

DEPARTMENT OF HOME SCIENCE
SEMESTER – IV

B.A (Prog) with Nutrition and Health Education (NHE)
B.A (Prog.) with Nutrition and Health Education (NHE) as Major
Category-II

DISCIPLINE SPECIFIC CORE COURSE

DSC- 7-NHE: Food Hygiene Sanitation and Quality Control

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title and Code	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Food Hygiene Sanitation and Quality Control	4	3	1	0	XII Pass	NIL

Learning Objectives

- To introduce students to the basic concepts of food hygiene, quality control, WASH and Swachh Bharat Abhiyan
- To equip them with the knowledge of basic principles of hygienic storage and preservation of food, microbiological safety at various food operations
- To enable students to understand the concept of quality control and sanitation standards/regulations

Learning Outcomes

After completion of the course students will be able to:

- Explain the concept of hygiene and sanitation at different levels of food handling
- Understand the microorganisms involved in food spoilage, food infection and intoxication, mode of transmission of microorganisms, methods of food preservation
- Understand the concept of total quality management, WHO five keys to safer food, sanitation standards and regulations

SYLLABUS OF DSC-7

THEORY

(Credits 3; Hours 45)

UNIT I: Concept of Hygiene and Sanitation

8 Hours

This unit will introduce the concept of WASH, various adverse health effects related to sanitation and hygiene; Swachh Bharat Abhiyan.

- Water, Sanitation and Hygiene (WASH)
- Sanitation and hygiene health effects
- Swachh Bharat Abhiyan

UNIT II: Food Hygiene and Sanitation

15 Hours

This unit will acquaint the students with the concept of food hygiene and sanitation at different levels of food handling.

- Personal hygiene
- Environmental hygiene
- Sanitation and hygiene during food handling practices (preparing, cooking and holding food)
- Food hygiene at food service institutions
- Food waste management

UNIT III: Food Borne Microbial Diseases

10 Hours

This unit will introduce the concept of public health hazard, mode of transmission of microorganisms, principles of food preservation, food storage.

- Public health hazards
- Food infection, intoxication and poisoning – symptoms, mode of transmission, and prevention
- Food storage (selection, purchase and storage of perishable, semi-perishable and non-perishable foods)
- Principles and methods of food preservation

UNIT IV: Quality Management

12 Hours

This unit will introduce the concept of total quality management, WHO five keys to safer food, hygiene and sanitation regulations/standards.

- Characteristics of quality
- Quality control, quality assurance
- Total Quality Management (TQM)
- Risk analysis
- HACCP, GMP, GHP
- WHO five keys to safer food
- Hygiene and sanitation regulations/standards

TUTORIALS
(Credits 1; Hours 15)

Tutorial classes will involve:

1. Q&A sessions/ Group Discussions/ Problem Solving exercises with the Students
2. Presentation of project/ research activity by students
3. Any other scholastic work related to application of conceptual understanding of the

subject

4. Evaluation and feedback by the teacher

ESSENTIAL/RECOMMENDED READINGS

- Roday, S. (2011). *Food hygiene and sanitation* (2nd ed.). Tata Mc Graw Hill.
- Mathur, P. (2018). *Food safety and quality control*. Orient Black Swan Pvt. Ltd.
- Marriott, N. G., Schilling, M. W., & Gravani, R. B. (2018). *Principles of food sanitation*. (6th ed.). Springer International Publishing.
- Sethi, P., & Lakra, P. (2015). *Aahaar vigyaan, poshan evam suruksha*, Elite Publishing House.
- Suri, S. & Malhotra A. (2014). *Food science, nutrition and safety*. Pearson.
- Frazier, W. C., Westhoff, D. C. (2017). *Food microbiology*. (5th edn.). McGraw Hill Education.
- Swachh Bharat Mission-Grameen, Department of Drinking Water and Sanitation, Ministry of Jal Shakti, Government of India. <https://swachhbharatmission.gov.in> (Accessed on 10 March 2023).
- UNICEF. *Water, Sanitation and Hygiene (WASH)*. <https://www.unicef.org/wash>. (Accessed on 10 March 2023).

SUGGESTED READINGS

- Lawley, R., Curtis L. & Davis, J. (2012). *The food safety hazard guidebook*. RSC Publishing.
- Forsythe, S.J. (2010). *The microbiology of safe food*. (2nd ed.). Wiley-Blackwell.
- Blackburn, C. D.W. & Mc Clure, P.J. (2005). *Food borne pathogens. Hazards, risk analysis & control*. CRC Press.
- Mortimore, S., & Wallace, C. (1995). *HACCP – A practical approach*. Chapman
- Jay, J. M. (2012). *Modern food microbiology*. (4th edn.). Springer.
- WHO. *Water Sanitation and Health*. <https://www.who.int/health-topics/water-sanitation-and-hygiene-wash>. (Accessed on 10 March 2023).

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

DISCIPLINE SPECIFIC CORE COURSE

DSC-NHE-8: Nutrition Entrepreneurship

CREDIT DISTRIBUTION, ELIGIBILITY AND PREREQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Nutrition Entrepreneurship	4	3	0	1	XII Pass	NIL

Learning Objectives

- To introduce the concept and explain the opportunities in the field of nutrition entrepreneurship
- To equip the students with the necessary knowledge and skills to develop a nutritious product and set up an entrepreneurial venture for the same
- To provide information regarding Government of India's initiatives to encourage entrepreneurship and other mandatory requirements in order to facilitate start-up ventures by the students

Learning Outcomes

After completing this course, the learner will be able to:

- Understand the significance of nutrition entrepreneurship in today's times
- Identify nutritious products for different target consumers and draw up a business plan for the production of the same
- Know the funding agencies/ institutions which can be approached for getting assistance in an entrepreneurial venture

SYLLABUS OF DSC-NHE-8

THEORY (Credits 3; Hours 45)

UNIT I: Introduction to Nutrition Entrepreneurship

9 Hours

This unit will introduce the concept of nutrition entrepreneurship and apprise the students of the opportunities in the field

- Meaning, concept and scope of nutrition-entrepreneurship
- Food and nutrition start-up: trends, opportunities and challenges
- Start-up life cycle

UNIT II: Nutrition Based Enterprise

18 Hours

This unit will impart knowledge regarding steps to be undertaken for setting up a nutrition based

food business.

- Qualities/ traits of an entrepreneur
- Development of innovative nutritious products
- Computation of nutritive value of the product
- Development of business plan for a nutritious food
- Resource management

UNIT III: Guidelines for an Entrepreneurial Venture

18 Hours

This unit will familiarize the students with Government of India's initiatives to promote entrepreneurship and necessary requirements to become nutrition-entrepreneur.

- Intellectual property rights
- Government schemes/ initiatives to support start-ups and promote entrepreneurship
- Food Safety Compliance System (FoSCoS) by FSSAI
- FSSAI guidelines for a food start-up

PRACTICAL (Credit 1; Hours 30)

1. Planning of innovative nutrient rich products
2. Computation of nutritive value of the products and justifying their nutritional superiority in comparison to existing products
3. Formulation of a hypothetical business proposal for a funding agency
4. Advertising for the products planned
5. Preparation of food product acceptance checklist

ESSENTIAL/ RECOMMENDED READINGS

- Taneja, S. (2014). *Entrepreneur development*. Delhi: Himalaya Publishing House.
- FSSAI. *Food Safety Compliance System (FoSCoS)*. <https://foscoss.fssai.gov.in>. (Accessed on 10 March 2023).
- Start-up India. (2022). *Schemes*. Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Government of India. <https://www.startupindia.gov.in/content/sih/en/government-schemes.html> (Accessed on 10 March 2023).
- FSSAI. *Guide for food start-ups*. <https://fostac.fssai.gov.in/assets/docs/guide-for-food-startup.pdf> (Accessed on 10 March 2023).
- FSSAI. *Food start-up in India – opportunities and challenges* https://www.fssai.gov.in/upload/media/FSSAI_News_Startup_FNB_26_02_2019.pdf. (Accessed on 10 March 2023).
- Sudheer, K. P., & Indira, V. (Eds.) (2022). *Entrepreneurship development in food processing*. New India Publishing Agency.

SUGGESTED READINGS

- Narayan, J., & Bala, P. (2016). *Start up your own restaurant*. Harper Collins.
- Green, K. (2017). *Recipe for success – the ingredients of a profitable food business*.