**DEPARTMENT OF PHYSICAL EDUCATION**

UNIVERSITY OF LUCKNOW

*CBCS Syllabus for M.P.Ed. Programme*

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| --- | --- | --- | --- |
| **Course No.** | **Name of the Course** | **Credit** | **Remark** |
|  | **Semester I** |  |  |
| MPCC 101(Master of Physical Education Core Course)  | Research Process in Physical Education | 04 | Core Course |
| MPCC 102(Master of Physical Education Core Course) | Physiology of Exercise | 04 | Core Course |
| MPCC 103(Master of Physical Education Core Course) | Running Events: Sprint, Middle &Long Distance Running, Long Jump, High Jump (Performance in any one from Running + 2 Jumping Events ) | 04 | Core Course |
| MPCC 104(Master of Physical Education Core Course) | Games Specialization- I (2nd Best) (Individual Skills, Game Situation, Officiating, Lead Up Games ) | 04 | Core Course |
| MPCC 105(Master of Physical Education Core Course) | Class Room Teaching Lessons | 04 | Core Course |
| MPVC 101(Master of Physical Education Value Added Course) | Yogic Sciences | 04 | Value Added Course (Credited) |
|  | Semester Total | 24 |  |
|  | **Semester II** |  |  |
| MPCC 201(Master of Physical Education Core Course) | Statistics In Physical Education | 04 | Core Course |
| MPCC 202Master of Physical Education Core Course | Sports Biomechanics & Kinesiology | 04 | Core Course |
| MPCC 203(Master of Physical Education Core Course) | Athletic Care And Rehabilitation  | 04 | Core Course |
| MPCC 204(Master of Physical Education Core Course) | Throwing Events: Shot Put, Discus Throw, Javelin Throw (Performance in Any Two Events) | 04 | Core Course |
| MPCC 205(Master of Physical Education Core Course) | Games Specialization- I (3rd Best) (Individual Skills, Game Situation, Officiating, Lead Up Games ) | 04 | Core Course |
| MPCC 206(Master of Physical Education Core Course) | Teaching Lessons of Track & Field & Game Specializations | 04 | Core Course |
| MPVNC 201(Master of Physical Education Value Added Non-Credited) | Value & Environmental Education | 00 | Value Added Course(Non Credited) |
|  | Semester Total | 24 |  |

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|  | **Semester III** |  |  |
| MPCC 301 (Master of Physical Education Core Course/ MOOCS) | Officiating Lessons of Track & Field & Game Specializations | 04 | Core Course/MOOCS |
| MPCC 302(Master of Physical Education Core Course) | Jumping Events: Relay, Triple Jump, Pole Vault (Performance in any Two Events)Games Specialization- I (4th Best) (Individual Skills, Game Situation, Officiating, Lead Up Games ) | 04 | Core Course |
| MPEL 301A/B/C(Master of Physical Education Elective) | Test, Measurement & Evaluation/ Sports Medicine / Scientific Principle of Sports Training | 04 | Elective |
| MPEL 302A/B/C(Master of Physical Education Elective) | Sports Journalism/ Sports Management & Curriculum/Physical Fitness and Wellness | 04 | Elective |
| MPIN 301(Master of Physical Education Summer Internship) | Internship | 04 | Summer Internship |
| MPIER 301(Master of Physical EducationInterdepartmental Course) | Exercise Physiology/Statistics/ Sports Biomechanics/ICT/ Sports Engineering / History & Principles in Physical Education (Ancient, Western, Modern) | 04 | Interdepartmental Course |
|  | Semester Total | 24 |  |

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|  | **Semester IV** |  |  |
| MPCC 401(Master of Physical EducationCore Course) | Coaching Lessons of Track & Field & Game Specializations | 04 | Core Course |
| MPEL 401A/B(Master of Physical Education Elective) | Sports Psychology/ Sports Engineering | 04 | Elective |
| MPEL 402A/B(Master of Physical Education Elective) | ICT/ Educational & Sports Technology | 04 | Elective |
| MPMT 401(Master of Physical Education Master Thesis) | Dissertation | 08 | Master Thesis |
| MPIRA 401(Master of Physical EducationIntradepartmental Course) | Track & Field: Javelin Throw, Hammer Throw, Hurdles (Performance in any Two Events)Games Specialization- I (1st Best) (Individual Skills, Game Situation, Officiating, Lead Up Games ) | 04 | Intradepartmental Course |
|  | Semester Total | 24 |  |
|  | **GRAND TOTAL** | **96** |  |

**Programme Outcome**

* To integrate the study of childhood, Social context of Physical Education, Subject Knowledge, Pedagogical Knowledge, aim of Physical Education and Communication Skills.
* It provides compulsory and optional theory as well as practical course and compulsory school internship in various academic bodies**.**

**Programme Specific Outcomes**

* It is professional programme for preparing Physical Education Programme for Senior Secondary Level as well as Assistant Professor/ Directors/Sports Officer in colleges/Universities.
* Upon pursuing this program, Individual is able to work as a TGT/PGT teacher in Senior Secondary School, as an Assistant Professor, Qualified to pursue NET-JRF Examination and Ph.D. program of various Universities, Able to open Health Club, Gymnasium, Trainer, Fitness Center, Yoga Specialist, Physiotherapist, Sports Journalist, Sports Event Manager etc.

**Course Outcome**

* **M.P.Ed.**

 **Master of Physical Education**

It is Two year (04 Semester) Professional Degree Course after B.P.Ed. having aim to prepare Teacher at Senior Secondary level school/colleges, Degree colleges and Universities. It trains individual to pursue Research and Doctoral Program after M.Phil/Ph.D. It is a mandatory qualification for being a teacher in higher education as a professional course.

Inter & Intra-Disciplinary Approach

The Aforesaid course has scope for various subjects of other discipline as the curriculum has inclusive approach for other discipline’s men to work here; moreover this course directly dealing Human in a direct manner, so for conducting the interdisciplinary research to access true data, this course have vast used other subject’s students.

 The inter and intra-disciplinary subjects like Exercise Physiology/Statistics/ Sports Biomechanics/ICT/ Sports Engineering / History & Principles in Physical Education (Ancient, Western, Modern).etc. can have universal use in this course.

**MPCC 103**

**(Master of Physical Education Core Course**)

 Running Events: Sprint, Middle &Long Distance Running, Long Jump, High Jump (Performance in any one from Running + 2 Jumping Events

**MPCC 104**

**(Master of Physical Education Core Course)**

Games Specialization- I (2nd Best) (Individual Skills, Game Situation, Officiating, Lead Up Games )

**MPCC 105**

**(Master of Physical Education Core Course)**

Class Room Teaching Lessons

**MPCC 204**

**(Master of Physical Education Core Course**)

Throwing Events: Shot Put, Discus Throw, Javelin Throw (Performance in Any Two Events)

**MPCC 205**

**(Master of Physical Education Core Course)**

Games Specialization- I (3rd Best) (Individual Skills, Game Situation, Officiating, Lead Up Games )

**MPCC 206**

**(Master of Physical Education Core Course)**

Teaching Lessons of Track & Field & Game Specializations

**MPCC 301**

 **(Master of Physical Education Core Course/ MOOCS)**

Officiating Lessons of Track & Field & Game Specializations

**MPCC 302**

**(Master of Physical Education Core Course)**

Jumping Events: Relay, Triple Jump, Pole Vault (Performance in any Two Events)

Games Specialization- I (4th Best) (Individual Skills, Game Situation, Officiating, Lead Up Games )

**MPCC 401**

**(Master of Physical Education Core Course)**

Coaching Lessons of Track & Field & Game Specializations

**MPIRA 401**

**(Master of Physical Education Intradepartmental Course)**

Track & Field: Javelin Throw, Hammer Throw, Hurdles (Performance in any Two Events)

Games Specialization- I (1st Best) (Individual Skills, Game Situation, Officiating, Lead Up Games )

**Note:- All above according to N.C.T.E. extra ordinary gazette 2014.**

**Semester -I**

**CORE COURSE**

**MPCC-101 RESEARCH PROCESS IN PHYSICAL EDUCATION**

**UNIT I –** Introduction Meaning and Definition of Research – Need, Nature and Scope of research in Physical Education. Classification of Research, Location of Research Problem, Criteria for selection of a problem, Qualities of a good researcher.

**UNIT II –** Methods of Research Descriptive Methods of Research; Survey Study, Case study, Introduction of Historical Research, Steps in Historical Research, Sources of Historical Research: Primary Data and Secondary Data, Historical Criticism: Internal Criticism and External Criticism.

**UNIT III –** Experimental Research Experimental Research – Meaning, Nature and Importance, Meaning of Variable, Types of Variables. Experimental Design - Single Group Design, Reverse Group Design, Repeated Measure Design, Static Group Comparison Design, Equated Group Design, Factorial Design.

**UNIT IV –** Sampling Meaning and Definition of Sample and Population. Types of Sampling; Probability Methods; Systematic Sampling, Cluster sampling, Stratified Sampling. Area Sampling – Multistage Sampling. Non- Probability Methods; Convenience Sample, Judgement Sampling, Quota Sampling.

**UNIT V –** Research Proposal and Report Chapterization of Thesis / Dissertation, Front Materials, Body of Thesis – Back materials. Method of Writing Research proposal, Thesis / Dissertation; Method of writing abstract and full paper for presenting in a conference and to publish in journals ,Mechanics of writing Research Report, Footnote and Bibliography writing.

 **REFERENCE :**

Best J. W (1971) Research in Education, New Jersey; Prentice Hall, Inc

 Clarke David. H & Clarke H, Harrison (1984) Research processes in Physical Education, New Jersey; Prentice Hall Inc.

Craig Williams and Chris Wragg (2006) Data Analysis and Research for Sport and Exercise Science, Londonl Routledge Press

 Jerry R Thomas & Jack K Nelson (2000) Research Methods in Physical Activities; Illonosis; Human Kinetics;

 Kamlesh, M. L. (1999) Reserach Methodology in Physical Education and Sports, New Delhi Moses, A. K. (1995) Thesis Writing Format, Chennai; Poompugar Pathippagam

Rothstain, A (1985) Research Design and Statistics for Physical Education, Englewood

Cliffs: Prentice Hall, Inc

 Subramanian, R, Thirumalai Kumar S & Arumugam C (2010) Research Methods in Health,

Physical Education and Sports, New Delhi; Friends Publication Moorthy A. M. Research Processes in Physical Education (2010); Friend Publication, New Delhi

**Semester I**

**CORE COURSE**

**MPCC-102 PHYSIOLOGY OF EXERCISE**

 UNIT I – Skeletal Muscles and Exercise Macro & Micro Structure of the Skeletal Muscle,Chemical Composition. Sliding Filament theory of Muscular Contraction. Types of Muscle fibre. Muscle Tone, Chemistry of Muscular Contraction – Heat Production in the Muscle, Effect of exercises and training on the muscular system.

UNIT II – Cardiovascular System and Exercise Heart Valves and Direction of the Blood Flow – Conduction System of the Heart – Blood Supply to the Heart – Cardiac Cycle – Stroke Volume – Cardiac Output – Heart Rate – Factors Affecting Heart Rate – Cardiac Hypertrophy – Effect of exercises and training on the Cardio vascular system.

UNIT III – Respiratory System and Exercise Mechanics of Breathing – Respiratory Muscles, Minute Ventilation – Ventilation at Rest and During Exercise. Diffusion of Gases – Exchange of Gases in the Lungs –Exchange of Gases in the Tissues – Control of Ventilation – Ventilation and the Anaerobic Threshold. Oxygen Debt – Lung Volumes and Capacities – Effect of exercises and training on the respiratory system.

UNIT IV – Metabolism and Energy Transfer Metabolism – ATP – PC or Phosphagen System – Anaerobic Metabolism – Aerobic Metabolism – Aerobic and Anaerobic Systems during Rest and Exercise. Short Duration High Intensity Exercises – High Intensity Exercise Lasting Several Minutes – Long Duration Exercises.

UNIT V – Climatic conditions and sports performance and ergogenic aids Variation in Temperature and Humidity – Thermoregulation – Sports performance in hot climate, Cool Climate, high altitude. Influence of: Amphetamine, Anabolic steroids, Androstenedione, Beta Blocker, Choline, Creatine, Human growth hormone on sports performance. Narcotic, Stimulants: Amphetamines, Caffeine, Ephedrine, Sympathomimetic amines. Stimulants and sports performance.

REFERENCES:

Amrit Kumar, R, Moses. (1995). Introduction to Exercise Physiology. Madras: Poompugar Pathipagam.

Beotra Alka, (2000) Drug Education Handbook on Drug Abuse in Sports: Sports Authority of India 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. 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.

**Semester I**

**VALUE ADDED COURSE (CREDITED)**

**MPVC-101 Yogic Sciences**

**Unit I –** Introduction Meaning and Definition of Yoga. Astanga Yoga: Yama, Niyama, Aasna, Pranayama, Prathyahara, Dharana, Dhyana, Samadhi, Concept of Yogic Practices; Principles of Breathing – Awareness – Relaxation, Sequence – Counter pose – Time – Place – Clothes – Bathing – Emptying the bowels – Stomach – Diet – No Straining – Age – Contra- Indication – Inverted asana – Sunbathing.

**Unit II –** Aasanas and Pranayam Loosening exercise: Techniques and benefits. Asanas: Types- Techniques and Benefits, Surya Namaskar: Methods and benefits. Pranayama: Types- Methods and benefits. Nadis: Meaning, methods and benefits, Chakras: Major Chakaras- Benefits of clearing and balancing Chakras.

**Unit III –** Kriyas Shat Kriyas- Meaning, Techniques and Benefits of Neti – Dhati – Kapalapathi- Trataka – Nauli – Basti, Bandhas: Meaning, Techniques and Benefits of Jalendra Bandha, Jihva Bandha, Uddiyana Bandha, Mula Bandha.

**Unit IV –** Mudras Meaning, Techniques and Benefits of Hasta Mudras, Asamyukta hastam, Samyukta hastam , Mana Mudra, Kaya Mudra, Banda Mudra, Adhara Mudra. Meditation: Meaning, Techiques and Benefits of Meditation – Passive and active, Saguna Meditation and Nirguna Meditation.

**Unit V –** Yoga and Sports Yoga Supplemental Exercise – Yoga Compensation Exercise – Yoga Regeneration ExercisePower Yoga. Role of Yoga in Psychological Preparation of athelete: Mental Welbeing, Anxiety, Depression Concentration, Self Actualization. Effect of Yoga on Physiological System: Circulatory, Skeletal, Digestive, Nervous, Respiratory, Excretory Syste.

**REFERENCE:**

George Feuerstein, (1975). Text Book of Yoga. London: Motilal Bansaridass Publishers (P) Ltd. Gore, (1990), Anatomy and Physiology of Yogac Practices. Lonavata: Kanchan Prkashan. Helen Purperhart (2004), The Yoga Adventure for Children. Netherlands: A Hunter House book. Iyengar, B.K.S. (2000), Light on Yoga. New Delhi: Harper Collins Publishers. Karbelkar N.V.(1993) Patanjal Yogasutra Bhashya (Marathi Edition) Amravati: Hanuman Vyayam Prasarak Mandal Kenghe. C.T. (1976). Yoga as Depth-Psychology and para-Psychology (Vol-I): Historical Background, Varanasi: Bharata Manishai. Kuvalyananada Swami & S.L. Vinekar, (1963), Yogic Therapy – Basic Principles and Methods. New Delhi: Govt. of India, Central Health Education and Bureau. Moorthy A.M. & Alagesan. S. (2004) Yoga Therapy. Coimbatore: Teachers Publication House. Swami Kuvalayanda, (1998), Asanas. Lonavala: Kaivalyadhama. Swami Satyananada Sarasvati. (1989), Asana Pranayama Mudra Bandha. Munger: Bihar School of Yoga. Swami Satyananda Saraswathi. (1984), Kundalini and Tantra, Bihar: Yoga Publications Trust. Swami Sivananda, (1971), The Science of Pranayama. Chennai: A Divine Life Society Publication. Thirumalai Kumar. S and Indira. S (2011) Yoga in Your Life, Chennai: The Parkar Publication. Tiwari O.P. (1998), Asanas-Why and How. Lonavala: Kaivalyadham. Dr. N. Jain- Yog Shiksha

**Semester II**

**CORE COURSE**

**MPCC-201 STATISTICS IN PHYSICAL EDUCATION**

**UNIT I –** Introduction Meaning and Definition of Statistics. Function, need and importance of Statistics. Types of Statistics. Meaning of the terms, Population, Sample, Data, types of data. Variables; Discrete, Continuous. Parametric and non-parametric statistics.

**UNIT II –** Data Classification, Tabulation and Measures of Central Tendency Meaning, uses and construction of frequency table. Meaning, Purpose, Calculation and advantages of Measures of central tendency – Mean, median and mode.

**UNIT III –** Measures of Dispersions and Scales Meaning, Purpose, Calculation and advances of Range, Quartile, Deviation, Mean Deviation, Standard Deviation, Probable Error. Meaning, Purpose, Calculation and advantages of scoring scales; Sigma scale, Z Scale, Hull scale

**UNIT IV –** Probability Distributions and Graphs Normal Curve. Meaning of probability- Principles of normal curve – Properties of normal curve. Divergence form normality – Skewness and Kurtosis. Graphical Representation in Statistics; Line diagram, Bar diagram, Histogram, Frequency Polygon, Ogive Curve.

**UNIT V –** Inferential and Comparative Statistics Tests of significance; Independent “t” test, Dependent “t” test – chi – square test, level of confidence and interpretation of data. Meaning of correlation – co-efficient of correlation – calculation of co-efficient of correlation by the product moment method and rank difference method. Concept of ANOVA and ANCOVA.

**REFERENCE:**

 Best J. W (1971) Research in Education, New Jersey; Prentice Hall, Inc Clark D.H. (1999) Research Problem in Physical Education 2nd edition, Eaglewood Cliffs, Prentice Hall, Inc. Jerry R Thomas & Jack K Nelson (2000) Research Methods in Physical Activities; Illonosis; Human Kinetics; Kamlesh, M. L. (1999) Reserach Methodology in Physical Education and Sports, New Delhi Rothstain A (1985) Research Design and Statistics for Physical Education, Englewood Cliffs: Prentice Hall, Inc Sivaramakrishnan. S. (2006) Statistics for Physical Education, Delhi; Friends Publication Thirumalaisamy (1998), Statistics in Physical Education, Karaikudi, Senthilkumar Publications. Dr. A.K. Shukla & Dr. N. Jain- Use of Statistics in Education & Physical Education.

**Semester II**

**CORE COURSE**

**MPCC-202 SPORTS BIOMECHANICS AND KINSESIOLOGY**

**UNIT I –** Introduction Meaning, nature, role and scope of Applied kinesiology and Sports Biomechanics. Meaning of Axis and Planes, Dynamics, Kinematics, Kinetics, Statics Centre of gravity -Line of gravity plane of the body and axis of motion, Vectors and Scalars.

**UNIT II –** Muscle Action Origin, Insertion and action of muscles: Pectoralis major and minor, Deltoid, Biceps, Triceps (Anterior and Posterior), Trapezius, serratus, Sartorius, Rectus femoris, Abdominis, Quadriceps, Hamstring, Gastrocnemius.

**UNIT III –** Motion and Force Meaning and definition of Motion. Types of Motion: Linear motion, angular motion, circular motion, uniform motion. Principals related to the law of Inertia, Law of acceleration, and law of counter force. Meaning and definition of force- Sources of force -Force components .Force applied at an angle - pressure -friction -Buoyancy, Spin - Centripetal force - Centrifugal force.

**UNIT IV –** Projectile and Lever Freely falling bodies -Projectiles -Equation of projectiles stability Factors influencing equilibrium - Guiding principles for stability -static and dynamic stability. Meaning of work, power, energy, kinetic energy and potential energy. Leverage -classes of lever - practical application. Water resistance - Air resistance -Aerodynamics.

**UNIT V –** Movement Analysis Analysis of Movement: Types of analysis: Kinesiological, Biomechanical. Cinematographic. Methods of analysis – Qualitative, Quantitative, Predictive

**REFERENCE:**

Deshpande S.H.(2002). Manav Kriya Vigyan – Kinesiology (Hindi Edition) Amravati :Hanuman Vyayam Prasarak Mandal. Hoffman S.J. Introduction to Kinesiology (Human Kinesiology publication In.2005. Steven Roy, & Richard Irvin. (1983). Sports Medicine. New Jersery: Prentice hall. Thomas. (2001). Manual of structural Kinesiology, New York: Me Graw Hill. Uppal A.K. Lawrence Mamta MP Kinesiology(Friends Publication India 2004) Uppal, A (2004), Kinesiology in Physical Education and Exercise Science, Delhi Friends publications. Williams M (1982) Biomechanics of Human Motion, Philadelphia; Saunders Co.

**Semester II**

**CORE COURSE**

**MPCC-203 ATHLETIC CARE AND REHABILITATION**

**Unit I –** Corrective Physical Education Definition and objectives of corrective physical Education. Posture and body mechanics, Standards of Standing Posture. Value of good posture, Drawbacks and causes of bed posture. Posture test – Examination of the spine.

**Unit II –** Posture Normal curve of the spine and its utility, Deviations in posture: Kyphosis, lordosis, flat back, Scoliosis, round shoulders, Knock Knee, Bow leg, Flat foot. Causes for deviations and treatment including exercises.

**Unit III –** Rehabilitation Exercises Passive, Active, Assisted, Resisted exercise for Rehabilitation, Stretching, PNF techniques and principles.

**Unit IV –** Massage Brief history of massage – Massage as an aid for relaxation – Points to be considered in giving massage – Physiological , Chemical, Psychological effects of massage – Indication / Contra indication of Massage – Classification of the manipulation used massage and their specific uses in the human body – Stroking manipulation: Effleurage – Pressure manipulation: Petrissage Kneading (Finger, Kneading, Circular) ironing Skin Rolling – Percussion manipulation: Tapotement, Hacking, Clapping, Beating, Pounding, Slapping, Cupping, Poking, Shaking Manipulation, Deep massage.

**Unit V –** Sports Injuries Care, Treatment and Support Principles pertaining to the prevention of Sports injuries – care and treatment of exposed and unexposed injuries in sports – Principles of apply cold and heat, infrared rays – Ultrasonic, Therapy – Short wave diathermy therapy. Principles and techniques of Strapping and Bandages. Note: Each student shall submit Physiotherapy record of attending the Clinic and observing the cases of athletic injuries and their treatment procedure.(To be assessed internally)

**REFERENCES:** Dohenty. J. Meno.Wetb, Moder D (2000) Track & Field, Englewood Cliffs, Prentice Hal Inc. Lace, M. V. (1951) Massage and Medical Gymnastics, London: J & A Churchill Ltd. Mc Ooyand Young (1954) Tests and Measurement, New York: Appleton Century. Naro, C. L. (1967) Manual of Massage and, Movement, London: Febra and Febra Ltd. Rathbome, J.l. (1965) Corrective Physical education, London: W.B. Saunders & Co. Stafford and Kelly, (1968) Preventive and Corrective Physical Education, New York.

**Semester II**

**VALUE ADDED COURSE (NON-CREDITED)**

**MPVNC-201 VALUE AND ENVIRONMENTAL EDUCATION**

 **UNIT I –** Introduction to Value Education. Values: Meaning, Definition, Concepts of Values. Value Education: Need, Importance and Objectives. Moral Values: Need and Theories of Values. Classification of Values: Basic Values of Religion, Classification of Values.

**UNIT II –** Value Systems Meaning and Definition, Personal and Communal Values, Consistency, Internally consistent, internally inconsistent, Judging Value System, Commitment, Commitment to values.

**Unit- III –** Environmental Education 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 & prohibition of plastic bag / cover, Role of school in environmental conservation and sustainable development, Pollution free ecosystem.

**Unit - IV** Rural Sanitation and Urban Health Rural Health Problems, Causes of Rural Health Problems, Points to be kept in Mind for improvement of Rural Sanitation, Urban Health Problems, Process of Urban Health, Services of Urban Area, Suggested Education Activity, Services on Urban Slum Area, Sanitation at Fairs & Festivals, Mass Education.

**Unit - V** 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.

**REFERENCE:** Miller T.G. Jr., Environmental Science (Wadsworth Publishing Co.) Odum, E.P. Fundamentals of Ecology (U.S.A.: W.B. Saunders Co.) 1971. Rao, M.N. & Datta, A.K. Waste Water Treatment (Oxford & IBH Publication Co. Pvt. Ltd.) 1987 Townsend C. and others, Essentials of Ecology (Black well Science) Heywood, V.H. and Watson V.M., Global biodiversity Assessment (U.K.: Cambridge University Press), 1995. Jadhav, H. and Bhosale, V.M. Environmental Protection and Laws (Delhi: Himalaya Pub. House), 1995. Mc Kinney, M.L. and Schoel, R.M. Environmental Science System and Solution (Web enhanced Ed.) 1996. Miller T.G. Jr., Environmental Science (Wadsworth Publishing Co.)

**Semester III**

**(ELECTIVE)**

**MPEL-301(A) TEST, MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION**

**UNIT I –** Introduction Meaning and Definition of Test, Measurement and Evaluation. Need and Importance of Measurement and Evaluation. Criteria for Test Selection – Scientific Authenticity. Meaning, definition and establishing Validity, Reliability, Objectivity. Norms – Administrative Considerations.

**UNIT II –** Motor Fitness Tests Meaning and Definition of Motor Fitness. Test for Motor Fitness; Indiana Motor Fitness Test (for elementary and high school boys, girls and College Men) Oregon Motor Fitness Test 2 years M.P.Ed Curriculum | 20 (Separately for boys and girls) - JCR test. Motor Ability; Barrow Motor Ability Test – Newton Motor Ability Test – Muscular Fitness – Kraus Weber Minimum Muscular Fitness Test.

**UNIT III –** Physical Fitness Tests Physical Fitness Test: AAHPERD Health Related Fitness Battery (revised in 1984), ACSM Health Related Physical Fitness Test, Roger’s physical fitness Index. Cardio vascular test; Harvard step test, 12 minutes run / walk test, Multi-stage fitness test (Beep test)

 **UNIT IV –** Anthropometric and Aerobic-Anaerobic Tests Physiological Testing: Aerobic Capacity: The Bruce Treadmill Test Protocol, 1.5 Mile Run test for college age males and females. Anaerobic Capacity: Margaria-Kalamen test, Wingate Anaerobic Test, Anthropometric Measurements: Method of Measuring Height: Standing Height, Sitting Height. Method of measuring Circumference: Arm, Waist, Hip, Thigh. Method of Measuring Skin folds: Triceps, Sub scapular, Suprailiac.

**UNIT V –** Skill Tests Specific Spots Skill Test: Badminton: Miller Wall Volley Test. Basketball: Johnson Basketball Test, Harrison Basketball Ability Test. Cricket: Sutcliff Cricket test. Hockey: Friendel Field Hockey Test, Harban’s Hockey Test, Volleyball, Russel Lange Volleyball Test, Brady Volleyball Test. Football: Mor-Christian General Soccer Ability Skill Test Battery, Johnson Soccer Test, Mc-Donald Volley Soccer Test. Tennis: Dyer Tennis Test.

**REFERENCES :** 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 Publising 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. Champaigm IL: Human Kinetics Yobu, A (2010), Test, Measurement and Evaluation in Physical Education in Physical Education and Sports. New Delhi; Friends Publications

**Semester III**

**(ELECTIVE)**

**MPEL-301(B) SPORTS MEDICINE**

**UNIT I –** Introduction Meaning, definition and importance of Sports Medicine, Definition and Principles of therapeutic exercises. Coordination exercise, Balance training exercise, Strengthening exercise, Mobilization exercise, Gait training, Gym ball exercise Injuries: acute, sub-acute, chronic. Advantages and Disadvantages of PRICE, PRINCE therapy, Aquatic therapy.

**UNIT II –** Basic Rehabilitation Basic Rehabilitation: Strapping/Tapping: Definition, Principles Precautions Contraindications. Proprioceptive neuromuscular facilitation: Definition hold, relax, repeated contractions. Show reversal technique exercises. Isotonic, Isokinetic, isometric stretching. Definition. Types of stretching, Advantages, dangers of stretching, Manual muscle grading.

**UNIT III –** Spine Injuries and Exercise Head, Neck and Spine injuries: Causes, Presentational of Spinal anomalies, Flexion, Compression, Hyperextension, Rotation injuries. Spinal range of motion. Free hand exercises, stretching and strengthening exercise for head neck, spine. Supporting and aiding techniques and equipment for Head, Neck and Spine injuries.

**UNIT IV –** Upper Extremity Injuries and Exercise Upper Limb and Thorax Injuries: Shoulder: Sprain, Strain, Dislocation, and Strapping. Elbow: Sprain, Strain, Strapping. Wrist and Fingers: Sprain Strain, Strapping. Thorax, Rib fracture. Breathing exercises, Relaxation techniques, Free hand exercise, Stretching and strengthening exercise for shoulder, Elbow, Wrist and Hand. Supporting and aiding techniques and equipment for Upper Limb and Thorax Injuries.

**UNIT V –** Lower Extremity Injuries and Exercise Lower Limb and Abdomen Injuries: Hip: Adductor strain, Dislocation, Strapping. Knee: Sprain, Strain, Strain, Strapping. Ankle: Sprain, Strain, Strapping. Abdomen: Abdominal wall, Contusion, Abdominal muscle strain. Free exercises – Stretching and strengthening exercise for Hip, knee, ankle and Foot. Supporting and aiding techniques and equipment for Lower limb and Abdomen injures. Practicals: Lab. Practicals and visit to Physiotherapy Centre to observe treatment procedure of sports injuries; data collection of sports injury incidences, Visit to TV Centre etc. should be planned internally.,

**REFERENCES:** Christopher M. Norris. (1993). Sports Injures Diagnosis and Management for Physiotherapists. East Kilbride: Thomson Litho Ltd. James, A. Gould & George J. Davies. (1985). Physical Physical Therapy. Toronto: C.V. Mosby Company. Morris B. Million (1984) Sports Injuries and Athletic Problem. New Delhi: Surjeet Publication. Pande. (1998). Sports Medicine. New delhi: Khel Shitya Kendra The Encyclopedia of Sports Medicine. (1998). The Olympic Book of Sports Medicine, Australia: Tittel Blackwell Scientific publications. Practical: Anthropometric Measurements, London), 1952.

**Semester III**

**(ELECTIVE)**

**MPEL-301 (C) SCIENTIFIC PRINCIPLES OF SPORTS TRAINING**

**UNIT I –** Introduction Sports training: Definition – Aim, Characteristics, Principles of Sports Training, Over Load: Definition, Causes of Over Load, Symptoms of Overload, Remedial Measures – Super Compensation – Altitude Training – Cross Training

**UNIT II –** Components of Physical Fitness Strength: Methods to improve Strength: Weight Training, Isometric, Isotonic, Circuit Training, Speed: Methods to Develop Speed: Repetition Method, Downhill Run, Parachute Running, Wind Sprints, Endurance, Methods to Improve Endurance: Continuous Method, Interval Method, Repetition Method, Cross Country, Fartlek Training

**UNIT III –** Flexibility Flexibility: Methods to Improve the Flexibility- Stretch and Hold Method, Ballistic Method, Special Type Training: Plyometric Training. Training for Coordinative abilities: Methods to improve Coordinative abilities: Sensory Method, Variation in Movement Execution Method, Variation in External Condition Method, Combination of Movement Method, Types of Stretching Exercises.

**UNIT IV –** Training Plan Training Plan: Macro Cycle, Meso-Cycle. Short Term Plan and Long Term Plans - Periodisation: Meaning, Single, Double and Multiple Periodisation, Preparatory Period, Competition Period and Transition Period.

**UNIT V –** Doping Definition of Doping – Side effects of drugs – Dietary supplements – IOC list of doping classes and methods. Blood Doping – The use of erythropoietin in blood boosting – Blood doping control – The testing programmes – Problems in drug detection – Blood testing in doping control – Problems with the supply of medicines Subject to IOC regulations : overthe- counter drugs (OTC) – prescription only medicines (POMs) – Controlled drugs (CDs). Reporting test results – Education

**REFERENCES :** Beotra Alka, (2000), Drug Education Handbook on Drug Abuse in Sports. Delhi: Sports Authority of India. 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 Traning, 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

**Semester III**

**(ELECTIVE)**

**MPEL-302 (A) SPORTS JOURNALISM AND MASS MEDIA**

**UNIT I** Introduction Meaning and Definition of Journalism, Ethics of Journalism – Canons of journalism- Sports Ethics and Sportsmanship – Reporting Sports Events. National and International Sports News Agencies.

**UNIT II** Sports Bulletin Concept of Sports Bulletin: Journalism and sports education – Structure of sports bulletin – Compiling a bulletin – Types of bulletin – Role of Journalism in the Field of Physical Education: Sports as an integral part of Physical Education – Sports organization and sports journalism – General news reporting and sports reporting.

**UNIT III** Mass Media Mass Media in Journalism: Radio and T.V. Commentary – Running commentary on the radio – Sports expert’s comments. Role of Advertisement in Journalism. Sports Photography: Equipment- Editing – Publishing.

**UNIT IV** Report Writing on Sports Brief review of Olympic Games, Asian Games, Common Wealth Games World Cup, National Games and Indian Traditional Games. Preparing report of an Annual Sports Meet for Publication in Newspaper. Organization of Press Meet.

**UNIT –V** Journalism Sports organization and Sports Journalism – General news reporting and sports reporting. Methods of editing a Sports report. Evaluation of Reported News. Interview with and elite Player and Coach. Practical assignments to observe the matches and prepare report and news of the same; visit to News Paper office and TV Centre to know various departments and their working. Collection of Album of newspaper cuttings of sports news.

**REFERENCE**: Ahiya B.N. (1988) Theory and Practice of Journalism: Set to Indian context Ed3. Delhi : Surjeet Publications Ahiya B.N. Chobra S.S.A. (1990) Concise Course in Reporting. New Delhi: Surjeet Publication Bhatt S.C. (1993) Broadcast Journalism Basic Principles. New Delhi. Haranand Publication Dhananjay Joshi (2010) Value Education in Global Perspective. New Delhi: Lotus Press. Kannan K (2009) Soft Skills, Madurai: Madurai: Yadava College Publication Mohit Chakrabarti (2008): Value Education: Changing Perspective, New Delhi: Kanishka Publication,. Padmanabhan. A & Perumal A (2009), Science and Art of Living, Madurai: Pakavathi Publication Shiv Khera (2002), You Can Win, New Delhi: Macmillan India Limited. Varma A.K. (1993) Journalism in India from Earliest Times to the Present Period. Sterling publication Pvt. Ltd.

**Semester III**

**(ELECTIVE)**

**MPEL-302 (B) SPORTS MANAGEMENT & CURRICULUM**

**UNIT I –** Introduction to Sports Management Definition, Importance. Basic Principles and Procedures of Sports Management. Functions of Sports Management. Personal Management: Objectives of Personal Management, Personal Policies, Role of Personal Manager in an organization, Personnel recruitment and selection.

**UNIT II –** Program Management Importance of Programme development and the role of management, Factors influencing programme development. Steps in programme development, Competitive Sports Programs, Benefits, Management Guidelines for School, Colleges Sports Programs, Management Problems in instruction programme, Community Based Physical Education and Sports program.

**UNIT III –** Equipments and Public Relation Purchase and Care of Supplies of Equipment, Guidelines for selection of Equipments and Supplies, Purchase of equipments and supplies, Equipment Room, Equipment and supply Manager. Guidelines for checking, storing, issuing, care and maintenance of supplies and equipments. Public Relations in Sports: Planning the Public Relation Program – Principles of Public Relation – Public Relations in School and Communities – Public Relation and the Media.

**UNIT IV –** Curriculum Meaning and Definition of Curriculum. Principles of Curriculum Construction: Students centred, Activity centred, Community centred, Forward looking principle, Principles of integration, Theories of curriculum development, Conservative (Preservation of Culture), Relevance, flexibility, quality, contextually and plurality. Approaches to Curriculum; Subject centred, Learner centred and Community centred, Curriculum Framework.

**UNIT V –** Curriculum Sources Factors that affecting curriculum: Sources of Curriculum materials – text books – Journals – Dictionaries, Encyclopaedias, Magazines, Internet. Integration of Physical Education with other Sports Sciences – Curriculum research, Objectives of Curriculum research – Importance of Curriculum research. Evaluation of Curriculum, Methods of evaluation.

**Reference:** Aggarwal, J.C (1990). Curriculum Reform in India – World overviews, Doaba World Education Series – 3 Delhi: Doaba House, Book seller and Publisher. Arora, G.L. (1984): Reflections on Curriculum, New Delhi: Bonnie, L. (1991). The Management of Sports. St. Louis: Mosby Publishing Company, Park House. Bucher A. Charles, (1993) Management of Physical Education and Sports (10th ed.,) St. Louis: Mobsy Publishing Company. Carl, E, Willgoose. (1982.

Curriculum in Physical Education, London: Prentice Hall. Chakraborthy & Samiran. (1998). Sports Management. New Delhi: Sports Publication. Charles, A, Bucher & March, L, Krotee. (1993). Management of Physical Education and Sports. St. Louis: Mosby Publishing Company. Chelladurai, P. (1999). Human Resources Management in Sports and Recreation. Human Kinetics. John, E, Nixon & Ann, E, Jewett. (1964). Physical Education Curriculum, New York: The Ronald Press Company. McKernan, James (2007) Curriculum and Imagination: Process, Theory, Pedagogy and Action Research,. U.K. Routledge NCERT (2000). National Curriculum Framework for School Education, New Delhi: NCERT. NCERT (2000). National Curriculum Framework for School Education, New Delhi: NCERT. NCERT (2005). National Curriculum Framework, New Delhi: NCERT. NCERT (2005). National Curriculum Framework-2005, New Delhi: NCERT. Williams, J.F. (2003). Principles of Physical Education. Meerut: College Book House. Yadvnider Singh. Sports Management, New Delhi: Lakshay Publication.

**Semester III**

**(ELECTIVE)**

**MPEL-302(C) PHYSICAL FITNESS AND WELLNESS**

**Unit I –** Introduction Meaning and Definition" of Physical Fitness, Physical Fitness Concepts and Techniques, Principles of physical fitness, Physiological principles involved in human movement. Components of Physical Fitness. Leisure time physical activity and identify opportunities in the community to participate in this activity. Current trends in fitness and conditioning, components of total health fitness and the relationship between physical activity and lifelong wellness.

**Unit II –** Nutrition Nutrients; Nutrition labelling information, Food Choices, Food Guide Pyramid, Influences on food choices-social, economic, cultural, food sources, Comparison of food values. Weight Management-proper practices to maintain, lose and gain. Eating Disorders, Proper hydration, the effects of performance enhancement drugs

**Unit III –** Aerobic Exercise Cardio respiratory Endurance Training; proper movement forms, i.e., correct stride, arm movements, body alignment; proper warm-up, cool down, and stretching, monitoring heart rates during activity. Assessment of cardio respiratory fitness and set goals to maintain or improve fitness levels. Cardio respiratory activities including i.e. power walking, pacer test, interval training, incline running, distance running, aerobics and circuits.

**Unit IV –** Anaerobic Exercise Resistance Training for Muscular Strength and Endurance; principles of resistance training, Safety techniques (spotting, proper body alignment, lifting techniques, spatial, awareness. and proper breathing techniques). Weight training principles and concepts; basic resistance exercises (including free hand exercise, free weight exercise, weight machines, exercise bands and tubing. medicine balls, fit balls) Advanced techniques of weight training

**Unit V –** Flexibility Exercise Flexibility Training, Relaxation Techniques and Core Training. Safety techniques (stretching protocol; breathing and relaxation techniques) types of flexibility exercises (i.e. dynamic, static), Develop basic competency in relaxation and breathing techniques. Pilates, Yoga.

**Reference:** David K. Miller & T. Earl Allen, Fitness, A life time commitment, Surjeet Publication Delhi 1989. Dificore Judy, the complete guide to the postnatal fitness, A & C Black Publishers Ltd. 35 Bedford row, London 1998 Dr. A.K. Uppal, Physical Fitness, Friends Publications (India), 1992. Warner W.K. Oeger & Sharon A. Hoeger, Fitness and Wellness, Morton Publishing Company, 1990. Elizabeth & Ken day, Sports fitness for women, B.T. Batsford Ltd, London, 1986. Emily R. Foster, Karyn Hartiger & Katherine A. Smith, Fitness Fun, Human Kinetics Publishers 2002. Lawrence, Debbie, Exercise to Music. A & C Black Publishers Ltd. 37, Sohe Square, London 1999 Robert Malt. 90 day fitness plan, D.K. publishing, Inc. 95, Madison Avenue, New York 2001

**Semester III**

**INTERDEPARTMENTAL COURSE**

**MPIER-301 PHYSIOLOGY OF EXERCISE**

 UNIT I – Skeletal Muscles and Exercise Macro & Micro Structure of the Skeletal Muscle,Chemical Composition. Sliding Filament theory of Muscular Contraction. Types of Muscle fibre. Muscle Tone, Chemistry of Muscular Contraction – Heat Production in the Muscle, Effect of exercises and training on the muscular system.

UNIT II – Cardiovascular System and Exercise Heart Valves and Direction of the Blood Flow – Conduction System of the Heart – Blood Supply to the Heart – Cardiac Cycle – Stroke Volume – Cardiac Output – Heart Rate – Factors Affecting Heart Rate – Cardiac Hypertrophy – Effect of exercises and training on the Cardio vascular system.

UNIT III – Respiratory System and Exercise Mechanics of Breathing – Respiratory Muscles, Minute Ventilation – Ventilation at Rest and During Exercise. Diffusion of Gases – Exchange of Gases in the Lungs –Exchange of Gases in the Tissues – Control of Ventilation – Ventilation and the Anaerobic Threshold. Oxygen Debt – Lung Volumes and Capacities – Effect of exercises and training on the respiratory system.

UNIT IV – Metabolism and Energy Transfer Metabolism – ATP – PC or Phosphagen System – Anaerobic Metabolism – Aerobic Metabolism – Aerobic and Anaerobic Systems during Rest and Exercise. Short Duration High Intensity Exercises – High Intensity Exercise Lasting Several Minutes – Long Duration Exercises.

UNIT V – Climatic conditions and sports performance and ergogenic aids Variation in Temperature and Humidity – Thermoregulation – Sports performance in hot climate, Cool Climate, high altitude. Influence of: Amphetamine, Anabolic steroids, Androstenedione, Beta Blocker, Choline, Creatine, Human growth hormone on sports performance. Narcotic, Stimulants: Amphetamines, Caffeine, Ephedrine, Sympathomimetic amines. Stimulants and sports performance.

REFERENCES:

Amrit Kumar, R, Moses. (1995). Introduction to Exercise Physiology. Madras: Poompugar Pathipagam.

Beotra Alka, (2000) Drug Education Handbook on Drug Abuse in Sports: Sports Authority of India 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. 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

 **Semester III**

**INTERDEPARTMENTAL COURSE**

**MPIER-301 STATISTICS IN PHYSICAL EDUCATION**

**UNIT I –** Introduction Meaning and Definition of Statistics. Function, need and importance of Statistics. Types of Statistics. Meaning of the terms, Population, Sample, Data, types of data. Variables; Discrete, Continuous. Parametric and non-parametric statistics.

**UNIT II –** Data Classification, Tabulation and Measures of Central Tendency Meaning, uses and construction of frequency table. Meaning, Purpose, Calculation and advantages of Measures of central tendency – Mean, median and mode.

**UNIT III –** Measures of Dispersions and Scales Meaning, Purpose, Calculation and advances of Range, Quartile, Deviation, Mean Deviation, Standard Deviation, Probable Error. Meaning, Purpose, Calculation and advantages of scoring scales; Sigma scale, Z Scale, Hull scale

**UNIT IV –** Probability Distributions and Graphs Normal Curve. Meaning of probability- Principles of normal curve – Properties of normal curve. Divergence form normality – Skewness and Kurtosis. Graphical Representation in Statistics; Line diagram, Bar diagram, Histogram, Frequency Polygon, Ogive Curve.

**UNIT V –** Inferential and Comparative Statistics Tests of significance; Independent “t” test, Dependent “t” test – chi – square test, level of confidence and interpretation of data. Meaning of correlation – co-efficient of correlation – calculation of co-efficient of correlation by the product moment method and rank difference method. Concept of ANOVA and ANCOVA.

**REFERENCE:**

 Best J. W (1971) Research in Education, New Jersey; Prentice Hall, Inc Clark D.H. (1999) Research Problem in Physical Education 2nd edition, Eaglewood Cliffs, Prentice Hall, Inc. Jerry R Thomas & Jack K Nelson (2000) Research Methods in Physical Activities; Illonosis; Human Kinetics; Kamlesh, M. L. (1999) Reserach Methodology in Physical Education and Sports, New Delhi Rothstain A (1985) Research Design and Statistics for Physical Education, Englewood Cliffs: Prentice Hall, Inc Sivaramakrishnan. S. (2006) Statistics for Physical Education, Delhi; Friends Publication Thirumalaisamy (1998), Statistics in Physical Education, Karaikudi, Senthilkumar Publications.

**Semester III**

 **INTERDEPARTMENTAL COURSE**

**MPIER-301 SPORTS BIOMECHANICS AND KINSESIOLOGY**

**UNIT I –** Introduction Meaning, nature, role and scope of Applied kinesiology and Sports Biomechanics. Meaning of Axis and Planes, Dynamics, Kinematics, Kinetics, Statics Centre of gravity -Line of gravity plane of the body and axis of motion, Vectors and Scalars.

**UNIT II –** Muscle Action Origin, Insertion and action of muscles: Pectoralis major and minor, Deltoid, Biceps, Triceps (Anterior and Posterior), Trapezius, serratus, Sartorius, Rectus femoris, Abdominis, Quadriceps, Hamstring, Gastrocnemius.

**UNIT III –** Motion and Force Meaning and definition of Motion. Types of Motion: Linear motion, angular motion, circular motion, uniform motion. Principals related to the law of Inertia, Law of acceleration, and law of counter force. Meaning and definition of force- Sources of force -Force components .Force applied at an angle - pressure -friction -Buoyancy, Spin - Centripetal force - Centrifugal force.

**UNIT IV –** Projectile and Lever Freely falling bodies -Projectiles -Equation of projectiles stability Factors influencing equilibrium - Guiding principles for stability -static and dynamic stability. Meaning of work, power, energy, kinetic energy and potential energy. Leverage -classes of lever - practical application. Water resistance - Air resistance -Aerodynamics.

**UNIT V –** Movement Analysis Analysis of Movement: Types of analysis: Kinesiological, Biomechanical. Cinematographic. Methods of analysis – Qualitative, Quantitative, Predictive

**REFERENCE:**

Deshpande S.H.(2002). Manav Kriya Vigyan – Kinesiology (Hindi Edition) Amravati :Hanuman Vyayam Prasarak Mandal. Hoffman S.J. Introduction to Kinesiology (Human Kinesiology publication In.2005. Steven Roy, & Richard Irvin. (1983). Sports Medicine. New Jersery: Prentice hall. Thomas. (2001). Manual of structural Kinesiology, New York: Me Graw Hill. Uppal A.K. Lawrence Mamta MP Kinesiology(Friends Publication India 2004) Uppal, A (2004), Kinesiology in Physical Education and Exercise Science, Delhi Friends publications. Williams M (1982) Biomechanics of Human Motion, Philadelphia; Saunders Co.

**Semester III**

**INTERDEPARTMENTAL COURSE**

**MPIER-301 INFORMATION & COMMUNICATION TECHNOLOGY (ICT) IN PHYSICAL EDUCATION**

**Unit I –** Communication & Classroom Interaction Concept, Elements, Process & Types of Communication Communication Barriers & Facilitators of communication Communicative skills of English - Listening, Speaking, Reading & Writing Concept & Importance of ICT Need of ICT in Education Scope of ICT: Teaching Learning Process, Publication Evaluation, Research and Administration Challenges in Integrating ICT in Physical Education

**Unit II –** Fundamentals of Computers Characteristics, Types & Applications of Computers Hardware of Computer: Input, Output & Storage Devices Software of Computer: Concept & Types Computer Memory: Concept & Types Viruses & its Management Concept, Types & Functions of Computer Networks Internet and its Applications Web Browsers & Search Engines Legal & Ethical Issues

**Unit III –** MS Office Applications MS Word: Main Features & its Uses in Physical Education MS Excel: Main Features & its Applications in Physical Education MS Access: Creating a Database, Creating a Table, Queries, Forms & Reports on Tables and its Uses in Physical Education MS Power Point: Preparation of Slides with Multimedia Effects MS Publisher: Newsletter & Brochure

**Unit IV –** ICT Integration in Teaching Learning Process Approaches to Integrating ICT in Teaching Learning Process Project Based Learning (PBL) Co-Operative Learning Collaborative Learning ICT and Constructivism: A Pedagogical Dimension

**Unit V –** E-Learning & Web Based Learning E-Learning Web Based Learning Visual Classroom

**REFERENCES:** B. Ram, New Age International Publication, Computer Fundamental, Third Edition-2006 Brain under IDG Book. India (p) Ltd Teach Yourself Office 2000, Fourth Edition-2001 Douglas E. Comer, The Internet Book, Purdue University, West Lafayette in 2005 Heidi Steel Low price Edition, Microsoft Office Word 2003- 2004 ITL Education Solution Ltd. Introduction to information Technology, Research and Development Wing-2006 Pradeep K. Sinha & Priti; Sinha, Foundations computing BPB Publications -2006. Rebecca Bridges Altman Peach pit Press, Power point for window, 1999 Sanjay Saxena, Vikas Publication House, Pvt. Ltd. Microsoft Office for ever one, Second Edition-2006

**Semester III**

**INTERDEPARTMENTAL COURSE**

**MPIER-301 SPORTS ENGINEERING**

**Unit - I** Introduction to sports engineering and Technology Meaning of sports engineering, human motion detection and recording, human performance, assessment, equipment and facility designing and sports related instrumentation and measurement.

**Unit - II** Mechanics of engineering materials Concept of internal force, axial force, shear force, bending movement, torsion, energy method to find displacement of structure, strain energy. Biomechanics of daily and common activities –Gait, Posture, Body levers, ergonomics, Mechanical principles in movements such as lifting, walking, running, throwing, jumping, pulling, pushing etc.

**Unit- III** Sports Dynamics Introduction to Dynamics, Kinematics to particles – rectilinear and plane curvilinear motion coordinate system. Kinetics of particles – Newton’s laws of Motion, Work, Energy, Impulse and momentum.

**Unit- IV** Building and Maintenance: Sports Infrastructure- Gymnasium, Pavilion, Swimming Pool, Indoor Stadium, Out-door Stadium, Play Park, Academic Block, Administrative Block, Research Block, Library, Sports Hostels, etc. Requirements: Air ventilation, Day light, Lighting arrangement, Galleries, Store rooms, Office, Toilet Blocks (M/F), Drinking Water, Sewage and Waste Water disposal system, Changing Rooms ( M/F), Sound System (echo-free), Internal arrangement according to need and nature of activity to be performed, Corridors and Gates for free movement of people, Emergency provisions of lighting, fire and exits, Eco-friendly outer surrounding. Maintenance staff, financial consideration. Building process:- design phase (including brief documentation), construction phase functional (occupational) life, Re-evaluation, refurnish, demolish. Maintenance policy, preventive maintenance, corrective maintenance, record and register for maintenance.

**Unit – V** Facility life cycle costing Basics of theoretical analysis of cost, total life cost concepts, maintenance costs, energy cost, capital cost and taxation

 **Reference**

 Franz K. F. et. al., Editor, Routledge Handbook of Sports Technology and Engineering (Routledge, 2013) Steve Hake, Editor, The Engineering of Sport (CRC Press, 1996) Franz K. F. et. al., Editor The Impact of Technology on Sports II (CRC Press, 2007) Helge N., Sports Aerodynamics (Springer Science & Business Media, 2009) Youlin Hong, Editor Routledge Handbook of Ergonomics in Sport and Exercise (Routledge, 2013) Jenkins M., Editor Materials in Sports Equipment, Volume I (Elsevier, 2003) Colin White, Projectile Dynamics in Sport: Principles and Applications Eric C. et al., Editor Sports Facility Operations Management (Routledge, 2010)

**INTERDEPARTMENTAL COURSE**

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**Semester IV**

 **(ELECTIVE)**

**MPEL-401(A) SPORTS PSYCHOLOGY**

UNIT I - Introduction Meaning, Definition, History, Need and Importance of Sports Psychology. Present Status of Sports Psychology in India. Motor Learning: Basic Considerations in Motor Learning – Motor Perception – Factors Affecting Perception – Perceptual Mechanism. Personality: Meaning, Definition, Structure – Measuring Personality Traits. Effects of Personality on Sports Performance.

UNIT II - Motivation Meaning and Definition, Types of Motivation: Intrinsic, Extrinsic. Achievement Motivation: Meaning, Measuring of Achievement Motivation. Anxiety: Meaning and Definition, Nature, Causes, Method of Measuring Anxiety. Competitive Anxiety and Sports Performance. Stress: Meaning and Definition, Causes. Stress and Sports Performance. Aggression: Meaning and Definition, Method of Measurement. Aggression and Sports Performance. Self-Concept: Meaning and Definition, Method of Measurement.

UNIT III – Goal Setting Meaning and Definition, Process of Goal Setting in Physical Education and Sports. Relaxation: Meaning and Definition, types and methods of psychological relaxation. Psychological Tests: Types of Psychological Test: Instrument based tests: Pass-along test – Tachistoscope – Reaction timer – Finger dexterity board – Depth perception box – Kinesthesiometer board. Questionnaire: Sports Achievement Motivation, Sports Competition Anxiety.

UNIT IV – Sports Sociology Meaning and Definition – Sports and Socialization of Individual Sports as Social Institution. National Integration through Sports. Fans and Spectators: Meaning and definition, Advantages and disadvantages on Sports Performance. Leadership: Meaning, Definition, types. Leadership and Sports Performance.

UNIT V – Group Cohesion Group: Definition and Meaning, Group Size, Groups on Composition, Group Cohesion, Group Interaction, Group Dynamics. Current Problems in Sports and Future Directions – Sports Social Crisis Management – Women in Sports: Sports Women in our Society, Participation pattern among Women, Gender inequalities in Sports. Practicals: Atleast five experiments related to the topics listed in the Units above should be conducted by the students in laboratory. (Internal assessment.)

**REFERENCES:** Authors Guide (2013) National Library of Educational and Psychological Test (NLEPT) Catalogue of Tests, New Delhi: National Council of Educational Research and Training Publication. Authors Guide (2013) National Library of Educational and Psychological Test (NLEPT) Catalogue of Test, 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 Jersy: Prenticce 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. Dr.G.S. Pandey- Psychological Fitness :An Analysis

**Semester III**

 **(ELECTIVE)**

**MPEL-401 (B) SPORTS ENGINEERING**

**Unit - I** Introduction to sports engineering and Technology Meaning of sports engineering, human motion detection and recording, human performance, assessment, equipment and facility designing and sports related instrumentation and measurement.

**Unit - II** Mechanics of engineering materials Concept of internal force, axial force, shear force, bending movement, torsion, energy method to find displacement of structure, strain energy. Biomechanics of daily and common activities –Gait, Posture, Body levers, ergonomics, Mechanical principles in movements such as lifting, walking, running, throwing, jumping, pulling, pushing etc.

**Unit- III** Sports Dynamics Introduction to Dynamics, Kinematics to particles – rectilinear and plane curvilinear motion coordinate system. Kinetics of particles – Newton’s laws of Motion, Work, Energy, Impulse and momentum.

**Unit- IV** Building and Maintenance: Sports Infrastructure- Gymnasium, Pavilion, Swimming Pool, Indoor Stadium, Out-door Stadium, Play Park, Academic Block, Administrative Block, Research Block, Library, Sports Hostels, etc. Requirements: Air ventilation, Day light, Lighting arrangement, Galleries, Store rooms, Office, Toilet Blocks (M/F), Drinking Water, Sewage and Waste Water disposal system, Changing Rooms ( M/F), Sound System (echo-free), Internal arrangement according to need and nature of activity to be performed, Corridors and Gates for free movement of people, Emergency provisions of lighting, fire and exits, Eco-friendly outer surrounding. Maintenance staff, financial consideration. Building process:- design phase (including brief documentation), construction phase functional (occupational) life, Re-evaluation, refurnish, demolish. Maintenance policy, preventive maintenance, corrective maintenance, record and register for maintenance.

**Unit – V** Facility life cycle costing Basics of theoretical analysis of cost, total life cost concepts, maintenance costs, energy cost, capital cost and taxation

 **Reference**

 Franz K. F. et. al., Editor, Routledge Handbook of Sports Technology and Engineering (Routledge, 2013) Steve Hake, Editor, The Engineering of Sport (CRC Press, 1996) Franz K. F. et. al., Editor The Impact of Technology on Sports II (CRC Press, 2007) Helge N., Sports Aerodynamics (Springer Science & Business Media, 2009) Youlin Hong, Editor Routledge Handbook of Ergonomics in Sport and Exercise (Routledge, 2013) Jenkins M., Editor Materials in Sports Equipment, Volume I (Elsevier, 2003) Colin White, Projectile Dynamics in Sport: Principles and Applications Eric C. et al., Editor Sports Facility Operations Management (Routledge, 2010)

**Semester IV**

 **(ELECTIVE)**

**MPEL-402(A) INFORMATION & COMMUNICATION TECHNOLOGY (ICT) IN PHYSICAL EDUCATION**

**Unit I –** Communication & Classroom Interaction Concept, Elements, Process & Types of Communication Communication Barriers & Facilitators of communication Communicative skills of English - Listening, Speaking, Reading & Writing Concept & Importance of ICT Need of ICT in Education Scope of ICT: Teaching Learning Process, Publication Evaluation, Research and Administration Challenges in Integrating ICT in Physical Education

**Unit II –** Fundamentals of Computers Characteristics, Types & Applications of Computers Hardware of Computer: Input, Output & Storage Devices Software of Computer: Concept & Types Computer Memory: Concept & Types Viruses & its Management Concept, Types & Functions of Computer Networks Internet and its Applications Web Browsers & Search Engines Legal & Ethical Issues

**Unit III –** MS Office Applications MS Word: Main Features & its Uses in Physical Education MS Excel: Main Features & its Applications in Physical Education MS Access: Creating a Database, Creating a Table, Queries, Forms & Reports on Tables and its Uses in Physical Education MS Power Point: Preparation of Slides with Multimedia Effects MS Publisher: Newsletter & Brochure

**Unit IV –** ICT Integration in Teaching Learning Process Approaches to Integrating ICT in Teaching Learning Process Project Based Learning (PBL) Co-Operative Learning Collaborative Learning ICT and Constructivism: A Pedagogical Dimension

**Unit V –** E-Learning & Web Based Learning E-Learning Web Based Learning Visual Classroom

**REFERENCES:** B. Ram, New Age International Publication, Computer Fundamental, Third Edition-2006 Brain under IDG Book. India (p) Ltd Teach Yourself Office 2000, Fourth Edition-2001 Douglas E. Comer, The Internet Book, Purdue University, West Lafayette in 2005 Heidi Steel Low price Edition, Microsoft Office Word 2003- 2004 ITL Education Solution Ltd. Introduction to information Technology, Research and Development Wing-2006 Pradeep K. Sinha & Priti; Sinha, Foundations computing BPB Publications -2006. Rebecca Bridges Altman Peach pit Press, Power point for window, 1999 Sanjay Saxena, Vikas Publication House, Pvt. Ltd. Microsoft Office for ever one, Second Edition-2006

**Semester IV**

 **(ELECTIVE)**

**MPEL-402(B) EDUCATION & SPORTS TECHNOLOGY**

 **Unit I –** Nature and Scope Educational technology-concept, Nature and Scope. Forms of educational technology: teaching technology, instructional technology, and behaviour technology; Transactional usage of educational technology: integrated, complementary, supplementary stand-alone (independent); programmed learning stage; media application stage and computer application stage.

**Unit II –** Systems Approach to Physical Education and Communication Systems Approach to Education and its Components: Goal Setting, Task Analysis, Content Analysis, Context Analysis and Evaluation Strategies; Instructional Strategies and Media for Instruction. Effectiveness of Communication in instructional system; Communication - Modes, Barriers and Process of Communication.

**Unit III –** Audio Visual Media in Physical Education Audio-visual media - meaning, importance and various forms Audio/Radio: Broadcast and audio recordings - strengths and Limitations, criteria for selection of instructional units, script writing, pre-production, post-production process and practices, Audio Conferencing and Interactive Radio Conference. Video/Educational Television: Telecast and Video recordings Strengths and limitations, Use of Television and CCTV in instruction and Training, Video Conferencing, SITE experiment, countrywide classroom project and Satellite based instructions. Use of animation films for the development of children's imagination.

**Unit- IV-** Sports Technology Meaning, definition, purpose, advantages and applications, General Principles and purpose of instrumentation in sports, Workflow of instrumentation and business aspects, Technological impacts on sports. Science of Sports Materials Adhesives- Nano glue, nano moulding technology, Nano turf. Foot wear production, Factors and application in sports, constraints. Foams- Polyurethane, Polystyrene, Styrofoam, closedcell and open-cell foams, Neoprene, Foam. Smart Materials – Shape Memory Alloy (SMA), Thermo chromic film, High-density modelling foam.

**Unit- V-** Training Gadgets Basketball: Ball Feeder, Mechanism and Advantages. Cricket: Bowling Machine, Mechanism and Advantages, Tennis: Serving Machine, Mechanism and Advantages, Volleyball: Serving Machine Mechanism and Advantages. Lighting Facilities: Method of erecting Flood Light and measuring luminous. Video Coverage: Types, Size, Capacity, Place and Position of Camera in Live coverage of sporting events. Note: Students should be encouraged to design and manufacture improvised sports testing equipment in the laboratory/workshop and visit sports technology factory/ sports goods manufacturers.

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