

### 302. PHYSICAL EDUCATION

**Unit I : Sports Bio-mechanics**

Meaning, Scope, Need for Bio-Mechanics in sports - Equilibrium, Motion, Force, Levers, Impact and Elasticity, Friction, Kinetic Energy and Potential Energy – Application of Mechanical Principles to Various Techniques in sports.

**Exercise Physiology**

Skeletal Muscles – Structure and Function – Cardio respiratory and Aerobic power – Neuro-muscular junction and Coordination of Muscular Activity – Physiological aspect of Exercise and Sports, Altitude and Temperature Regulation,.

**Fitness Sports, Nutrition and Health**

Meaning, Definitions, Nature need and Importance of Health, fitness, exercise, physical activity and Nutrition – Health related and performance related fitness–Balance Diet and Carbohydrate loading - Physical Inactivity and associated Risks

**Unit II : Sports Psychology**

Meaning, Definitions Scope, Need and Development of Psychology in sports – Personality – types of personality – well built sports personality - Emotional States Psychological variables Aggression, Motivation – Anxiety, Arousal and Activation and Stress – Reasons for emotions and Control of emotions in sports .

**Applied Kinesiology**

Introduction to Kinesiology – History and Development of Kinesiology – Application to sports - Axis and Planes – Types of Muscles – Muscular Attachments and Action – Origin, Insertion, Actions and Leverage of Major Muscle Groups.

**Scientific Methods of Sports Training & Coaching**

Sports Training, Definition, Objectives and Principles of Sports training. – Planning and Organizing of Training, Periodisation – Strength and Endurance Development – Flexibility and Training in Sports – Competition organized in Basic and Advanced Training Stages.

**Unit III : Research Methodology in Physical Education**

Research – Meaning, Definition and Classification; Need and importance -Research problem –Location and criteria in selecting the problem – Research proposal- Formulation of Hypothesis - review of related Literature, Methods of Research- Historical method -

Experimental method - Survey method, and Case study method -  
Experimental Design , Sampling Theory- methods of sampling -  
Research Report- Mechanics of writing the research report.

### **Statistics in Physical Education**

Meaning and Basic Concepts of Statistics – Measures of Central Tendency and Measures of Variability – Normal curve and Elementary Graphical Methods, Correlation, Reliability and Test of Significance.

### **Tests, Measurement and Evaluation in Physical Education**

Measurement and Evaluation – Meaning, Need, Objectives, Selection and Construction of Tests – Measurement of Strength Physical Fitness and Organic Functions – Motor ability and Motor Educability and Postural Test – Skill Tests of Various Games

## **Unit IV : Sports Medicine**

Injuries in Sports Nature, Need, Scope, Objectives – General Principles of Injury Management – Treatment with Exercise - Aging –aging process involving health habits –Doping - Drug Abuse in Sports.

### **Therapeutic Exercise and Rehabilitation**

Therapeutic exercise – Role, Types and Relaxation – Posture and its values – Exercises for Various Disorders – Exercise for Joints – Physical Rehabilitation and Guidance.

### **Supervision and Curriculum Design in Physical Education**

Supervision – Techniques of Supervision and Qualities of Supervisor – Curriculum Planning – Curriculum Design = Basic Principals of curriculum development in physical education

### **Yoga and Meditation**

Yoga – Meaning and Objectives – Development of Yoga-, Meditation and sports performance – Effect of Yogic Practices on various Systems of the Body – Yoga Asana and promotion of health – Pranayama – Mudras and Kriyas