

Program	BS Physical Education	Course Code	PE-401	Credit Hours	02
Course Title	Scientific Sports Coaching (Theory)				
Course Introduction					
<p>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.</p>					
Learning Outcomes					
<p>On the completion of the course, the students will:</p> <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Training principles (specificity, overload, progression) • Designing periodized training programs • Macrocycles, mesocycles, and microcycles 				From Books and Class Lectures
Week 4	Biomechanics in Sports Coaching <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Motivation and goal-setting • Mental toughness and resilience • Techniques for enhancing focus and concentration 	From Books and Class Lectures
Week 6	Nutrition for Athletes <ul style="list-style-type: none"> • Macronutrient and micronutrient needs • Timing of nutrient intake • Supplements and ergogenic aids 	From Books and Class Lectures
Week 7	Practical Session: Performance Testing and Assessment <ul style="list-style-type: none"> • Conducting fitness assessments • Evaluating strength, power, and endurance • Interpreting test results 	From Books and Class Lectures
Week 8	Developing Training Programs <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Effective coaching styles and techniques • Building coach-athlete relationships • Providing constructive feedback 	From Books and Class Lectures
Week 10	Injury Prevention and Management <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Conducting training sessions • Implementing coaching techniques • Role-playing and case studies 	From Books and Class Lectures
Week 12	Technology in Sports Coaching <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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