

**SHIVAJI UNIVERSITY, KOLHAPUR**

**STRUCTURE AND SYLLABUS OF B.VOC.**

**Bachelor of Vocation (B.Voc.) – Food Processing and Management**

- TITLE** : B.Voc. (Food Processing and Management)  
Syllabus ( Semester Pattern)  
Under Faculty of Science
- YEAR OF IMPLEMENTATION** : Syllabus will be implemented from June 2014
- DURATION** : B. Voc. Part I, II and III ( Three Years)  
B. Voc. Part I - Diploma ( One Year )  
B. Voc. Part II - Advanced Diploma( Second Year)  
B. Voc. Part III – Degree ( ThirdYear )

**PATTERN OF EXAMINATION** : Semester Pattern

- **Theory Examination** – At the end of semester as per Shivaji University Rules
- **Practical Examination** – i) In the 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> semester of B. Voc. there will be internal assessment of practical record, related report submission and project reports at the end of semester.  
ii) In the second semester of B. Voc. I, there will be internal practical examination at the end of semester.  
iii) In the 4<sup>th</sup> and 6<sup>th</sup> semester of B. Voc. there will be external practical examination at the end of semester .

**MEDIUM OF INSTRUCTION** : English / Marathi

- STRUCTURE OF COURSE** : B. Voc. Part – I, II and III  
Two Semester Per Year  
Two General Papers per year / semester  
Three Vocational Papers per Year / Semester  
Three Practical papers per Year / Semester  
One Project / Industry Visit/ Study Tour / Survey

**SCHEME OF EXAMINATION**

**A) THEORY**

- 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) –
  - 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 )

## B ) PRACTICAL

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 and III and V and external examination at the end of Semester IV and VI as mentioned separately in each paper.

### Standard of Passing :

As per the guidelines and rules for B. Voc. (Attached Separately – Annexure I)

### Structure of the Course

#### B. Voc. – I ( Diploma ) Semester – I

Sr. No	Paper No.	Title	Theory /Practical /Project	Marks (Total)	Distribution of Marks	
					Theory	Practical
1	I	Business Communication – I	Theory /Practical	50	40	10
2	II	Fundamentals of Food Science – I	Theory /Practical	50	40	10
3	III	Food Preservation- I	Theory	50	50	--
4	IV	Agro Processing – I	Theory	50	50	--
5	V	Bakery & Confectionary – I	Theory	50	50	--
6	VI	Laboratory Work : Food Preservation - I	Practical	50	--	50
7	VII	Laboratory Work: Agro processing - I	Practical	50	--	50
8	VIII	Laboratory Work : Bakery & Confectionary -I	Practical	50	--	50
9	IX	Project	-	50	--	50

**B. Voc. – I ( Diploma ) Semester – II**

Sr. No.	Paper No.	Title	Theory /Practical /Project	Marks (Total)	Distribution of Marks	
					Theory	Practical
1	X	Business Communication - II	Theory /Practical	50	40	10
2	XI	Fundamentals of Food Science - II	Theory /Practical	50	40	10
3	XII	Food Preservation- II	Theory	50	50	--
4	XIII	Agro Processing – II	Theory	50	50	--
5	XIV	Bakery & Confectionary - II	Theory	50	50	--
6	XV	Laboratory Work : Food Preservation – II	Practical	50	--	50
7	XVI	Laboratory Work: Agro processing – II	Practical	50	--	50
8	XVII	Laboratory Work : Bakery & Confectionary -II	Practical	50	--	50
9	XVIII	Industrial Visit/Study Tour	-	50	--	50

**Scheme of Teaching : B. Voc. – Part I ( Diploma ) Semester – I**

Sr. No.	Paper No.	Title	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- I	4	-	4
4	IV	Agro Processing - I	4	-	4
5	V	Bakery & Confectionary - I	4	-	4
6	VI	Laboratory Work - Food Preservation - I	-	4	4
7	VII	Laboratory Work Agro processing - I	-	4	4
8	VIII	Laboratory Work I Bakery & Confectionary -I	-	4	4
9	IX	Project	-	-	-
		Total --	<b>20</b>	<b>16</b>	<b>36</b>

**B. Voc. – Part I ( Diploma ) Semester – II**

Sr. No.	Paper No.	Title	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	Food Preservation- II	4	-	4
4	XIII	Agro Processing – II	4	-	4
5	XIV	Bakery & Confectionary – II	4	-	4
6	XV	Laboratory Work : Food Preservation – II	-	4	4
7	XVI	Laboratory Work : Agro processing – II	-	4	4
8	XVII	Laboratory Work : Bakery & Confectionary –II	-	4	4
9	XVIII	Industrial Visit/Study Tour	-	-	-
		Total-	<b>20</b>	<b>16</b>	<b>36</b>

**B. Voc. – II (Advanced Diploma ) Semester – III**

Sr. No	Paper No.	Title	Theory /Practical /Project	Marks (Total)	Distribution of Marks	
					Theory	Practical
1	XIX	Fundamentals of Financial Accounting – I	Theory /Practical	50	40	10
2	XX	Fundamentals of Nutrition – I	Theory /Practical	50	40	10
3	XXI	Fruits and Vegetable Processing- I	Theory	50	50	--
4	XXII	Milk and Milk Product Processing- I	Theory	50	50	--
5	XXIII	Food Quality control and Waste management - I	Theory	50	50	--
6	XXIV	Laboratory Work : Fruits and Vegetable Processing- I	Practical	50	--	50
7	XXV	Laboratory Work: Milk and Milk Product Processing- I	Practical	50	--	50
8	XXVI	Laboratory Work : Food Quality control and Waste management - I	Practical	50	--	50
9	XXVII	Project	-	50	--	50

**B. Voc. – II (Advanced Diploma ) Semester – IV**

Sr. No.	Paper No.	Title	Theory /Practical/Project	Marks (Total)	Distribution of Marks	
					Theory	Practical
1	XXVIII	Fundamentals of Financial Accounting – II	Theory /Practical	50	40	10
2	XXIX	Fundamentals of Nutrition – II	Theory/Practical	50	40	10
3	XXX	Fruits and Vegetable Processing- II	Theory	50	50	--
4	XXXI	Milk and Milk Product Processing- II	Theory	50	50	--
5	XXXII	Food Quality control and Waste management - II	Theory	50	50	--
6	XXXIII	Laboratory Work : Fruits and Vegetable Processing- II	Practical	50	--	50
7	XXXIV	Laboratory Work: Milk and Milk Product Processing- II	Practical	50	--	50
8	XXXV	Laboratory Work : Food Quality control and Waste management - II	Practical	50	--	50
9	XXXVI	Industrial Visit/Study Tour	-	50	--	50

**Scheme of Teaching : B. Voc. – Part II (Advanced Diploma ) Semester – III**

Sr. No.	Paper No.	Title	Distribution of Workload (Per Week)		
			Theory	Practical	Total
1	XIX	Fundamentals of Financial Accounting - I	4	2	6
2	XX	Fundamentals of Nutrition - I	4	2	6
3	XXI	Fruits and Vegetable Processing- I	4	-	4
4	XXII	Milk and Milk Product Processing- I	4	-	4
5	XXIII	Food Quality control and Waste management - I	4	-	4
6	XXIV	Laboratory Work : Fruits and Vegetable Processing- I	-	4	4
7	XXV	Laboratory Work: Milk and Milk Product Processing- I	-	4	4
8	XXVI	Laboratory Work : Food Quality control and Waste management – I	-	4	4
9	XXVII	Project	-	-	-
		Total --	<b>20</b>	<b>16</b>	<b>36</b>

**B. Voc. – Part II (Advanced Diploma ) Semester – IV**

Sr. No.	Paper No.	Title	Distribution of Workload (Per Week)		
			Theory	Practical	Total
1	XXVIII	Fundamentals of Financial Accounting – II	4	2	6
2	XXIX	Fundamentals of Nutrition – II	4	2	6
3	XXX	Fruits and Vegetable Processing- II	4	-	4
4	XXXI	Milk and Milk Product Processing- II	4	-	4
5	XXXII	Food Quality control and Waste management - II	4	-	4
6	XXXIII	Laboratory Work : Fruits and Vegetable Processing- II	-	4	4
7	XXXIV	Laboratory Work: Milk and Milk Product Processing- II	-	4	4
8	XXXV	Laboratory Work : Food Quality control and Waste management - II	-	4	4
9	XXXVI	Industrial Visit/Study Tour	-	-	-
Total-			<b>20</b>	<b>16</b>	<b>36</b>

**B. Voc. – III ( Degree ) Semester – V**

Sr. No	Paper No.	Title	Theory /Practical /Project	Marks (Total)	Distribution of Marks	
					Theory	Practical
1	XXXVII	Business Management –I	Theory /Practical	50	40	10
2	XXXVIII	Legal Frame work for Food Industry	Theory /Practical	50	40	10
3	XXXVIX	Meat, Fish and Poultry Processing – I	Theory	50	50	--
4	XXXX	Applied Chemistry	Theory	50	50	--
5	XXXXI	Food and Beverage Processing	Theory	50	50	--
6	XXXXII	Laboratory Work :Meat, Fish and Poultry Processing – I	Practical	50	--	50
7	XXXXIII	Laboratory Work :Applied Chemistry	Practical	50	--	50
8	XXXXIV	Laboratory Work :Food and Beverage Processing	Practical	50	--	50
9	XXXXV	Internship	-	50	--	50

**B. Voc. – III ( Degree ) Semester – VI**

Sr. No.	Paper No.	Title	Theory /Practical /Project	Marks (Total)	Distribution of Marks	
					Theory	Practical
1	XXXXVI	Business Management –II	Theory /Practical	50	40	10
2	XXXXVII	Food Hygiene and Sanitation	Theory /Practical	50	40	10
3	XXXXVIII	Meat, Fish and Poultry Processing – II	Theory	50	50	--
4	XXXXIX	Applied Microbiology	Theory	50	50	--
5	XXXXX	Food Packaging	Theory	50	50	--
6	XXXXXI	Laboratory Work :Meat, Fish and Poultry Processing – II	Practical	50	--	50
7	XXXXXII	Laboratory Work :Applied Microbiology	Practical	50	--	50
8	XXXXXIII	Laboratory Work :Food Packaging	Practical	50	--	50
9	XXXXXIV	Project	-	50	--	50

**Scheme of Teaching : B. Voc. – Part III ( Degree ) Semester – V**

Sr. No.	Paper No.	Title	Distribution of Workload (Per Week)		
			Theory	Practical	Total
1	XXXVII	Business Management –I	4	2	6
2	XXXVIII	Legal Frame work for Food Industry	4	2	6
3	XXXVIX	Meat, Fish and Poultry Processing – I	4	-	4
4	XXXX	Applied Chemistry	4	-	4
5	XXXXI	Food and Beverage Processing	4	-	4
6	XXXXII	Laboratory Work :Meat, Fish and Poultry Processing – I	-	4	4
7	XXXXIII	Laboratory Work :Applied Chemistry	-	4	4
8	XXXXIV	Laboratory Work :Food and Beverage Processing	-	4	4
9	XXXXV	Internship	-	-	-
		Total --	<b>20</b>	<b>16</b>	<b>36</b>

**B. Voc. – Part III ( Degree ) Semester – VI**

Sr. No.	Paper No.	Title	Distribution of Workload (Per Week)		
			Theory	Practical	Total
1	XXXXVI	Business Management –II	4	2	6
2	XXXXVII	Food Hygiene and Sanitation	4	2	6
3	XXXXVIII	Meat, Fish and Poultry Processing – II	4	-	4
4	XXXXIX	Applied Microbiology	4	-	4
5	XXXXX	Food Packaging	4	-	4
6	XXXXXI	Laboratory Work :Meat, Fish and Poultry Processing – II	-	4	4
7	XXXXXII	Laboratory Work :Applied Microbiology	-	4	4
8	XXXXXIII	Laboratory Work :Food Packaging	-	4	4
9	XXXXXIV	Project	-	-	-
Total-			<b>20</b>	<b>16</b>	<b>36</b>

**Eligibility for Admission** : 10 + 2 from any faculty or equivalent Diploma / Advanced Diploma in any related stream.

**Eligibility for Faculty** : 1) M. Tech. (Food Tech./Food processing )  
M. Sc. ( Food Science and Nutrition / Food Processing/  
Food Science and Technology/Home-Science/ Food Science and Quality Control with NET / SET  
2) M. A (English) with NET/SET for Business Communication  
3) M. Com / MBA with NET/SET for Financial Accounting and Business Management

**Eligibility for:  
Laboratory Assistant** B. Tech (Food Tech./ Food processing ) /  
B. Sc. (Food Science and Nutrition / Food Processing/ Food Science and Technology/Home-Science/ Food Science and Quality Control)  
/ B.A. Home Science.

**Staffing Pattern:****Teaching:**

- a) In 1<sup>st</sup> Year of B. Voc. - 1 Full Time and 1 Part Time Lecturer for food processing and 1 CHB Lecturer for Business Communication
- b) In 2<sup>nd</sup> Year of B. Voc. – Total requirement of faculty (Inclusive of 1<sup>st</sup> Year) will be 3 Full time for food processing and 1 CHB Lecturer for Financial Accounting  
1 CHB Lecturer for Business Communication
- c) In 3<sup>rd</sup> Year of B. Voc. – Total requirement of faculty (Inclusive of 1<sup>st</sup> & 2<sup>nd</sup> Year) will be 4 Full time and 1 part time for food processing and 1 CHB Lecturer for Business Management  
1 CHB Lecturer for Business Communication  
1 CHB Lecturer for Financial Accounting

**Lab Assistant:** For 1<sup>st</sup> Year of B. Voc. - 1 Part time



For 2<sup>nd</sup> and 3<sup>rd</sup> Year (Inclusive of 1<sup>st</sup> Year) of B. Voc. – 1 Full Time

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**SHIVAJI UNIVERSITY, KOLAPUR**  
**B. Voc. Part – I**  
**Food Processing and Management**

**Paper – I: Business Communication-I**

**Total Workload:** 06 lectures per week of 60 mins.

**Distribution of Workload:**

Theory: 04 lectures per week

Practical: 02 lectures per week per batch of 20 students

**Units Prescribed for Theory:**

40 Marks.

**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, Anjane & 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: Mehta Publications, 2003.

Rai, Urmila & S. M. Rai. *Business Communication*. Himalaya Publishing House, 2007.  
Pradhan, N. S. *Business Communication*. Mumbai: Himalaya Publishing House, 2005.  
Pardeshi, P. C. *Managerial Communication*. Pune: Nirali Prakashan, 2008.

**Pattern of a Question Paper**

**B. Voc. Part-I**

**Business Communication-I**

**Semester –I Paper: I**

**Time: 2 hours**

**Total Marks: 40**

- |      |  |    |
|------|--|----|
| Q. 1 | Do as directed. Question items on <b>Unit 1</b> to be asked.<br>(10 out 12)                                  | 10 |
| Q. 2 | Write a letter of application.   | 10 |
|      | OR   |    |
|      | Draft a CV/ Resume for a particular post.  |    |
| Q. 3 | Present a given information or data using a table/ chart/ pie diagram, etc<br>(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.

**Semester I - Paper – II**  
**Fundamentals of Food Science - I**

Work Load - 6

Theory – 4 Lectures / Week

Practical – 2 Lectures/Week/Batch

Total Marks – 50

Theory - 40 Marks

Practical – 10 Marks

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**Objectives :**

- To enable students to -
  - 1) understand the basic concept, functions, and classification of food.
  - 2) familiar with different methods of cooking.

**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 the 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.

<b>Scheme of Internal Practical Evaluation</b>	<b>10 marks</b>
1) Submission of Record book	5 marks
2) Viva – Voce	5 marks

**B. Voc. Part – I**  
**Food Processing and Management**  
**Semester I - Paper No. III : Food Preservation – I**

Work Load – 4

Total Marks – 50

Theory – 4 Lectures / Week

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**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.
- Unit – II** - **Principles of food preservation.**
- Principles of preservation.
  - Preservation techniques
- Unit – III** - **Preservation by drying**
- Concept, history
  - Types of drying and dryers.
  - Treatments prior to drying
- Unit – IV** - **Preservation by use of high temperature.**
- Concept and importance
  - Various methods used – Pasteurization, Boiling, Canning
  - Effect of high temperature on microbial content of food.

**Reference :**

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

**B. Voc. Part – I**  
**Food Processing and Management**  
**Semester I - Paper No. IV: Agro Processing – I**

Work Load - 4

Total Marks – 50

Theory – 4 Lectures / Week

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**Objectives :**

To enable students –

- 1) to operate processing equipments.
- 2) to produce different agro products.

**Course content :**

- Unit I** - **Agro processing industry.**
- Introduction to Agro processing industry.
  - Scope and importance of Agro processed products.
- Unit – II** - **Machinery in Agro processing.**
- Processing equipments – Floor mill, mini grain mill pulverizers, Hammer mill, Floor separator, Dal mill, Packing and Sealing machine, Balance
- Unit – III** - **Cereal grain – wheat and corn.**
- Different grains suitable for agro processing.
  - Primary processing of wheat - cleaning, grading, milling
  - Standards for wheat products.
  - Production of wheat products.
  - Dry milling, wet milling, Hydrolyzed syrups, Pop corn and corn flakes.
- Unit IV** - **Rice milling**
- Properties of padding for rice milling
  - Process of rice milling
  - Hullers for rice milling

**Reference :**

- 1) Yoginder K Alagh : Scope for Agro processing in India, Ajanta Publication.
- 2) Agro Based and Processed Food Products, New Delhi.
- 3) Niir Board : Modern Technology of Agro processing and Agricultural waste, National Institute of India Re 2000.

**B. Voc. Part – I**

**Food Processing and Management**

**Semester I - Paper No. V : Bakery & Confectionery – I**

Total Marks – 50

Work Load - 4  
Theory – 4 Lectures / Week

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**Objectives :**

To enable students –

- 1) to develop skill in Bakery & Confectionery

**Course content :**

**Unit – I**

- **Introduction to bakery and confectionery industry**
- Importance of bakery and confectionery in food industry
- Important cereals used in bakery and confectionery

**Unit II**

- **Primary processing equipments used in Bakery and Confectionery**
- Flour Mill, mixer, moulding machine, balance, packing machines, measuring glass, moulds, knives, extruder, oven

**Unit – III**

- **Flour for the bakery products**
- Types of flours
- Qualities of flour for the production of bakery items
- Availability of starch in different grains

**Unit – IV**

- **Bread**
- Principle involved in bread production
- Different types of breads and their uses
- Ingredients used in bread production

**References :**

- 1) W.P. Edwards : Science of Bakery Products.

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- 3) Emmanueal Obene : Chocolate science and Technolgy



**B. Voc. Part – I**

**Food Processing and Management**

**Semester I - Paper No. VI: Laboratory work ( Food Preservation – I)**

Work Load - 4

Total Marks – 50

Practical – 4 Lectures/Week/Batch

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**Practicals :**

- 1) Introduction to drying equipments
- 2) Applications of driers.
- 3) Classification of food based on pH value and moisture content.
- 4) Drying rate
- 5) Drying curve
- 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 |

**B. Voc. Part – I**

**Food Processing and Management**

**Semester I - Paper No. VII: Laboratory Work ( Agro Processing -1)**

Work Load - 4

Total Marks – 50

Practical – 4 Lectures/Week/Batch

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**Practicals :**

- 1) Physical analysis of grains
- 2) Cleaning, grading and other pre-processing activities of grains
- 3) Production of whole wheat flour
- 4) Production of Dalia, Rawa, Maida
- 5) Flour Analysis
- 6) Starch Estimation
- 7) Angle of Repose
- 8) Visit to Rice Mill

**Scheme of practical evaluation**

<b>Internal practical evaluation</b>	<b>50 marks</b>
i) Submission of practical record book	20 marks
ii) Submission of visit report	15 marks
iii) Viva – Voce	15 marks

**B. Voc. Part – I**

**Food Processing and Management**

**Semester I - Paper No. VIII : Laboratory Work ( Bakery & Confectionery – I)**

Work Load - 4

Total Marks – 50

Practical – 4 Lectures/Week/Batch

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**Practicals :**

- 1) Introduction to Bakery Equipments and Confectionery Equipments
- 2) Gluten Estimation
- 3) Preparation of different types of bread
  - a) Plain bread
  - b) Fermented bread
  - c) Protein Rich bread / Milk bread
  - d) Special bread
- 4) Quality evaluation of bread
- 5) Examination of different types of starch
- 6) Visit to Bakery

**Scheme of practical evaluation**

<b>Internal practical evaluation</b>	<b>50 marks</b>
i) Submission of practical record book	20 marks
ii) Submission of visit report	15 marks
iii) Viva – Voce	15 marks

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**B. Voc. Part – I**  
**Food Processing and Management**

**Business Communication-II**

**Semester –II**

**Paper: X**

**Total Workload: 06 lectures per week of 60 mins.**

**Distribution of Workload:**

Theory: 04 lectures per week

Practical: 02 lectures per week per batch of 20 students

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**Units Prescribed for Theory:**

**Unit 5: 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 6: Business Correspondence**

**Topics:**

Writing Memos, e-mails, complaints, inquiries, etc.

Inviting Quotations

Placing Orders, Tenders, etc.

**Unit 7: English for Negotiation**

**Topics:**

Business Negotiations

Agenda for Negotiation

Stages of Negotiation

**Unit 8: 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 & Bhavana Adhikari. *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, Jeffrey & David H. Whitehead. *Business Correspondence*. Allahabad: Wheeler Publishing, 1996.

**Pattern of a Question Paper**

**B. Voc. Part-I**

**Business Communication-II**

**Semester –II**

**Paper: X**

**Time: 2 hours**

**Total Marks: 40**

- |      |  |    |
|------|--|----|
| Q. 1 | Fill in the blanks in the following Group Discussion.<br>(On <b>Unit 5</b> ) (10 out 12)             | 10 |
| Q. 2 | Attempt <b>ANY ONE</b> of the following ( <b>A</b> or <b>B</b> ):<br>(On <b>Unit 6</b> )             | 10 |
| Q. 3 | Fill in the blanks with appropriate responses:<br>(On <b>Unit 7</b> )                                | 10 |
| Q. 4 | Attempt <b>ANY ONE</b> of the following ( <b>A</b> or <b>B</b> ):<br>(On <b>Unit 8</b> ) (10 out 12) | 10 |

**Practical Evaluation:**

**10 Marks**

Oral and Presentation based on the units prescribed.

**Semester II - Paper – XI**  
**Fundamentals of Food Science - II**

Work Load - 6

Theory – 4 Lectures / Week

Practical – 2 Lectures/Week/Batch

Total Marks – 50

Theory - 40 Marks

Practical – 10 Marks

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**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:**

- 6) Preparation of product by Gelatinization.
- 7) Preparation of product by Dextrinization
- 8) Preparation of product by Germinated pulses
- 9) Preparation of product by milled pulses
- 10)Preparation of product by nuts and oilseeds
- 11)Preparation of product by green leafy vegetable
- 12)Preparation of product by roots and tuber
- 13)Preparation of product by fruits

**References:**

- 5) B. Shreelaksmi : ``Food Science'' (second edition), New Age International, New Delhi.
- 6) Swaminathan : ``Text book of Food Science'', Vol-1, BAPPCO, Bangalore
- 7) Devendrakumar Bhatt & Priyanka Tomar : An Introduction to Food Science, Technology & Quality Management, Kalyani Publishers.
- 8) Sumati R. Mudambi : Fundamentals of Food & Nutrition wiley Eastern Ltd., New Delhi.
- 9) Philips T E, Modern Cooking for teaching and trade, Volit orient longman, Bombay

**Scheme of Internal Practical Evaluation 10 marks**

- |  |         |
|--|---------|
| 1) Product preparation by Gelatinization/Dextrinization/<br>Germinated pulses/milled pulses/nuts and oilseeds/<br>green leafy vegetable/roots and tuber/fruits | 6 Marks |
| 2) Submission of Record book   | 4 Marks |

**B. Voc. Part – I**  
**Food Processing and Management**  
**Semester II - Paper No. XII**

**Food Preservation – II**

Work Load – 4

Total Marks – 50

Theory – 4 Lectures / Week

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**Objectives:**

To enable student –

- 3) To acquire knowledge of food preservation and preservation technique.
- 4) To know the application of food preservation methods.

**Course content:**

- Unit I**
- **Preservation by Low Temperature**
  - Concept, History
  - Types of preservation methods by low temperature
  - Different equipments used for preservation by low temperature
  - Treatments prior to freezing
- 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 Irradiation Process**
  - Meaning and Concept
  - Irradiation methods
  - Sources of radiation
  - Level of dose and their effect on food
- Unit – IV**
- **Modern Techniques in Food Preservation**
  - Use of pulsed electric field
  - High hydrostatic Pressure
  - Hurdle technology



**Reference:**

- 4) Prakash Triveni : Food Preservation, Aadi Publication, Delhi.
- 5) M. Shafiur Rahman : Hand Book of Food Preservation, Marcel Dekker Inc, New york.
- 6) McWillims and Paine : Modern Food Preservation, Surjeet Publication.
- 7) Fellows ,P. and Eills H. 1990 Food Processing Technology: Principles and Practicals, New York
- 8) NPCS Board, Modern Technology on Food Preservation
- 9) B. Sivasankar: Food Processing and Preservation

**B. Voc. Part – I**  
**Food Processing and Management**  
**Semester II - Paper No. XIII**  
**Agro Processing – II**

Work Load - 4

Total Marks – 50

Theory – 4 Lectures / Week

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**Objectives:**

To enable students –

- 1) To understand the processing techniques of agro products.
- 2) To know the use of agro processing equipments.

**Course Content:**

- Unit I**
- **Pulses and Legumes processing**
  - Principles of pulse milling
  - Different methods of Dhal milling
  - Milling of specific legumes- Red gram, Chickpea
- Unit – II**
- **Oil seeds Processing**
  - Properties and suitability of oil seeds for processing
  - Methods of oilseed processing
  - Terminologies in oil processing industry
- Unit – III**
- **Processing of plantation crops**
  - Concept of plantation crops
  - Principles of processing of plantation crops
  - Processing of tea, coffee, cocoa and coconut
- Unit IV**
- **Spice processing**
  - Spices suitable for processing
  - Principles and methods of spice processing
  - Machinery used for spice processing
  - Quality aspects of spices

**Reference:**

- 4) Kader A A: Post harvest technology of horticultural crops. 2<sup>nd</sup> edition, University of California
- 5) Salunkhe D K and Kadam S S: handbook of world food legumes, CRC Press, Florida
- 6) Niir Board : Modern Technology of Agro processing and Agricultural waste, National Institute of India Re 2000.
- 7) Salunkhe D K, Chavan J K, Adsule R N and Kadam S S : World oilseeds chemistry, technology and utilization. VNR, New York

**B. Voc. Part – I**  
**Food Processing and Management**  
**Semester II - Paper No. XIV**  
**Bakery & Confectionery – II**

Total Marks – 50

Work Load - 4  
Theory – 4 Lectures / Week

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**Objectives:**

- To enable students –  
1) To develop skills in Bakery & Confectionery

**Course Content:**

- Unit – I**
- **Cake**
  - Principle involved in cake production
  - Different types of cakes and their uses
  - Ingredients used in cake production
- Unit II**
- **Biscuits and Cookies**
  - Principle involved in biscuits and cookies production
  - Different types of biscuits and cookies and their uses
  - Ingredients used in biscuits and cookies production
- Unit – III**
- **Principles of confectionary production**
  - Characteristics of confectionary products
  - Types of confectionary products
  - Ingredients used in confectionary products
- Unit – IV**
- **Confectionary Products**
  - Chocolate Processing
  - Boiled Sweets
  - Gelatine Sweets
  - Crystallized confectionery

**References:**

- 2) John Kingslee: A professional text to bakery and confectionary, New Age International Publication.
- 3) NIIR Board: The complete technology book on bakery products
- 4) W.P. Edwards : Science of Bakery Products.
- 4) Emmanuel Obene : Chocolate science and Technology

**B. Voc. Part – I**  
**Food Processing and Management**

**Semester II-Paper No. XV**  
**Laboratory work (Food Preservation – II)**

Work Load - 4

Total Marks – 50

Practical – 4 Lectures/Week/Batch

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**Practicals:**

- 1) Introduction to freezing equipments
- 2) Preservation by using chemical preservatives
  - i) Tomato ketchup
  - ii) Fruit squash
- 3) Preparation of product by using salt as preservative
- 4) Preparation of product by using sugar as preservative
- 5) Preparation of product by using oil as preservative
- 6) Preparation of food product by Freeze drying
- 7) Visit to food preservation unit

**Scheme of practical evaluation**

**Internal practical examination**

**50 marks**

- |   |          |
|---|----------|
| i)Preparation of any one product by using following preservation method-salt/sugar/oil/chemical preservatives | 15 marks |
| ii) Submission of practical record book   | 15 marks |
| iii) Submission of visit report   | 10 marks |
| iv) Viva – Voce   | 10 marks |

**B. Voc. Part – I**  
**Food Processing and Management**

**Semester II - Paper No. XVI**  
**Laboratory Work ( Agro Processing -II)**

Work Load - 4

Total Marks – 50

Practical – 4 Lectures/Week/Batch

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**Practicals:**

- 1) Preparation of soy milk
- 2) Preparation of soy curd
- 3) Preparation of Tofu
- 4) Preparation of Pulse flour of different granule size
- 5) Preparation of Peanut butter
- 6) Preparation of Garlic paste
- 7) Preparation of Coconut Chips
- 8) Visit to Spice Industry/Pulse Mill

**Scheme of practical evaluation**

**Internal practical examination**

**50 marks**

- |  |          |
|--|----------|
| i)Preparation of any one product of the following-soy milk<br>soy curd/Tofu/Pulse flour/Coconut Chips/Garlic paste/<br>Peanut butter | 15 marks |
| ii) Submission of practical record book  | 15 marks |
| iii) Submission of visit report  | 10 marks |
| iv) Viva – Voce  | 10 marks |

**B. Voc. Part – I**  
**Food Processing and Management**  
**Semester II - Paper No. XVII**  
**Laboratory Work ( Bakery & Confectionery – II)**

Work Load - 4

Total Marks – 50

Practical – 4 Lectures/Week/Batch

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**Practicals:**

- 1) Preparation of cake
- 2) Preparation of biscuits
- 3) Preparation of cookies
- 4) Preparation of chocolate
- 5) Preparation of boiled candy
- 6) Preparation of Fudge
- 7) Preparation of Fondant
- 8) Preparation of Gelatin sweet
- 9) Visit to Confectionary unit

**Scheme of practical evaluation**

<b>Internal practical examination</b>	<b>50 marks</b>
i) Preparation of any one product from the following cake/biscuits/cookies/chocolate/boiled candy/Fondant/ Gelatin sweet/ Fudge	15 marks
ii) Submission of practical record book	15 marks
iii) Submission of visit report	10 marks
iv) Viva – Voce	10 marks