Estd. 1962
"A++" Accredited by NAAC (2021)
With CGPA 3.52

SHIVAJI UNIVERSITY, KOLHAPUR
416 004, MAHARASHTRA
PHONE : EPABX – 2609000, BOS Section – 0231-2609094, 2609487
Web : www.unishivaji.ac.in Email: bos@unishivaji.ac.in
शिवाजी विद्यापीठ, कोल्हापूर, ४१६ ००४, महाराष्ट्र
दूरध्वनी - इपीबीएक्स - २०६०९०००, अभ्यासमंडळे विभाग : ०२३१- २६०९०९४, २६०९४८७
वेबसाईट : www.unishivaji.ac.in ईमेल : bos@unishivaji.ac.in

Ref.: SU/BOS/ *IDS* /564 **Date: 18 - 09- 2025**

To,

The Principal,
All Concerned Affiliated Colleges/Institutions
Shivaji University, Kolhapur

Subject : Regarding revised syllabi of **B. Voc. Part I (Sem. I & II)** degree programme under the Faculty of Inter- Disciplinary Studies as per NEP-2020 (2.0).

Sir/Madam,

With reference to the subject mentioned above, I am directed to inform you that the university authorities have accepted and granted approval to the revised syllabi, nature of question paper and equivalence of **B. Voc. Part I (Sem. I & II)** for follower's degree programme under the Faculty of Inter- Disciplinary Studies as per National Education Policy, 2020 (NEP 2.0).

Course
B. Voc. Automobile Part - I
B. Voc. Sustainable Agriculture Part - I
B. Voc. Food Processing Technology Part - I
B. Voc. Graphic design Part -I
B. Voc. Sustainable Agriculture Management Part -I
B. Voc. Nursing and Hospital Management Part -I
B. Voc. Tourism and Service Industry Part - I

This syllabus, nature of question and equivalence shall be implemented from the academic year **2025-2026** onwards. A soft copy containing the syllabus is attached herewith and it is also available on university website www.unishivaji.ac.in NEP-2020 (Online Syllabus)

The question papers on the pre-revised syllabi of above-mentioned course will be set for the examinations to be held in October /November 2025 & March/April 2026. These chances are available for repeater students, if any.

You are, therefore, requested to bring this to the notice of all students and teachers concerned.

Thanking you,

Yours Faithfully

(Dr. S. M. Kubal)
Dy Registrar

Encl. : As above.

Copy to: For Information and necessary action.

1	The Dean, Faculty of IDS	7	Affiliation T. 1 & T. 2 Section
2	Director, Board of Examination and Evaluation	8	Appointment A & B Section
3	The Chairman, Respective Board of Studies	9	P.G.Seminar Section
4	All On Exam Section	10	I.T. Cell
5	Eligibility Section	11	Internal Quality Assurance Cell (IQAC)
6	P. G. Admission Section		

SHIVAJI UNIVERSITY,KOLHAPUR

Accredited By NAAC with 'A++' Grade with CGPA 3.52

Faculty of Interdisciplinary Studies
Syllabus for

B. Voc.-Part I NEP-2.0

Food Processing Technology

Revised Syllabus to be implemented from Academic Year 2025-2026 onwards

(Subject to the modifications that will be made from time to time)

SHIVAJI UNIVERSITY, KOLHAPUR

NEP 2.0: Credit Framework for B. Voc. Undergraduate (UG) Programme under Faculty of Interdisciplinary Studies

B. Voc. Food Processing Technology

Level	Semester	COURSES			OE	VSC/SEC	AEC/VEC/IKS	OJT/FP/CEP/ CC/ RP	Total Credit	Degree/Cum/Cr. MEME
		Course –I	Course -II	Course -III			IKS			
4.5	I	DSC-I (2) DSC-II (2) DSC P-I (2)	DSC-I (2) DSC-II (2) DSC P-I (2)	DSC-I (2) DSC-II (2) DSC P-I (2)	OE -1 (T/P) (2)	-	IKS-I (2) Introduction to IKS	-	**22**	**UG Certificate 44**
	II	DSC-III (2) DSC-IV (2) DSC P-II (2)	DSC – III (2) DSC-IV (2) DSC P-II (2)	DSC-III (2) DSC-IV (2) DSC P-II (2)	OE-2 (T/P) (2)	-	VEC-I (2) (Democracy, Election and constitution)	-	**22**	
Credits		**8(T)+4(P)= 12**	**8(T)+4(P)= 12**	**8(T)+4(P)=12**	**2+2 =4**	**-**	**2 + 2= 4**	**-**	**44**	**Exit Option: 4 Credits NSQF/Internship/Skill Courses**
		MAJOR		**MINOR**						
5.0	III	Major-V (2) Major-VI (2) Major P-III (2)	-	Minor-V (2) Minor-VI (2) Minor P-III (2)	OE -3 (T/P) (2)	VSC I (2) (P) (Major Specific) SEC I (2) (T/P)	AEC-I (2) English	CC-I (2)	**22**	**UG Diploma88**
	IV	Major-VII (2) Major-VII (2) Major P-IV (2)	-	Minor-VII (2) Minor-VII (2) Minor P-IV (2)	OE-4 (T/P) (2)	SEC II (2) (T/P)	AEC-II (2) English VEC-II (2) (Environmental Studies)	CEP-I (2)	**22**	
Credits		**8(T)+4(P)= 12**	**-**	**8(T)+4(P)=12**	**2+2= 4(T/P)**	**4 (T/P)+2 (P)=6**	**2 + 4= 6**	**2 + 2= 4**	**44**	**Exit Option: 4 Credits NSQF/Internship/Skill Courses**
5.5	V	Major-IX(2) Major-X(2) Major P-V (4)	Major-I(ELEC) (2) Major P-I (ELEC) (2)	-	OE-5 (T/P) (2)	VSC II (2) (Major Specific)(P)	AEC-III (2)English	OJT (4)	**22**	**UG Degree 132**
	VI	Major-XI(2) Major-XII (2) Major P-VI (4)	Major-II (ELEC) (2) Major P-II (ELEC) (2)	-	-	VSC III(2) (P) (Major Specific) SEC III(2) (T/P)	AEC-III (2) English IKS-2(Major Specific) (2)	FP (2)	**22**	
Credits		**8(T)+8(P)= 16**	**4(T)+4(P)= 8**	-	**2(T/P)**	**2(T/P)+4(P)=6**	**2 + 4= 6**	**4+2=6**	**44**	
Total Credits		**40+20=60**		24	**10**	**12**	**16**	**10**	**132**	**Exit Option**

B. Voc. Food Processing Technology

Titles of Papers

Sem	Course	Code	Paper No.	Title of Paper
I	I	DSC- I	B. Voc. Paper- I	Fundamentals of Food Science -I
		DSC- II	B. Voc. Paper- II	Fundamentals of Food Science -II
		DSC-P-I	B. Voc. Practical –I	Based upon DSC-I and DSC - II
	II	DSC- I	B. Voc. Paper- I	Principles of Food Preservation -I
		DSC- II	B. Voc. Paper- II	Principles of Food Preservation -II
		DSC-P-I	B. Voc. Practical –II	Based upon DSC -I and DSC -II
	III	DSC- I	B. Voc. Paper- I	Food and Nutrition Science -I
		DSC- II	B. Voc. Paper- II	Food and Nutrition Science -II
		DSC-P-I	B. Voc. Practical –III	Based upon DSC – I and DSC - II
	OE -I	Open Elective	Practical (2)	Food Adulteration
	IKS	Indian Knowledge System	Theory (2)	IKS (Generic)
II	I	DSC- III	B. Voc. Paper- III	Food Chemistry -I
		DSC- IV	B. Voc. Paper- IV	Food Chemistry -II
		DSC-P-II	B. Voc. Practical –II	Based upon DSC -III and DSC - IV
	II	DSC- III	B. Voc. Paper- III	Food Microbiology -I
		DSC- IV	B. Voc. Paper- IV	Food Microbiology -II
		DSC-P-II	B. Voc. Practical –II	Based upon DSC -III and DSC -IV
	III	DSC- III	B. Voc. Paper- III	Agro Processing -I
		DSC- IV	B. Voc. Paper- IV	Agro Processing -II
		DSC-P-II	B. Voc. Practical –II	Based upon DSC – III and DSC - IV
	OE -II	Open Elective	Practical (2)	Plantation Crops
	VEC	Value Education Course	Theory (2)	Democracy, Election and Good Governance

• Student Contact Hrs. Per week: 36 hrs.	• Total marks for B. Voc.- Diploma: 1100
• Theory and Practical Lectures: 60 Minutes Each	• Total credits for B. Voc.- Diploma: 44
• **DSC:** Discipline Specific Course	
• **MAJOR:** Mandatory/Elective	
• **MINOR:** Course may be from different disciplines of same faculty of DSC Major.	
• **OE (Open Elective):** Chosen compulsorily from faculty other than that of the Major.	
• **VSC/SEC: Vocational Skill Courses (MAJOR related)/Skill Enhancement Courses**	
• **AEC/ VEC / IKS:** Ability Enhancement Courses (English, Modern Indian Language)/Value Education Courses/ Indian Knowledge System (Generic & Specific))	
• **OJT/FP/RP/CEP/CC:** On-Job Training (Internship/Apprenticeship) / Field Project (Major related)/ Research Projects (Major related) Community Engagement (Major related)/ Co-Curricular courses(CC) such as Health& Wellness, Yoga Education, Sport, and Fitness, Cultural activities, NSS/NCC and Fine /applied/visual/performing Arts / Vivek Vahini etc.	

Eligibility:

Eligibility for Admission: For Diploma: 10+ 2 from any faculty/ITI/MCVC or Equivalent

For Advance Diploma: Diploma or equivalent any related stream.

Eligibility for Faculty: 1) Post Graduate with NET / SET/Ph. D. Or

2)Five Year Industry Experienced Personal

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

Eligibility for Lab Assistant: Graduation with related field

Staffing Pattern: **Teaching:** In the 1st year of B. Voc. – 1 Full Time and 1 Part Time Lecturer

1 CHB Lecturer for Business Communication

Lab. Assistant: For 1st Year of B. Voc. – 1 Part Time

For 2nd and 3rd Year (Inclusive of 1stYear) of B. Voc. – 2 Full Time

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025

B. Voc. I (Food Processing Technology) Sem. I
(Course - I) DSC– I B. Voc. Paper-I
Fundamentals of Food Science -I
Theory: 30 Hours
(Credits: 02)

Unit–1: - Introduction to food & Food Science (7 Hrs)

Concept of food, food science, Objectives of food science, Functions of food, food in relation to health

Unit–2: - Basic Food Groups and Food Pyramid as per Food Science and ICMR (7 Hrs)

Basic Five Food Groups According to Food Science, Basic Food Groups Suggested by ICMR, Food Pyramid – Definition and Purpose, Levels of the Food Pyramid

Unit–3: - Methods of food processing (8 Hrs)

Introduction to Food Processing and Techniques of Food Preparation, Objectives, Methods of Food Processing, Dry heat methods, Moist heat methods and Combination method..

Unit–4: - Food Preparation and storage (8 Hrs)

Food Preparation and storage- Basic terms used in food preparation, preliminary preparation methods for food, advantages.

Suggested References

- B. Shreelaksmi Food Science (Second Edition), New Age International, New Delhi.
- Swaminathan. Textbook of Food ScienceVol-1, BAPPCO, Banglore
- Devendrakumar Bhatt & Priyanka Tomar. An Introduction to Food Science, Technology & Quality Management. Kalyani Publishers
- Sumati R. Mudambi. Fundamentals of Food & Nutrition, Wiley Eastern Ltd., New Delhi
- Gopalan, C., Ramasastri, B. V., & Balasubramanian, S. C. (2012). Nutritive Value of Indian Foods.

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. I
(Course - I) DSC– II B. Voc. Paper -II
Fundamentals of Food Science -II
Theory: 30 Hours
(Credits: 02)

Unit–1: - Cereal Processing **(7 Hrs)**

Cereal Processing - Structure, composition and Nutritive value of cereal grains, Milling-Definition, Flowchart, advantages and disadvantages, Cereals products –Wheat, rice, maize, Gelatinization, Dextrinization

Unit–2: - Pulse and Legume Processing **(8 Hrs)**

Definition, composition and structure of pulses, Nutritive value of pulses, Processing of Legumes and pulses

Unit–3: - Nuts and Oil Seeds Processing **(8 Hrs)**

Types and composition of Nuts and Oil seeds, Specific nuts and oil seeds

Role of Nuts and Oil seeds in Processing

Unit–4: - Fruits and Vegetables Processing **(7 Hrs)**

Classification of Fruits and vegetables, Selection of Fruits and vegetables for processing, Changes during processing and storage.

Suggested References

- B. Shreelaksmi Food Science (Second Edition), New Age International, New Delhi.
- Swaminathan. Text book of Food ScienceVol-1, BAPPCO, Banglore
- Devendrakumar Bhatt & Priyanka Tomar.An Introduction to FoodScience, Technology & Quality Management. Kalyani Publishers
- Sumati R. Mudambi. Fundamentals of Food & Nutrition, Wiley Eastern Ltd.,New Delhi
- Gopalan, C., Ramasastri, B. V., & Balasubramanian, S. C. (2012). Nutritive Value of Indian Foods.

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. I
(Course - I) DSC– P B. Voc. Practical - I
Fundamentals of Food Science
(Credits: 02)

Group –I

1. Classification of food items into five basic food groups
2. Demonstration of Dry Heat Cooking Methods (e.g., roasting).
3. Demonstration of Dry Heat Cooking Methods (e.g., frying).
4. Demonstration of Moist Heat Cooking Methods (e.g., boiling).
5. Demonstration of Moist Heat Cooking Methods (e.g., blanching)
6. Preparation of Nutritious Product Using Balanced Ingredients (e.g., Energy Bars).
7. Preliminary Food Preparation Techniques (Demonstrate proper washing, peeling, chopping, soaking for food preparation.)
8. Demonstration of Food Storage Techniques for Perishable and Non-Perishable Foods

Group - II

1. Demonstration of wheat and rice milling processes with flowchart preparation.
2. Preparation of product by gelatinization techniques
3. Preparation of product by dextrinization techniques.
4. Preparation of product by nuts and oilseeds.
5. Demonstration of soaking and dehulling process
6. Selection, sorting, and grading of fresh fruits and vegetables based on maturity and ripeness.
7. Preparation of product by using fruits & vegetables
8. Visit to grains milling industry.

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. I
(Course - II) DSC– I B. Voc. Paper -I
Principles of Food Preservation -I
Theory: 30 Hours
(Credits: 02)

Unit–1: - Basic Principles of Food Preservation (7 Hrs)

Definition, principles and importance of food preservation, Scope of Food preservation, class I and class II preservatives. Perishable, non-perishable food, causes of food spoilage.

Unit–2: - Preservation by Drying (7 Hrs)

Definition Drying, Principle, types of dryers, factors affecting drying, Advantages and Disadvantages

Unit–3: - Preservation by Irradiation (8 Hrs)

Irradiation: Definition, Principle, method of irradiation process, sources of radiation, Level of Dose for different foods

Unit–4: - Preservation by use of High temperature (8 Hrs)

High Temperature: - Pasteurization: Definition, types, Sterilization, Blanching,

Canning – History and steps involved, spoilage in canned foods

Suggested References

- Gould, G. W. (2012), "New Methods of food preservation", Springer Science & Business Media.
- Manay, N. S. Shadakshara swamy, M. (2004), "Foods- Facts and Principles", New age international publishers, New Delhi.
- Srilakshmi, B. (2003), "Food Science", New Age International Publishers, New Delhi.
- Subalakshmi, G and Udipi, S.A. (2001), "Food processing and preservation". New Age International Publishers, New Delhi.
- Tomar, Gajendra Singh. (2010). *Agronomy Basics and Applied*. Satish Serial Publishing House, Azadpur, New Delhi.

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. I
(Course - II) DSC– II B. Voc. Paper -II
Principles of Food Preservation -II
Theory: 30 Hours
(Credits: 02)

Unit–1: - Preservation by use of Low temperature (7 Hrs)

Low Temperature: - Refrigeration - advantages and disadvantages, freezing:
Types of freezing, common spoilages occurring during freezing, difference between refrigeration and freezing.

Unit–2: - Preservation by Chemical Preservatives (8 Hrs)

Preservatives: classification and modes of action, Common chemical preservatives: benzoates, sorbates, nitrates, sulfites, Use of salt, sugar, vinegar, and acids, Regulatory aspects and safety concerns, Natural preservatives and clean-label trends

Unit–3: - Refrigeration and Freezing (8 Hrs)

Principles of low-temperature preservation, Types of refrigeration and freezing systems, Slow vs. rapid freezing, cryogenic freezing, Effects on microbial growth and enzyme activity, Packaging and storage requirements for frozen foods

Unit–4: - Food Packaging and Storage in Preservation (7 Hrs)

Role of packaging in preservation and shelf-life extension, Types of packaging materials and containers, Modified Atmosphere Packaging (MAP) and Controlled Atmosphere (CA), Active and intelligent packaging systems, Storage conditions and impact on product quality, Traceability and labeling requirements

Suggested References

- Gould, G. W. (2012), "New Methods of food preservation", Springer Science & Business Media.
- Manay, N. S. Shadakshara swamy, M. (2004), "Foods- Facts and Principles", New age international publishers, New Delhi.
- Srilakshmi, B. (2003), "Food Science", New Age International Publishers, New Delhi.
- Subalakshmi, G and Udipi, S.A. (2001), "Food processing and preservation". New Age International Publishers, New Delhi.
- Tomar, Gajendra Singh. (2010). Agronomy Basics and Applied. Satish Serial Publishing House, Azadpur, New Delhi.

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. I
(Course - II) DSC– P B. Voc. Practical - I
Principles of Food Preservation
(Credits: 02)

Group –I

1. List and identify the class I class II preservative
2. Determination of Moisture Content Before and After Drying
3. Demonstration or Study of Food Irradiation and Its Effect on Microbial Load
4. Pasteurization of Milk Using LTLT and HTST Methods
5. Blanching of Vegetables and Study of Enzyme Inactivation
6. Demonstration on canning and bottling of fruits and vegetables.
7. Preservation of food by high concentration of sugar e.g. jam.
8. Preservation of food by using salt e.g. Pickle.

Group - II

1. Preservation of food by using acidulants i.e. pickling by acid, vinegar or acetic acid.
2. Demonstration on blanching of Fruits and Vegetables
3. Demonstration on drying of green leafy vegetables.
4. Demonstration of preserving foods under cold v/s freezing process.
5. Freezing of Vegetables and Study of Changes After Thawing
6. Demonstration of Food Preservation Using Common Chemical Preservatives
7. Canning of Fruits or Vegetables and Sealing in Glass Jars
8. Visit to any food processing industry/unit.

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. I
(Course - III) DSC– I B. Voc. Paper-I

Food and Nutrition Science -I

Theory: 30 Hours
(Credits: 02)

Unit–1: - Introduction to Food (7 Hrs)

Basic concept of Food: Nutrient, Nutrition, Classification of Food, Classification of Nutrients.

Unit–2: - Introduction to Nutrition (7 Hrs)

Nutrition Introduction, Fundamentals of the nutrition & nutritional properties Importance of carbohydrates, proteins, fats, vitamins & mineral.

Unit–3: - Macronutrients – Composition, Functions, and Nutritional Significance (8 Hrs)

Carbohydrates - Composition, classification, functions, food sources, requirement, deficiencies.
Fats and Oils- Composition, Classification, food sources, Functions, requirement and deficiencies.
Protein - Composition, Classification, Essential and Non- essential amino acids, food Sources, functions, deficiencies.

Unit–4: - Concept of Energy Value (8 Hrs)

Energy metabolism – BMR, Recommended dietary allowances
Balanced diet for different age groups (Infancy to old age)
Functions of food-physiological, psychological and social, Concept of Balanced Diet

Suggested References

- Gillespie S, McLachlan M, Shrimpton R, editors. (2003). *Combating malnutrition: time to act*. Washington DC: World Bank.
- Mudambi S.R., Rajagopal M.V. (2006). *Fundamentals of Foods, Nutrition and Diet Therapy*. New Age International Publishers, New Delhi
- Shubangini A Joshi, (1998): *Nutrition and Dietetics*, Tata Mc Graw Hill Pub. Co. Ltd., New Delhi
- Srilakshmi. B, (2005): *Dietetics*, V Edition, New Age International (P) Ltd, Publishers, Chennai.
- S. Saraswathy, T.L. Preethi, S. Balsubramanyan, J. suresh, N. Revanthy and S. naarajan (2008): Post harvest Management of Horticulture Crops, Dr, Updesh

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. I
(Course - III) DSC– II B. Voc. Paper-II

Food and Nutrition Science -II

Theory: 30 Hours
(Credits: 02)

Unit–1: - Nutritional Deficiency **(7 Hrs)**

Malnutrition-Causes, types, symptoms and prevention, Beri-Beri. Wernicke Encephalopathy. Korsakoff's Syndrome. Pellagra. Neuropathy by Nutrient Deficiency.

Unit–2: - Enzymes and coenzymes **(7 Hrs)**

Definition, Importance, structure, enzymes used in food industry, Role of coenzymes

Unit–3: - Food Groups and the Concept of balanced diet **(8 Hrs)**

Nutrition during childhood, Nutrition during pregnancy, Nutrition during lactation women, Nutrition during adolescence, Nutrition during oldage

Unit–4: - Health **(8 Hrs)**

Introduction to health, social health problems – AIDS, alcoholism, smoking, drug dependency, Common Ailments – Fever, Diarrhea, Constipation, Cold & Cough

Suggested References

- Gillespie S, McLachlan M, Shrimpton R, editors. (2003). *Combating malnutrition: time to act*. Washington DC: World Bank.
- Mudambi S.R., Rajagopal M.V. (2006). *Fundamentals of Foods, Nutrition and Diet Therapy*. New Age International Publishers, New Delhi
- Shubangini A Joshi, (1998): *Nutrition and Dietetics*, Tata Mc Graw Hill Pub. Co. Ltd., New Delhi
- Srilakshmi. B, (2005): *Dietetics*, V Edition, New Age International (P) Ltd, Publishers, Chennai.
- Dr. Shashi Goyl, Pooja Gupta, Food Nutrition a7 Health
- S. Saraswathy, T.L. Preethi, S. Balsubramanyan, J. suresh, N. Revanthy and S. naarajan (2008): Post harvest Management of Horticulture Crops, Dr, Updesh

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. I
(Course - III) DSC– P B. Voc. Practical - I
Food and Nutrition Science
(Credits: 02)

Group –I

1. Estimation of vitamin from food sample.
2. Determination of auto oxidative rancidity of fat and oils.
3. Determination of saponification value of fat and oils.
4. Estimation of fructose by rescorcinol method
5. Estimation of amino acids from food
6. Calculation of BMR and body surface area.
7. Calculation of energy value of food.
8. Planning and calculation of nutritive value of balanced diet for different age groups.

Group - II

1. Classification of foods based on their nutritive value and function.
2. Identification of macronutrients and micronutrients in common food items.
3. Demonstration of starch, sugar, protein, and fat tests in food samples.
4. Preparation of a food chart showing sources and functions of major nutrients.
5. Observation of symptoms and causes of common nutritional deficiency diseases.
6. Demonstration of the role of salivary amylase in carbohydrate digestion.
7. Study of enzymes used in the food industry and their applications.
8. Poster or chart making on prevention of malnutrition and nutrient deficiencies.
9. Meal planning using food group concepts and dietary guidelines

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. I
OPEN ELECTIVE (OE)- I
Food Adulteration (Practical)
(Credits: 02)

1. Detection of milk adulteration
2. Detection of adulteration in Turmeric powder
3. Detection of adulteration in Cinnamon
4. Detection of adulteration in Cloves
5. Detection of adulteration in Chili powder
6. Detection of adulteration in Jaggery
7. Detection of adulteration in Asafetida
8. Detection of adulteration in Coriander seed powder
9. Detection of adulteration in Cumin seeds
10. Detection of adulteration in Mustard seed
11. Detection of adulteration in Black Pepper
12. Detection of adulteration in Fats and oils
13. Detection of adulteration in Sweets and confectionary
14. Detection of adulteration in Cereals and pulses
15. Detection of adulteration in Miscellaneous product

Suggested References

- FSSAI Manual of Methods of Analysis of Foods (Adulterants), Food Safety and Standards Authority of India, 2016.
- Prevention of Food Adulteration Act & Rules (with latest amendments), Government of India.
- Manual of Methods of Analysis of Foods – Spices and Condiments, FSSAI, Ministry of Health and Family Welfare, Govt. of India.
- "Food Adulteration and Detection" by Dr. A. Kumar, Published by Agrotech Publishing Academy, 2015.
- "Food Safety and Quality Control" by S. Roday, McGraw Hill Education, 2011.
- ICMR Guidelines and Reports on Food Adulteration Testing, Indian Council of Medical Research.

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025

B. Voc. I (Food Processing Technology) Sem. I

OPEN ELECTIVE (OE)- I

अन्न भेसळ (प्रात्यक्षिक)

(Credits: 02)

1. □□□□□□□□□ □□□□ □□□□□
2. □□□ □□□□□□□□□ □□□□ □□□□□
3. □□□□□□□□□□□ □□□□ □□□□□
4. □□□□□□□□□ □□□□ □□□□□
5. □□□□□ □□□□□□□□□ □□□□ □□□□□
6. □□□□□□□□ □□□□ □□□□□
7. □□□□□□□□□ □□□□ □□□□□
8. □□□ □□□□□□□□□ □□□□ □□□□□
9. □□□□□□□□□□ □□□□ □□□□□
10. □□□□□□□□□ □□□□□□□□ □□□□ □□□□□
11. □□□□ □□□□□□□□ □□□□ □□□□□
12. □□□□ □ □□□□□□□□□ □□□□ □□□□□
13. □□□□□ □ □□□□□□□□□□□□□□□ □□□□ □□□□□
14. □□□□□ □ □□□□□□□□□□□□□ □□□□ □□□□□
15. □□□ □□□□□□□□□□□□□□□□ □□□□ □□□□□

Suggested References

- FSSAI Manual of Methods of Analysis of Foods (Adulterants), Food Safety and Standards Authority of India, 2016.
- Prevention of Food Adulteration Act & Rules (with latest amendments), Government of India.
- Manual of Methods of Analysis of Foods – Spices and Condiments, FSSAI, Ministry of Health and Family Welfare, Govt. of India.
- "Food Adulteration and Detection" by Dr. A. Kumar, Published by Agrotech Publishing Academy, 2015.
- "Food Safety and Quality Control" by S. Roday, McGraw Hill Education, 2011.
- ICMR Guidelines and Reports on Food Adulteration Testing, Indian Council of Medical Research.

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. II
(Course - I) DSC– III B. Voc. Paper-I
Food Chemistry -I
Theory: 30 Hours
(Credits: 02)

Unit I: Introduction of Water (8 Hrs)

Introduction to different food groups and importance of food in food Processing; Water in foods and its properties.
The basic molecule of life, physical properties of water, properties of hydration, salvation. Sorption isotherm, Bound water, free water, water activity.

Unit II: Water Distribution and Filtration Technologies (8 Hrs)

Distribution of water in various foods, Methods of moisture determination, Filtration technologies for water- Reverse Osmosis (RO), Ultrafiltration (UF), Nanofiltration (NF), Applications of water filtration in food processing

Unit III: Enzymes (7 Hrs)

Enzymes: - Definition of Enzymes characteristics of enzymes Nomenclature & classification of enzymes, Factors controlling enzyme reaction

Unit IV: Enzymes in Food Processing (7 Hrs)

Role of enzymes in food quality control, Industrial applications of enzymes in food processing, Case studies or examples of enzyme use in different food products

Suggested References

- Leininger, Nelson & Cox, Principle of BioFood Processing, CBS Publication
- Modern Experimental BioFood Processing, Boyer, Pearson Education
- Lubert stryer, BioFood Processing, Freeman & Co, N.Y.
- Voet & Voet, Fundamentals of BioFood Processing, Jonh Willey & Sons
- Hames Nutrition and dietetics by Rose

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. II
(Course - I) DSC– IV B. Voc. Paper -II
Food Chemistry -II
Theory: 30 Hours
(Credits: 02)

Unit I: Food Additives (7 Hrs)

Introduction, Different food additives- antioxidants, antimicrobial agents, non-nutritive low-Calorie substances &thickeners, preservatives etc.

Unit II: Food Adulteration and Detection Methods (7 Hrs)

Introduction to food adulterants, Common adulterants in various foods, Methods for detection of common adulterants, Health implications of food adulteration

Unit III: Food pigments (8 Hrs)

Introduction to food pigments, Classification and sources of food pigments, Physical properties of food pigments, Chemical properties of food pigments, Stability of pigments during processing and storage

Unit III: Flavonoids and Flavour Components (8 Hrs)

Introduction to flavonoids, Structure and classification of different flavonoids, Role of flavonoids in food and health, Introduction to flavor components, Chemical nature and sources of flavor compounds, Application of pigments and flavor components in food processing

Suggested References

- Leininger, Nelson & Cox, Principle of Bio Food Processing, CBS Publication
- Modern Experimental Bio Food Processing, Boyer, Pearson Education
- Lubert stryer, Bio Food Processing, Freeman & Co, N.Y.
- Voet & Voet, Fundamentals of Bio Food Processing, Jonh Willey & Sons
- Hames Nutrition and dietetics by Rose

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. II
(Course - I) DSC– P B. Voc. Practical - II
Food Chemistry
(Credits: 02)

Group –I

1. Demonstration of different food groups using common food items.
2. Estimation of moisture content in food samples using oven drying method.
3. Determination of water activity (aw) in food using a water activity meter.
4. Observation of sorption isotherm behavior in dehydrated food products.
5. Demonstration of filtration techniques: RO, UF, and NF using lab-scale models.
6. Measurement of physical properties of water: boiling point, freezing point, and density.
7. Study of enzyme activity using catalase and hydrogen peroxide reaction.
8. Effect of temperature and pH on enzyme activity using amylase and starch.

Group - II

1. Identification of food additives in commercial food products through label analysis.
2. Detection of benzoic acid and sulfur dioxide as food preservatives in beverages.
3. Detection of common food adulterants like starch in milk and water in honey.
4. Identification of artificial colors in turmeric and chili powder.
5. Extraction of natural pigments like chlorophyll from spinach and anthocyanins from red cabbage.
6. Study of pigment stability under varying pH and temperature conditions.
7. Extraction and identification of essential oil (flavor compound) from citrus peels by steam distillation.
8. Sensory evaluation of flavored vs. unflavored food products to assess flavor component impact.

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. II
(Course - II) DSC– III B. Voc. Paper-I
Food Microbiology -I
Theory: 30 Hours
(Credits: 02)

Unit I: Introduction to Food Microbiology **(7 Hrs)**

Definition and scope of food microbiology
Historical developments in food microbiology
Importance of microorganisms in food systems

Unit II: Microorganisms in Food **(8 Hrs)**

Overview of microorganisms associated with food
Bacteria in food: spoilage and beneficial types
Yeasts and molds: significance in food processing and spoilage
Overview of microbial interactions in food

Unit III: Food Spoilage **(8 Hrs)**

Definition and types of food spoilage
Stages and signs of spoilage
Factors affecting food spoilage: temperature, moisture, oxygen, etc.
Common spoilage organisms in different food groups

Unit IV: Intrinsic Factors Affecting Microbial Growth **(7 Hrs)**

Definition of intrinsic factors
Nutrient content of food and microbial growth
Water activity (aw) and microbial tolerance
Oxidation-reduction potential (Eh) in food systems

Suggested References

- Adams, M.R. and Moses M.G. (1995): Food Microbiology. 1st edition, New Age International (P) Ltd.
- Bibek Ray (2005). Fundamental Food Microbiology.2nd edition, CRC Press, Boca Raton London New York Washington.
- Frazier W C., (2002): Food Microbiology, Mc Graw Hill Book Co., 6th edition, New Delhi.
- Jay, James, M (2000): Modern Food Microbiology, 2nd edition, CBS Publisher.
- Pelezar, M.I and Reid, R.D, (1993): Microbiology, 5th edition, McGRaw Hill Book Company, New York.

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. II
(Course - II) DSC– IV B. Voc. Paper -II
Food Microbiology -II
Theory: 30 Hours
(Credits: 02)

Unit I: Extrinsic Factors Affecting Microbial Growth (7 Hrs)

Definition of extrinsic factors
Relative humidity and its impact on microbial growth
Gaseous atmosphere (oxygen, CO_2, MAP) and microbial response
Temperature and storage environment influence

Unit II: Sources of Food Contamination (8 Hrs)

Major sources of contamination during handling and processing
Contamination in:- Vegetables and fruits, Cereals, pulses, and oilseeds, Milk and dairy products, Meat, Poultry, and seafood
Prevention and control strategies

Unit III: Foodborne Pathogens and Diseases (8 Hrs)

Foodborne bacterial infections and intoxications
Infective organisms: Salmonella, Shigella, Campylobacter, Escherichia coli
Toxic organisms: Clostridium botulinum, Staphylococcus aureus, Bacillus cereus
Common symptoms and transmission routes

Unit IV: Mycotoxins, Protozoa, and Disease Prevention (7 Hrs)

Mycotoxins in food: causes, effects, and sources
Aspergillus species and aflatoxins
Protozoan foodborne illnesses: overview and examples
General strategies for prevention of foodborne diseases

Suggested References

- Adams, M.R. and Moses M.G. (1995): Food Microbiology. 1st edition, New Age International (P) Ltd.
- Bibek Ray (2005). Fundamental Food Microbiology.2nd edition, CRC Press, Boca Raton London New York Washington.
- Frazier W C., (2002): Food Microbiology, Mc Graw Hill Book Co., 6th edition, New Delhi.
- Jay, James, M (2000): Modern Food Microbiology, 2nd edition, CBS Publisher.
- Pelezar, M.I and Reid, R.D, (1993): Microbiology, 5th edition, McGRaw Hill Book Company, New York.

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. II
(Course - II) DSC– P B. Voc. Practical - II
Food Microbiology
(Credits: 02)

Group –I

1. Study of laboratory safety rules and introduction to basic microbiological equipment.
2. Microscopic observation of common food-associated microorganisms (bacteria, yeasts, molds).
3. Isolation and enumeration of bacteria from food samples using standard plate count method.
4. Isolation of molds and yeasts from spoiled fruits or bread.
5. Observation and recording of visible signs of spoilage in perishable foods under different storage conditions.
6. Effect of temperature on microbial growth in food samples.
7. Effect of water activity (aw) on microbial growth using different salt/sugar concentrations.
8. Study of microbial spoilage patterns in protein-rich vs carbohydrate-rich foods.

Group - II

1. Study of the effect of temperature on microbial growth in food samples.
2. Demonstration of microbial growth under different relative humidity conditions.
3. Effect of modified atmospheric packaging (MAP) on microbial spoilage of food (demonstration-based).
4. Microbial analysis of surface contamination on raw vegetables and fruits.
5. Detection of microbial contamination in milk using the methylene blue reduction test.
6. Observation of food spoilage caused by *Staphylococcus aureus* or *Bacillus cereus* in protein-rich food.
7. Demonstration of fungal contamination and aflatoxin risk in stored grains.
8. Case study or simulation on foodborne outbreak investigation and prevention strategies.

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. II
(Course - III) DSC– IV B. Voc. Paper -I
Agro Processing -I
Theory: 30 Hours
(Credits: 02)

Unit I: Introduction to Agro Processing and Industry Overview (7 Hrs)

Definition and concept of agro processing
Historical development and evolution of agro-processing industries
Scope and importance of agro-processing in the Indian and global context
Economic and employment potential of the agro-processing sector

Unit II: Processed Agro Products and Their Importance (7 Hrs)

Types of processed agro products
Nutritional, commercial, and export value of processed products
Role of agro-processing in food security and value addition
Government initiatives and schemes in agro-processing

Unit III: Machinery in Agro Processing (8 Hrs)

Overview of basic processing equipment: Floor mill, mini grain mill pulverizer, hammer mill, Sieve shaker (floor separator), dal mill, Packing and sealing machines
Types of weighing balances and their applications
Safety and maintenance of agro-processing machinery

Unit IV: Wheat and Corn Milling (8 Hrs)

Wheat processing: Suitable wheat varieties, primary processing (cleaning, grading), Wheat milling process and machinery, Wheat product standards and types
Corn processing: Traditional milling methods, Modern milling: dry milling and wet milling

Suggested References

- Lawley, R., Curtis L. and Davis, J. The Food Safety Hazard Guidebook, RSC publishing, 2004
- De Vries. Food Safety and Toxicity, CRC, New York, 1997
- Marriott, Norman G. Principles of Food Sanitation, AVI, New York, 1985
- Forsythe, S J. Microbiology of Safe Food, Blackwell Science, Oxford, 2000 &Sons; USA, 1987
- Quality Control for Food Industry - Krammer & Twig

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. II
(Course - III) DSC– IV B. Voc. Paper -II
Agro Processing -II
Theory: 30 Hours
(Credits: 02)

Unit I: Rice Milling and Paddy Properties **(7 Hrs)**

Paddy properties relevant to milling
Rice milling process: cleaning, dehusking, polishing
Types of rice hullers and milling equipment
Quality control in rice milling

Unit II: Processing of Pulses and Legumes **(8 Hrs)**

Principles of pulse milling
Methods of dhal milling (traditional vs. modern)
Milling of specific legumes: red gram, chickpea, green gram
Equipment used in pulse processing

Unit III: Processing of Plantation Crops **(8 Hrs)**

Introduction and examples of plantation crops
Principles of processing plantation crops
Processing of: Tea (green, black, CTC), Coffee (dry and wet methods), Cocoa (fermentation and drying), Coconut (copra, oil extraction)

Unit IV: Spice Processing and Quality Control **(7 Hrs)**

Spices suitable for processing (turmeric, black pepper, chili, etc.)
Principles and common methods of spice processing
Equipment used in spice processing (grinders, dryers, packaging)
Quality and safety standards for spices

Suggested References

- Lawley, R., Curtis L. and Davis, J. The Food Safety Hazard Guidebook, RSC publishing, 2004
- De Vries. Food Safety and Toxicity, CRC, New York, 1997
- Marriott, Norman G. Principles of Food Sanitation, AVI, New York, 1985
- Forsythe, S J. Microbiology of Safe Food, Blackwell Science, Oxford, 2000 &Sons; USA, 1987
- Quality Control for Food Industry - Krammer & Twig

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. II
(Course - III) DSC– P B. Voc. Practical - II
Agro Processing
(Credits: 02)

Group –I

1. Physical analysis of grains, Cleaning, grading and other pre-processing activities of grains.
2. Estimation of gluten content.
3. Flour Analysis
4. Starch Estimation
5. Angle of Repose
6. Demonstration of common agro-processing machinery: floor mill, hammer mill, and dal mill.
7. Practice on use and calibration of different types of weighing balances in agro-processing.
8. Visit to a local agro-processing industry and prepare a report.

Group - II

1. Determination of physical properties of paddy relevant to rice milling (size, shape, moisture content).
2. Demonstration and operation of rice milling processes: cleaning, dehusking, and polishing.
3. Assessment of rice milling quality parameters including head rice recovery and broken grain percentage.
4. Study of traditional and modern dhal milling methods for pulses like red gram and chickpea.
5. Milling and processing of specific legumes: preparation and quality evaluation of green gram dhal.
6. Quality evaluation of plantation crops on tea (green, black).
7. Processing techniques and quality analysis of coffee (dry and wet processing) and cocoa (fermentation and drying).
8. Demonstration of spice processing methods and quality control tests on turmeric and black pepper.

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025
B. Voc. I (Food Processing Technology) Sem. I
OPEN ELECTIVE (OE)- II
Plantation Crops (Practical)
(Credits: 02)

1. Study of different types of plantation crops
2. Identification of tea leaves and processing stages
3. Preparation of green tea and black tea
4. Processing of coffee beans – dry and wet methods
5. Fermentation process in cocoa processing
6. Extraction of coconut oil from copra
7. Quality analysis of processed tea samples
8. Roasting and grinding of coffee beans
9. Identification of major spices used in plantation crops
10. Drying techniques of spices
11. Preparation of spice powders (turmeric, chili, pepper)
12. Packaging of plantation crop products
13. Study of pest and disease management in tea plantations
14. Processing of cardamom and quality testing
15. Analysis of moisture content in coffee beans
16. Storage techniques for plantation crop products

Suggested References

- K.C. Bose and S.K. Mitra, Plantation Crops, ICAR Publication, 2015.
- K.C. Willson & M.N. Clifford, Tea: Cultivation to Consumption, Chapman & Hall, 2017.
- E.O. Afoakwa, Cocoa Production and Processing Technology, Wiley-Blackwell, 2014.
- K.C. Wilson, Post-Harvest Technology of Coffee, Oxford & IBH Publishing, 2016.
- Susheela Raghavan (Ed.), Handbook of Spices, Seasonings, and Flavorings, CRC Press, 2013.
- O.P. Chauhan & A.K. Bhat, Coconut: Chemistry and Technology, Springer, 2018.

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part I (Food Processing Technology) NEP 2.0 Syllabus with effect from June 2025

B. Voc. I (Food Processing Technology) Sem. II

OPEN ELECTIVE (OE)- II

प्लांटेशन क्षिक (प्रात्यक्षिक)

(Credits: 02)

1. प्लांटेशन पिकलांच्यल वेगवेगळ्यल प्रकलरलांचल अभ्यलस
2. चहल िलनलांची ओळख आपि प्रपियल टप्पे
3. ग्रीन टी आपि ब्लॅक टी तयलर करि
4. कॉफी बीनची प्रपियल – कोरडे आपि ओले िद्धती
5. कोको प्रपियेत पकण्वन प्रपियल
6. कोिच्यलतून नलरळ तेल कलढि
7. प्रपियल केलेल्यल चहल नमुन्लांची गुिवत्तल पवश्लेषि
8. कॉफी बीन भलजि आपि पिळि
9. प्लांटेशन पिकलांमध्ये वलिरल्यल जलिलच्यल मुख्य मसलल्यलांची ओळख
10. मसलल्यलांच्यल सुकवण्यलच्यल िद्धती
11. मसलले िूड (हळद, पमरची, पमरी) तयलर करि
12. प्लांटेशन उत्पलदनलांचे िॅकेपजांग
13. चहल बलगलांमध्ये पकडी व रोग व्यवस्थलिनलचल अभ्यलस
14. वेलची प्रपियल आपि गुिवत्तल तिलसिी
15. कॉफी बीनमधील आर्द्रतल मलिन
16. प्लांटेशन उत्पलदनलांसलठी सलठविूक िद्धती

Suggested References

- के.सी. बोस आपि एस.के. पमत्रल, प्लांटेशन िॉप्स, ICAR प्रकलशन, २०१५.
- के.सी. पवल्सन आपि एम.एन. क्लिफोडर, चहल: ललगवड ते उिभोग, चॅिमन अँड हॉल, २०१७.
- ई.ओ. अफोअक्कल, कोको उत्पलदन आपि प्रपियल तांत्रज्ञलन, वलयली-ब्लॅकवेल, २०१४.
- के.सी. पवल्सन, कॉफीची िोस्ट-हलवेस्ट तांत्रज्ञलन, ऑक्सफडर आपि IBH प्रकलशन, २०१६.
- सुषीलल रलघवन (सांिलदक), मसलले, हांगलम आपि फ्लेवररांग्स हँडबुक, CRC प्रेस, २०१३.
- ओ.िी. चौहलन आपि ए.के. भट, नलरळ: रसलयनशलस्त्र आपि तांत्रज्ञलन, क्लरांगर, २०१८.

SHIVAJI UNIVERSITY, KOLHAPUR
Revised Syllabus for the Bachelor of Vocation in Food Processing Technology
(As per NEP- 2.0)
Applicable from the Academic Year 2025 –26

1. **Title**: B. Voc. I Food Processing Technology Degree Programme, Shivaji University, Kolhapur Revised Syllabus as per NEP – 2.0
2. **Faculty**: Faculty of Food Processing Technology.
3. **Year of Implementation**: From June 2025
4. **Objectives of a Bachelor of Vocation (B. Voc.) in Food Processing Technology Program include**:
   - Understand the fundamental principles, laws, concepts and formulas of Food Processing.
   - Enhance employability and bridge the gap between education and industry needs
   - Gain practical experience by hands-on experience with instruments and develop laboratory skills.
   - Students benefit from practical, hands-on experience alongside their academic studies, leading to increased job readiness and a smoother transition into the workforce
   - Learn about advanced Food Processing and its applications for higher studies.
   - Learn to apply conceptual knowledge to practical work.
   - Learn to interpret chemical and physical phenomena through experimental evidence.
   - Learn to analyze and interpret data accurately through scientific reasoning and experimental hypothesis testing.
5. **Program Outcomes:**

   PO-1: - Students will gain a strong foundation in food science, food processing, preservation techniques, and quality control.

   PO-2: - Students will be able to identify and solve common problems related to food spoilage, processing errors, or equipment faults.

   PO-3: - Students will learn to handle food processing equipment and tools safely and effectively in real-life industrial or laboratory settings.

   PO-4: - Students will be able to work well in teams and communicate ideas clearly in both oral and written forms, especially in industrial and technical environments.

   PO-5: - Students will understand food safety standards like FSSAI, HACCP, and ISO, and how to apply them in processing and packaging.

   PO-6: - Students will be motivated to start their own food-related businesses and continue learning new technologies and trends in the food industry.

6. **Program Specific Outcomes:**

   PSO-1: - Understand the basic concepts, fundamental principles and experimental findings and the scientific theories related to food technology, food science and Food technology & engineering and its other fields related to the program.

   PSO-2: - Develop various communication skills such as reading, listening and speaking skills to express ideas and views clearly and effectively.

PSO-3: - To enable the students with good scientific and engineering knowledge so as to comprehend, design and create food products and devices for the food industry and provide solutions for the challenges in the food industry as well as in agriculture.

PSO-4: - Operate modern tools, equipment, instruments and laboratory techniques to perform the experiments and write the programs in different languages.

PSO-5: - Students will understand good laboratory practices and safety.

PSO-6: - Students will develop research-oriented skills.

7. The B. Voc. I Course (Food Processing Technology) (Level 4.5) will be of **Two Semesters (Sem. I and Sem II)**.
8. **Pattern of Examination:** The Examinations will be conducted **semester-wise for Theory and Practical.**
9. **Fee structure**: As per Shivaji University guidelines.
10. **Eligibility Criteria for Admission to B. Voc. Part I (Level 4.5)**:

i. The Eligibility for admission is 10+2 or equivalent, in any stream (Arts/Commerce/Science) from any recognized board or University.

OR

ii. The candidates after with 10+2-year ITI course/ in any branch/trade are also eligible for course.

OR

iii. The candidates who graduate from any faculty or engineering degree/diploma holders are also eligible.

11. **Medium of Instruction**: English
12. **Structure of course:** Given in Framework Chart
13. **Scheme of Teaching and Examination:**

a) Each theory course paper constitutes of 4-5 units, which require 30 hours of teaching lectures and there shall be two lectures per theory (2 Cr) course per week.
b) B. Voc. I Food Processing Technology AEDP Course will be of 44 Credits (1100 marks).
c) Examination of each **theory course** shall be of **50 marks** (30 university examination + 20 internal assessment). University examination of 30 marks (1.5 hours' duration) will be conducted at the end of each Semester. Internal assessment of 20 marks will be done before the semester examination during each semester.
d) Examination for a practical course shall be 50 marks per semester.
e) Question papers will be set in the view of the entire syllabus and preferably covering each unit of the syllabus. Weightage should be provided for each unit as per the hours allotted for teaching.

14. **Standard of Passing: The standard of passing shall be as per the following table.**

	Semester End Exam	**Internal Assessment**	**Course Exam (Total)**
Maximum Marks	30	20	50
Minimum Marks required for passing	11	7	18

i. There shall be a separate head of passing for semester-end examination and internal examination.
ii. Minimum 18 marks out of 50 are required for passing of practical examination of each course.

15. Nature of Question paper and scheme of marking:

- Theory question paper: Maximum marks -30
- Total No. of questions – 3
- All questions are compulsory.
- Question No.1 is MCQ type (6 Marks).
- Question number 2 is long answer type question Carries 12 marks.
- Question number 3 is short answer type question carries 12 marks.

(Nature of question paper is provided at the end of syllabus.)

B. Voc. I Syllabus (NEP-2.0)
To be implemented from June 2025 onwards Semester –I & II
Nature of a Question Paper

Time: 1 hours **Total Marks: 30**

Solve questions from the following.

Q. 1 Multiple choice Question **06 Marks**

i.

ii.

iii.

iv.

v.

vi.

Q. 2 Long answer Question (Any Two out of three) **12 Marks**

i.

ii.

iii.

Q. 3 Short Answer Questions (Any Four out of six) **12 Marks**

i.

ii.

iii.

iv.

v.

vi.

Internal Assessment **20 Marks**

- Home Assignment
- Class Assignment (Tutorial Type)
- Quiz
- Mid-Term Test

Nature of Practical Question Paper:

Internal practical examination 50 marks

1. Group I 20 Marks
2. Group II 20 Marks
3. Submission of Certified Journal 10 Marks

Assessment:

The NEP 2020 emphasizes upon formative and continuous assessment rather than summative assessment. Therefore, the scheme of assessment should have components of these two types of assessments. Assessment has to have correlations with the learning outcomes that are to be achieved by a student after completion of the course

a) **Continuous Assessment:** Assignments, projects, presentations, seminars and quizzes

b) **Examinations:** Midterm, finals, or comprehensive exams.

c) **Research Projects/Dissertation/Thesis:** Evaluated through submission and viva-voce

d) **Grading System:** Standardized letter grades, percentages, or CGPA

Letter Grades and Grade Points:

The Semester Grade Point Average (SGPA) is computed from the grades as a measure of the student's performance in a given semester. The SGPA is based on the grades of the current term, while the Cumulative GPA (CGPA) is based on the grades in all courses taken after joining the programme of study. The HEIs may also mention marks obtained in each course and a weighted average of marks based on marks obtained in all the semesters taken together for the benefit of students.

Computation of SGPA and CGPA: UGC recommends the following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA)

Letter Grade	Grade Point
O (Outstanding)	10
A+ (Excellent)	9
A (Very Good)	8
B+ (Good)	7
B (Above Average)	6
C (Average)	5
P (Pass)	4
F (Fail)	0
Ab (Absent)	0

1. The SGPA is the ratio of the sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e.

$$\textbf{SGPA } (S_i) = \frac{\sum (C_{ix} G_i)}{\sum C_i}$$

Where C_i is the number of credits of the i^{th} course and G_i is the grade point scored by the student in the i^{th} course.

2. The Cumulative Grade Point Average (CGPA) is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$\textbf{CGPA} = \frac{\sum (C_{ix} S_i)}{\sum C_i}$$

Where S_i is the SGPA of the i^{th} semester and C_i is the total number of credits in that.