

Semester I
Theory Courses

MPEC-102 SPORTS TECHNOLOGY (Elective)

Unit I – 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.

Unit II – 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, closed-cell and open-cell foams, Neoprene, Foam. Smart Materials – Shape Memory Alloy (SMA), Thermo chromic film, High-density modelling foam.

Unit III – Surfaces of Playfields

Modern surfaces for playfields, construction and installation of sports surfaces. Types of materials – synthetic, wood, polyurethane. Artificial turf. Modern technology in the construction of indoor and outdoor facilities. Technology in manufacture of modern play equipments. Use of computer and software in Match Analysis and Coaching.

Unit IV – Modern equipment

Playing Equipments: Balls: Types, Materials and Advantages, Bat/Stick/ Racquets: Types, Materials and Advantages. Clothing and shoes: Types, Materials and Advantages. Measuring equipments: Throwing and Jumping Events. Protective equipments: Types, Materials and Advantages. Sports equipment with nano technology, Advantages.

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.

REFERENCE:

Charles J.A. Crane, F.A.A. and Furness, J.A.G. (1987) “Selection of Engineering Materials” UK: Butterworth Heiremann.

Finn, R.A. and Trojan P.K. (1999) “Engineering Materials and their Applications” UK: Jaico Publisher.

John Mongilo, (2001), “Nano Technology 101 “New York: Green wood publishing group.

Walia, J.S. Principles and Methods of Education (Paul Publishers, Jullandhar), 1999.

Kochar, S.K. Methods and Techniques of Teaching (New Delhi, Jullandhar, Sterling Publishers Pvt. Ltd.), 1982

Kozman, Cassidy and Jackson. *Methods in Physical Education* (W.B. Saunders Company, Philadelphia and London), 1952.