Sem V Paper 1

BvFt 501 : BAKERY AND CONFECTIONARY PRODUCTS (3 Credits)

Sr. No	TOPICS	Lectures (45L)
1	**Unit 1: Introduction to bakery and confectionery (2 L)** Scope of bakery, Organizational structure,Units of measurements,Bakery terms, Basic equipment, Baking temperatures for bread and confectionery	2
2	**Unit 2: Hygiene (2 L)** Concept of hygiene and its importance in bakery,Personal hygiene, Work area hygiene,Basic first aid,	2
3	**Unit 3:Bakery Materials & Products** Cereals : Structure of wheat grain, principle wheat countries and characteristics of wheat	20
	1 Milling : A general descriptive survey of the various processes. Flour : Refined – Its composition, nature of gluten and its functions in bread making and	
	Baking: simple tests for flour quality, colour, gluten and water absorption. Characteristics ofdifferent flours and their suitability for use in different types of baked products. Flour improvers. **Enriched Bakery Products :** Bakery goods with soya flour, ground-nut flour, whole wheatmeal .	
	Yeast : An elementary knowledge of baker's yeast, its production, its role in the fermentationof dough and conditions favorable for its action. Brewers yeast, otheryeasts like yeast tablets, their advantages and disadvantages. Yeast foods and breadimprovers.	
	Salt : The use and effects of salt in making bread.Descriptive terms used in judging characteristic of products and evaluation.Bread faults, bread diseases (rope and mould) and remedies.	
	Bread improvers and additives Natural : Milk, egg, S.M.P, soya flour, fat, sugar Chemical: Glycerol mono state, Potassium bromate, potassium iodate	
	Characteristics of good bread: external : volume, symmetry , shape, colour, internal: texture, aroma, clarity, elasticity	
	Study of cake making- flour, oil and fats, eggs, sugar, dried fruits and nuts. Chemical leavening agents- baking powder, sodium bicarbonate, ammonium bicarbonate, cream of tartar. Moistening agents, colours and flavours.	
	Cake making methods: Sugar batter method, Flour batter method Blending	
	Pastry making.: Sugar boiling.Fondants and chocolate work.Marzipans. Icings and cream fillings. Other sundry materials, and mixtures used in confectionery such as jams, jellies, curds, creams, custards, minced meat, gelatin, agar agar, isinglass, sodium alginate, pectin, gums. Recipe balancing, cake faults and remedies.	

5	**Confectionary:** **Introduction to confectionery** Scope of confectionery, Confectionary terms, Small and large equipment used in bakery and confectionery	**2**
	Unit 5: Characteristics of confectionery products and evaluation. Biscuit manufacture.Cake making utensils, equipment and machinery. Elementary knowledge of the construction and working of various types of ovens. Baking time and temperature for flour confectionery. Setting up a small scale bakery -feasibility, layout, equipment and production.	**7**
6	**Unit 6: Role of raw material required for confectionery** Wheat, flour, sugar, fat , eggs, Essential ingredients: flour, sugar, shortening, eggs, Optional ingredients: baking powder, milk, milk products, dry fruits, baking soda, dairy products, etc.	**5**
	Moistening agents: Milk, Egg, Water **Fats and oil** Composition, functions in confectionery, types of fats and oil, storage **Leavening agents:** Chemical, natural, water vapors and biological **Storage of raw material and the finished products**	
7	**Unit 7: Equipment, Maintenance and Service :** Elementary study of services with particular reference to economy and safety in their use., Heat and temperature- types of heat- latent heat; heat conduction, convection and radiation. Types of fuels- Solid, liquid, gaseous and electricity; comparison, cost, efficiency, and precautions. Types of oven, Electric oven: OTG, microwave, rotary, single deck, double deck, pizza oven, Non electric oven: Diesel oven, gas oven , brick oven Conductors and non – conductors; meaning of Ampere, volt, wattand fuse. Short circuit- causes and remedies; different types of thermostat. Meter reading. Break down maintenance and preventive maintenance equipment. Fire precautions – different types of fires, extinguishers; common fire hazards.	**5**
8	**Unit 8:Costing** Components of cost, behavior of cost(fixed cost, semi fixed cost, variable cost)	**2**

REFERENCE BOOKS

1. A Professional Text To Bakery And Confectionary by John Kingslee
2. Ornamental Confectionery And The Art Of Baking In All Its Branches by Herman Hueg
3. Bread: A Baker's Book of Techniques and Recipes by Jeffrey Hamelman
4. The Taste of Bread by Raymond Calvel
5. Special and Decorative Breads (The Professional French Pastry Series) by Roland ilheux

Sem V Paper 2
BvFt 502: MEAT, FISH AND POULTRY PROCESSING (Credits 3)

Sr. No	TOPICS	Lectures (45L)
1	**Introduction, importance of meat processing for entrepreneurship development and Meat plant sanitation and safety**	5
2	**Methods of meat processing(**Curing, Tumbling, Massaging and Smoking**)**	5
3	**Quality of meat(**Visual Identification, Juiciness ,Firmness Tenderness and Flavour)	5
4	**Canning, pickling, preservation of meat**	4
5	**Principle and methods of fish, processing (**Salting, Curing, Pickling, Cooking, Canning, Drying and Dehydration)	6
6	**Quality of fish suitable for processing(**appearance ,odour, flavor ,texture ,ingredients and composition packaging , defects and blemishes , size and weight)	4
7	**Methods Of Poultry Processing(**Tumbling and Massaging Smoking Deboning and Grinding)	5
8	**Quality Of Poultry(**Meat Quality , Meat Colour , Meat Tenderness Discolouration and Toughness)	5
9	**Importance of egg production(**Egg structure: Composition, quality characteristics: Shell Colour, Egg White Colour and Yolk Colour processing, storage and preservation methods of egg : Pickling and canning of eggs)	6

REFERENCE BOOKS:

1.Production and processing of healthy meat, poultry and fish products by A.M Pearson, T.R
2.Dutson and Thayne R.Dutson
3.Principles of Meat Science by F. J. Forrest
4.Meat Hand Book by Albert Levie
5. Developments in Meat Science Vol. I and II by Ralston Lawrie
6.Poultry Production by R. A. Singh
7.Meat Technology by Gerard F.

Sem V Paper 3

BvFt 503: Product development and formulation (Credit 3)

Sr.no	Content	Lectures (45L)
1	Introduction and overview	2
2	Phases in new food product development, product management and planning.	4
3	Generation of new product ideas, Product concepts, Product design.	6
4	Ingredients technology – carbohydrates, proteins, fat, stabilizers, flavors, colorants.	10
5	Prototype development	4
6	Sensory evaluation of products	3
7	Process development	3
8	Consumer testing, test market strategy	4
9	Shelf-life study, integration of R&D specification, manufacturing,	5
10	Product roll-out, presentation of products development.	4

References:

1. Lyon, D.H.; Francombe, M.A.; Hasdell, T.A.; Lawson, K. (eds) (1992): Guidelines for Sensory Analysis in Food Product Development and Quality Control. Chapman and Hall, London.
2. Amerine, M.A.; Pangborn, R.M.; Roessler, E.B. (1965): Principles of Sensory Evaluation. Academic Press, New York.
3. Kapsalis, J.G. (1987): Objective Methods in Food Quality Assessment. CRC Press, Florida.
4. Martens, M.; Dalen, G.A.; Russwurm, H. (eds) (1987): Flavour Science and Technology. John Wiley and Sons, Chichester.
5. Moskowitz, H.R. (eds) (1987): Food Texture: Instrumental and Sensory Measurement. Marcel Dekker Inc. New York.
6. Lawless, H.T. and Klein, B.P. (1991): Sensory Science Theory and Applications in Foods. Marcel Dekker Inc.
7. Jellinek, G. (1985): Sensory Evaluation of Food Theory and Practice. Ellis Horwood, Chichester.
8. Piggott, J.R. (ed) (1988): Sensory Analysis of Foods. Elsevier Applied Science, London.
9. Meilgaard, M.; Civille, G.V.; Carr, B.T. (1987): Sensory Evaluation Techniques, Vols. I and II, CRC Press, Florida.
10. Moskowitz, H.R. (1983): Product Testing and Sensory Evaluation of Foods: Marketing and R & D approaches. Food and Nutrition Press, Connecticut.
11. Moskowitz, H.R. (1985): New Directions for Product Testing and Sensory Analysis of Foods.Food and Nutrition Press, Connecticut.
12. O'Mahony, M. (1986): Sensory Evaluation Practices. Academic Press, London.
13. Thomson, D.M.H. (1988): Food Acceptability. Elsevier Applied Science, London.
14. Watts, B.M., Ylimaki, G.L., Jeffery, L.E. and Elias, L.G. (1989): Basic Sensory Methods for Food Evaluation. The International Development Research Centre, Ottawa, Canada.

15. Askar, A. and Treptow (1993): Quality Assurance in Tropical Fruit Processing. Springer-Verlag, New York.
16. ASTM (1968 to 1981): Special Technical Publications, American Society for Testing and Materials, Philadelphia.
17. Ball, A.D. and Buckwell, G.D. (1986): Work Out Statistics: 'A' level. MacMillan,London.
18. BSI (1975 to 1989) BS 5098 & BS 5929: Publications of British Standards Institution, London.
19. Resurrecion, A.V.A. (1998). Consumer Sensory Testing for Product Development. Aspen Publishers Inc., Guthersburg, Maryland USA.
20. BIS 6273 (1972) Guide for Sensory Evaluation of foods. Optimum Requirement. Part I. Bureau, Of Indian Standards, ManateBhavan, New Delhi.
21. Fuller, G.W.(1994) New Food Product Development : From Concept to Market place CRC Press, New York.
22. Man, C.M.D. and Jomes A.A. (1994) Shelf life Evaluation of Foods. Blackie Academic and Professional, London.
23. Shapton, D.A. and Shapton, N.F.(1991) Principles and Practices for the Safe Processing of Foods. Butterworth Heinemann Ltd , Oxford.
24. Graf, E. and Saguy, I. S. (1991). Food Product Development : From concept to the Market place, Van Nostrand Reinhold New York.
25. Oickle, J.G.(1990) New Product Development and Value Added. Food Development Division Agriculture, Canada.
26. Proc. Food Processors Institute : A key to Sharpening your Competitive Edge. Food Processors Institute, Washington, DC.

Journals:

1. International Journal of Food Science and Technology
2. Food Technology
3. Journal of Food Technology
4. Trends in Food Science and Technology
5. Critical Reviews in Food Science and Nutrition

Sem V paper 4
BvFt 504: Waste management in food industry (Credits 2)

S. No.	Waste management in food industry (2 Credits)	Lecture (30L)
1	Introduction: Classification and characterization of food industrial wastes from Fruit and Vegetable processing industry, Beverage industry; Fish, Meat & Poultry industry, Sugar industry and Dairy industry; Waste disposal methods – Physical, Chemical & Biological; Economical aspects of waste treatment and disposal.	5
2	Treatment methods for liquid wastes from food process industries; Design of Activated Sludge Process, Rotating Biological Contactors, Trickling Filters, UASB, Biogas Plant.	6
3	Treatment methods of solid wastes: Biological composting, drying and incineration; Design of Solid Waste Management System: Landfill Digester, Vermicomposting Pit.	5
4	Biofilters and Bioclarifiers, Ion exchange treatment of waste water, Drinking-Water treatment, Recovery of useful materials from effluents by different methods.	4
5	Water quality, treatment and recycle. BOD, COD and definitions, Discharge limits for effluents.	2
6	Value added products from of agri food processing industry	2
7	Recovery of biological from dairy, meat, fish and poultry processing industry	3
8	Case studies: Cane Sugar waste, molasses for alcohol, baggasse for paper pulp, chemicals, bioethanol, cogeneration. Other processes including vermi culture.	3

Text books/ References:

1. Food Industry Wastes: Disposal and Recovery; Herzka A & Booth RG; 1981, Applied Science Pub Ltd.
2. Water & Wastewater Engineering; Fair GM, Geyer JC & Okun DA; 1986, John Wiley & Sons, Inc.
3. Wastewater Treatment; Bartlett RE; Applied Science Pub Ltd.
4. Symposium: Processing Agricultural & Municipal Wastes; Inglett GE; 1973, AVI.
5. Food Processing Waste Management; Green JH & Kramer A; 1979, AVI.
6. Environmental Biotechnology: Principles and Applications; Rittmann BE & McCarty PL; 2001, Mc-Grow-Hill International editions.
7. Environmental Biotechnology; Bhattacharyya B C & Banerjee R; Oxford University Press.

Sem V Paper 5

BvFt 505 : MANAGEMENT PRINCIPLES AND BUSINESS ETHICS

Sr. No.	Topic	Lectures (30L)
1	**HISTORICAL DEVELOPMENT** Definition of Management - Science or Art - Management and Administration - Development of Management Thought - Contribution of Taylor and Fayol - Functions of Management - Types of Business Organisation.	3
2	**PLANNING** Nature & Purpose - Steps involved in Planning - Objectives - Setting Objectives - Process of Managing by Objectives - Strategies, Policies & Planning Premises- Forecasting - Decision-making.	4
3	**ORGANISING** Nature and Purpose - Formal and informal organization - Organization Chart - Structure and Process - Departmentation by difference strategies - Line and Staff authority - Benefits and Limitations - De-Centralization and Delegation of Authority - Staffing - Selection Process - Techniques - HRD - Managerial Effectiveness.	5
4	**DIRECTING** Scope - Human Factors - Creativity and Innovation - Harmonizing Objectives - Leadership - Types of Leadership Motivation - Hierarchy of needs - Motivation theories - Motivational Techniques - Job Enrichment - Communication - Process of Communication - Barriers and Breakdown - Effective Communication - Electronic media in Communication.	5
5	**CONTROLLING** System and process of Controlling - Requirements for effective control - The Budget as Control Technique - Information Technology in Controlling - Use of computers in handling the information - Productivity - Problems and Management - Control of Overall Performance - Direct and Preventive Control - Reporting - The Global Environment - Globalization and Liberalization - International Management and Global theory of Management.	3
6	**ETHICS AND BUSINESS** Why be ethical in business? How might ethical decision-making work? Corporate Culture and Ethical Leadership. Corporate governance, Accounting and finance practices	4
7	**CORPORATE SOCISAL RESPONSIBILITY- A CASE STUDY**	2
8	**RIGHTS AND DUTIES** Employer/ Employee rights and duties, sexual harassment, technology & privacy	2
9	**ETHICS AND CONSUMERS** Marketing and sales, advertising, environmental issues	2

REFERENCES

1. Harold Kooritz& Heinz Weihrich "Essentials of Management", Tata McGraw-Hill,1998
2. Joseph L Massie "Essentials of Management", Prentice Hall of India, (Pearson) Fourth Edition, 2003.
3. Tripathy PC And Reddy PN, " Principles of Management", Tata McGraw-Hill, 1999.
4. Decenzo David, Robbin Stephen A, "Personnel and Human Reasons Management", Prentice Hall of India, 1996
5. JAF Stomer, Freeman R. E and Daniel R Gilbert Management, Pearson Education, Sixth Edition, 2004.
6. Fraidoon Mazda, "Engineering Management", Addison Wesley,-2000.

Sem V Practical 1

BvFt 506 : PRACTICALS OF BAKERY AND CONFECTIONARY PRODUCTS

(Credits 3)

Sr.No	TOPICS	Practical (15P)
1	**Bakery:Basic Bread by different methods** Bread rolls, Bread sticks, White bread, Brown bread, Soft rolls, Buns Milk bread, Whole wheat bread,Pizza	4
2	**Confectionery:Cakes by different methods:** Vanilla Sponge cake, Fruit cake, Swiss roll, Chocolate sponge **Icing :** Fondant, Marzipan, Frosting, Dairy and non-dairy cream icing	4
3	**Biscuits and cookies**: Nan khatai,Salted biscuits **Puff pastry:** Veg patties, Chicken patties, Khara biscuit	3
4	**Equipment, maintenance and costing:** -Safety aspects of electricity, gas and other fuels, their comparative efficiency. -The equipment available for the specific craft, their specification cost. -Students gain basic skills in the use, care and cleaning of appropriate equipment. -Routine use, care and cleaning of all fixed and movable equipment including oven, dough mixer, bread sliver, bread molder, dough divider and refrigerator. -The equipment available for the specific craft, their specification and cost. -Importance of costing and control, methods of costing and costing methodology in bakeries and confectioneries.	4

Sem V Practical 2

BvFt 507: PRACTICALS ON MEAT, FISH AND POULTRY PROCESSING (Credit 3)

Sr. No	TOPICS	Practicals (15P)
1	Conduct survey of the different meat processing industries	2
2	Carryout survey of the different processed products from meat fish and poultry	2
3	Carryout meat processing : cutting (carcassing), cleaning storage, sanitation	2
4	Conduct practicals on canning, pickling, preservation of meat	2
5	Check quality of fish for processing	1
6	Produce Dehydrated canned, pickled fish, Fishmeal protein, and fishmeal powder	1
7	Prepare canned egg and canned egg pickle	2
8	Process chicken and test quality	1
9	Prepare processed product from chicken and other birds e.g. Sausages, pickle, dried chicken	1

Sem V Practical 3
BvFt 508: Practical on Product development and formulation (Credit 3)

Sr. no.	Content	Lectures (45L)
1	To Generate new product ideas, Product concepts, Product design.	2p
2	To study ingredients technology – carbohydrates, proteins, fat, stabilizers, flavors, colorants.	3p
3	To study Prototype development	1p
4	Sensory evaluation of products	1p
5	The Process development	4p
6	Consumer testing, test market strategy	2p
7	Shelf-life study, integration of R&D specification, manufacturing,	2p
8	Product roll-out, presentation of products development.	2p

Sem V Practical 4
BvFt 509: Practical for Waste management in food industry (Credits 2)

Sr. No.	Waste management in food industry (Credits 2)	Practical (10P)
1	Study of different waste management in food industry	1
2	Study of ETP;	1
3	waste water analysis;	1
4	waste material recovery;	1
5	water filtration;	1
6	By product utilization.	1
7	anaerobic digestion of food industry waste water,	1
8	waste water treatment of brewery winery and distillery,	1
9	utilization of plant by products for the recovery of proteins, dietary fibers, anti-oxidants and their use as neutraceutical	2

Sem VI Paper 1

BvFt 601: FOOD STORAGE AND WAREHOUSE TECHNOLOGY (Credits 3)

Sr. No.	Topic	Lectures (45 L)
1	**INTRODUCTION TO STORAGE AND WAREHOUSE** Introduction- evaluation of storage- economics- storagge operations- storage terminology. Warehouse design and construction. Material used for warehouse construction	8
2	**TYPES OF STORAGE AND RESPECTIVE WAREHOUSE DESIGNS** Cold storage, storage of dry and processed foods, storage of fresh foods, storage temperature, storage humidity and other environmental factors affecting storage.	8
3	**SUPPLY CHAIN MANAGEMENT** Principles of supply chain management, documentation and management of warehouse contents. Logistics of supply chain management. Perspectives of buyers, suppliers and producers. Strategies of supply chain management. Role of demand supply prediction in supply chain management.	16
4	**PEST CONTROL IN WAREHOUSES** Construction and material of warehouse, pests infesting different types of food materials, control measures for various pests. Permitted levels of pesticides.	6
5	**WAREHOUSE SAFETY AND DAMAGE CONTROL** Reasons for loss and damage of food. Possibility and extent of damage arising from natural events. Strategies for fire and flood control. Insurance cover for the stock and building. Theft protection and security.	8

Text/References:

1. Supply Chain Management – Sunil Chapra& Peter Meindl, PHI
2. Essentials of Supply Chain Management – Dr. R.P. Mohanty& Dr. S.G. Deshmukh, Jaico Publishing House
3. Designing & Managing The Supply Chain David Simchi-Levi , Philip Kamiusky, Edith Simchi-Levi, TATA Mc-Graw Hill
4. J.F.Eastam, L.Sharples, S.D.Ball. "*Food Supply Chain Management*", Butterworth –Heinemann, 2001.
5. M.A.Bourlakis, P.W.H. Weightman "*Food Supply Chain Management",*1sted., Wiley Blackwell, 2004

Sem VI Paper 2

BvFt 602: Quality Control and Quality Assurance (Credits 3)

Sr.no	Content	Lectures (45L)
1	Concept of quality: Quality attributes – physical, chemical, nutritional, microbial, and sensory. Quality control in Food industry : Concepts of quality management: Objectives, importance and functions of quality control; Principles of quality control.	10
2	Quality management systems in India; Sampling procedures and plans; Food Safety and Standards Act, 2006; Domestic regulations; Global Food safety Initiative; Various organizations dealing with inspection, traceability and authentication, certification and quality assurance (PFA, FPO, MPO, AGMARK, BIS); Labeling issues; International food standards.	15
3	Use of hazard analysis and critical control points in processing of foods. Quality assurance, Total Quality Management; GMP/GHP; GLP, GAP; Sanitary and hygienic practices; Quality manuals, documentation and audits; Indian & International quality systems and standards like ISO and Food Codex; Export import policy, export documentation; Laboratory quality procedures and assessment of laboratory performance; Applications in different food industries.	20

REFERENCE

1.Early, R. (1995): Guide to Quality Management Systems for the Food Industry, Academic and Professional, London

2. Gould, W.A. and Gould, R.W. (1988): total Quality Assurance for the Food Industries, CTI Publications Inc. Baltimore.

3. Askar, A. and Treptow, H. (1993): Quality Assurance in Tropical Fruit Processing, Springer – Vertag, Bertin.

4. World Health Organisation (1998): Guidelines for Drinking Water Quality, 2nd edition, vols. 1,2, and 3, Geneva.

5. Marth, E.H. (1978): Standard Methods for the Examination of Dairy Products 14th ed or edition. Interdisciplinary Books and Periodicals, Washington, D.C.

6. Ranganna, S. (1986): Handbook of Analysis and Quality Control for Fruit andVegetable Products, 2nd edition, Tata McGraw Hill Publishing Co. Ltd., NewDelhi.

7. Hagstad, H.V. and Hubbert, W.T. (1986): Food Quality Control, Foods of Animal Origin, lowa State University press, AMES.

Sem VI Paper 3
BvFt 603: FOOD LAWS AND REGULATIONS (Credits 3)

S. No.	FOOD LAWS AND REGULATIONS (3 Credits)	Lecture (45L)
1	**Unit 1**: 1.Introduction - What is the need for food standards and their enforcement	**1**
2	2. Various types of laws- Mandatory/Regulatory and Voluntary/Optional – IIntroduction to various food laws (Mandatory) - Food Safety and Standards Act, 2006 (FSSA), Edible Oils Packaging (Regulation) Order, 1998, Environment (Protection) Act, 1986, Fruit Products Order, 1955 (FPO), Meat Food Products Order, 1973 (MFPO), Milk and Milk Product Order, 1992 (MMPO), Solvent Extracted Oil, De-oiled Meal and Edible Flour (Control) Order, 1967, Standards of Weights and Measures Act, 1976, The Essential Commodities Act, 1955, The Export (Quality Control and Inspection) Act, 1963, The Insecticides Act, 1968, Vegetables Oil Products(Control) Order, 1998, Prevention of Food Adulteration Act & Rules (PFA Act), 1954	8
3	3. Introduction to various food laws (Voluntary) – Agmark Standards (AGMARK), Codex Alimentarius Standards, BIS Standards and Specifications, Consumer Protection Act, 1986	6
4	**Unit 2**:1. Food Safety and Standards Act, 2006 (FSSA) - Need, Scope and Definitions (Chapter I of FSSA, 2006)	2
5	2. Establishment of Food Safety and Standards Authority of India (FSSAI) (II), Composition of FSSAI and qualifications for appointment of its Chairperson & other Members	3
6	3. Functions of the chairperson and other members of FSSAI	3
7	4. Establishment and Functions of Central Advisory Committee, Scientific Panels, Scientific Committees. Duties and functions of Food Authority	4
8	5. General principles to be followed in the administration of FSSA (III). General provisions as to articles of food in the FSSA (IV). Special responsibility as to safety (VI). Analysis of food (VIII). Offences and penalties (IX)	7
9	6. Enforcement of FSSA (VII). Food Safety Officer (FSO)/ Food Inspector (Called so by PFA Act) - Powers, Duties and functions of FSO	2
10	**Unit 3**:1. Prevention of Food Adulteration Act & Rules (PFA Act), 1954. Definition. Object of the act. Central committee for food standards	1
11	2. Consumer Protection Act, 1986 and Consumer Protection Rules, 1987. - Need,	3

	Scope, Functions and Enforcement	
12	3. Standards of Weights and Measures Act, 1976. - Need, Scope, Functions & Enforcement	3
13	4. AGMARK 5. Bureau of Indian Standards (BIS)	2

Reference Books:

1. Patricia and Curtis A, An operational Text Book, Guide to Food Laws and Regulations.
2. Srilakshmi B, Food Science.
3. Avanthi Sharma, A text book of Food Science and Technology.
4. Sumati R Mudambi, Shalini M Rao and Rajagopal M.V, Food Science.
5. Potter NN and Hotchkiss JH, Food science
6. Dev Raj, Rakesh Sharma and Joshi V.K, Quality for Value Addition in Food Processing.
7. The Food Safety and Standards act, 2006 along with Rules & Regulations 2011, Commercial Law Publishers (India) Pvt. Ltd.

Sem VI Paper 4
BvFt 604: Entrepreneurship Development (Credit 3)

Sr. No.	Entrepreneurship Development (3 Credit)	Lectures (45L)
1	Introduction to Entrepreneurship Definition, Concept and Need for entrepreneurship.	2
2	Types of entrepreneurs: Spontaneous, Motivated and Induced. (Teachers to explain and discuss case studies in class and invite different types of entrepreneurs to share the reasons and causes to entrepreneurship as a profession)	2
3	Kinds of Entrepreneurship: Proprietary, Partnership and Group Entrepreneurship. (Teachers to explain and discuss case studies in class and invite different kinds of entrepreneurs to share their experiences and talk about the advantages and disadvantages of proprietary partnership and group enterprises)	2
4	Exploring the World of Entrepreneurs: Legendary, Business, Social and Environmental,Artistic and Aesthetic Entrepreneurs (Students to Document case studies and present using different audiovisual aids, may be individual or group activity)	8
5	Entrepreneurs in Shadows, failed entrepreneurship(Students to Document case studies and present using different audiovisual aids, may be individual or group activity)	2
6	New Internet Entrepreneurs. (Students to Document case studies and present using different audiovisual aids, may be individual or group activity)	2
7	Entrepreneurial Assets : Entrepreneurial Values and attitudes. Entrepreneurial Qualities. Role demands and Requirements of Entrepreneurs. Barriers to entrepreneurship. (Teachers to discuss and expose students to entrepreneurs to share their views and importance they give to particular entrepreneurial values, attitudes, qualities, role demands, requirements and Barriers)	6
8	Entrepreneurial Motivation : Definition and Meaning of Achievement Motivation, - Need for Achievement Motivation, Motivating Factors: Internal and External.(Teachers to explain with examples)	4
9	Personality Development: experts in the field to take sessions with students., - Gaining Personal Focus: Defining ones own Intentions, goals and purpose.Internal Intentions: (Students to share what her business will accomplish for her in her life, like prestige, economic independence etc. etc. External Intentions: (Students to describe how and who the business will help.	4
10	Entrepreneurial Ideas 8- Creativity and Idea Generation, Searching and selecting Entrepreneurial Ideas..Dynamics of project Identification. Matching Project and enterprise. (Teachers to guide students) Gather Information on what works, How to succeed and Mistakes to avoid.(Students to interact with particular business persons related to their identified project/ field of interest, have Brainstorming sessions and share	8

	Ideas and Strategies in class)Research select articles written about the industry related to their product or service.	
11	Entrepreneurship Development: Assessing overall business environment in the Indian economy. Overview of Indian social, political and economic systems and their implications for decision making by individual entrepreneurs. Globalization and the emerging business / entrepreneurial environment. Government schemes and incentives for promotion ofentrepreneurship. Government policy on Small and Medium Enterprises (SMEs) / SSls.	5

References:

1. Bolton, B. & Thompson, J (2001): Entrepreneurs: Talent, Temperament, Technique, Replika Press Private Ltd, Delhi, 110 040, India.
2. Taneja, S. & Gupta, S.L. (1992) Entrepreneurship Development, New Venture Creation, Galgotia Publishing Company, New Delhi.
3. Hisrich, R.D. & Peters, M.P. (1995) Entrepreneurship: Starting, Developing and Managing a New Enterprise, Richard, D. USA, Irwin, INC.
4. Desai, V. (1991, 97, 99, Vol I & II,) Entrepreneurial Development, Himalaya PublishingHouse. Mumbai.

Sem VI Practical 1

BvFt 605: PRACTICALS IN FOOD STORAGE AND WAREHOUSE TECHNOLOGY

(credit 3)

Sr. No.	Topic	Practicals 15P
1	Design & construction of warehouse according to the food product being stored	2
2	Quality control and analysis during storage	2
3	Biochemical and nutritional changes in food products during storage	3
4	Facilities at a warehouse	2
5	A model for logistics and supply chain management at a warehouse with an example	3
6	Visit to a warehouse and write visit report	3

Sem VI Practical 2
BvFt 606: Quality Control and Quality Assurance Practical (3Credit)

Sr. No.	Content	Practical (15P)
1	Qualitative tests for fats and oils, spices and condiments.	2
2	Inspection of quality as per National and International standards for various food stuffs- pulses, spices, etc.	1
3	Estimation of residual sulphur dioxide in beverages.	1
4	Chromatographic estimation of colour.	1
5	Analysis of edible common salt for MC, MIW and total chlorides.	2
6	Estimation of ammonia in water.	1
7	Estimation of RM-PV value in oils.	1
8	Estimation of pesticide residues in food/water.	2
9	Estimation of benzoic acid in foods.	1
10	Visit to National Food research institute(NARFI)	3

References:

1.Amerine, M.A. Pangborn, R.M., and Rosseler, E.B. 1965. Principles of Sensory Evaluation of Food. Academic Press, New York.

2.Birk, G.G., Herman, J.G. and Parker, K.J. Ed. -1977. Sensory Properties of Foods. Applied Science, London.

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