MANGALORE UNIVERSITY

Department of Physical Education

Master of Physical Education (M.P.Ed.)

MDS 405: SPORTS TECHNOLOGY (Elective)

Number of credits :	3	Number of hours :	3	Marks :	Internal	- 30	External	- 70

Objectives / Learning Outcomes

At the end of the course the student should understand

- Meaning, purpose, advantages and applications of Sports Technology.
- The current application of advanced technology for better performance in sports.
- Monitoring and training technology and materials technology to enhance sport performance.
- The current and future impact of technology on sports materials
- Ethics of using advanced technology in the fields of sports.

Unit I: Sports Technology

- Meaning and definitionof Sports Technology.
- Purpose, advantages and applications of Sports Technology.
- 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 modeling foam.
- Playing Equipment: Balls, Bat, Stick, Racquets, Clothing and shoes: Types, Materials and Advantages.

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 equipment.

- Use of computer and software in Match Analysis and Coaching.

Unit IV: Modern equipment and Training Gadgets

- Measuring equipment: Throwing and Jumping Events. Protective equipment: Types, Materials and Advantages. Sports equipment with Nano technology, Advantages.
- 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 Floodlit 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.