

Course Code	Course Name	Credits
26PE103	AI Tools for sports and games	04

Course Objectives

- Introduce the concept, classification, and role of AI tools in sports and physical education.
- Explain the use of GPS, video analysis, and biometric tools for performance monitoring.
- Apply AI-based technologies for skill development, tactical analysis, and training improvement.
- Analyze physiological and performance data using wearable and smart technologies.
- Evaluate the role of AI in scouting, reporting, and sports administration.

Learning Outcomes

Upon successful completion of this course it is intended that a student will be able to:

- Understand basic concepts and types of AI tools used in sports.
- Apply performance analysis tools for measuring and improving athletic performance.
- Analyze biometric and physiological data for fitness and recovery monitoring.
- Evaluate tactical and skill-based performance using AI systems.
- Create simple AI-assisted reports, training plans, and performance summaries.

Unit 1- Introduction to Sports AI Tools: Definition and Classification of AI Tools - Hardware vs. Software Tools. Overview of GPS Trackers (Catapult, STAT Sports) and their role in measuring speed, distance, and intensity in field games.

Unit 2-Performance Analysis Tools: Video Analysis Software - Meaning and Functions of Hudl, Dartfish, and Kinovea. Automated Tagging and Coding: Using AI to automatically clip highlights and analyze player errors in real-time

Unit 3- Biometric and Health Monitoring: AI Tools for Physiological Data - Introduction to WHOOP and Oura for sleep and recovery tracking. Smart Clothing and Body-Worn Sensors: Functions of EMG (Electromyography) sensors in monitoring muscle activation.

Unit 4- AI for Tactical and Skill Development: Basketball and Football specific tools (e.g., Home Court, Shot Tracker). Using AI for "Ghosting" and Tactical simulation. Scouting and Recruitment Tools: Overview of data platforms like Wyscout and Opta.

Unit 5- Administrative and Creative AI Tools: Using AI for Sports Journalism and Reporting - Automated Match Summaries. Generative AI in Physical Education: Creating visual training charts and lesson plans using AI assistants. Data Privacy in tool usage.

Reference Books:

1. Ransdell, L. (2023) – Technology in Physical Education: A Guide for Teachers.
2. Baerg, A. (2017) – Big Data, Digits, and Sport. Routledge.
3. Miah, A. (2017) – Sport 2.0: Transformations in Control, Health, and Experience. MIT Press.
4. Kamlesh, M.L. (2002) – Physical Education: Facts and Foundations. Metropolitan Book Co.
5. Ray, G.B. (2021) – Artificial Intelligence in Sports. (Introductory Series).
6. Bhatia, K.K. – Educational Technology and Methods of Teaching. Prakash Bros.