

SHIVAJI UNIVERSITY, KOLHAPUR.



“A⁺⁺” Accredited by NAAC
(2021) with CGPA 3.52

Faculty of Interdisciplinary Studies

Structure, Scheme and Syllabus For

Certificate and Diploma Course

in Food Processing and Preservation.

Syllabus to be implemented from June, 2022-23 onwards.

As Per National Education Policy 2020

PROF.SAMBHAJIRAO KADAM COLLEGE, DEUR.

UGC-Community College

STRUCTURE AND SYLLABUS

Certificate Course & Diploma in Food Processing & Preservation

TITLE	: Certificate Course & Diploma (Food Processing & Preservation) Syllabus (Semester pattern) Under the faculty of Science
YEAR OF IMPLEMENTATION:	Syllabus will be implemented from July 2022
DURATION	Certificate Course (six months) Diploma (One Year/ two semesters)
PATTERN OF EXAMINATION	Semester pattern

Theory examination: At the end of semester as per Shivaji University rules
The theory examination shall be at the end of the each semester.

- All the general theory papers shall carry 40 marks and all vocational theory papers shall carry 50 marks.
- Evaluation of the performance of the students in theory shall be on the basis of semester examination as mentioned above. Question paper will be set in the view of entire syllabus preferably covering each unit of the syllabus.

• Nature of question paper for Theory examination (Excluding Business Communication Paper)

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- i. There will be seven questions carrying equal marks.
 - ii. Students will have to solve any five questions.
- Q. No. 1 : Short answer type question with internal choice
(Two out of Three)
- Q. No. 2 to Q. No. 6 : Long answer type questions
- Q. No. 7 : Short Notes with internal choice
(Two out of Three)

Practical examination: Evaluation of the performance of the students in practical shall be on the basis of semester examination (Internal assessment at the end of Semester I& II)

MEDIUM OF INSTRUCTIONS:

English /Marathi.

Eligibility for Admission :10 + 2 from any faculty or equivalent in any related stream

Eligibility for Faculty :

1) M. Tech. (Food Tech./Food processing)

M. Sc. (Food Science and Nutrition / FoodProcessing/ Food Science and Technology/ Home-Science/ Food Science and Quality Control with NET / SET

2) M. A (English) with NET/SET for Business Communication

Eligibility for Laboratory Assistant

B. Sc. (Food Science and Nutrition / Food Processing food Science and Technology or

B. Tech (Food Tech./ Food processing) home Science/ Food Science

Structure of the Course**Semester-I (Certificate Course)**

Sr No	Paper No.	Title of Paper	Theory/ Practical	Marks	Distribution of Marks		Credits	
					Theory	Practical	Theory	practical
1	I	Business Communication-I	Theory/ Practical	50	40	10	3	2
2	II	Fundamentals of Food Science-I	Theory/ practical	50	40	10	3	2
3	III	Food preservation	Theory	50	50	---	3	---
4	IV	Fundamentals of Food chemistry	Theory	50	50	---	3	---
5	V	Food microbiology	theory	50	50	---	3	---
6	VI	Laboratory work: Food preservation	Practical	50	---	50	---	3
7	VII	Laboratory work Fundamentals of food chemistry	Practical	50	---	50	---	3
8	VIII	Laboratory work Food microbiology	practical	50	---	50	----	3
9	IX	Project/study tour	—	50	---	50	---	2

Scheme of Teaching: Semester-I (Certificate Course)

Sr.No.	Paper No.	Title of Paper	Distribution of workload (per week)		
			Theory	practical	Total
1	I	Business Communication-I	4	2	6
2	II	Fundamentals of Food Science-I	4	2	6
3	III	Food preservation	4	---	4
4	IV	Fundamentals of Food chemistry	4	---	4
5	V	Food microbiology	4	---	4
6	VI	Laboratory work: Food preservation	---	4	4
7	VII	Laboratory work: Fundamentals of food chemistry	---	4	4
8	VIII	Laboratory work: Food microbiology	---	4	4
9	IX	Project/study tour	---	---	---
		Total	20	16	36

Structure of the Course**Semester-II (Diploma Course)**

Sr No	Paper No.	Title of Paper	Theory/ Practical	Marks	Distribution of Marks		Credits	
					Theory	Practical	Theory	practical
1	X	Business Communication-II	Theory/practical	50	40	10	3	2
2	XI	Fundamental of food science -II	Theory /practical	50	40	10	3	2
3	XII	Milk & Milk Processing	Theory	50	50	---	3	---
4	XIII	Bakery & Confectionary	Theory	50	50	---	3	---
5	XIV	Hygiene & Sanitation	Theory	50	50	---	3	---
6	XV	Laboratory work: Milk & Milk processing	Practical	50	---	50	---	3
7	XVI	Laboratory work: Bakery & Confectionary	Practical	50	---	50	---	3
8	XVII	Laboratory work: Hygiene & Sanitation	Practical	50	---	50	---	3
9	XVIII	Project/ Job Training	----	50	---	50	---	2

Scheme of Teaching: Semester-II (Diploma Course)

Sr.No.	Paper No.	Title of Paper	Distribution of workload (per week)		
			Theory	practical	Total
1	X	Business Communication-II	4	2	6
2	XI	Fundamentals of food science-II	4	2	6
3	XII	Milk & Milk processing	4	---	4
4	XIII	Bakery Confectionery	4	---	4
5	XIV	Hygiene & Sanitation	4	---	4
6	XV	Laboratory work: Milk & Milk Processing	---	4	4
7	XVI	Laboratory work: Bakery & Confectionery	---	4	4
8	XVII	Laboratory work: Hygiene & Sanitation	---	4	4
9	XVIII	project/Job Training	--	---	---
		Total	20	16	36

Certificate Course Semester-I
Food Processing & Preservation
Paper – I: Business Communication-I

Distribution of Workload:

Theory: 40 Marks.

Practical: 10mark

Theory: 04 lectures per week

Practical: 02 lectures per week per batch of 20 students

Total Workload: 06 lectures per week of 60 mins.

Unit 1: Use of English in Business Environment

Topics:

Business Vocabulary: Vocabulary for banking, marketing and for maintaining public relations

What is a sentence?

Elements of a sentence

Types of sentence: Simple, compound, complex

Unit 2: Writing a Letter of Application and CV/ Resume

Topics:

Structure of a letter of application for various posts

CV/ Resume and its essentials

Unit 3: Presenting Information/Data

Topics:

Presenting information/data using graphics like tables, pie charts, tree diagrams, bar diagrams, graphs, flow charts

Unit 4: Interview Technique

Topics:

Dos and don'ts of an interview

Preparing for an interview

Presenting documents

Language used in an interview

Practical: Based on the theory units 10 Marks.

Reference Books:

Sethi, Anjanee & Bhavana Adhikari. *Business Communication*. New Delhi: Tata McGraw Hill

Tickoo, Champa & Jaya Sasikumar. *Writing with a Purpose*. New York: OUP, 1979.

Sonie, Subhash C. *Mastering the Art of Effective Business Communication*. New Delhi:

Student Aid Publication, 2008.

Herekar, Praksh. *Business Communication*. Pune: Mehta Publications, 2007.

Herekar, Praksh. *Principals of Business Communication*. Pune:

Pattern of a Question Paper
Business Communication-I
Semester –I Paper: I

Time: 2 hours

Total Marks: 40

Q. 1 Do as directed. Question items on **Unit 1** to be asked. 10 (10 out 12)

Q. 2 Write a letter of application. 10

OR

Draft a CV/ Resume for a particular post. 10

Q. 3 Present a given information or data using a table/ chart/
pie diagram, etc

(Any one diagram to be drawn.) 10

Q. 4 Fill in the blanks in the given interview. 10

Practical Evaluation:

10 Marks

Oral and Presentation based on the units prescribed.

Certificate Semester-I
Food Processing & Preservation
Paper-II Fundamentals of food science-I

Total marks: 50 Theory: 04lectures

per week Theory: 40marks

Practical: 02lectures/week/batch practicals:10marks
Total Workload: 06 lectures per
week of 60 mins.

Objectives - 1. To understand basic concept of food
2. To understand functions of food different Food Groups.

Course content :

Unit I - Introduction to food science

- Concept of food, food science
- Objectives of food science
- Functions of food

Unit – II - Classification of food

- According to food science
- Basic five food groups
- Selection of food

Unit – III - Methods of cooking

- Traditional cooking methods
- Modern cooking methods
- Objectives and importance of cooking

Unit – IV - Food Preparation and storage

- Basic terms used in food preparation
- Pre-preparation for cooking
- Storage of raw and cooked food

Practicals :

- 1) Introduction to laboratory rules.
- 2) Equipments used in cooking
- 3) Terms used in cooking.
- 4) Weights and Measures of raw and cooked food.
- 5) Methods of cooking -

- 1) Traditional methods – Preparation of any two recipes from following:
a) Boiling b) Roasting c) Frying d) Steaming
- 2) Modern methods - Preparation of any two recipes from the following:
a) Baking b) Solar c) Microwave d) Combination

References :

- 1) B. Shreelakshmi : ``Food Science`` (second edition), New Age International, New Delhi.
- 2) Swaminathan : ``Text book of Food Science``, Vol-1, BAPPCO, Bangalore
- 3) Devendrakumar Bhatt & Priyanka Tomar : An Introduction to Food Science, Technology & Quality Management, Kalyani Publishers.
- 4) Sumati R. Mudambi : Fundamentals of Food & Nutrition wiley Eastern Ltd., New Delhi.

Scheme of Internal Practical Evaluation

10 marks

- 1) Submission of Record book
- 2) Viva – Voce

5 marks
5 marks

Certificate Course Semester-I
Food Processing & Preservation
Paper No. III Food Preservation

Workload-4

Theory: 04lectures per week

Total marks: 50

Objectives :

To enable student –

- 1) To acquire knowledge of food preservation and preservation technique.
- 2) To know the importance and basic principles of food preservation.

Course content :

Unit I - Introduction to food preservation.

- Concept, importance of food preservation.
- Common terms used in food preservation.
- Classification of food on the basis of pH value, technology, physiology changed condition, moisture content.
- Principles of preservation.

Unit – II - Preservation by using Preservatives

- Definition and Concept
- Types of preservatives-Natural and Artificial
- Mode of action of different preservatives

Unit – III - Preservation by drying

- Concept, history Types of drying and dryers.
- Treatments prior to drying

Unit – IV - Preservation by use of high temperature & Low Temperature

- Concept and importance
- Various methods used – Pasteurization, Boiling, Canning
- Effect of high temperature on microbial content of food. - Types of preservation methods by low temperature
- Different equipments used for preservation by low temperature

Reference :

- 1) PrakashTriveni : Food Preservation, Aadi Publication, Delhi.
- 2) M. ShafiurRahman : Hand Book of Food Preservation, Marcel Dekker Inc, New york.
- 3) McWillims and Paine : Modern Food Preservation, Surjeet Publication

Certificate Course Semester-I
Food Processing & Preservation
Paper-IV FUNDAMENTALS OF FOOD CHEMISTRY

Workload - 4

Theory: 04lectures /week

Total marks: 50

Objective- To understand Basic Chemistry of Food.
To understand nature & Properties of food

Unit I - CARBOHYDRATES

- Concept, definition of carbohydrates
- Classification of carbohydrates
- Properties of carbohydrates
- Sources

Unit II - PROTEIN

- Concept, definition, essential, non-essential amino acids
- Classification of proteins
- Properties of proteins
- Sources

Unit III - FATS

- Concept, definition, essential non-essential Fatty acids
- Classification of Fats
- Sources, Function of Fats

Unit IV - VITAMINES& MINERALS

- Vitamins - Types, sources, functions & deficiency
- Minerals - Sources, functions, deficiency

REFERNCE BOOKS

1. Food Chemistry by H.D.Belitz
2. Food Chemistry by Hoagland Meyer
3. Food Analysis by S.Suzanne Nielsen
4. Handbook of Food Chemisty by Peter C.K.
5. Advance Food Chemisty by Syed AftabIqbal&NilofarIqbal.

Certificate Course Semester-I
Food Processing & Preservation
Paper-V Food Microbiology.

Workload -4

Theory: 04 lectures per week

Total marks: 50

Objectives: 1) To study the microbiological techniques
2) To understand the food microbiology

Unit I - INTRODUCTION TO FOOD MICROBIOLOGY

- Introduction to Food Microbiology
- Concept of Microorganisms
- Types of Microorganisms
- Importance of Microbes in Food

Unit II - FOOD CONTAMINATION & SPOILAGE

- Concept, definition, difference
- Between contamination & spoilage
- Signs of contamination & spoilage in Food
- Introduction to disease caused by spoiled food contamination of different food.

Unit III – STAINING&ISOLATION TECHNIQUES

- Concept definition types of stains & staining
- Different staining procedures
- Definition of Isolation
- Different isolation techniques.

Unit IV - IMPORTANCE OF MICROBIOLOGY IN FOOD

- Concept, useful, harmful microbes
- Important Microorganisms for food
- Used necessity of microbes in Food preparations

REFERENCE BOOKS

1. Food Microbiology by William Frazier
2. Food Microbiology by W.M.Faster
3. Laboratory manual of Food Microbiology by NeelimaGarg, K.L.Garg
4. Fundamental Food Microbiology by Biber Ray &ArunBhunia.
5. Handbook of culture media for Food Microbiology by Curtis R.M.Baird

Certificate Course Semester-I
Food Processing & Preservation
Paper –VI Food preservation
Laboratory work

Workload: 04.

Total marks: 50

Practical: 04lectures/week/batch

Practicals:

- 1) Introduction to drying equipments
- 2) Applications of driers.
- 3) Classification of food based on pH value and moisture content.
- 4) Preservation by natural preservatives
- 5) study the technique of boiling of fruits
- 6) Physiological change in food after drying
- 7) Preparation of food product by drying
 - i) Onion flakes
 - ii) Raw mango powder / Leafy vegetable powder
 - iii) Resins
 - iv) Papad and chips
- 8) Blanching of vegetables
- 9) Visit to pasteurization unit

Scheme of practical evaluation

Internal practical evaluation

50 marks

- | | |
|----------------------------------------|----------|
| i) Submission of practical record book | 20 marks |
| ii) Submission of visit report | 15 marks |
| iii) Viva – Voce | 15 marks |

Certificate Course Semester-I
Food Processing & Preservation
Paper –VII Fundamentals of Food Chemistry
Laboratory work

Workload: 04.

Total marks: 50

Practical: 04lectures/week/batch

Practicals:

1. Preparation of NaOH solution
2. Study of Laboratory Instruments
3. Determination of pH of different Food
4. Determination of Acidity of milk
5. Determination of Acidity of fruit juice.
6. Estimation of Moisture Content
7. Study of different Sugar stages at different temperature
8. Melting Point of Fats
9. Acid Value of an oil
10. Isolation of starch from potato
11. Study the browning of fruits and vegetables
12. Industrial Visit

Scheme of practical evaluation

Internal practical evaluation

50 marks

i) Submission of practical record book

20 marks

ii) Submission of visit report

15 marks

iii) Viva -voce

15marks

Certificate Course Semester-I
Food Processing & Preservation
Paper-VIII Food Microbiology.

Laboratory work

Workload: 04.

Total marks: 50

Practical: 04lectures/week/batch

Practicals:

1. Study the compound microscope
2. Study the laboratory instruments
3. Study sterilization techniques for glasswares
4. Study size, shape of microbiology
5. Identification of spoiled Food Samples
6. Study the Monochrome staining
7. Study the Gram staining
8. Preparation of Nutrient Agar
9. Preparation MacConkey's Agar
10. Preparation of Sabroud's Agar
11. Study isolation techniques
12. Study the amylase activity
13. Microbial sampling of an air.
14. Industrial Visit.

Scheme of practical evaluation

Internal practical evaluation

50 marks

i) Submission of practical record book

20 marks

ii) Submission of visit report

15 marks

iii) Viva-voce

15marks

Diploma Semester-II
Food Processing & Preservation
Paper-X Business Communication- II

Workload-06 lectures per week of 60 mins

Total marks:50

Theory:40mark

Theory: 04 lectures per week
week per batch of 20 students

Practicals: 10 marks Practical: 02 lectures per

Units Prescribed for Theory:

Unit 1: Group Discussion

Topics:

Preparing for a Group Discussion
Initiating a Discussion
Eliciting Opinions, Views, etc.
Expressing Agreement/ Disagreement
Making Suggestions; Accepting and Declining Suggestions
Summing up.

Unit 2: Business Correspondence

Topics:

Writing Memos, e-mails, complaints, inquiries, etc.
Inviting Quotations
Placing Orders, Tenders, etc.

Unit 3: English for Negotiation

Topics:

Business Negotiations
Agenda for Negotiation
Stages of Negotiation

Unit 4: English for Marketing

Topics:

Describing/ Explaining a Product/ Service
Promotion of a Product
Dealing/ bargaining with Customers
Marketing a Product/ Service: Using Pamphlets, Hoardings, Advertisement,
Public Function/ Festival

Practical: Based on the theory units

Reference Books:

- Herekar, Praksh. *Business Communication*. Pune: Mehta Publications, 2007.
- Herekar, Praksh. *Principals of Business Communication*. Pune: Mehta Publications, 2003.
- John, David. *Group Discussions*. New Delhi: Arihant Publications.
- Kumar, Varinder. *Business Communication*. New Delhi: Kalyani Publishers, 2000.
- Pardeshi, P. C. *Managerial Communication*. Pune: NiraliPrakashan, 2008.
- Pradhan, N. S. *Business Communication*. Mumbai: Himalaya Publishing House, 2005
- Rai, Urmila& S. M. Rai. *Business Communication*. Mumbai: Himalaya Publishing House, 2007.
- Sethi, Anjanee&BhavanaAdhikari. *Business Communication*. New Delhi: Tata McGraw Hill.
- Sonie, Subhash C. *Mastering the Art of Effective Business Communication*. New Delhi: Student Aid Publication, 2008.
- Tickoo, Champa& Jaya Sasikumar. *Writing with a Purpose*. New York: OUP, 1979.
- Whitehead, Jeoffrey& David H. Whitehead. *Business Correspondence*. Allahabad: Wheeler Publishing, 1996.

Pattern of a Question Paper
Business Communication-II
Semester –II Paper: X

Time: 2 hours

Total Marks: 40

Q. 1 Fill in the blanks in the following Group Discussion.
(On **Unit 5**) (10 out 12)

10

Q. 2 Attempt **ANY ONE** of the following (**A or B**):
(On **Unit 6**)

10

Q. 3 Fill in the blanks with appropriate responses:
(On **Unit 7**)

10

Q. 4 Attempt **ANY ONE** of the following (**A or B**):
(On **Unit 8**) (10 out 12)

10

Practical Evaluation:

10 Marks

Oral and Presentation based on the units prescribed.

Diploma Semester-II
Food Processing & Preservation
Paper-XI Fundamentals of Food Science- II

Total Marks: 50

Workload-06 lectures per week

Theory:40marks

Theory: 04 lectures per week

Practicals: 10 marks

Practical: 02 lectures per week per batch

Objectives:

- To enable students -
 - 1) To understand the basic concept of various cookery.
 - 2) To become familiar with preparation of various cookery.

Course Content:

Unit I - Cereal cookery

- Structure, composition and Importance of cereal grains
- Types of cereals used in cooking
- Cereal cookery- Gelatinization, Dextrinization and Identity of grain
- Processed cereals, millets and Ready-To- Eat cereals used in cooking

Unit – II - Pulse and Legume Cookery

- Definition, composition and structure of pulses
- Cooking of Legumes
- Factors Affecting cooking time of pulses and legumes
- Uses of legumes in cookery

Unit – III - Nuts and Oil seeds Cookery

- Types and composition of Nuts and Oil seeds
- Toxic substances in Nuts and Oil seeds
- Changes during cooking and storage
- Function of Nuts and Oil seeds in cookery

Unit – IV - Fruits and Vegetables Cookery

- Classification of Fruits and vegetables
- Colour pigments in Fruits and vegetables
- Effect of heat, acids and alkali on Fruits and vegetables
- Changes during cooking and storage

Practicals:

1. Weight & measurement of raw & cooked foods
2. Study different cutting & grading of food
3. Study the boiling method
4. Study the blanching techniques of food
5. Preparation of puffed products
6. Study the shallow fat frying techniques of food
7. Study the deep fat frying techniques
8. Study the sensory parameters of food products

References:

- 1) B. Shreelakshmi : ``Food Science`` (second edition3 (second edition), New Age International, New Delhi.
- 2) Swaminathan : ``Text book of Food Science``, Vol-1, BAPPCO, Bangalore
- 3) Devendrakumar Bhatt &PriyankaTomar : An Introduction to Food Science, Technology & Quality Management, Kalyani Publishers.
- 4) Sumati R. Mudambi : Fundamentals of Food & Nutrition wiley Eastern Ltd., New Delhi.
- 5) Philips T E, Modern Cooking for teaching and trade, Volit orient longman, Bombay

Scheme of Internal Practical Evaluation**10 marks**

- | | |
|---------------------------------------------------------------------------------------------------------|----------|
| 1) study technique of boiling/ blanching/ sensory parameters/
product preparation by puffing/ frying | 06 marks |
| 2) Submission of Record book | 04 Marks |

Diploma Semester-II
Food Processing & Preservation
Paper- XII Milk& milk processing

Total workload :04 lectures per week

Theory: 04 lectures per week Total Marks: 50

Objectives–1. To study Chemistry of milk
2. To understand techniques in milk processing

Unit I: Introduction to milk

Definition, composition of milk, nutritive value of milk.

Physicochemical properties of milk

Factors affecting composition of milk

Unit II: Processing of milk

Need of dairy process

Buying & collection of milk

Cooling & transportation of milk

Pasteurization of milk

Unit III: Special milk

Flavored milk

Tonned milk, Double tonned, skimmed milk

Condensed milk, rehydrated milk

UHT milk

Unit IV: Dairy products

Fermented product – curd yoghurt

Frozen milk product – Ice-cream

Heat acid coagulated – Paneer, Chakka

Heat desiccated product – khoa

Enzyme coagulated product

Reference Books-

1. Outlines of dairy technology by sukumar De
2. Milk testing A Laboratory control of milk by J.G Davis
3. Cheese & Butter by V. cheke& A. Shepard
4. Economics of dairy cooperatives by Dr. Binay Kumar Singh
5. Dairy cooperation & rural poverty by Dr. Ram Praveshsingh.

Diploma Semester-II
Food Processing & Preservation
Paper-XIII Bakery & Confectionary

Workload ;4 Total marks: 50

Theory: 04 lectures per week

- Objectives – 1. To develop different bakery product**
2. To study Role & chemistry of bakery & confectionary

Unit I: Introduction to bakery

1. Ingredients used in bakery products
2. Role of ingredients
3. Introduction to bakery machineries
4. Scope of bakery processing

Unit II: Bakery products

1. Biscuits & cookies – Introduction, Difference, Ingredients process, Packaging & storage
2. Bread - Introduction, Difference, Ingredients process, Packaging & storage
3. Cake – Types - Introduction, Difference, Ingredients process, Packaging & storage
4. Judging & Grading of bakery product

Unit III: Introduction to confectionary

1. Ingredients used in confectionary
2. Role of ingredients
3. Types of confectionary
4. Confectionary Processing

Unit IV: Confectionary product

1. Traditional product
2. Hard boiled candy
3. Soft boiled candy
4. Judging & Grading

Reference Books-

1. Technology of biscuits, rusks, crackers & cookies by Eiri
2. Technology of confectionary, chocolate, toffee, candy, jelly product by Eiri
3. Textbook of bakery & confectionary by Vogambal Ashokkumar.
4. Complete technology book on bakery products by NIIR board.
5. Theory of bakery & patisserie by Parvinder S Bali

DIPLOMA SEMESTER-II
Food Processing & Preservation
Paper -XIV Hygiene & Sanitation

Workload: 4

Total marks: 50

Theory: 04 lectures per week

- Objectives** -1.To understand concept of Hygiene & Sanitation.
2. To study techniques of maintain Hygiene & Sanitation

Unit I: Introduction to hygiene & sanitation

1. Definition of hygiene & sanitation
2. Difference between hygiene & sanitation
3. Personal hygiene - Habits
4. Use of hygiene at workplace.

Unit II: Safety at work place

1. Concept
2. Safety during preparations
3. Safety about workers.
4. Hazards – Physical Chemical & Microbial.

Unit III: Diseases -

1. Food Infection & Intoxication
2. Difference between Infection & Intoxication
3. Diseases – Salmonellosis, Cholera, Swine Flu, Chickengunia.
4. Prevention.

Unit IV: Pest control

1. Concept, Types Pest
2. Pesticides – types, applications forms of pesticides.
3. Precautions during handling pesticides.

Reference Books-

1. Food Born diseases by Giriraj Sahu.
2. Food hygiene & sanitation by S. Roday.
3. Fundamentals of food hygiene, Safety & Quality by Alok Kumar.
4. Principles of Food sanitation by Norman G. Marriott.

Diploma Semester-II
Food Processing & Preservation
Paper – XV Milk & Milk processing
Laboratory work

Workload: 04.

Total marks: 50

Practical: 04lectures/week/batch

Practicals:

1. Physical examination of milk
2. Chemical examination of milk
3. Plate form test
4. Adulteration test for milk.
5. Efficiency of Pasteurization of milk
6. Preparation of Paneer
7. Preparation Rasogulla
8. Preparation Flavoured milk
9. PreparationButter Milk
- 10 preparation of curd.
- 11 preparation icecream
- 12 preparation of basundi
- 13 preparation of condensed milk
14. Industrial Visit

Scheme of practical evaluation

Internal practical examination:

50 marks

- | | | |
|------|-------------------------------------|----------|
| i) | Preparation of any one product | 15 marks |
| ii) | Submission of practical record book | 15 marks |
| iii) | Submission of visit report | 10 marks |
| iv) | Viva – Voce | 10 marks |

Diploma Semester-II
Food Processing & Preservation
Paper – XVI Bakery & Confectionary
Laboratory work

Workload: 04.
Practical: 04lectures/week/batch

Total marks: 50

Practicals:

1. Acidity of wheat flour
2. Determination of gluten content
3. Moisture Content
4. Examination of Sugar Stages at different temperature.
5. Preparation of Cookies.
6. Preparation of Cherry
7. Preparation Cake
8. Preparation Chocolate
9. Preparation Candid nuts
- 10 preparation of pudding
- 11 preparation of biscuits
- 12 preparation of dhokala
13. Examination of Spoiled bakery products.
14. Industrial Visit

Scheme of practical evaluation

Internal practical examination:		50 marks
i)	Preparation of any one product from cake/cherry/ chocolate/candid nuts	15 marks
ii)	Submission of practical record book	15 marks
iii)	Submission of visit report	10 marks
iv)	Viva – Voce	10 marks

Diploma Semester-II
Food Processing & Preservation
Paper – XVII Hygiene & sanitation
Laboratory work

Workload: 04.

Total marks: 50

Practical: 04 lectures/week/batch

Practicals:

1. Examination of Physical Hazard.
2. Examination of Chemical Hazard.
3. Study the techniques of personal hygiene
4. Study the Swab Method for packaging material.
5. Study the Swab Method for personal hygiene.
6. Study CIP techniques
7. Preparation of different sanitizers & detergents for cleaning purpose.
8. Microbial sampling of an air.
9. Industrial Visits.

Scheme of practical evaluation

Internal practical examination:

50 marks

- | | |
|------------------------------------------|----------|
| i) Microbial analysis | 10 marks |
| ii) Chemical analysis | 05 marks |
| iii) Submission of practical record book | 15 marks |
| iv) Submission of visit report | 10 marks |
| v) Viva – Voce | 10 marks |