

- Vipin, K. (2009). *Vaisveekran evam mahila sashaktikaran vividha aayam*. New Delhi: Aeyal Publications.

**B.A. (Prog) with Food Technology (FT) as Major  
Category-II**

**DISCIPLINE SPECIFIC CORE COURSE – DSC-5-FT:  
FOOD BUSINESS OPERATIONS AND ENTREPRENEURSHIP**

**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		
Food Business Operations and Entrepreneurship	4	3	0	1	Class XII	Nil

**LEARNING OBJECTIVES:**

- To familiarize students with various food business operations.
- To make students understand the principles of managing food business
- To introduce students with the concept of entrepreneurship and commercial food handling.

**LEARNING OUTCOMES:**

After completion of the course, the students will be able to:

- Gain theoretical and practical knowledge related to management of food business
- Lead team or be team members in executing salient unit operations in food processing plant
- Plan the layouts and designs of commercial kitchen
- Initiate the entrepreneurial journey in the field food production and processing.

**SYLLABUS OF DSC-5-FT**

**THEORY  
(Credits 3: 45 Hours)**

**UNIT I: Unit I: Food Business Operations**

**(14 Hours)**

- Unit Description:* This introductory chapter shall appraise the students about the myriad opportunities associated with food business industry in India. It will also help them understand about the significance and principles of salient unit operations carried out in food processing units.

- *Subtopics:*
  - Scope and Trends of food business in Indian Scenario
  - Salient unit operations in food processing plant – purchase, storage and inventory, grading, sorting, pre-preparation techniques, salient processing operations (Thermal and Non-thermal Processing), marketing and distribution.

## **UNIT II: Management of Food Business (12 Hours)**

- *Unit Description:* This unit will help students understand the principles of managing a food business unit. The important concepts necessary for establishing and running a food business shall also be covered.
- *Subtopics:*
  - FSSAI regulations related to registration and licensing
  - Principles of management
  - Innovative food start-ups
  - Scheduling and forecasting
  - IT Applications and MIS in operations management.

## **UNIT III: Entrepreneurship (9 Hours)**

- *Unit Description:* The chapter shall help student understand the scope and nuances of being an entrepreneur.
- *Subtopics:*
  - Definition and characteristics of an entrepreneur
  - Objectives and phases in entrepreneurship development
  - Types and traits of entrepreneurship
  - Case studies on small scale to large scale food entrepreneurs (Indian traditional family food business).

## **Unit IV: Commercial Food Production Layout (10 Hours)**

- *Unit Description:* Food processing area plays a crucial role in processing food thus, this unit will help students understand the need for different types of kitchens for different types of foods/ food catering units.
- *Subtopics:*
  - Introduction to the concept of commercial kitchen
  - Types of commercial kitchens
  - Principles of commercial kitchens
  - Layouts and designs

### **PRACTICAL (Credits 1: 30 Hours)**

*No. of Students per Practical Class Group: 10-15*

1. Prepare presentation on Case study of traditional and contemporary food business (4 Hours)

2. Developing standard operating procedures (SOP) for the pre-preparation of a processed food product (2 Hours)
3. Developing an SOP for the processing of a processed food product (2 Hours)
4. Prepare a checklist for food safety management for any food production unit (4 Hours)
5. Prepare a layout for a commercial/ cloud kitchen (4 Hours)
6. Prepare a presentation on opportunities for raising funds such as bank loans, government schemes, CSR (6 Hours)
7. Developing an SOP for the sale and distribution of a perishable commodity (4 Hours)
8. Plan and implement a food product sale in college premises (4 Hours)

### **ESSENTIAL/ RECOMMENDED READINGS (Theory and Practical):**

1. Bali, P.S. (2009). Food: Production Operations. First Edition. Oxford University Press, New Delhi.
2. Sethi, M. (2015). Catering Management: An Integrated Approach. New Age International Pvt. Ltd. New Delhi.
3. Reynolds, D. (2013). Food Service Management Fundamentals. Wiley Publications, New Jersey.
4. Powers, T.F. (2018). Food Service Operations: Planning and Control. Wiley Publications, New Jersey.
5. Payne, P.J. & Theis, M. (2016). Food Service Management: Principles and Practices. Pearson Publications.
6. Sudheer, K.P., & Indira, V. (Eds.). (2021). Entrepreneurship Development in Food Processing (1st ed.). CRC Press.

### **SUGGESTED READINGS:**

1. Tuli, K.K. (2009). Fundamentals of Food Production. Anne Books Publications, New Delhi.
2. Hansen, H.O. (2015). Food Economics: Industry and Markets. Routledge Press, London.
3. Cavichhi, A. & Santini, S. (2017). Case Studies in the Traditional Food Sector. Woodhead Publishing, London.
4. Fisher, W.P. (2018). Case Studies in Food Service Management: Business Perspectives. Amer Hotel and Motel Association, USA.
5. Bonder, S., Inamdar, N. & Bhatija, M. (2017). The Indian Business Box Set (Stories of How Gujaratis, Baniyas and Sindhis do Business). Penguin Random House India Pvt. Ltd. New Delhi
6. Modlin, R.A. (2009). Commercial Kitchens : A Guide to Those Who Design, Recommend and Consult on Facilities for the Production, Processing and Finishing of Food for Volume Feeding Operations. American Gas Association Pvt. Ltd. USA.
7. Knight, J. B. & Kotschevar, L.H. (2000). Quantity Food Production Planning and Management. 3rd edition. New York:John Wiley & Sons.
8. Rameshwari, P. (2016). Skill Development & Entrepreneurship in India. Delhi: New Century Publications.
9. Umesh, S. & Vaibhav, M. (2009). Entrepreneurship Development & Management. Chandigarh: Abhishek Publications.

**DISCIPLINE SPECIFIC CORE COURSE – DSC-6-FT:  
BASIC BAKING TECHNOLOGY**

**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		
Basic Baking Technology	4	3	0	1	Class XII	Nil

**LEARNING OBJECTIVES:**

- To impart students’ basic knowledge related to the principles of baking
- To introduce the concept of proximate analysis and quality assessment of wheat flour
- To introduce them to the techniques and skills of cake and pastry making.

**LEARNING OUTCOMES:**

After completion of the course, the students will be able to:

- Describe the present and future trends of the bakery industry.
- Illustrate the basic ingredients and equipment used for baking along with their significance
- Develop and demonstrate the skills of preparing variety of cakes and pastries.
- Evaluate the quality of baked products
- Test wheat flour and conduct labeling, packaging and costing of prepared bakery products.
- Initiate the entrepreneurial journey in the field of bakery.

**SYLLABUS OF DSC-6-FT**

**THEORY  
(Credits 3: 45 Hours)**

**UNIT I: Baking Industry**

**(10 Hours)**

- *Unit Description:* This unit will introduce the students to the field of Food Bakery Science. It will also give information on nutrition facts of Bakery products.
- *Subtopics:*

- History of bakery - present trends and prospects
- Nutrition facts about bakery products
- Food safety aspects of baked products

**UNIT II: Wheat Grain, Baking Ingredients and Equipment (18 Hours)**

- *Unit Description:* The unit will focus on various aspects of structure and composition wheat grain and flour. It will also give information on bakery equipments.
- *Subtopics:*
  - Wheat grain– its structure
  - Milling of wheat, types of refined wheat flour; composition of refined wheat flour (gluten, amylose/ amylopectin, enzyme activity, moisture) and its storage
  - Bakery Equipments- oven, mixing tools and accessories

**UNIT III: Cake Processing (12 Hours)**

- *Unit Description:* The unit is about processing of various types of cakes, their labelling, packaging and evaluation.
- *Subtopics:*
  - Preparation of cakes - types of cakes, methods of batter preparation, steps in cake making, balancing of cake formula, evaluation of the baked cake, operational faults in cake processing and the remedial measures.
  - Packaging, labelling, and costing

**UNIT IV: Pastry Technology (5 Hours)**

- *Unit Description:* The unit is about processing of various types of pastries, and their evaluation.
- *Subtopics:*
  - Preparation of pastry - types of pastries (short crust, puff/flaky and choux pastry), processing and evaluation, faults and remedies.

**PRACTICAL  
(Credits 1: 30 Hours)**

*No. of Students per Practical Class Group: 10-15*

1. Quality Testing of Flour: Determination of water absorption power (WAP) of refined wheat flour and whole wheat flour (2 Hours)
2. Determination of moisture content of refined wheat flour (2 Hours)
3. Preparation of Sensory evaluation card (Hedonic scale) for various baked products (2 Hours)
4. Preparation, labelling and sensory evaluation of cakes (12 Hours)
  - Fatless sponge (pineapple sponge, chocolate sponge and Swiss roll)
  - Shortened cake (plain tea cake, Dundee cake, marble cake, fruit cake and innovative nutritious cakes)
  - Eggless cake

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|---|-----------|
| 5. Preparation and sensory evaluation of pastry<br>-Short crust (jam tarts)<br>-Puff/flaky (Bombay khari, vegetable patties/ puff)<br>-Choux pastry (chocolate éclairs) | (8 Hours) |
| 6. Market survey of innovative nutritious bakery products   | (4 Hours) |

**ESSENTIAL/ RECOMMENDED READINGS (Theory and Practical):**

1. Dubey, S. C. (2016). *Basic Baking-Science and Craft*. Delhi: Society of Indian Bakers.
2. Dubey, S. C. (2009). *Bakery Vighan*. Delhi: Society of Indian Bakers.
3. Ketrappaul, N., Grewal, R.B., & Jood, S. (2005). *Bakery Science and Cereal Technology*. Delhi: Daya Publishing House.
4. Potter, N., & Hotchkiss, J.H. (2006). *Food Science*. Delhi: CBS Publishers.
5. Srilakshmi, B. (2018). *Food Science*. Delhi: New Age International Publishers.

**SUGGESTED READINGS:**

1. Cornell, Hugh, J. & Hoveling, Alber. W. (1998). *Wheat Chemistry and Utilization*, Delhi: CRC Press.
2. Edward, W. P. (2007). *The Science of Bakery Products*. Cambridge: RSC Publishing.
3. Kent, N.L. (2004). *Technology of Cereals*. London: Pergamon Press.
4. Khanna, K., Gupta, S., Seth, R., Mahana, R., & Rekhi, T. (2004). *The Art and Science of Cooking*. Delhi: Phoenix Publishing House Private Limited.
5. Matz A. (2004). *The Chemistry and Technology of Cereals as Food and Feed*. Delhi: CBS Publishers.
6. Matz, A. (1998). *Bakery Technology and Engineering*. Delhi: CBS Publishers.
7. Raina, U., Kashyap, S., Narula, V., Thomas, S., Suvira, Vir, S., & Chopra, S. (2005). *Basic Food Preparation – A Complete Manual*. Delhi: Orient Longman.