Rules and

Officiating. ○ Grip

- Stance
- Release
- Reserve/ (Follow through action)
- Rules and their interpretations and duties of officials

PC – 302

Boxing: Fundamental Skills

- Player stance
- Stance - Right hand stance, left hand stance. ○ Footwork—Attack, defense.
- Punches—Jab, cross, hook, upper cut, combinations.
- Defense slip—bob and weave, parry/block, cover up, clinch, counter attack ○
- Tactics—Toe to toe, counter attack, fighting in close, feinting ○
- Rules and their interpretations and duties of officials.

PC – 302

Martial Arts/Karate: Fundamental Skills

- Player Stances—walking, hand positions, front-leaning, side-fighting.
- Hand Techniques - Punches (form of a punch, straight punch, and reverse punch), Blocks (eight basic).
- Leg Techniques - Snap kicks, stretching straight leg, thrust kicks, sidekicks, round house. ○ Forms - The first cause Katas.
- Self Defense - against punches, grabs and strikes, against basic weapons (knife, club sticks).
- Sparring - One step for middle punch, high punch and groin punch. (Defended by appropriate block from eight basic blocks).
- Rules and their interpretations and duties of officials.

PC – 302

Taekwondo Fundamental Skills

- Player Stances–walking, extending walking, L stance, cat stance.
- Fundamental Skills–Sitting stance punch, single punch, double punch, triple punch.
- Punching Skill from sparring position – front-fist punch, rear fist punch, double punch, and four combination punch.
- Foot Techniques (Balgisul) – standing kick (soseochagi), Front kick (AP chagi), Arc kick (BandalChagi), Side kick, (YeopChagi), Turning kick (DollyoChagi), Back kick (Twit Chagi), Reverse turning kick (BandaedollyoChagi), Jump kick (TwimyoChagi),
- Poomsae (Forms) – Jang, Yi Jang, Sam Jang, Sa Jang, O Jang, Yook Jang, Chil Jang, Pal Jang (Fundamental Movement – eye control, concentration of spirit, speed control, strength control, flexibility, balance, variety in techniques)
- Sparring (Kyorugi) – One Step Sparring (hand techniques, foot techniques, self defense techniques, combination kicks), Free Sparring.
- Board Breaking (Kyokpa)–eye control, balance, power control, speed, point of attack.
- Rules and their interpretations and duties of officials.

PC – 302

Judo: Fundamental skills

- Rei (Salutation)-Ritsurei(Salutation in standing position), Zarai (Salutation in the sitting position)
- Kumi kata (Methods of holding judo costume) ○
- Shisei (Posture in Judo)
- Kuzushi (Act of disturbing the opponent posture) ○
- Tsukuri and kake (Preparatory action for attack)
- Ukemi (Break Fall)-UrhiroUkemi (Rear break Fall), Yoko Ukemi (Side Break Fall), Mae Ukemi (Front Break Fall), Mae mawariUkemi (Front Rolling break fall)
- Shin Tai (Advance or retreat foot movement)-Suri-ashi (Gliding foot), Twugi-ashi (Following footsteps), Ayumi-ashi (Waling steps).
- TaiSabaki (Management of the body)
- NageWaze (Throwing techniques)-HizaGuruma (Knee wheel), SesaeTwurikomi-ashi (Drawing ankle throw), De ashihari (Advance foot sweep), O Goshi (Major loin), SeoiNage (Shoulder throw).
- Katamawaze(Grappling techniques)-Kesagatame (Scaff hold), Kata gatame (Shoulder hold), Kami shihogatama (Locking of upper four quarters), Method of escaping from each hold.

PC – 302

Wrestling: Fundamental Skills

- Take downs, Leg tackles, Arm drag. ○ Counters for take downs, Cross face, Whizzer series. ○ Escapes from under-sit-out turn in tripped.
- Counters for escapes from under-Basic control back drop, Counters for stand up.
- Pinning combination-Nelson series(Half Nelson, Half Nelson and Bar arm), Leg lift series, Leg cradle series, Reverse double bar arm, chicken wing and half Nelson.
- Escapes from pinning: Wing lock series, Double arm lock roll, Cridge. ○ Standing Wrestling-Head under arm series, whizzer series ○ Referees positions.

PC – 302

Fencing: Fundamental Skill

- Basic Stance - on-guard position (feet and legs) ○
- Footwork—advance, retire, lunge, Step-lunge
- Grip—hold a foil correctly, Etiquette—salute and handshake to coaches and partners ○
- Hit a target (glove, mask, person) at riposte distance
- Lunge from an on-guard position.
- Attack - simple attacks from sixte – direct, disengage, doublé attack, compound attacks high line – one-two and cut-over disengage, Cut-over attack, Low line attacks
- Semi circular parries—octave and septime ○
- Understand the layout of a piste. ○ Compound or successive parries. ○ Lateral parry and direct riposte
- Fence a bout—judges etc. salutes and handshakes
- Rules and their interpretations and duties of officials.

PC 303 Team Games

PC 303

Base Ball Fundamental Skills

- Player Stances—walking, extending walking, L stance, cat stance. ○ Grip—standard grip, choke grip,
- Batting—swing and bunt. ○ Pitching—

- **Baseball** : slider, fast pitch, curve ball, drop ball, rise ball, change up, knuckle ball, screw ball,
- **Softball**: windmill, sling shot, ○
- starting position**: wind up,
- set.**○ **Fielding**–
- **Catching**: basics to catch fly hits, rolling hits, ○
- Throwing**: over arm, side arm.
- **Base running**–
- **Base running**: single, double, triple, home run,
- **Sliding**: bent leg slide, hook slide, head first slide.
- **Rules and their interpretations and duties of officials.**

PC 303

Netball: Fundamental Skills

- **Catching**: one handed, two handed, with feet grounded, in flight.
- **Throwing** (different passes and their uses): one handed passes (shoulder, high shoulder, underarm, bounce, lob); two handed passes (push, overhead, bounce).
- **Footwork**: landing on one foot; landing on two feet; pivot; running
- pass.**○ **Shooting**: one hand; two hands; forward step shot; backward
- step shot.**
- **Techniques of getting free**: dodge and sprint; sudden sprint; sprint and stop; sprinting with change of speed.
- **Defending**: marking the player; marking the ball; blocking; inside the circle; outside the circle (that is, defending the circle edge against the pass in).
- **Intercepting**: pass;
- shot.**○ **The toss-up.**
- **Role of individual players**
- **Rules and their interpretations and duties of officials.**

PC – 303

Cricket: Fundamental Skills

- **Batting**-Forward and backward defensive stroke ○
- Bowling**-Simple bowling techniques
- **Fielding**-Defensive and offensive fielding ○
- Catching**-High catching and Slip catching ○
- Stopping and throwing techniques**
- **Wicket keeping techniques**

PC 303

Football: Fundamental Skills

- Kicks-Inside kick, Instep kick, Outer instep kick, lofted kick
- Trapping-trapping rolling the ball, trapping bouncing ball with sole ○
- Dribbling-With instep, inside and outer instep of the foot. ○Heading-From standing, running and jumping.○Throw in
- Feinting-With the lower limb and upper part of the body.○Tackling-Simple tackling, Slide tackling.
- Goal Keeping-Collection of balls, Ball clearance-kicking, throwing and deflecting.

PC 303

Hockey: Fundamental Skills

- Player stance & Grip○Rolling the ball ○Dribbling ○
- Push
- Stopping
- Hit
- Flick
- Scoop
- Passing–Forward pass, square pass, triangular pass, diagonal pass, return pass, ○ Reverse hit
- Dodging
- Goal keeping–Hand defence, foot defence ○
- Positional play in attack and defense. ○Rules and their interpretations and duties of officials.○Rules and their interpretations and duties of officials.
- Ground Marking.

PC – 303

Softball Fundamental Skills

- Catching: one handed, two handed, with feet grounded, in flight.
- Throwing (different passes and their uses): one handed passes (shoulder, high shoulder, underarm, bounce, lob); two handed passes (push, overhead, bounce).
- Footwork: landing on one foot; landing on two feet; pivot; running pass.○Shooting: one hand; two hands; forward step shot; backward step shot.

- Techniques of getting free: dodge and sprint; sudden sprint; sprint and stop; sprinting with change of speed.
- Defending: marking the player; marking the ball; blocking; inside the circle; outside the circle (that is, defending the circle edge against the pass in).
- Intercepting: pass; shot.
- The toss-up.
- Role of individual players
- Rules and their interpretations and duties of officials.

PC 303

Volleyball: Fundamental Skills

- Players Stance-Receiving the ball and passing to the team mates,
 - The Volley (Over head pass),
 - The Dig(Under hand pass).
 - Service-Under Arm Service, Side Arm Service, Tennis Service, Round Arm Service.
- Rules and their interpretations and duties of officials. PC - 303

Hand Ball:

- Fundamental Skills-Catching, Throwing, Ball Control, Goal Throws-Jump Shot, Centre Shot, Dive Shot, Reverse Shot, Dribbling-High and Low, Attack and Counter Attack, Simple Counter Attack, Counter Attack from two wings and centre, Blocking, Goal keeping, Defense.
- Rules and their interpretations and duties of officials.

PC – 303

Basket ball: Fundamental Skills

- Player stance and ball handling
- Passing-Two Hand chest pass, Two hand Bounce Pass, One Hand Base ball pass, Side Arm Pass, Over Head pass, Hook Pass.
- Receiving-Two Hand receiving, One hand receiving, Receiving in stationary position, Receiving while jumping, Receiving while running.
- Dribbling-How to start dribble, How to drop dribble, High dribble, Low dribble, Reverse dribble, Rolling dribble.
- Shooting-Layup shot and its variations, one hand set shot, One hand jump shot, Hook shot, Free throw.
- Rebounding-Defensive rebound, Offensive rebound, Knock out, Rebound Organization.
- Individual Defensive-Guarding the man with the ball and without the ball.
- Pivoting.
- Rules and their interpretations and duties of the officials.

TP – 201 Teaching practices:

10 teaching practice lessons out of which 5 lessons in class-room situation and 5

lessons for out-door activities within premises on the students of B.P.Ed course.

TP – 301 Teaching practices:

10 teaching lesson plans for Racket Sport/ Team Games/ Indigenous Sports out of which 5 lessons internal and 5 lessons external at school.

TP – 401 Sports Specialization: Track and field / Gymnastics / Swimming (4 internal lesson at practicing school and 1 final external lesson on the students of

practicing school as a sports specialization of any discipline mentioned above.)

TP- 402 Games Specialization: Kabaddi, Kho-kho, Base ball, cricket, Football, Hockey, Softball Volleyball, Handball, Basketball, Netball, Badminton, Table Tennis, Squash, Tennis

(4 internal lesson at practicing school and 1 final external lesson on the students of

practicing school as a games specialization of any discipline mentioned above.)

Note: Where ever details of any activities are not mentioned, it is expected to elaborate skills by the competent bodies of local Universities.