

Program	BS Physical Education	Course Code	PE-401	Credit Hours	02
Course Title	Scientific Sports Coaching (Theory)				
Course Introduction					
This course provides a comprehensive understanding of the scientific principles behind effective sports coaching. It covers the application of physiological, biomechanical, psychological, and nutritional sciences to optimize athlete performance. Students will learn evidence-based coaching techniques, training methodologies, and strategies for athlete development.					
Learning Outcomes					
On the completion of the course, the students will:					
- Understand the scientific principles underlying effective sports coaching. - Apply physiological and biomechanical concepts to design training programs. - Utilize psychological strategies to enhance athlete performance. - Integrate nutritional science into coaching practices. - Develop individualized coaching plans based on scientific evidence. - Evaluate and modify training programs using scientific data. - Conduct performance analysis and provide feedback to athletes.					
Course Content					Assignments/Readings
Week 1	Introduction to Scientific Sports Coaching - Definition and scope - Role of science in sports coaching - Historical development of sports coaching				From Books and Class Lectures
Week 2	Physiological Foundations of Training - Energy systems and exercise metabolism - Acute physiological responses to exercise - Chronic adaptations to training				From Books and Class Lectures
Week 3	Principles of Training and Periodization - Training principles (specificity, overload, progression) - Designing periodized training programs - Macrocycles, mesocycles, and microcycles				From Books and Class Lectures
Week 4	Biomechanics in Sports Coaching - Basic biomechanical concepts - Kinematic and kinetic analysis of movements - Application of biomechanics in coaching				From Books and Class Lectures
Week 5	Psychological Aspects of Coaching - Motivation and goal-setting - Mental toughness and resilience - Techniques for enhancing focus and concentration				From Books and Class Lectures
Week 6	Nutrition for Athletes Macronutrient and micronutrient needs				From Books and Class Lectures

	• Timing of nutrient intake • Supplements and ergogenic aids	
Week 7	Practical Session: Performance Testing and Assessment • Conducting fitness assessments • Evaluating strength, power, and endurance • Interpreting test results	From Books and Class Lectures
Week 8	Developing Training Programs • Needs analysis and goal-setting • Designing sport-specific training plans • Monitoring and adjusting training loads	From Books and Class Lectures
Week 9	Coaching Techniques and Communication • Effective coaching styles and techniques • Building coach-athlete relationships • Providing constructive feedback	From Books and Class Lectures
Week 10	Injury Prevention and Management • Common sports injuries and their prevention • Rehabilitation principles • Role of the coach in injury management	From Books and Class Lectures
Week 11	Practical Session: Coaching Practice • Conducting training sessions • Implementing coaching techniques • Role-playing and case studies	From Books and Class Lectures
Week 12	Technology in Sports Coaching • Use of technology in performance analysis • Wearable devices and data analytics • Video analysis and feedback	From Books and Class Lectures
Week 13	Ethics and Professionalism in Coaching • Ethical issues in sports coaching • Professional standards and responsibilities • Legal aspects of coaching	From Books and Class Lectures
Week 14	Case Studies in Scientific Sports Coaching • Analysis of successful coaching strategies • Lessons learned from coaching legends • Applying case study insights to practice	From Books and Class Lectures
Week 15	Research in Sports Coaching • Current trends and research findings • Methodologies in sports coaching research • Critical analysis of research studies	From Books and Class Lectures
Week 16	Review and Final Exam Preparation • Review of key concepts and principles • Mock exams and practice questions • Final exam preparation	From Books and Class Lectures

Textbooks and Reading Material

Textbooks

- Baechle, T. R., & Earle, R. W. (2022). Essentials of strength training and conditioning (4th ed.). Human Kinetics.
- Benardot, D. (2019). Advanced sports nutrition (3rd ed.). Human Kinetics.
- Bompa, T. O., & Buzzichelli, C. A. (2018). Periodization training for sports (4th ed.). Human Kinetics.
- McGinnis, P. M. (2018). Biomechanics of sport and exercise (4th ed.). Human Kinetics.
- Weinberg, R. S., & Gould, D. (2021). Foundations of sport and exercise psychology (7th ed.). Human Kinetics.
- Zatsiorsky, V. M., & Kraemer, W. J. (2021). Science and practice of strength training (4th ed.). Human Kinetics.

Suggested Readings

- **Journals:** Journal of Strength and Conditioning Research, International Journal of Sports Science & Coaching, Journal of Sports Sciences
- **Websites:** National Strength and Conditioning Association (NSCA), American College of Sports Medicine (ACSM)
- **Videos:** Online coaching tutorials, webinars on sports science applications, interviews with renowned coaches