

Estd. 1962

'A++" Accredited by NAAC (2021)

With CGPA 3.52

SHIVAJI UNIVERSITY, KOLHAPUR - 416004, MAHARASHTRA

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शिवाजी विद्यापीठ, कोल्हापूर -४१६००४,महाराष्ट्र

दूरध्वनी-ईपीएबीएक्स -२६०९०००, अभ्यासमंडळे विभाग दुरध्वनी ०२३१—२६०९०९४ ०२३१—२६०९४८७



# Ref.No.SU/BOS/Science/271

To,

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

# Subject: Regarding revised syllabi of B.Sc. Part-II (Sem.III & IV) degree programme under the Faculty of Science and Technology 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 syllabi, nature of question paper B.Sc. Part-II (Sem. III & IV) degree programme under the Faculty of Science and Technology as per NEP-2020 (2.0).

	B.Sc.Part-II (Sem. III & IV) as per NEP-2020 (2.0)							
1.	Pollution	8.	Food Science (Entire)					
2.	Biochemistry	9.	Biotechnology (Entire)					
3.	Food Science and Quality Control	10.	Environmental Science (Entire)					
4.	Computer Science (Optional)	11.	Information Technology (Entire)					
5.	Biotechnology (Optional/Vocational)	12.	Food Science and Technology (Entire)					
6.	Animation (Entire)	13.	Food Technology & Management (Entire)					
7.	Computer Science (Entire)	14.	All Faculty UG Part II Environmental Studies (VEC)					

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 <u>www.unishivaji.ac.in NEP-2020@suk(Online Syllabus)</u>

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, Dy Registrar Dr. S. M. Kubal

### Encl: As above

#### for Information and necessary action

Copy to:

Copy				
1	Dean, Faculty of Science & Technology	6	Appointment Section A & B	
2	Director, Board of Examinations and Evaluation	7	I.T.Cell /Computer Centre	
3	Chairman, Respective Board of Studies	8	Eligibility Section	
4	B.ScM.Sc. Exam Section	9	Affiliation Section (T.1) (T.2)	
5	Internal Quality Assurance Cell (IQAC Cell)	10	P.G. Seminar Section	

Date: 03/05/2025

# SHIVAJI UNIVERSITY, KOLHAPUR.



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

Structure and Syllabus in Accordance with

National Education Policy – 2020

With Multiple Entry and Multiple Exit

Syllabus For

B.Sc. Part-II Food Science & Quality Control

# SEMESTER IIIAND IV

To be implemented from Academic Year 2025-2026

# SYLLABUS OF B.Sc. (Food Science and Quality Control) II (NEP2020)

# **Year of Implementation:** To be implemented from June 2024 onwards

- Guidelines shall be as per B.Sc. Regular Program.
- Rules and Regulations in accordance with National Education Policy with effect from Academic Year 2024-25.
  - Preamble:
- Food science and quality control is an exciting field that allows you to build a strong background for many career opportunities.
- The preamble for food Science and quality control emphasizes the critical role of these disciplines in ensuring safe, high quality food for consumers and promoting sustainable food systems, addressing issues like food safety, quality & Nutrition globally.

	PROGRAM OUT COMES					
PO1	Apply the scientific method to food science & Technology problems					
PO2	Apply critical thinking and analytical evaluation to contemporary food science & Technology information and literature.					
PO3	Apply principles from general chemistry, microbiology, analysis, bio-technology and biochemistry to food science & Technology problems.					
PO4	To provide knowledge and skills for better preservation techniques, processing and Value addition to agricultural products.					
PO5	To promote research and development for food product and process and guarantee sanitation and safety of processed food items.					
PO6	Utilized advanced instruments and technologies to process and analyze food products and to solve food safety problems.					
PO7	Critically access and analyze food science & Technology information available in the public domain in an innovative and ethical way.					
PO8	Design food products that meet the various food regulations and laws					
PO9	Utilize knowledge from the physical and biological sciences as a basis for Understanding the role of food and nutrients in health and disease processes.					
PO10	Taking roles as researchers, academics, practitioners or professionals with Reliable skills, mastering concepts and theories, and applying and developing food and related sciences.					

	PROGRAM SPECIFIC OUT COMES
PSO1	To impart knowledge in various aspects of Food Technology through Theory and Practical knowledge.
PSO2	To impart the knowledge about various compounds such as protein, carbohydrates, lipids amino acids, minerals, vitamins etc. associated with the chemical compositions of food, their structures and functions.
PSO3	The students can gain knowledge about some very essential topic of nutrition and its metabolism balance inside the body
PSO4	To make the students familiar with the technologies of food processing And preservation of plant and animal foods,cereals,pulses,oilseeds,fruits vegetables,spices,meat,fish,poultry,seafood,milk and dairy products.
PSO5	To development students understanding and communication skills through various assignments which will enable them to develop skills in writing and effective's inter personal skills. A presentation in different topics enhances their confidence, ability to express themselves & presentation skills

	PROGRAM OBJECTIVE							
1	To train the student to be competent working professional in the food industry ,in the production of quality food by imparting better nutritional, sanitation & hygiene concepts							
2	To encourage students to the entrepreneurs & develop the capacity for setting up small scale enterprises with respect to food within the country.							
3	To organize functions for creating awareness about the importance of safe processed nutritious food							
4	To provide diagnostic analysis of food products.							
5	Food Chemistry & Food Microbiology Understand the role of chemical composition & Microorganism in Food Spoilage and Safety.							
6	Food Processing and preservation Understand the principles of food Processing and preservation.							
7	Evaluate the Safety and efficiency of genetically modified food and apply principles to food product development.							
8	Evaluate the effect of packaging and distribution on food quality and safety.							
9	Develop innovative solution for the food industry.							
10	Help student gain practical skills through internship and collaborative project.							

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# **\*** Duration of Programme:

3 years B.Sc. Programme or

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4years B.Sc.Programme (Honors Degree) or

4years B.Sc.Programme (Honors with Research Degree)

# \* Medium of instruction: English

# **\*** Eligibility for admission:

The eligibility of students taking admission at B. Sc. Part-I[Level 4.5] (initial entry) and the eligibility of students making lateral entry (Multiple entry-ME) admission at Level 5.0/ Level5.5/Level6.0arerequiredtobescrutinized(withstipulatedprocedure)onthebasisof following criteria:

# (A) Eligibility requirements for admission to B.Sc.Part-I (Level4.5):

 The students passing the Higher Secondary School Certificate Examination with Science stream or Vocational subjects with science stream conducted by the Maharashtra State Board of Higher Secondary Education shall be allowed to enter upon the B. Sc. Part-I (or Undergraduate Certificate in Science).

OR

ii) An Examination of any other Statutory Board or an examining Body recognized as equivalent thereto.

OR

iii) Completed2<sup>nd</sup>yearofthe3-year diploma after 10<sup>th</sup>

# (B) Eligibility requirements for admission to B.Sc.Part-II (Level5.0):

- i) The students passing or ATKT the B.Sc.Part-I (or Undergraduate Certificate in Science) shall be allowed to enter upon the B. Sc. Part-II (or Undergraduate Diploma in Science). OR
- ii) An Examination of any other Statutory University or an examining Body recognized as equivalent there to.

OR

iii) Completed3-yeardiplomacoursewithsubjectsallied/related To the subject at B.Sc. Part I

OR

iv) Completed first year of B.E./B.Tech. with subjects allied/ related to the subject at B.Sc. Part I

# (C) Eligibility requirements for admission to B.Sc.Part-III (Level 5.5):

 The students passing (pass/ ATKT) the B. Sc. Part-II (or Undergraduate Diploma in Science)and successfully completed Level5shallbeallowedtoenterupontheB.Sc.Part-III (or Three Year Undergraduate Degree in Science). ii) An Examination of any other Statutory University or an examining Body recognized as equivalent thereto.

iii) Completed second year of B.E./B.Tech .with subjects allied/ related to the subject at B.Sc. Part II

#### (D) Eligibility requirements for admission to B.Sc.Part-IV(Level6.0):

i) The students passing the B. Sc. Part-III (or Three-Year Undergraduate Degree in Science) with 7.5 CGPA or 75%marks in Three-Year Undergraduate Degree in Science shall be allowed to enter upon the B.Sc.Part-IV(or Four-Year Undergraduate Degree in Science with Honors / Honours with Research).

#### OR

ii) An Examination of any other Statutory University or an examining Body recognized as equivalent thereto.

### **Eligibility Application requirement:**

- (a) Students who are seeking admission for Level 4.5 need to apply for eligibility.
- (b) Students who are not taking any exit from the programme at any level and students re-entering after taking exit, need not apply for eligibility at Level 5.0, 5.5 and 6.0.
- (c) However, students from other university who wish to seek admission for any level of undergraduate degree need to apply for eligibility.

#### **Rules for Multiple Exits:**

- a) If a student wishes to exit after completion of Level 4.5, he/she has to complete additional four credit skill course/ internship.
- b) If a student wishes to exit after completion of Level 5.0, he/she has to complete additional four credit skill course/ internship.
- c) If a student wishes to exit after completion of Level 5.5, he/she need not require completing any additional skill course/ internship.

OR

### **\*** Pattern of B.Sc. Programme:

The pattern of program will be of semester type. (A) Weightage: There shall be Undergraduate certificate in science program credits. There shall be Undergraduate diploma in science with 92 credits. There shall be Three Year B.Sc. Programme with 132credits.The with 48 candidate wishes to attempt for Four-Year B.Sc.(Hon./Research) may opt for 4thyear which will have additional 44 credits, hence, Four Year B.Sc. Programme will require 176 credits.(Please refer the university regulations and structure of the programme for details).

# Credit distribution chart for B.Sc. Programme:a) For 3year B.Sc.Programme:

Course Name		Total Credits	%of total
Major		Creatis	
Major Mandatory(MM)	MM	52	-
Major Elective(ME)	ME	08	-
Vocational Skill Courses(VSC)	VSC	06	-
On Job Training (OJT)	OJT	04	57.58
Field Project(FP)	FP	02	-
Indian Knowledge System	IKS	02	-
Community Engagement Programme	CEP	02	-
Major Total Credits		76	-
Minor	MIN	24	18.18
Open Elective(OE)/ Generic Elective(GE)Courses	OE	10	7.58
Ability Enhancement Courses	AEC	08	
			10.60
Indian Knowledge System(Generic)	IKS	02	
Value Education Courses	VEC	04	
Skill Enhancement Courses	SEC	06	6.06%
Co-Curricular Courses(NSS/NCC/Sports/Cultural Activities)	02		
TOTAL		132	100%

# b) For 4 year B.Sc. Programme (Honors Degree)

Course Name		Total Credits	%of total credits	
Major				
Major Mandatory	MM	80	-	
Major Elective	ME	16	-	
Vocational Skill Courses	VSC	06	-	
On Job Training	OJT	08	65.01	
Field Project	FP	02	05.91	
Research Projects*	RP	00	-	
Indian Knowledge System	IKS	02	-	
Community Engagement Programme	CEP	02	-	
Major Total Credits		116	-	
Minor	MIN	24	15.01	
Research Methodology	RM	04		
Open Elective/Generic Elective Courses	OE	10	5.68	
Ability Enhancement Courses	AEC	08	7.95	
Indian Knowledge System(Generic)	IKS	02		
Value Education Courses	VEC	04	-	
Skill Enhancement Courses	SEC	06		
Co-Curricular			1 55	
Courses(NSS/NCC/Sports/Cultural	CC	02	т.55	
Activities)				
TOTAL		176	100%	

# c) For4yearB.Sc.Programme (Honors with Research Degree):

Course Name		Total Credits	%of total credits
Major			
Major Mandatory	MM	72	
Major Elective	ME	16	

Vocational Skill Courses	VSC	06	
On Job Training	OJT	04	
Field Project	FP	02	65.91
Research Projects*	RP	12	
Indian Knowledge System	IKS	02	
Community Engagement Programme	CEP	02	
Major Total Credits		116	
Minor	MIN	24	15.91
Research Methodology	RM	04	
Open Elective/Generic Elective	OF/GE	10	5.68
Courses		10	2.00
Ability Enhancement Courses	AEC	08	
Indian Knowledge System(Generic)	IKS	02	7.95
Value Education Courses	VEC	04	
Skill Enhancement Courses	SEC	06	
Co-Curricular			1 55
Courses(NSS/NCC/Sports/Cultural	CC	02	<b></b>
Activities)			
TOTAL	176	100%	

\*For honours degree with research, research project is applicable and for honours degree, courses related to major are incorporated.

Scheme of Teaching and Examination pattern (Theory/Practical/Internal):

Structure in Accordance with National Education Policy- 2020 With Multiple Entry and Multiple Exit Options

	Tea	ching Scheme		Examination Scheme						
Course Code	Theory and Practical			University Assessment(UA)			Internal Assessment(IA)			
	Lectures + Tutorial/ (Hours/week)	Practical (Hours/ week)	Credit	Maximum Marks	Minimum Marks	Exam. Hours	Maximum Marks	Minimum Marks	Exam. Hours	
FC I	2	0	2	40	14	1.5	10	4	1	
FM I	2	0	2	40	14	1.5	10	4	1	
Lab Course I	0	4	2	50	18	4				
Botany I	2	0	2	40	14	1.5	10	4	1	
Botany II	2	0	2	40	14	1.5	10	4	1	
Lab Course II	0	4	2	50	18	4				
Zoology I	2	0	2	40	14	1.5	10	4	1	
Zoology II	2	0	2	40	14	1.5	10	4	1	
Lab Course III	0	4	2	50	18	4				
OE- I Introduction to food processing & preservation (T)	2	0	2	40	14	1.5	10	4	1	
IKS-1	2	0	2	40	14	1.5	10	4	1	
TOTAL			22	470			80			

# B.Sc.Part–I (Level-4.5) Semester II

		<b>Teaching Scheme</b>		Examination Scheme						
Course Code	Theory and Practical			University Assessment(UA)			Internal Assessment(IA)			
	Lectures (Hours / week)	Practical (Hours/week)	Credit	Maximum Marks	Minimum Marks	Exam. Hours	Maximum Marks	Minimum Marks	Exam. Hours	
FC II	2	0	2	40	14	1.5	10	4	1	
FM II	2	0	2	40	14	1.5	10	4	1	
Lab Course IV	0	4	2	50	18	4				
Botany III	2	0	2	40	14	1.5	10	4	1	
Botany IV	2	0	2	40	14	1.5	10	4	1	
Lab Course V	0	4	2	50	18	4				
Zoology III	2	0	2	40	14	1.5	10	4	1	
Zoology IV	2	0	2	40	14	1.5	10	4	1	
Lab Course VI	0	4	2	50	18	4				
OE-Introduction to food processing & preservation (P)	2	0	2	40	14	1.5	10	4	1	
VEC-1	2	0	2	40	14	1.5	10	4	1	
TOTAL			22	470			80			
Cum.Total Sem I &II			44	940			160			

• S#T#–Subject number Theory paper number	• Total Marks for B.ScI :1100						
• S#P#–Subject number Practical paper number	• Total Credits for B.ScI (Semester I& II):44						
• <b>OE</b> #( <b>T</b> )-Open Elective Theory Paper number	Open Elective Theory Paper number• Separate passing is mandatory for University and Internal Examinations						
• <b>OE</b> #( <b>P</b> )-Open Elective Practical Paper number							
• IKS-1–IndianKnowledgeSystemTheoryPaper1							
(Generic)							
• <b>VEC-1</b> –ValueEducationCourse(Democracy)							
Theory							
RequirementforExitafterLevel4.5:							
AwardofUGCertificatewith44Creditsandanaddition	nal4 credit score NSQF course/Internship.						

	Те	eaching Sche	me	Examination Scheme							
Course Code	The	Theory and Practical			iversity Assessme	ent(UA)	Internal Assessment(IA)				
	Lectures+ Tutorial/ (Hours/week)		Credit	Maximum Marks	Minimum Marks	Exam. Hours	Maximum Marks	Minimum Marks	Exam. Hours		
CPT	2		2	40	14	1.5	10	4	1		
FPT	2	0	2	40	14	1.5	10	4	1		
Lab Course VII	0	4	2	50	18	4					
Botany V / VI	2		2	40	14	1.5	10	4	1		
zoology V / VI	2		2	40	14	1.5	10	4	1		
Lab Course VIII	0	4	2	50	18	4					
OE-3(T)/	2/		2/	40/	14/	1.5/	10	4	1		
(P)will be selected from Basket	0		2	50	18	4					
VSC I Vocational Skill Course in Jam, Jelly & Ketchup Processing (P)	0		2	50	18	4					
SEC D&DONP (T)	2		2	40	14	1.5	10	4	1		
AECI English	2	2	2	40	14	1.5	10	4	1		
CC-I			2	10							

# B.Sc.Part-II (Level-5.0) Semester III

Note: The marking scheme of CC and CEP will be as per B.sc Regular structure of Shivaji University, Kolhapur

	Teaching Scheme Theory and Practical			Examination Scheme						
Course Code				Uni	versity Assessment	t(UA)	Internal Assessment(IA)			
	Lectures+ Tutorial/ (Hours/week)	Practical (Hours/ week)	Credit	Maximum Marks	Minimum Marks	Exam. Hours	Maximum Marks	Minimum Marks	Exam. Hours	
QCOFP	2		2	40	14	1.5	10	4	1	
B&CT	2		2	40	14	1.5	10	4	1	
Lab Course X	0		2	50	18	4				
Botany VII /VIII	2		2	40	14	1.5	10	4	1	
Zoology VII / VIII	2		2	40	14	1.5	10	4	1	
Lab Course XI	0		2	50	18	4				
OE-4(T)/	2/0	0/4	2/	40/	14/	1.5/	10	4	1	
(P)will be selected from Basket			2	50	18	4				
SEC D&DONP (P)	2		2	40	14	1.5	10	4	1	
AEC II English	2		2	40	14	1.5	10	4	1	
VECII Environmental Studies	2	-	2	40	14	1.5	10	4	1	
CEP-I			2	10						

# B.Sc.Part–II (Level-5.0) Semester IV

Note – The marking Scheme of CC & CEP will be as per B.sc Regular structure of shivaji University,kolhapur

#### **Examination Scheme:** Total marks shall be 50for2credit courses.

1. The question paper in each semester end examination for each theory course (paper) for B.Sc. (all Semesters) shall be of 40 marks for 2 credits.

Total marks for each course shall be based on continuous assessments and semesterend examination. The division of internal assessment and semester-end examination for B. Sc. will be as follows:

Particulars	2CreditCourse	Duration
Semester-end Examination	40 Marks	1.5 Hrs
Internal Assessment	10 Marks	1 Hr
Total marks for each course	50 Marks	

2. The Examination for practical course will be of 50 marks at end of each semester. The rule for practical examination shall be as per the circular/ letter issued by respective board of studies.

3. The examination pattern for Co-Curricular Activities (CC), Field Project (FP), On Job Training (OJT), Community Engagement Program (CEP) and Research Project (RP) as per the University guidelines.

### **Internal Assessment Process shall be as follows:**

(a) The internal assessment should be conducted after completing 50% of syllabus of the course/s.

(b) In case a student has failed to attend internal assessment on scheduled date, it shall be deemed that the student has dropped the test. However, in case of student who could not take the test on scheduled date due to genuine reasons, such a candidate may appeal to the Programme coordinator /Principal /Head of the Department. The Programme coordinator /Principal /Head of the Department in consultation with the concerned teacher shall decide about the genuineness of the case and decide to conduct special test to such candidate on the date fixed by the concerned teacher but before commencement of the concerned semester-end examination. The outline for continuous internal assessment activities shall be as under: Outline for continuous internal assessment activities

Level	Semester	Activities Per Semester	Marks
4.5	Semester-I	Assignment	10marks
	Semester-II	Unit test	10marks
5.0	Semester-III	Unit test	10marks
	Semester-IV	Oral examination/Group discussion	10marks
5.5	Semester-V	Seminar/ Group discussion/Field Work/ Project Work	10marks
	Semester-VI	Study tour/Field Work/Project Work/ Seminar	10marks
6.0	Semester-VII	Case Study/Field Work/Project Work	10marks

- Ordinances regarding the examination: O.B.Sc.2, 3and4shall prevail.
- **\*** Equivalence of papers and chances for the students in previous-Semester pattern: Two additional chances in subsequent semesters shall be provided for the repeater students of old three-year B.Sc. program. In such case the scores obtained by the students in NEP 1.0/CBCS scheme should be converted into equivalent credits in NEP 2.0. After that the students concerned shall have to appear for the examination as per this revised pattern.

If a student fails in two consecutive chances, she has to take admission for the respective course in NEP 2.0. In such cases his previous performance of incomplete academic years (B. Sc. I, B. Sc. II or B. Sc. III) will be cancelled.

# Bachelor of Food Science &Quality Control (B.Sc.FSQC) Course Structure (AsperNEP2020) Credit Framework First Year

SEM (Level)		COURSE			VSC/ SEC	AEC/VEC/ IKS	OJT/FP/ CEP/CC/R	Total Credits	Degree/Cum. Cr. ME ME
	Course-1	Course-2	Course-3				Г		
SEMI (4.5)	DSC-I Food Chemistry I (2)	DSC-I(2)	DSC- I (2)	OE I –		IKS-I		22	
	DSC-II	<b>DSC-II</b> (2)	Lab Course III (2)	Introductions to food processing preservation		Introduction to IKS (2)		22	
	Food Microbiology II (2)			(T) (2)					
	DSC Pract-I	DSC Pract-I							
	Lab Course I (2)	Course II (2)							UG Certificate
SEMII (4.5)	<b>DSC-III</b> Food Chemistry II	DSC-III	DSC-III (2) DSC IV						
	(2) DSC-IV Food	(2)	(2) DSC-Pract-III Lab Course VI (2)	<b>OE- II</b> Introductions to food processing preservation		VEC-I		22	44
	Microbiology II	DSC-IV		(P) (2)		Democracy,			
	DSC Pract-II	(2)				Election&			
	Lab Course IV (2)	<b>DSC-Pract-II</b> Lab Course V(2)				Constitution(2)			
Credits	8(T)+4(P) = 12	8(T)+4(P)=12	8(T)+4(P)=12	2+2=4	-	2+2=4	-	44	Exitoption:4Credits NSQF/Internship/ Skill courses

# Bachelor of Food Science &Quality Control (B.Sc. FSQC) Course Structure (As per NEP2020) Credit Framework Second Year

SEM Level	COURSES Major Minor		OE	VSC/SEC	AEC/VEC/IKS	OJT/FP/CEP/ CC/ RP	Total Credits	Degree/ Cum.Cr. MEME	
	Major		Minor						
SEM III(5.0)	Major-V Cereals, Pulses Technology (2) Major-VI Food Preservation (2) Major P-III Lab Course V & VII (2)	_	Minor-V (2) Minor-VI (2) Minor P-III-Lab Course VIII (2)	OE-3 Will be selected from OE Basket (T) (2)	VSCI(P) Vocational Skill Course in Jam, Jelly& Ketchup Processing Lab Course IX(2) SECI (T) Design & Development of New Products)X(2)(P)	AECI English (2)	CC-I (2)	22	UG Diploma 88
SEM IV(5.0)	Major-VII Quality Control of Food Products (2) Major-VIII Bakery & Confectionery Technology(2) Major P-IV Lab Course X (2)	-	Minor-III (2) Minor-IV (2) Minor P-IV Lab Course XI (2)	OE-4 Will be selected from OE Basket (T) (2)	SEC II XIII (T) Design & Development of New Products)X(2)(P)	AECII English (2) VECII Environment Studies (2)	CEP-I (2)	22	
Credits	8 (T)+ 4 (P)=12	-	8 (T)+4 (P)=12	2+2=4(T)	4(T)+2(P)=6	2+4=6	2+2=4	44	Exit Option: 4 credits NSQF/Intern ship/ Skill Courses

# Bachelor of Food Science & Quality Control (B.Sc. FSQC) Course Structure (As per NEP2020) Credit

Frame work / Third Year

SEM Level	COUR	COURSES Maior Minor			VSC/SEC	AEC/VEC/IKS	OJT/FP/CEP/ CC/ RP	Total Credits	Degree/ Cum.Cr. MEME
	Major Minor		Minor						
SEM V (5.5)	Major-IX Food Safety & Quality management(2) Major-X Dairy Technology (2) Major(P)-V Lab Course(XI&X) (4)	Major I (E)- Fermentation Technology Major P-I- Lab Course XV (2)	-	<b>OE-5 (T/P)</b> Will be selected from OE Basket(2)	VSC II (P) Vocational Skill Coursein Bakery Processing Lab Course XIV (Major specific lab course XVI)Dairy Technology(P)(2)	AEC III English (2)	OJT (4)	22	UG Degree 132
SEM VI (5.5)	Major- XI Meat, Fish & Poultry Technology (2) Major-XII Food Packing Technology Major P-VI Lab Course XI & XII (4)	Major II (E)- 1. Food Additives & Technology (2) 2. Research &Technology advance in food Science Major P-II - Lab Course XVIII (2)	-	_	VSC III (P) Vocational Skill Course in Snacks& Savory Processing (2) (Major specific lab course XIX)Dairy Technology(P)(2) SECIII (T) Entrepreneurship skills for Food Technologist (2)	AEC IV English (2) IKS II Indigenous Preservation Technology (2)	FP (2)	22	
Credits	8(T)+8 (P)=16	4 (T)+4 (P)=8		2(T/P)	2(T)+4(P)=6	4+2=6	4+2=4	44	
Total Credits	40+20=60		24	10	12	16	10	132	Exit Option

# Bachelor of Food Science &Quality Control (B.Sc. FSQC) Course Structure (As per NEP2020) Credit Frame work / Fourth Year

SEM Level	COURSE		OE	VSC/SEC	AEC/VEC/IKS	OJT/FP/CEP/ CC/ RP	Total Credits	Degree/ Cum.Cr. MEME	
	Majo	or	Minor						
SEM VII (6.0)	Major-XIII Principle of Food Processing & Technology (4) Major-XIV Advance Instrumentation in Food Analysis (4) Major (P)- VII Lab Course XXI Major (P)-VIII Lab Course XXII (2)	Major III Beverage Technology / Function food & Nutrsceutical (E)- (4)	RM–I (4)	-	-	-	-	22	UG Honors Degree176
SEM VIII (6.0)	Major- XV Plantation Crop II (4) Major-XVI Fermentation Technology (4) Major P-IX Lab Course VIII(2) Major P-X (2)	Major IV (E) - 1. Enzymes in Food Industry / Plant Hygiene Sanitation / Food Supply Chain Management (4)(E)	-	-	-	-	OJT(4)	22	
Credits	16(T)+12(P)=28	8(T)	4	-	-	-	4	44	
Total Credits	68+28=96		28	10	12	16	14	176	Exit Option

# Bachelor of Food Science &Quality Control (B.Sc. FSQC) Course Structure (As per NEP2020) Credit Frame work / Fourth Year

SEMLevel	COUR	RSES		OE	VSC/SEC	AEC/VEC/IKS	OJT/FP/CEP/ CC/ RP	Total Credits	Degree/ Cum.Cr. MEME
	Maj	or	Minor						
SEMVII (6.0)	Major-XIII Animal Product Technology I (4) Major-XIV Fermentation Technology (4) Major (P)- VIII Lab Course XIII & XVI (2)	Major III 1. Beverage Technology / Function Food & Nutraceutical (4) (E)	RM–I (4)	-	-	-	RP (4)	22	UG Honors with
SEMVI (6.0)	Major- XV Animal Products Technology II (4) Major-XVI Plant Hygiene & Sanitation (4) Major P-XXII Lab Course VIII(2)	Major IV(E)- 1. Enzymes in Food Industry (4) 2. Food Supply Chain Management (4) (E)	-	-	-	-	RP (8)	22	Research Degree 176
Credits	16(T)+12(P)=28	8(T)	4	-	-	-	12	44	
Total Credits	60+28=88		28	10	12	16	22	176	ExitOption

- University may decide to offer maximum of three subjects (Courses) in the first year. The student may selection subject out of combination of three subjects (Courses), (which a student has chosen in the first year) as a MAJOR subject (Course) and one subject (Course) as MIN OR Subject in the second year. There by it is inferred that there mining third subject (Course) shall stand discontinued.
- **DSC:** Discipline Specific Course
- MAJOR: Mandatory/Elective
- MINOR: Course may be from different disciplines of same faculty of DSC Major
- OE (Open Elective): Elective courses/Open Elective to be 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-JobTraining(Internship/Apprenticeship)/FieldProject(Majorrelated)/ResearchProjects(Majorrelated)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 Having etc.

# Standard of Passing: The standard of passing shall be as per shown in the following table:

	Semester End Exam	Internal Assessment	Course Exam(Total)
Maximum Marks	40	10	50
Minimum Marks required for passing	14	4	18

- 1. Thereshallbeaseparateheadofpassingforsemesterendexaminationandinternal examination.
- 2. Minimum 18 marks out of 50 are required for passing of practical examination of each course.
- 3. PassingcriteriaforCo-CurricularActivities(CC),FieldProject(FP),OnJobTraining (OJT), Community Engagement Program (CEP)and Research Project(RP)as pe rthe University guidelines.

# **Gradation Chart:**

%of Marks Obtained	Numeric al Grade (Grade Point)	CGPA	Letter Grade
Absent		-	-
0–34	0	0.0-4.99	F(Fail)
35-44	5	5.00 – 5.49	С
45–54	6	5.50 – 6.49	В
55-64	7	6.50 – 7.49	B+
65–74	8	7.50 – 8.49	А
75–84	9	8.50 – 9.49	A+
85–100	10	9.50 – 10.0	O(Outstanding)

# Note:

- **1.** Marks obtained>=0.5shallberoundedofftonexthighernaturalnumber.
- **2.** TheSGPA&CGPAshallberoundedoffto2decimal points.

# Calculation of SGPA&CGPA:

1.	Semester	Grade	Point	Average	(SGPA)	)
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 $SGPA = \sum (Course credits \times Grade points obtained) of a semester$ 

 $\sum$ (Course credits) of respective semester

 Result - The result of each semester shall be declared as Pass or Fail with grade/grade points. However, ATKT rules will be followed as per University guidelines.

# Nature of question paper and scheme of marking: a) Theory(Semester exam)foreachTheorypaper:Maximummarks-40

Modality of Assessment

Students appearing for the NEP B.Sc. I will be evaluated as per the 80:20 schemes wherein the term end exam will be of 40 marks each paper while 10 marks will be through internal evaluation for each paper.

# A. Theory Examination

- $\checkmark$  Equal weight age shall be given to all units of the theory paper
- ✓ Total number of questions-03
- ✓ Questiononewillcarry-08Marks,
- ✓ QuestionNo.1willbeofanobjectivetypeeightobjectivewillcarry-08Marks.
- ✓ Question 2 will be descriptive two questions are to be attempted out of three and will carry 16 Marks, 08 Marks each)
- ✓ Question 3 will be short answer type four questions are to be attempted out of six and will carry 16 Marks, 04 Marks each)
- ✓ **Nature of questions**-multiple choice, Descriptive and short answer type.
- $\checkmark$  All These questions will be answered in the same answer book

# SemesterEndTheoryAssessment40marks

- The duration of this exam will be of 1.5 Hrs(90 minutes)
- For each unit there will be at least one question
- Allquestionsshallbecompulsorywithinternalchoicewithinthequestions

# \* Nature of Question Paper and Marking

# Scheme University Assessment for 40 Marks

# B.Sc.(Part-)(Semester -) Examination Food Science and Quality Control Course Name (Course Code)

Day&Date:	Total Marks: 40
Instructions: 1)All the questions are compulsory.	
2) Figures to the right indicate full marks.	
Q.1. Multiple choice questions(08-Questions) -	08 marks
Q.2. Attempt <b>any two</b> of the following: (Essay type/Broad answer questions)	16marks
A. B. C. O 3 Write short notes (any four)	16marks
a)	Tomarks
b)	
c)	
d)	
e)	

f)

#### B Internal assessment 20%.

Sr No	Evaluation type(Any one of the following)				
	Evaluation modalities:				
	1. Assignments that can include				
	a. Essay Writing				
	b. Solving Subjective Questions				
	c. Problem Solving				
	d. Report on lab/industry visit				
	e. Any other subject/content specific assignments				
	2. Project based learning activities				
	a. Group Discussion				
	b. Research/Case studies				
	c. Seminar Presentations				
	d. Skits				
	e. Poster Presentation				
	f. Debate				
	3. Self-study/Class test				
	4. MCQ test				

# PRACTICALEXAMINATION

- There will be semester wise practical examination to be conducted at the end of each semester. The question paper along with marking scheme and skeleton / Question paper will be given by BOS before practical examination.
- Totalmarks-50foreachsemester-I and II(Will be evaluated by Internal examiner.)
- Total-50MarksforeachSem-III and IV(Will be evaluated by one Internal examiner and one external examiner)
- Total-100Marks(4creditcourse)foreachSem-VandVI(Willbeevaluatedbytwo external examiner)
- Total-50 Marks (2 credit course) for each Sem-V and VI( Will be evaluated by one Internal examiner and one external examiner)
- NatureofquestionpaperforpracticalexaminationwillbeprovidedbyBOSbeforethe practical examination.

# **\*** Rules for UG Science(B.Sc.) Programme:

# R.B.Sc.No.1

The three-year B. Sc. programme shall consist of 6 semesters which will have 132 credits altogether. However, the candidate who wishes to attempt a Four-Year B. Sc. (Hon./Research) may opt for 4<sup>th</sup> year which will have 44 credits. Hence, the Four-Year B. Sc. programme will be of 176 credits. (Please refer to the university regulations and structure of the programme for details).

The examination shall be held at the end of each semester.

The theory examination for 2 credits will be of 40 (Semester end examination) and 10 (Internal examination) marks. The practical examination for 2 credits will be 50 marks at the end of each semester.

# R.B.Sc.No.2

Structure of B.Sc. programme isasshowninAnnexure1.

# R.B.Sc.No.3

# List of Courses:

	Sem I	Subject I:DSCI,DSCII,andPracticalI
		• Subject II:DSCI,DSC II ,and Practical I
		• Subject III: DSCI, DSCII, and Practical I
		• OE I(Theory/ Practical)
		IKSI(Introduction to IKS)
B.Sc.I	Sem-II	Subject I:DSCIII,DSCIV,andPracticalII
		• Subject II: DSC III, DSC IV, and Practical II
		• Subject III: DSC III, DSC IV, and Practical II
		• OEII(Theory/ Practical)
		• VECI(Democracy, Election and constitution)
	Sem III	• Major V, VI , and Major Practical III
		• Minor V, VI, and Minor Practical III
		• OEIII(Theory/ Practical)
		• VSC I Practical(Major Specific)
		• SEC I Theory/Practical
		• AECI(English)
		• CC
B.Sc.II	Sem IV	Major VII, VIII, and Major Practical IV
		Minor VII, VIII, and Minor Practical IV
		• OE IV(Theory/ Practical)
		• SEC II Theory/Practical
		• AECII(English)
		• VECII(Environmental Studies)
		• CEP
	1	

	Sem V	Major IX, X, and Major Practical V,VI		
		Major I(Elective), Major(Elective) Practical-I		
		• OEV(Theory/Practical)		
		VSC II Practical II Major Specific		
		• AEC III(English)		
		• OJT		
B.Sc. III	Sem VI	Major XI, XII ,and Major Practical VII,VIII		
		• Major II(Elective), Major ((Elective) Practical- II		
		VSC III Practical Major Specific		
		SEC III Practical		
		• AECIV(English)		
		• IKS II(Major Specific)		
		• FP		

R.B.Sc.No.4

#### (A) Skill Enhancement Course(SEC):

Skill Enhancement Course should be selected from the basket provided by University.

- (B) Open Elective Course (OE): Open Elective Course should be selected from the basket provided by University. This course is to be chosen compulsorily from faculty other than that of major or Geography or Mathematics or Statistics from OE basket.
- (C) Co-curricular Courses (CC): For Semester III one Co-curricular course such as Health and Wellness/Yoga education / sports and fitness /Cultural Activities/ NSS / NCC / Fine Arts / Applied Arts / Visual Arts / Performing Arts is to be chosen compulsorily. The student should be engaged for four hours per week. The examination pattern will be decided by the Respective bodies.

#### (D) On Job Training (OJT):

The candidate should complete the work of **On Job Training of 4 credits in Semester V.** The execution of OJT examination pattern shall be as per the OJT guidelines of the University. On-job training (OJT)/ Internship/ Apprenticeship of 120 hours must be completed by the candidate in industry/health sectors/research labs/ public testing laboratories

/diagnostic laboratories/Chemical Industry/Pharmaceutical Industry.

(E) Field Project (FP): The guidelines and examination pattern will be decided by the respective board of studies.

#### R.B.Sc.No.5

The student must earn at least 60% of the credits from his/her mother institute. The students may earn at the most 40% of the credits in any head, except major related courses and minor courses through online mode approved by the University.

#### R.B.Sc.No.6

• The fees for the admission to B.Sc.Part I, B.Sc.Part II, B.Sc.Part III and B.Sc.Part IV Programme shall be as prescribed by the University from time to time.

# R.B.Sc.No. 7

#### **Detailed Syllabus:**

Thedetailedsyllabiforthevariouscoursesunderthispatternshallbesubjectto such revision, modification etc. as maybe made by the Academic council from time to time on the recommendations of the Board of Studies in different subjects. The textbooks and reference books for the various courses shall be those prescribed by the Academic Council from time to time on the recommendations of the respective Boards of Studies.

#### R.B.Sc.No.8

#### The medium of instruction

For the Three Year (Six Semesters)B.Sc./Four Year B.Sc. Degree Programme The medium of instruction for Major, Minor, VSEC, SEC, and AEC is English. The medium of instruction for OE, CEP, CC, OJT, FP, VEC and IKS maybe either Marathi or English.

#### R.B.Sc.No.9

- In B.Sc. Part II ,the student can choose any one subjects major subject, one subject as minor subject from the three subjects(Discipline Specific Core) studied in B.Sc. Part I.
- ii. The student will continue for B. Sc. Part III with the major subject he/ she opted in B.Sc. Part II.

#### **R.B.Sc.No.10** Multiple Entry and Multiple Exit(MEME):

- If an exited student wants to reenter, he / she can reenter within three years from exit.
- One should complete his/her degree program within a period of a maximum of seven years.

#### R.B.Sc.No.11

No candidate shall be allowed to appear the B. Sc. Part-III (or Three- Year Undergraduate Degree in Science) Examination unless the candidate has satisfactorily kept two terms for the programme at a college affiliated to/ university department of this University or any other recognized university. The principal of the college has to certify the attendance and the examination form of the candidate as per Ordinance O 31 and O 37. A candidate has to submit the University examination form as per the schedule and dates prescribed by the University for every Examination to the University along with the prescribed fee through the Principal of the College.

### R.B.Sc.No.12

The Scheme of Physical Education has been made operative for B. Sc. Part-I. The students will get a maximum of 10 Marks after completing the Physical Education Tests conducted by the University authorities. The benefit of marks, obtained by the students shall be as under:

- If a student fails in up to four courses (of two credits each) of passing of the University examination (Theory/Practical) and has passed in all the remaining heads, the marks obtained by him / her in the Physical Education Test shall be added to maximum up to four courses (of two credits each) for passing in which he has failed as the case may be.
- 2. A student getting the benefit of Physical Education marks should not be given advantage of any other Ordinance. The Physical Education Marks

Shall not be considered for the award of Class and for deciding merit.

- If as a result of the addition of Physical Education marks a student does not pass the examination the marks obtained by him / her in Physical Education shall not be considered.
- 4. If a student is failing in more than four courses (of two credits each)the marks of the physical education test should not be added to any head.
- 5. The marks of Physical Education obtained by the unsuccessful students at the B.Sc. Part-I semester Examination shall be carried forward for their subsequent attempt/s.
- 6. The marks obtained in Physical Education shall not be considered for earning exemption in a subject of head of passing, but the marks will be carried forward for availing the benefit at the subsequent attempts.
- 7. The marks secured by the students under the Physical Education scheme, if not used for promotion, shall be added to the total of his marks in the examination irrespective of the fact of his passing or failure in the examination. The Physical Education marks shall be shown as "Total + P. E. Marks".
- 8. The Physical Education Test shall be conducted in the second semester.
- 9. The student can avail the benefit of marks of test of physical education only once in his three-year degree course.

#### R.B.Sc.No.13

All Semester-end theory and practical examinations for B.Sc. Part I (Sem I and II), B.Sc. Part II (Sem II and IV), B.Sc. Part III (Sem V and Vi), B.Sc. Part IV (Sem VII and VIII) shall be held twice (i.e. April /May and October/November) a year.

# R.B.Sc.No.14

- a) A candidate who desires to seek a B. Sc. Degree in another Major course (DSE or ME), shall be permitted to do so. Selected major subject should be studied as Minor subject at level 5.0. Such candidate may appear at B.Sc. Part III (Semester V & VI) Examination on the submission of a new application for fresh admission and on payment of required fees. Such a candidate need not appear again for AEC and OE courses.
- b) The Candidate as above(in clause "a")shall not be eligible for a second

Degree and a class, a prize, scholarship, medal, or any other award. The candidate will get the benefit of a new degree in a new course (subject)only if the candidate surrenders his first degree.

c) A candidate seeking degree in a specific course (subject)not offered at B.Sc. Part II And III, but offered only at B.SC. Part I, need store appear for B.Sc. Part II (Sem III and IV) and Part III (V and VI), including both theory and practical. Such a candidate passing the examination shall not be eligible for class or additional degree. He shall be granted a certificate of having passed the additional subject. The candidate shall get new degree provide they surrenders his first degree.

#### R.B.Sc.No.15

- a) The result of the B.Sc. Part I (semester I and II)examinations shall be declared publicly in three categories
  - (i) Pass: Candidates who have passed the B.Sc. Part I(semester-I and II)examination.
  - (ii) Fail-ATKT: Candidates who are allowed to proceed to the B.Sc. Part II (semester-III).
  - (iii) Fail: Candidates who are failed to proceed to the B.Sc.Part II (semester-III).
- b) The result of the B.Sc. Part II (semester III and IV) examinations shall be declared publicly in three categories.
  - (i) Pass: Candidates who have passed the B.Sc. Part II(semester-III and IV) examination in addition to the remaining courses, if any of privies examination.
  - (ii) Fail ATKT: Candidates who are allowed to proceed to the B.Sc. Part III (semester-V).
  - (iii) Fail: Candidates who are failed to proceed to the B.Sc. Part III(semester-V).
- c) If a candidate fails or remains absent in examination of all the courses of semester-I or not applied for semester I examination (provided he/she attended semester I) shall be allowed to proceed to semester II.
- d) If a candidate fails or remains absent in examination of all the courses of semester-III or not applied for semester III examination (provided he/she attended semester III) shall be allowed to proceed to semester IV.

- e) If a candidate fails or remains absent in examination of all the courses of semester-V or not applied for semester V examination (provided he/she attended semester V) shall be allowed to proceed to semester VI.
- f) No candidate shall be allowed to proceed to semester-V unless the candidate has cleared semester-I and semester-II in all courses.
- g) No candidate shall be allowed to proceed to semester-VII unless the candidate has cleared all previous semesters from –I to VI in all courses with a minimum 7.5 CGPA (or 75 % Marks).
- h) If a candidate fails or remains absent in examination of all the courses of semester-VII or not applied for semester VII examination (provided he/she attended semester VII) shall be allowed to proceed to semester VIII.
- i) Rules of ATKT made by the University will be applicable from time to time.

# R.B.Sc.No.16

- (A) The Results of the Examination will be declared based on marks obtained, Grade points obtained, Credit points, Status, Percentage of marks, Result, SGPA and CGPA with numerical grade points, and letter grades. The list of Courses, course codes, Paper numbers of programme, numerical grade & letter grade table, and calculation of SGPA and CGPA table shall be mentioned on the backside of the mark sheet.
- (B) In the case of a Three-Year B. Sc. Degree, the result of B. Sc. programme (Semester-I to VI) shall be declared in Grades by considering SGPA and CGPA (with percentage) based on the performances of all the courses at respective semesters. The award of scholarships and prizes for the B.Sc. programme shall be determined based on the aggregate performance of the candidate at the semester-I to VI examination.
- (C) In the case of a Four-Year B. Sc. Degree, the result of B. Sc. programme (semester-I to VIII) shall be declared in grades by considering SGPA and CGPA (with percentage) based on the performances of all the courses at respective semesters. The award of scholarships and prizes for the B.Sc. programme shall be determined based on the aggregate performance of the candidate at the semester-I to VIII examination.

### **Standard of Passing:**

A) To pass the three year B.Sc. degree examination, a candidate shall be required to pass in semester I,II,III,IV,V

and VI examinations

- a) To pass each semester examination a candidate shall be required to obtain a minimum of 35% of the total marks in each course.
- b) A Candidate shall have to obtain 14 marks out of 40 for the semester end theory examination, 18 out of 50 for the semester end practical examination and 4 marks out of 10 in the internal examination in each semester. If the candidate fails/ absent in the internal examination then the candidate has to pass the internal examination as per University regulations.
- c) The candidate has to complete the other applicable courses like VSEC, SEC, VEC, AEC OE, IKS, CC, OJT, CEP and FP according to the criterion applicable for the respective courses.
- B) For Three year B. Sc Degree : Those of the successful candidates who obtain45% or more of the aggregate marks in Parts-I, II& III semester Examinations, (i.e. Semester-I to VI aggregate) shall be declared to have passed the B.Sc. Degree Examinations in Second Class and those obtaining 60% or more of the aggregate marks in Parts-I, II & III Examinations (i.e. Semester-I to VI aggregate) shall be declared to have passed the B.Sc. Degree Examinations in First Class and those obtaining 70% or more of the aggregate marks in Parts-I, II & III examinations in First Class and those obtaining 70% or more of the aggregate marks in Parts-I, II & III examinations in First Class and those obtaining 70% or more of the aggregate marks in Parts-I, II & III (i.e. SemesterI to VI aggregate) shall be declared to have passed the B.Sc. Degree Examination in First Class with Distinction.
- C) For Four Year B. c. with (Hon./Research) Degree: Those of the successful 1 candidates who obtain 45% or more of the aggregate marks in Parts-I, II, III & IV Semester Examinations, (i.e. Semester-I to VIII aggregate) shall be declared to have passed the B.Sc. with (Hon./Research)Degree Examinations in Second Class and those obtaining60% or more of the aggregate marks in Parts-I, II, III & IV Semester Examinations, (i.e. Semester-I to VIII aggregate) shall be declared to have passed the B.Sc. with (Hon./Research)Degree Examinations in Parts-I, II, III & IV Semester Examinations, (i.e. Semester-I to VIII aggregate) shall be declared to have passed the B.Sc. with (Hon./Research) Degree Examinations in First Class and those obtaining70% or more of the aggregate marks in Parts-
I, II, III & IV Semester Examinations,(i.e. Semester-I to VIII aggregate) shall be declared to have passed the B.Sc. with(Hon./Research)Degree Examination in First Class with Distinction.

#### R.B.Sc.No.18

A candidate who has satisfactorily completed all courses at Semester-I of B. Sc. Part I of the Universities in the State of Maharashtra shall be allowed to join for the Semester II of the B.Sc. Part I in this university. However, a candidate who has satisfactorily kept one term in any of the Universities in the State of Maharashtra for B. Sc. Part I Semester-I examination shall not be allowed to join for the Semester II of the B.Sc. Part I in this university unless and until the candidate has to clear all the courses (papers) of Semester-I from that university

#### R.B.Sc.No.19

a) A candidate passing B.SC. Part-I (Sem I and Sem II) Examinations of the B.Sc. Degree programme of other Statutory Universities in State of Maharashtra can take admission to next semester of Shivaji University and the marks of earlier semesters of previous Statutory University be converted in proportion to Shivaji University, Marks structure and grades be awarded accordingly.

(b)Multiple entry and exit rules as per university Regulations and Academic Bank of Credit Regulations are applicable.

#### R. B.Sc. 20

Relevant amendments in the rules and regulations as per the guidelines notified by UGC / University shall be applicable.

### SEMESTER-III

## S.Y.B.Sc.(Food Science And Quality Control) SEMESTERI

#### DSC-V/ Cereals , Pulses & Oil Technology

[CREDITS-02;LECTURES-30;LEC/WEEK-02]

#### **Course Outcomes:**

- To understand the chemistry of foods-composition of food, role of each component and their interaction.
- To understand the functional aspects of food components and to study their rolein food processing.

		No. of Lecture:
		50
Unit 1	Introduction of Cereals & Pulses 1.1 Introduction 1.2 Important cereals & pulses 1.3 Morphologic al Characters of cereals and pulses 1.4 Storage & handling	05
Unit 2	Cereals technology 2.1 Composition and nutritive value 2.2 Specific cereals and milling operation a) Wheat b) Rice C) Corn 2.3 Effect of Heat on Cereals 2.4 Role of cereals in cookery 2.5 Breakfast cereals	10
Unit 3	Pulses Technology3.1 Nutritive value of pulses3.2 Pulses processing3.3 Role of pulses in cooking3.4 Effect of cooking on pulses3.5 Toxic constituents3.6 Factors affecting cooking quality of pulses	10
Unit 4	Oil seed technology Introduction Methods of oil extraction a) Rending b) Mechanical press c) Solvent extraction	05

#### **SEMESTER-III**

S.Y.B.Sc. (Food Science And Quality Control)SEMESTERI

#### **DSC-VI:** Food preservation Technology – VI

## [CREDITS-02;LECTURES-30;LEC/WEEK-02]

#### **Course Outcomes:**

- To know importance of Food Preservation & their characteristics
- To know basic principles of several food processing and preservation methods.

		No. of Lecture: 30
	Introduction of preservation	
	1.1 General principles of preservation	
Unit 1	1.2 Class I & Class II preservatives	6
	1.3 Need and benefits of industrial food preservation	
	1.4 Preservation by Food additives	
	a) Introduction to additives	
	b) Functions, Need & Safety	
	c) Types of Food Additives	
	Food preservation by high and low temperature	
	2.1 Methods of high temperature preservation	
	a) Blanching b) Pasteurization c) Canning	
	2.2 Effect of heat on food	10
Unit 2	2.3 Effect of heat on microorganisms	
	2.4 Methods of low temperature preservation	
	a) Chilling b) Refrigeration c) Freezing	
	2.5 Effect of low temperature on food &	
	Effect of low temperature on microorganisms	
	Food preservation by drying	
	3.1Types of drying & Changes during drying	
Unit 3	3.2: Effect of drying on food	6
	3.3: Advantages & Disadvantages	
	Food preservation by Irradiation	
Unit 4	4.1 Introduction & units of irradiation	8
	4.2 Mechanism of action of radiation	0
	4.3 Irradiation process	
	4.5 Effect of radiation on foods & Microorganisms	

#### References

- 1) Technology of Cereals, Pulses and Oilseeds": by Skylar Barr
- 2) "Post Harvest Technology Of Cereals, Pulses and Oilseeds": by A. Chakraverty
- 3) Preservation of fruit and vegetables-Bhatiya Vijaya
- 4) Food preservation Techniques -AtulAgnihotri
- 5) Fruit and Vegetable preservation-N.P.Singh
- 6) Fruit and Vegetable Preservation Techniques R.K. Narang

# **DSC Pract.-III: PRACTICALSBASEDON DSC V& VI** [CREDITS-02; PRACTICALS-60hours, Practical's/week-02]

# Paper V &VI: Cereals & Pulses Technology III Lab and Food Preservation III Lab

#### **Course Outcomes:-**

- 1. To understand the basic principle& techniques in Food Preservation.
- 2. To understand the working principles and applications various equipment's in laboratory
- 3. To study the Processing of food Product.

#### Cereals & Pulses Technology -V (Group A)

- 1. Introduction to laboratory instrument for food processing
- 2. To Determine Physical Properties of Cereals Grain.
- 3. To Determination of Gluten Content in Wheat.
- 4. Studies on cooking Quality of Cereal.
- 5. Estimation of Moisture Content in Cereals.
- 6. Determination of Acide Value of Oil
- 7. Isolation of Staphylococcus from given food sample

#### Food Preservation VI (Group B)

- 1. Methods for Blanching Vegetables.
- 2. Food Preservation by salt.
- 3. Food preservation by sugar.
- 4. Food Preservation by oil.
- 5. Food preservation by Natural Drying Methods.
- 6. Food preservation by Mechanical dehydration Method.
- 7. Isolation of halophilic bacteria from given food sample.

Semester III

# Open Elective–03 (OE-03) Credits 2

OE will be selected from basket as per regular B.Sc. Structure.

#### Semester III Laboratory IX Vocational Skills in Jam, Jelly & Ketchup Processing (VSC I - P) Credits 2

### **Course Outcomes**: After completing this program, students will be able to:

- Understand the preparation of work area and process machineries for jam, jelly & ketchup processing
- Gain knowledge about raw materials for the preparation of jam, jelly & ketchup
- Learn manufacturing of jam, jelly and ketchup from fruits and vegetables either manually or mechanically
- Documentation and maintaining of records related to jam, jelly & ketchup processing.
- Apply the principles of food safety and hygiene in the work environment.

### Overview of Food Processing Industry

- List of various sub sectors in food processing industry
- Explain different types of fruits and vegetables processing
- State the need for processing of fruits and vegetables
- List the various units within a fruits and vegetables processing unit
- State the methods of testing fruits and vegetables for accepted quality standards

### Organizational Standards and Norms

- Roles and responsibilities of a jam, jelly and ketchup processing technician
- Personal hygiene and sanitation guidelines
- · Food safety hygiene standards in the work environment

## Preparation and Maintenance of Work Area and Process Machineries for Jam, Jelly and Ketchup Processing

- Materials and equipment used in the cleaning and maintenance of the work area
- Common detergents and sanitizers used in cleaning work area and machineries
- Methods of cleaning and sanitization
- Process of preparing the work area for scheduled production
- Functions to be carried out before starting production
- Different types of maintenance procedures

### Production of Jam, Jelly and Ketchup

- Production planning for effective utilization of raw material and machineries
- Checking the quality of fruits and vegetables

• Demonstration and Production of the technique/ process of preparation of jam/ jelly/ ketchup (Washing, Cutting, Pulping/Juice extraction)

• Demonstration of packaging and analyse the quality of the finished product

• Demonstration of cleaning the machineries used with recommended sanitizers following CIP (clean-in-place) procedure

#### ◆ Documentation and Record Keeping Related to Production of Jam, Jelly and Ketchup

- Need for documenting and maintaining records of raw materials, processes and finished products
- Method of documenting and recording the details of raw material to final finished product
- Demonstration of process of documenting records of production plan, process parameters, and finished products

#### References

- 1) FICSI: Jam, Jelly and Ketchup Processing Technician, Level 4.
- 2) Fruit and Vegetable Preservation, Principles and Practices R P Srivastav and Sanjeev Kumar
- 3) Preservation of fruits and vegetables Girdhari Lal and T D Tandon
- 4) Principles of Fruit Preservation T.N. Morris
- 5) Handbook of fruit science and technology Salunkhe D.K, Kadam S.S
- 6) Food preservation Techniques Atul Agnihotri
- 7) Fruit and Vegetable preservation N.P. Singh
- 8) Fruit and Vegetable Preservation Techniques R. K. Narang
- 9) Preservation of fruit and vegetables Bhatiya Vijaya
- 10) Modern Technology of Tomato Processing and Dehydration EIRI Board of Consultants and Engineers.

SHIVAJI UNIVERSITY, KOLHAPUR			
Syllabus as per National Education Policy (NEP)2020			
B.Sc. Food Science & Technology			
SEMESTER-III			
SEC – I Design & Development of New Product Proc	essing		
Credits: 2			
Introduces From June 2025			
Unit I	Hours		
	Allotted		
Basics of Food Product Development			
Definition, Classification of new product			
Reason for new food, Product development –social concern, Health concern.			
New product development team, concept of market and marketing steps	15		
in Food Product Development.			
Unit II	Hours Allotted		
Technology for New Product & Scale up Trials			
Adaptable technology and sustainable technology for standardized			
formulation for process development.			
process control parameter	15		
scale.	15		
Quality assessment of new developed product.			
Market testing and Marketing plan.			
Costing and economics evaluation of developed product. Commercialization product launch for marketing.			

# SHIVAJI UNIVERSITY,KOLHAPUR Syllabus as per National Education Policy (NEP)2020 B.Sc. Food Science & Technology SEMESTER–IV AEC I English Credits: 2 Semester End 40 Internal Assessment: 10 Total: 50 Introduces From June 2025

As per the regular B.sc Structure.

## SHIVAJI UNIVERSITY, KOLHAPUR Syllabus as per National Education Policy (NEP) 2020 B.Sc. Food Science & Technology SEMESTER–III CC - I Credits: 2 Introduces From June 2025

## I. Co curricular courses:

Introduction: - National Education Policy 2020 is made applicable to all higher education institutions in India. The aim of the policy is to develop good, thoughtful, well rounded and creative individuals. Shivaji University, Kolhapur has issued regulation to implement National Education Policy 2020 from the academic year 2024 to 25 in all affiliating higher education institutions. Credit Framework for undergraduate programmers incorporates a flexible choice based Credit System, multi disciplinary approach and multiple entry and exit options. As per NEP guidelines co curricular activities are mandatory to earn two credits in a semester. They promote co curricular activities since the activities play a significant role in development of students. These activities will enhance learning process, personal growth, academic success and involvement of all stakeholders. They will help the students to go beyond the knowledge of courses. They will also fuel students learning and build important life skills.

## **II.** Course objectives:-

- To explore strength and talent outside of Academics.
- To bring in social skills, intellectual skills, moral values, personality progress, coordination skills, leadership skills etc.
- To help to learn be yond courses.
- To make teaching and learning experience exciting for student.
- To provide students with a lot of interesting and important experience outside the class.
- To improve confidence and self esteem through developing proficiency in a particular area.

## III. Course outcomes:- After learning the students will be able to

- Learn strength and talents outside the classrooms.
- Learn various kills such as social, intellectual, coordination, leadership etc.
- Think be yond courses.
- Understand that teaching and learning experience is exciting.
- Develop confidence and self esteeming particular area.

## IV. Examination pattern:-

Participationinactivities-40marks Seminar, report, group discussion, viva, etc-10marks

# V. General policy guide lines for co curricular activities:-

- 1. Activities conducted only by affiliating higher education institutions shall be considered for allotment of credits.
- 2. Students have to earn two credits towards completing mandatory co curricular requirement.
- 3. 60 hours of participation is mandatory for two credits.
- 4. Students can participate in one or more (up to 6 activities) activities.
- 5. Minimum 10 hour so participation is necessary in one activity.
- 6. Students are expected or report the activities other respective faculty in charge of that activity.
- 7. Maximum 40 marks will be given to students representing events at different levels and participating in different activities.
- 8. There will be Viva-voce/discussion/seminar/paper presentation/group discussion/ report submission etc for 10 marks.
- 9. If a student fails to secure minimum required marks, his result will be declared as fail in co curricular courses. She/he will not be awarded any credits in the course.
- 10. Students are required to earn two credits through co curricular courses such as health and Wellness, yoga education, sports and fitness, cultural activities, NSS,NCC,fine,applied,visual,performingarts,VivekVahiniandanyother activity conducted by higher education institution.
- 11. Rubrics for accumulation of credits:

Events	Level	Marks
Participation In	International	40
sports, NSS, NCC, cultural voga etc	National	30
representing HEI	State	20
	Local	10

Activities	Participation in hours (In one activity)	Marks
Fieldwork, community outreach, surveys, awareness program on health/education/environment etc conducted by HEI	10	10

Note:-Minimum 10 hrs participation in one of the activities and maximum participation in six activities

# VI. Diary for maintenance of records of the students:

Sr.No.	Nature of activity	Place of activities	Date	Total hrs	Signature of Student	Signature of In charge of activities

Signature of Student:-

Signature of In charge of activities:-

Signature of the principal:-

SEMESTER-IV					
	S.Y.B.Sc. (Food Science And Ouality Control) SEMES	STERI			
	DSC-VII: Quality Control of food products				
	[CREDITS_02·I ECTURES_30·I EC/WEEK_02]				
	[CREDITS-02, LECTORES-50, LECTWEEK-02]				
Course Outer					
Course Outco	omes:				
• 10 U	nderstand the chemistry of foods-composition of food,				
role	of each component and their interaction.				
• To u	nderstand the functional aspects of food components and to	study			
their	Nutrients.	1			
		No. of			
		Lecture:			
		30			
	Sensory evaluation of food.				
	1.1 Different aspect aspects of sensory science & evaluation	8			
Unit 1	with their application	, C			
	1.2 Sensory assessment of food quality				
	a) Appearance b) Color				
	c) Flavor d)Texture				
	1.3 Reasons for testing food quality				
	Types of sensory tests				
	a) Different test b) Sensitivity test				
	c) Rating test d) Descriptive test				
	2.1) Objective evaluation of food				
	Definition	7			
II:4 <b>3</b>	2 2) Tests used for objective evaluation	/			
Unit 2	a) Chemic al methods b) Microscopic experiments				
	c) Physica-chemical method d) Physical method				
	2 3) Measurement of colour				
	2.4) Measurement of texture				
	Colorimeter & Spectrophotometers				
	3.1) Principle & working of Colorimeter				
Unit 3	Applications	7			
	2 2 Dringing & working of spectrophotometers	,			
	5.2 )Findpie & working of spectrophotometers				
	Applications				
	Flurimeter & Chromatography				
Unit 4	Principle working & application of Flurimeter	8			
	I ypes of Chromatography & their principle & working				
	Application of each Chromatography method				

# **SEMESTER-IV**

## S.Y.B.Sc.(Food Science And Quality Control)SEMESTERI

## **DSC-IV:** Bakery & Confectionery Technology VIII

## [CREDITS-02;LECTURES-30;LEC/WEEK-02]

#### **Course Outcomes:**

- To study raw materials, plant and machinery
- To study the different bakery products and
- To study role of ingredients and processing technology of confectionery products

		No. of Lecture: 30
Unit I	Introduction of Bakery raw material 1.1 Essential & optional ingredients 1.2 Role of ingredient 1.3 Baking principle of Caramelisation, Millard browning 1.4 Introduction of bakery products & equipments 1.5 Effect of baking conditions	09
Unit II	<ul> <li>Processing of Bakery Products</li> <li>2.1 Cake: Types, formulation &amp; process, Principle of cake</li> <li>2.2 Bread: Formulation &amp; process, principle of cake</li> <li>preparation,</li> <li>2.3 Biscuits &amp; cookies: Definition, difference, between</li> <li>biscuits &amp; cookies, types of cookies &amp; biscuits, Cracker &amp; general defects</li> </ul>	06
Unit III	Confectionary products 3.1 Introduction to Confectionary 3.2 Ingredients 3.3 Sugar boiled Confectionary a) Crystalline b) Amorphous 3.4 Indian Confectionary	09
Unit IV	<ul> <li>Processing Confectionary products</li> <li>4.1 Chocolate processing – Introduction, Types, methods of manufacture, its use, storage &amp; General defects.</li> <li>4.2 Hardboiled candy – Raw materials, method, defects &amp; storage</li> <li>4.3 Chewing gum – Raw material, method, packaging</li> <li>4.4 Indian Confectionary Burfi, Pedha preparation</li> </ul>	06

## **DSC Pract.-IV PRACTICALS BASED ON DSC III& IV** [CREDITS-02; PRACTICALS-60hours, Practical's/week-02]

# Paper VII &VIII: Fruits & Vegetable Processing Technology IV Lab & Bakery & Confectionery Technology IV Lab.

#### **Course Outcomes:**

- 1. To understand the basic Techniques.
- 2. To understand the basic principle& techniques in Food Processing.
- 3. To understand the working principles and applications various equipment in laboratory
- 4. To study the Processing of food Product

#### Group A: Fruits & Vegetable Processing Technology IV

- 1. Study of Different Equipment used in Processing & Preservation of fruit & Vegetable.
- 2. Determination of T S S & pH of Fruit Juice.
- 3. Preparation & Analysis of Jam
- 4. Preparation & Analysis of Ketchup
- 5. Preparation & Analysis of Jelly
- 6. Preparation of Ready to Serve (RTS).
- 7. To extract the Pectin From Fruit waste

### Group B: Bakery & Confectionery Technology IV

- 1. Study of Different Equipment used in Processing in Bakery Industry..
- 2. To Preparation of Rasgulla.
- 3. To Determine & Analysis of Bakery Products.
- 4. To Preparation of Cake.
- 5. To Preparation of Biscuits.
- 6. Isolation & characterization of Starch
- 7. Determination of Gluten content from given sample

#### **References books-**

- Technology of Confectionary, Chocolate, Toffee, Candy, Chewing gum, Lollipop, Jelly Production.
- 2. Food production operation Ravindra Bali.
- 3. International Cuisine and Food Production management Parvin darbali.
- 4. Bakery Science & Cereal technology, Neelam khetorpaul, Raj Grewal Sudesh wood,
- 5. The Complete technique book on bakery production by Niir Board
- 6. Food Processing and Preservation by B. Shivshankar.
- 7. Food Science by B. Srilakshmi, 2010
- 8. Food Microbiology by Frazier, 2009
- 9. Food Processing and Preservation by B. Shivshankar
- 10. Hand book of fruit science and technology-SalunkheD.K,KadamS.S

## SHIVAJI UNIVERSITY, KOLHAPUR Syllabus as per National Education Policy (NEP)2020 B.Sc. Food Science & Technology SEMESTER–IV OE IV Credits: 2 Semester End 40 Internal Assessment: 10 Total : 50 Introduces From June 2025

**COURSE OUTCOME** 

llabus will be set as per university regulations once the basket will be provided.

## SHIVAJI UNIVERSITY, KOLHAPUR Syllabus as per National Education Policy (NEP) 2020 B.Sc. Food Science & Quality Control SEMESTER–IV SEC II – Design & Development of New Product II Credits: 2 Semester End 40 / Internal Assessments: 10 Total: 50

### **Introduces From June 2025**

- 1) Market Survey of existing various product.
- 2) Formulation of new product based on corporate decision /need based.
  - a. Protein energy rich
  - b. Low calorie (fat replace)
  - C. Low sodium content
  - d) Glycemic index based
  - e).Cholestrolemic index based
- 3) Product development based on above formulation depending local sources /technology.
- 4) Quality Assessment
  - a. New product development for
  - b. Infant Weaning foods
  - c. Geriatric
  - d. Physiological status.
- 5) Visit to Industry

SHIVAJI UNIVERSITY,KOLHAPUR Syllabus as per National Education Policy (NEP)2020 B.Sc. Food Science & Technology SEMESTER–IV AEC II English Credits: 2 Semester End 40 Internal / Assessment: 10 Total: 50 Introduces From June 2025 To be referred from Shivaji University Website

SHIVAJI UNIVERSITY,KOLHAPUI	R
Syllabus as per National Education Policy (N	EP)2020
B.Sc. Food Science & Technology	
SEMESTER-IV	
VEC II Environmental Studies	
Credits: 2	
Semester End 40 / Internal Assessment: 10	Total: 50
Introduces From June 2025	
To be referred from Shivaji University Website	

#### **Community Engagement Programme (CEP):**

#### 1. INTRODUCTION:

New generation of students are increasingly un aware of local rural and peri-urban realities surrounding their HEIs, as rapid urbanization has been occurring in India .A large percentage of Indi an population continues to live and work in rural and peri-urban areas of the country. While various schemes and programs of community service have been undertaken by HEIs, there is no singular provision of a well-designed community engagement course that provides opportunities for immersion in rural realities .Such a course will enable students to learn about challenges faced by vulnerable households and develop an understanding of local wisdom and life style in are spec full manner

#### 2. **OBJECTIVES:**

- To promote a respect for rural culture, life style, and wisdom among students.
- To learn about the present status of agricultural and development initiatives.
- Identify and address the root causes of distress and poverty among vulnerable households.
- Improve learning out comes by applying class room knowledge to real-world situations.

To achieve the objectives of the socio-economic development to of New Indianhead scan play an important role through active community engagement. This approach will also contribute to improve the quality of both teaching and research in HEIs in India .India is a signatory to the global commitment for achieving Sustainable Development Goals (SDGs) by2030.Achieving these 17 SDG goals requires Generating locally appropriate solutions .Community engagement should not be limited to a few social science disciplines one. It should be practiced a cross all disciplines and faculties of HEIs. These can take the forms of enumerations, surveys, awareness camps and campaigns, training, learning manuals/films, maps, study reports, public hearings, policy briefs, cleanliness and hygiene teachings, legal aid clinics, etc. For example, students of chemistry can conduct water and soil testing in local areas

and share the results with the local community. Students of science and engineering can undertake research in partnership with the community on solid and liquid waste disposal Therefore; students are being encouraged to foster social responsibility and community engagement in their teaching and research.

#### 3. LEARNINGOUTCOMES:

After completing this course, students will be able to

- Gain an understanding of rural life, Indian culture, and social realities.
- Develop empathy and bond so mutuality with the local community.
- Appreciate the significant contributions of local communities to Indian society and economy.
- Learn to Value local knowledge and wisdom.
- Identify opportunities to contribute to the community 'stoic economic improvement.
- •
- 4. Credits: Two credit Course; Students are expected to complete 60hours of participation

# 5. COURSE STRUCTURE:

Sr.	Module Title	Module Content	Teaching/Learning/Methodology
1	Appreciation of Rural Society	Rural lifestyle, rural society, joint family, caste and gender relations, rural values with respect to community, rural culture nature and public resources, ponds and fisheries, elaboration of soul of India lies in villages' rural infrastructure,	Classroom discussions Field visit Individual /Group conference Report/journalsubmission & VIVA
2	Understand in rural and local economy and livelihood	Agriculture ,farming ,land ownership ,water management, animal husbandry ,non-farm livelihood and artisan 'rural entrepreneurs, rural markets, migrant labor, social innovation projects	Classroom discussions Field visit Individual /Group conference Report/journalsubmission & VIVA
3	Rural an d local Institution	Traditional rural and community organization ,self-help groups, decentralized planning, panchayat raj institutions Gram panchayat, Nagarpalika and Municipalities, local Civil Society, Local administration, National rural, Livelihood Mission [NRLM], Mahatma Gandhi National Rural Employment. Guarantee [MGNREGA].	Classroom discussions Field visit Individual /Group conference Report/journalsubmission & VIVA
4	Rural an d National development programmers	History of rural development and current National Programs in India :Sarva shiksha Abhiyan,BetiBachao- Beti Padhao, Ayushman Bharat, eShram Swachh Bharat, PM Awas yojana, Skill India, Digital India, Start-Up India, Stand-Up India, Scheme of Fund forRegenerationofTraditionalIndustries(SFURTI),Jal Jeevan Mission, Mission Antyodaya, ATMANIRBHAR Bharat, etc	Classroom discussions Field visit Individual /Group conference Report/journalsubmission & VIVA

Note: Faculty can make addition in the list of activities as per domain content:

#### **Recommended field-based activities (Tentative):**

- □ Participate in Gram Sabha meetings, and study community participation;
- □ Visit to Swatch Bharat Mission projectsites, conduct analysis and initiate problem solving measures;
- □ Interaction with Self Help Groups(SHGs)women members ,and study their functions and challenges; planning for their skill-building and livelihood activities;
- Visit Mahatma Gandhi National. Rural Employment Guarantee Act 2005 (MGNREGS) project sites, interact with beneficiaries and interview function airiest the worksite;
- □ Surveys on Mission An today at a support under Gram Panchayat Development Plan
- □ Visit Rural Schools /mid-day meal centres, study academic can infrastructural resources, digital dividend gaps;
- □ Associate with Social audit exercise sat the Gram Panchayat level, and interact with programme beneficiaries;
- □ Visit to local Nagar palika office and review schemes forebrain formal workers and migrants;
- □ Attend Parent Teacher Association meetings ,and interview school dropouts;
- □ Visit local Anganwadi and observe these rives being provided;
- □ Visit local NGOs, civil society organizations and interact with their staff and beneficiaries;
- □ Organize awareness programmers ,health camps ,Disability camps and cleanliness camps;
- □ Conduct soil health test ,drinking water analysis ,energy use and fuel efficiency surveys and building solar powered village;
- □ Understanding of people's impacts of climate change, building up community's disaster preparedness;
  - □ Organize orientation programmers for farmers regarding organic cultivation, rational use of irrigation and fertilizers ,promotion of traditional species of crops and plants and awareness against tubule burning;
  - □ Formationofcommitteesforcommonpropertyresourcemanagement,villagepondmaintenanceand fishing;
  - □ Identifying the small business ideas (hand loom, handy craft, khadi, food products, etc.)For rural areas to make the people self-reliant.
  - □ Inter active with local leaders, panchayat function Aries, grass-root officials and local institutions regarding village development plan preparation and resource mobilization;

- □ Financial Literacy Awareness Programme
- Digital Literacy Awareness Programme
- □ Education Loan Awareness Programme
- □ Entrepreneurship Awareness Programme
- Awareness Programmers on Government Schemes
- Products Market Awareness
- Services Market Awareness
- □ Consumer Awareness Programme
- □ Accounting Awareness Programme for Farmers
- □ Accounting Awareness Programmer or Street Vendors etc.

# 6. IMPORTANT RULESAND REGULATIONS FOR CEP:

#### **Concurrent Fieldwork:**

Students must conduct comprehensive studies on various challenges that they face in their chosen field. Every work relevant to the subject matter should be compiled and documented.

Students should keep separate fieldwork diary or maintain journal in order to record their field work experiences i.e. reading, e-contents, tasks, planning and work hours have to be recorded in the diary. Detailed work records report on students' fieldwork experiences and activities to be submitted and should be presented. The field work conferences part of the timetable and is mandatory. Faculty should hold a fieldwork conference FOR EIGHT NIGHTLY for all students.

In addition to the principal curriculum, the students engage in a variety of community development-related activities. They are encouraged to planed carry out programs, processions, and events for social causes. These activities seek to enhance students' personal and professional skills as well as foster self- development. "Rural Camp" should be embedded in the curriculum for first-year students to be held in the backward and neglect dare as of District's

Concurrent Field work is the core curriculum activity in the CEP course. Hence, 100% attendance of the students is mandatory in case of absence on any student; supplementary field work must be arranged and accomplished with the approval of the faculty supervisor.

# 7. EVALUATION/ASSESSMENTSCHEME:

Students should keep a Field Diary / journal to record, content, readings and field visit planning. The assessment pattern is internal and external i.e. 40+10.

**Internal continuous Assessment:** Participation in concurrent field visits 40%; individual/group field project conference, report/journal submission 40%.

External Assessment: Presentation of field project findings (VIVA) should be assigned 20%.

#### NATURE OF QUESTION PAPER FOR B.Sc. PART – II, (40 + 10 PATTERN) ACCORDING TO REVISED STRUCTURE AS PER NEP – 2020 TO BE IMPLEMENTED FROM ACADEMIC YEAR 2025-26

### Maximum Marks: 40 Duration: 1.5 hrs. A. University Assessment for

## 40Marks

B. Sc Food Science & Technology (Semester-) Examination
Course Name (Course Code)

Day & Date: **Total Marks: 40 Times: Instructions:** 1) All the questions are compulsory. 2) Figures to the right indicate full marks. Q. 1) Select the correct alternatives from the given choices. [08] 1. 2. 3. 4. 5. 6. 7. 8. Q.2 Answer the following Questions (Any 2 out of 3) [16] 1. 2. 3. Q.3. Answer the following Questions (Any 4 out of 6) [16] 1. 2. 3. 4. 5. 6.

# **B.** Internal Assessment for 10 Marks

B.Sc. (Food Science & Technology) Part II Semester III – B.Sc. (Food Science& Technology) Part II Semester IV –

# **C. Practical Examination:**

University Assessment for 50 Marks

B. Sc Food Science & Technology (Semester- ) Examination Course Name (Course Code)

Day & Date:

Total Marks: 50

Time:

**Instructions:** 

1) All questions are compulsory.

2) Figures to the right indicate full marks.

3) Draw neat labelled diagram wherever necessary.

Q. 1. Principle Writing	5 Marks
Q.2. Perform the Experiment	25 Marks
Q.3. Journal Q. 4. Viva	10 Marks 10 Marks

## Equivalence of Second Year B.Sc Food Science and Quality Control Semester III and IV

The Equivalence for the subjects/courses of Food Science and Quality Control at Second Year B. Sc Semester III and IV pre-revised Program under the faculty of Science and Technology is as follows.

Sr.	Second Year B. Sc (Food	Second Year	Remark
No	Science & Quality Control)	<b>B.Sc(Food Science</b>	
	Semester III Pre-revised	& Quality Control)	
	syllabus	Semester III	
		Revised syllabus	
1.	Cereals & Pulses Technology	Cereals & Pulses	Minor Changes on
	V	Technology	Content.
2.	Food Preservation	Food Preservation	Minor Changes on
	Technology VI		Content.
3.	Minor V(Botany /Zoology)	Minor V(Botany	
		/Zoology)	
4.	Minor VI(Botany /Zoology)	Minor V(Botany	
		/Zoology)	
5.		OE III	Added according to
			NEP 2.0 structure
6.	VSC I	VSC I Vocational	Added according to
		Skill Course in Jam,	NEP 2.0 structure
		Jelly & Ketchup	
7.	AEC :Environmental Studies	AEC English	Added according to
			NEP 2.0 structure
8.	SEC	SEC Design and	Added according to
		Development of	NEP 2.0 structure
		New Product	
9.	-	CC	Added according to
			NEP 2.0 structure

# Second Year B. Sc semester III

Second Year B. Sc semester IV

Sr. No	Second Year B. Sc (Food Science & Quality Control) Semester IV Pre-revised syllabus	Second Year B.Sc (Food Science & Quality Control) Semester IV Revised syllabus	Remark
1	Fruits And Vegetable Processing Technology VII	Fruit And Vegetable Processing VII	Minor Changes in Content.
2	Bakery & Confectionery Technology VIII	Quality Control of food products	Change in Subject.
3	Minor V(Botany /Zoology)	Minor V(Botany /Zoology)	
4	Minor V(Botany /Zoology)	Minor V(Botany /Zoology)	
5		OE IV	Added according to NEP 2.0 structure
6		AEC English	Added according to NEP 2.0 structure
7	Environmental Studies	VEC Environmental Studies	No Change
8	SEC	SEC Design and Development of New Product	Added according to NEP 2.0 structure
9		CEP	Added according to NEP 2.0 structure

Sr.	Course Name	Course Code (Sem III)
No.		
*1	Major- V Cereals & Pulses Technology	BSU0325MML216C1
2	Major VI Food Preservation Technology	BSU0325MML216C2
3	Major Practical III: Lab Course VII(Based on Major V & VI)	BSU0325MMP216C1
4	Minor V (Botany /Zoology)	
5	Minor VI (Botany /Zoology)	
6	Minor Practical III: Lab Course VIII(Based on Minor V & VI)	
7	OE III	BSU0325OEL216C3
8	VSC I Lab Course IX Jam , Jelly & Ketchup Processing	BSU0325VECP216C1
9	SEC I Lab Course X Design & Development of New Product	BSU0325SEL216C1
10	AEC I English	
11	CC I	

Sr.	Course Name	Course Code (Sem IV)
No.		
1	Major VII Fruits And Vegetable Processing Technology	BSU0325MML216D3
2	Major VIII Bakery & Confectionery Technology	BSU0325MML216D4
3	Major Practical IV: Lab Course XI (Based on Major VII & VIII)	BSU0325MMP216D2
4	Minor VII (Botany /Zoology)	
5	Minor VIII (Botany /Zoology)	
6	Minor Practical IV: Lab Course XII (Based on Minor VII & VIII)	
7	OE IV	BSU0325OEL216D4
8	SEC II Lab Course XIII Design & Development of New Product	BSU0325SEP216D4
9	AEC II English	
10	VEC II Environmental Studies	
11	CEP I	
