OPPE1101  Paper I  Research Methodology and Statistics
Unit - I
• Meaning and Definition of Research-
• Meaning of Statistics-
Definition and need in Physical Education and sports Research; Normal Curve -Definition,; Properties and principle of normal curve,; Skewness, Kurtosis, standard scales: Percentile Z, t 6 Sigma and 7 Sigma scales, Standard scores.

Unit-II
• Formulation and Development of Research Problem; Source of Location of Research Problem,; Criterion in Selecting the Research Problem,; Meaning of Hypothesis,; Formulation of Hypothesis.
• Statistical Inference: Reliability limits, factors effect of reliability; "t". F. and Z; Statistics; Null hypothesis & its Importance of Null hypothesis; Type I and II errors, One tail and two tailed tests. Level of significance
Unit-III
• Historical Research: Scope of Historical Research in Physical Education, Historical Evidence. Validity of historical data; Survey Studies: Places of survey Research in Physical Education; Tools of survey Research; Questionnaire and Interviews.
• Meaning & Definition of sampling, formulation; Random Sampling; and stratified random sampling.; Standard error and Simply errors; Coefficient of variation

Unit-IV
• Case studies: Definition of Case studies. Importance of case studies; Characteristics of Case studies; Data collection in case studies; Experimental Research: Meaning, Scope and nature; Control of Experimental factors, Experimental Designs.
• Meaning & definition Correlation; Type of Correlation.; Chi-square; One way analysis of variance, with equal and unequal sample sizes.; LSD and Scheffe's Test.

Unit-V
• Definition of Philosophical Research; Importance of Philosophical Research; Data collection in Philosophical Research; Research proposal; Preparation of research report; Introduction to Computer Analysis

OPPE1102 PAPER II Scientific Principles of Sport Training

Unit-I
• Basic Tactical Concepts-Offensive, Defensive and High Performance. Methods of Tactical Training Control of Tactical Knowledge

Unit-II
• Planning and Organisation of training: Importance of Planning; Principles of Planning; System of Planning; Periodisation and its types; Contents for various periods of training

Unit-III
• Meaning and definition of Strength. Strength-forms of strength, Characteristics of strength. Principles of Strength training. Means and methods of strength training for
children and women. Form of Endurance, characteristics of Endurance, Endurance training means and methods.
• Competition Planning and Preparation; Importance of Competitions; Competition Frequency; Main and Build-up competitions; Direct preparation for an important competition.

Unit-IV
• Meaning of evaluation. Items to be included in evaluation programme. Importance of evaluation programme in physical education

Unit-V
• Definition of skill, Technique and Technical Training. Characteristics of Technique; Phases of Skill acquisition; Methods of Technique Training; Causes and correction of faults
• Uses of Graphs and principles of graphical representation; Forms of diagrams used for evaluation checking progress; Rules governing performance checks and motor tests.

OPPE1103
PAPER III Measurement and Evaluation in Physical Education

Unit-I
• Tests for Strength and Skill strength: Roger's Physical Fitness Index and Suggested changes in the P.F.I. Test.

Unit-II

Rajgarh – Jhunjhunu Road, Rawatsar - Kunjla, Churu
• Criteria of Test selection-scientific Authenticity, (Reliability, Validity, objectivity, norms); Administrative Feasibility and Educational application. Classification of Tests-Standardized and teacher made tests (objective and subjective tests).
• Measures of Posture. Anthropometry Social Efficiency and Psychological Factors. Measure of Posture-IOWA Posture Test.(Cureton's)

Unit-III
• Construction of Texts-Knowledge tests (written tests) and skill tests. Suggestions for administering tests. Medical Examination Testing personnel, Time and testing, Economy of testing, Test records, Preparation of reports, Construction of table groups, Purpose of reporting, Justification of particular phases of the programme worth of a change in methodology.

• Anthropometric Measurements
  i. Girth Measurements-Upper arm, forearm, Calf, Chest.
  ii. Width Measurements Biacromial chest illiocrestal, Bicondylar (Femur and Humerus).
  iii. Height Measurement-Stature and sitting height.

Unit-IV
• Measurement of organic Functions, Motor Fitness and General Motor Ability. Organic functions-Cardiovascular respiratory function, Cooper's 12 minutes Continuous Run/Walk; Text. Tuttle Pulse ratio tests. Harward step test and its modifications (High School and college level-men and women) Hyman’s; Cordio-pulmonary Index (CPI)
• Meaning and definition of Somatotypes; Somatotypes-Sheldon's technique-an introduction. Social Efficiency. Socio-metric techniques Introduction.

Unit-V
• Psychological factors:
  i. Anxiety Scale-Speil-berger's Competitive State-Anxiety Scales.
  ii. Eysenck Personality Inventory (H.J.Eysenck and Sybil B.G.Eysenck)

**OPPE1104 PAPER IV Exercise and Physiology**

Unit I
• Introduction: Definition of Physiology and Exercise Physiology. Importance of Exercise Physiology in the field of physical Education and Sports.

Rajgarh – Jhunjhunu Road , Rawatsar - Kunjla , Churu
• Role of Exercise Physiology in the field of physical Education and Sports. Physiological changes due to Exercise: Immediate effect of exercise/work on various systems of body.
• Effect of Exercise and training on:
  1. Heart and circulatory systems
  2. Respiratory system
  3. Muscular System
  4. Theroregulatory System

Unit-II
• Muscle: structure and Function: A comparative study of different types of muscles (Voluntary, Involuntary and Cardiac)
• Chemical Composition of skeletal muscle. Muscle fiber types (Red and White muscle).
• Brief discussion on other system during rest, sub-maximal and maximal work. Oxygen debt, second wind stitches on the side respiratory volumes, breathing capacity. Recovery rate, Blood Supply to Skeletal muscle and regulation of blood flow during exercise. Physiological aspects of development of speed, agility and co-ordination.

Unit-III
• Bioenergetics: Fuel for muscular work,(ATP),energy of muscular contraction and contractile and biochemical changes during muscular contraction Heat production and thermodynamics of muscle contraction, Aerobic and An-aerobic muscular activity. Basic concept of a balanced diet.
• Appropriate diet before, during and after athletic performance and the effect of alcohol, drugs and smoking on athletic performance.

Unit-IV
• Neuro-muscular Junction and Coordination of Muscular activity: Motor Unit transmission of nerve impulse, bio-electric pontentials, neuro-muscular junction and transmission of nerve impulse across it. Proprioception and Kinesthesis.
• Work and Environment. Obesity and Weight Control. Work Capacity under different environmental condition: Hot, humid, cold and high altitude, Definition of Obesity, measurement of body fat by various methods (under water weight and skin-fold measurement) Body weight control, Positive and Negative energy balance.

Unit-V
• Other Physiological aspects of Exercise and Sports: Concept of Physical Fitness and Physical training warming-up, conditioning and fatigue, Physiological aspects of development of strength, endurance, skill.
Energy cost of various sports activity: Definition of Energy cost, Energy cost of various sports activity and various direct/indirect methods of assessing them.

OPPE1105 PAPER V Seminar / Project / Field work
OPPE1106 PAPER VI Practical