

DISCIPLINE SPECIFIC ELECTIVE**DSE HH 7B3: NUTRITION FOR FITNESS AND SPORTS****CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE**

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Nutrition For Fitness and Sports	4	2	0	2	Studied Semester VI	Studied Nutritional Biochemistry I DSE HH 5B1

Learning Objectives

- To develop the concepts of fitness, components, assessment methods and approaches for improving fitness.
- To gain knowledge of Sports Nutrition and other important aspects for recreational and competitive athletes.
- To facilitate understanding and application of the energy systems, macro- and micro-nutrients, supplements and fluid recommendations for improving sports performance.
- To develop analytical skills of athletes' nutritional needs with respect to phases of training and competition.
- To gain knowledge with respect to nutritional care of special groups of athletes.

Learning Outcomes

- Understand concepts of fitness, its assessment and different approaches to improve fitness with special focus on skill related fitness.
- Exhibit knowledge of the metabolism and energy systems of exercise.
- Effectively plan and implement sport-specific diets for athletes through all age groups for recreational and competitive athletes in different phases of training and competition.
- Chalk out diet plans, nutrition education and counselling for special group of athletes.

SYLLABUS OF DSE HH 7B3**THEORY****(Credits 2; Hours 30)****UNIT I: Understanding Fitness and its Components****4 Hours**

This unit introduces physical fitness and aspects related with its assessment and enhancement

- Physical fitness components and their assessment methods.
- Approaches and guidelines to achieve fitness.
- Principles of weight management and Fad diets.
- Importance of yoga in daily life.

UNIT II: Fundamentals of Sports Nutrition**8 Hours**

In this unit students will learn the basic aspects of Sports Nutrition and energy metabolism.

- Sports nutrition and integrated approach to care for athlete
- Energy systems and fuel utilization for different sports.
- Dietary recommendations for Sports persons.
- Fluid requirements and rehydration strategies for athletic performance
- Body composition in different physiological conditions and factors affecting body composition
- Methods of assessing body composition.
- Energy concept and factors affecting energy; methods of measuring energy intake and expenditure and concept of energy balance and Energy availability

UNIT III: Nutrition and Athletic Performance**10 Hours**

This unit deals with nutrients, fluids and supplements for performance enhancement in exercise and sports.

- Macro- and Micro-nutrients; Nutritional guidelines; and Dietary recommendations for different categories of high performance sports
- Nutritional strategies for the Pre-exercise, Intra-exercise, post-exercise recovery and special considerations for different sports (endurance, strength, team sports, etc).
- Pre- Competition and post competition recovery phase
- Fluid requirements and rehydration strategies for athletic performance
- Supplements in Sport: performance enhancing substances, drugs, ergogenic aids and herbs in sports performance: Efficacy, Safety, regulations, and ethics

UNIT IV: Nutrition for special conditions in sports**4 Hours**

This unit deals with the nutritional management of athletes with special needs

- Women athletes, adolescent athletes, athletes with diabetes, vegetarian athletes, paralympics and special Olympics.
- Specific nutrition for weight category sports and sports requiring aesthetics: Addressing eating disorders and disordered eating in athletes.

UNIT V: Emerging Trends and Research in Sports Nutrition, ethics and Professional Practice **4 Hours**

- Advances in sports nutrition research - Current trends in dietary practices among athletes. Future directions in sports nutrition.
- Professional responsibilities of a sports nutritionist- Ethical considerations in sports nutrition counselling.
- Working with a multidisciplinary team (coaches, trainers, sport-sciences and medical staff).

PRACTICAL

(Credits 2; Hours 60)

- PARQ assessment and interpretation **4 Hours**
- Assessment of physical fitness of athletes **8 Hours**
- Planning a day’s diet for a fitness trainee who works out regularly at a gymnasium **4 Hours**
- Planning a training day’s diet for an individual high performance athlete (all 5 sports groups) and a counselling module for the training phase **20 Hours**
- Assessing target weight and Planning/monitoring a weight loss diet during the training phase, for a high performance athlete **4 Hours**
- Planning a diet for 1 week of carbohydrate loading for an ultra-endurance athlete **8 Hours**
- Planning a pre-, and post-competition meal for ultra-endurance, endurance, strength events, team events and sports-drinks during and after an event **8 Hours**
- Survey of sports supplements **4 Hours**

Essential Readings:

- Burke, L.M., Minehan, M. and Deakin, V. (2021) Clinical Sports Nutrition, 6th edition, Publishers McGraw Hill.
- Hickson, J.F. and Wolinsky I. (1997) Nutrition for Exercise and Sport. 2nd edition, CRC Press.
- ILSI, NIN & SAI (2017) Nutritional recommendations for high performance athletes 2nd edition.
- Lal, P.R. (2009) Handbook of Sports Nutrition. Friend’s Publication, Delhi, India.
- Mahan, L.K. and Escott Stump, S. (2016) Krause’s Food & Nutrition Therapy. 15th edition, Saunders-Elsevier.

Suggested Readings:

- Austin, K. G. and Seebohar B. (2021) Performance Nutrition for Athletes. Human Kinetics.
- Bushman, B. (2017) ACSM's Complete Guide to Fitness & Health 2nd Edition, ACSM.
- Dan Benardot (2011) Advanced Sports Nutrition-2nd Edition.
- Fink, H. H. and Mikesky A. E. (2017) Practical Applications in Sports Nutrition 5th Edition.
- Heather, H.F. and Alan, E. Mikesky (2015) Practical Application in Sports and Nutrition. Fourth Edition. Jones & Bartlett Learning, Burlington, M.A.
- Ryan, M. (2020) Sports Nutrition for Endurance Athletes (3rd Edition). VeloPress.
- McArdle, W.D., Katch F. I. and Katch V. L. (2020) Sports and Exercise Nutrition (5th Edition). Wolters Kluwer.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE

DSE HH 7B4: ADVANCED NUTRITION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course title & code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Theory	Tutorial	Practical/ Practice		
Advanced Nutrition DSE HH 7B4	4	2	0	2	Studied Semester VI	Nil

Learning Objectives

- To understand the functions of macro and micro-nutrients in a human body.
- To study the methods used for assessing nutrient requirements.
- To comprehend why and how the requirements change under special conditions.

Learning Outcomes

- Explain the importance of macro and micro-nutrients in a human body.
- Describe methods used for assessing nutrient requirements.
- Explain the reasons why the requirements change under special conditions.

SYLLABUS OF DSE HH 7B4

THEORY