

**Semester V**  
**Theory Course**  
**IMTC 503 Sports Technology**

**ESSENCE OF THE COURSE**

This course offers an introduction of Sports Technology. It aims to develop understanding about Sports Technology, its aim and objectives, its uses in sports industry, foundation, historical developments, structure / functions.

**COURSE LEARNING OUTCOMES**

**After completing this course, the students will be able to**

- ) Understand the concept of Sports Technology.
- ) Understand the historical development of Sports Technology in India and abroad.
- ) Describe the different aspects of sports technology and their effects on Sports.

**COURSE CONTENT**

**23.1 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. Science of Sports Materials: Adhesives- Nano gule, 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.

**23.2 Unit II**

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 equipment's. Use of computer and software in Match Analysis and Coaching.

**23.3 Unit III**

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

**23.4 Unit IV**

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.

**TEACHING LEARNING STRATEGIES**

- ) The content of the syllabus may be taught by using lecture method, discussion method, quiz method, educational videos, charts and assignment method depending upon the resources and facilities available at the University/Institute/ Department/Colleges.

## MODE OF TRANSACTION

- ) Laboratory Work/Field Work/Outreach Activities/Project Work/ Vocational Training/Viva/ Seminars/ Term Papers/Presentations/Self- Learning Instructional Material etc.

## ASSESSMENT RUBRICS

- ) End Semester Exam **Marks: 100 (70+30)**
  - ) Classroom Test, Project Work, Assignments, Presentations **Marks: 70**
    - o Classroom Tests: Best one out of two unit tests **Marks: 10**
  - Project Work, Assignments, Presentations **(Marks: 20)**

## REFERENCE:

1. Charles J.A. Crane, F.A.A. and Furness, J.A.G. (1987) "Selection of Engineering Materials" UK: Butterworth Heiremann.
2. Finn, R.A. and Trojan P.K. (1999) "Engineering Materials and their Applications" UK: Jaico Publisher.
3. John Mongilo, (2001), "Nano Technology 101 "New York: Green wood publishing group.
4. [www.Astm.org/labs/pages/131350.htm](http://www.Astm.org/labs/pages/131350.htm)
5. [www.Applied sports materials.com](http://www.Applied sports materials.com)
6. [www.dvice.com/archieves/2008/08/10-new-technolo.php](http://www.dvice.com/archieves/2008/08/10-new-technolo.php)
7. [www.Sti-sports.com](http://www.Sti-sports.com)
8. [www.sports Engineering.com](http://www.sports Engineering.com)
9. [www.topendsports.com/resources/tecnology.htm](http://www.topendsports.com/resources/tecnology.htm)
10. [www.ulster.ac.uk/scienceinsociety/technologyinsport.html](http://www.ulster.ac.uk/scienceinsociety/technologyinsport.html)