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

SHIVAJI UNIVERSITY, KOLHAPUR - 416004,
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शिवाजी विद्यापीठ, कोल्हापूर - ४१६००४,महाराष्ट्र
दूरध्वनी - ईपीएबीएक्स - २६०९०००, अभ्यासमंडळे विभाग दुरध्वनी विभाग २३१–२६०९०९३/९४

SU/BOS/Science/ 14 **Date:** 01/10/2022

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

Subject :- Regarding syllabi of M.Sc. & B.Sc. (NEP-2020) degree programme under the Faculty of Science and Technology as per National Education Policy 2020

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 and Nature of question paper of **M.Sc., & B. Sc.** under the Faculty of Science and Technology **as per National Education Policy 2020**

Sr. No.	Faculty of Science and Technology	Programme/ Course
1	**Food Science & Technology**	M. Sc. Part- I Food Science and Technology, M. Sc. Part- I Food Science and Nurition, B. Sc. Part- I Food Science & Technology

This syllabi and nature of question paper shall be implemented from the Academic Year 2022-2023 onwards. A soft copy containing the syllabus is attached herewith and it is also available on university website www.unishivaji.ac.in (students Online Syllabus)

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

Thanking you,

Yours faithfully,

Dy Registrar

Copy to:

1	The Dean, Faculty of Science & Technology	7	Appointment Section
2	Director, Board of Examinations and Evaluation	8	P.G.Seminar Section
3	The Chairman, Respective Board of Studies	9	Computer Centre (I.T.)
4	B.Sc. Exam	10	Affiliation Section (U.G.)
5	Eligibility Section	11	Affiliation Section (P.G.)
6	O.E. I Section	12	P.G.Admission Section

SHIVAJI UNIVERSITY, KOLHAPUR.

Accredited By NAAC with 'A' Grade

CHOICE BASED CREDIT SYSTEM

Syllabus For

M.Sc. (Food Science & Nutrition) I & II

SEMESTER I AND II

(Syllabus to be implemented from June, 2021 onwards.)

Shivaji University, Kolhapur

College of Non- Conventional Courses for Women, Kolhapur

Department of Food Technology

Syllabus and Scheme of examinations for Two year (Four Semesters)

M. Sc. Degree Program in Food Science and Nutrition

Choice Based Credit System

Guidelines and Regulations shall be as per M. Sc. CBCS Program

Preamble:

The Master's programme of Food Science and Nutrition provides professional education for those who wish to develop a carrier in Food industry, New product Development, Clinical Nutrition, Public health Nutrition and Research. It focuses on the interface between food science and human nutrition and area of increasing importance to educators, health departments, consumers, government and food industry. It builds on major concepts of nutritional biochemistry, nutrition and food science to discuss the roles of all nutrients, nutritional contents of food and diet in health and disease. The programme includes all the units of study to ensure the students to reach competence including public health, clinical nutrition, communication, research and evaluation. Shivaji University Kolhapur, Faculty of Science and Technology is offering M.Sc. degree in Food Science and Nutrition since inception with modifications in scheme and syllabus from time to time as needed to keep abreast with largest knowledge in the field. Since the subject has grown tremendously, there is a need to specialize within the subject and train students specifically for the job market.

The proposed M.Sc. Programme under CBCS scheme has a total of 96 credits consisting of CC, CCS, DSE.

Eligibility Criteria:

Minimum percentage is 55% or equivalent grade who have the following degrees- B.Sc. Food Technology and Management, Bachelor of Food technology and Management, B.Sc. Food Technology, B.Sc. Food Science and Quality Control, B.Sc. Food Processing and

Packaging, B.Sc. Foods and Nutrition, B.Sc. Food Science and Nutrition, B.Sc. Clinical Nutrition and Dietetics/ Nutrition and Dietetics, B.Sc. Public Health and Nutrition, B.Sc. Applied Nutrition, B.Sc. Home Science, B. Voc. Food Processing and Management (with 12th Science), B. Sc. Life Sciences/ Biochemistry/ Biotechnology / Microbiology/ Zoology/ Molecular Biology/ Botany/ Chemistry or equivalent.

Intake Capacity: 30

PROGRAM OUTCOMES (POS), PROGRAM SPECIFIC OUTCOMES (PSO)

PROGRAM OUTCOMES (POS)	1. Utilize knowledge from the physical and biological sciences as a basis for understanding the role of food and nutrients in health and disease processes. Students will be able to prepare and deliver effective presentations of technical information to food science and nutrition professionals and to the general public. 2. Students/ learners will gain a broad knowledge of food science focusing on chemistry, biochemistry, whilst giving them the necessary understanding of food processing, preservation techniques, quality, safety and new product development to excel in the field. 3. Students/ learners will develop an in-depth understanding of the principles that underpin the relationships between diet, human health and wellbeing. 4. Ability development of Students/ learners to critically appraise the effects of food processing on the nutritional quality of foods and the role of processed foods in the diet.

PROGRAM SPECIFIC OUTCOMES (PSO)	1. Able to provide nutrition counselling and education to individuals, groups, and communities throughout the lifespan using a variety of communication strategies. 2. Able to apply technical skills, knowledge of health behaviour, clinical judgment, and decision-making skills when assessing and evaluating the nutritional status of individuals and communities and their response to nutrition intervention. 3. Students can implement strategies for food access, procurement, preparation, and safety for individuals, families, and communities. Apply food science knowledge to describe functions of ingredients in food. 4. Students/ learners will develop the ability to apply fundamental specific concepts to understand the complex characteristics of foods. 5. The programme will allow the students to challenge current issues in food production and issues arising from food safety. 6. The programme will encourage students to evaluate current issues and developments related to the food science & nutrition discipline.

Choice Based Credit System with Multiple Entry and Multiple Exit Option (NEP-2020)
M. Sc. (Food Science and Nutrition) Programme Structure
M.Sc. Part I (Level 8)

Semester I (Duration Six Months)													
TYPE	**SR. NO**	**COURSE CODE**	**TITLE OF THE PAPER**	**TEACHING SCHEME**			**EXAMINATION SCHEME**					
				Theory and Practical			**External Assessment (EA)**			**Internal Assessment (IA)**		
				LECTURES (per week)	**HOURS (per week)**	**CREDITS**	**Max. Marks**	**Min. Marks**	**Exam. Hours**	**Max. Marks**	**Min. Marks**	**Exam. Hours**
CGPA	1	CC-101	Human Physiology	4	4	4	80	32	3	20	8	1
	2	CC-102	Food Preservation Techniques	4	4	4	80	32	3	20	8	1
	3	CC-103	Advances in Food Chemistry	4	4	4	80	32	3	20	8	1
	4	CC-104	Nutrition Through Life Cycle	4	4	4	80	32	3	20	8	1
	5	CCPR-105	Laboratory Course I	16	16	8	200	80	---	---	---	*
Total(A)				---	---	**24**	**520**	---	---	**80**	---	---
Non-CGPA	1	AEC-106	Communication English I	2	2	2	---	---	---	50	20	2
Semester II (Duration Six Months)												
CGPA	1	CC-201	Advances in Food Microbiology	4	4	4	80	32	3	20	8	1
	2	CC-202	Processing of Cereal, Legumes and Oilseeds	4	4	4	80	32	3	20	8	1
	3	CC-203	Processing of Fruits and Vegetables	4	4	4	80	32	3	20	8	1
	4	CC-204	Nutritional Biochemistry	4	4	4	80	32	3	20	8	1
	5	CCPR-205	Laboratory Course II	16	16	8	200	80	---	---	---	*
Total (B)				---	---	**24**	**520**	---	---	**80**	---	---
Non-CGPA	1	SEC-206	Fundamentals of Information Technology I	2	2	2	---	---	---	50	20	2
Total (A+B)						**48**	**1040**	---	---	**160**	---	---

• Student contact hours per week: **32** Hours (Min.)	• Total Marks for M.Sc.-I: **1200**
• Theory and Practical Lectures: **60** Minutes Each	• Total Credits for M. Sc.-I (Semester I & II): **48**
• CC-Core Course • CCPR-Core Course Practical • AEC-Mandatory Non-CGPA compulsory Ability Enhancement Course • SEC- Mandatory Non-CGPA compulsory Skill Enhancement Course	• Practical Examination is annual. • Examination for CCPR-105 shall be based on Semester I Practicals. • Examination for CCPR-205 shall be based on Semester II Practicals. • *Duration of Practical Examination as per respective BOS guidelines • *Separate passing is mandatory for Theory, Internal and Practical Examination*
• **Requirement for Entry at Level 8:** **Completed all requirements of the relevant Bachelor's degree (Level 7) with principal / major subjects.....**	
• **Exit Option at Level 8:** Students can exit after Level 8 with **Post Graduate Diploma in .....** if he/she completes the courses equivalent to minimum of 48 credits.	

Choice Based Credit System with Multiple Entry and Multiple Exit Option (NEP-2020)
M. Sc. (Food Science and Nutrition) Programme Structure
M.Sc. Part II (Level 9)

Semester III (Duration Six Months)													
TYPE	**SR. NO**	**COURSE CODE**	**TITLE OF THE PAPER**	**TEACHING SCHEME**			**EXAMINATION SCHEME**					
				Theory and Practical			**External Assessment (EA)**			**Internal Assessment (IA)**		
				LECTURES (per week)	**HOURS (per week)**	**CREDITS**	**Max. Marks**	**Min. Marks**	**Exam. Hours**	**Max. Marks**	**Min. Marks**	**Exam. Hours**
CGPA	1	CC-301	Research Methodology & Biostatistics	4	4	4	80	32	3	20	8	1
	2	CCS-302	Processing of Milk and Milk Products	4	4	4	80	32	3	20	8	1
	3	CCS-303	Food Additives, Contaminants & Toxicology	4	4	4	80	32	3	20	8	1
	4	DSE-304	Clinical Nutrition	4	4	4	80	32	3	20	8	1
	5	CCPR-305	A) Laboratory Course III + B) Project Phase I	8 8	8 8	4 4	100 100	40 40	---	---	---	*
Total (C)				---	---	**24**	**520**	--	---	**80**	---	---
Non-CGPA	1	AEC-306	Communication English II	2	2	2	---	---	---	50	20	2
	2	EC	SWAYAM/MOOC/Online	Number of Lectures & Credits will be specified on SWAYAM/MOOC/Online Courses								
Semester IV (Duration Six Months)												
CGPA	1	CC-401	Food Product Development & Packaging	4	4	4	80	32	3	20	8	1
	2	CCS-402	Processing of Animal Foods	4	4	4	80	32	3	20	8	1
	3	CCS-403	Functional Foods and Nutraceuticals	4	4	4	80	32	3	20	8	1
	4	DSE-404	Public Health Nutrition	4	4	4	80	32	3	20	8	1
	5	CCPR-405	A) Laboratory Course IV + B) Project Phase II	8 8	8 8	4 4	100 100	80	---	---	---	*
Total (D)				---	---	**24**	**520**	---	---	**80**	---	---
Non-CGPA	1	SEC-406	Fundamentals of Information Technology II	2	2	2	---	---	---	50	20	2
	2	GE-407	Food Analysis and Quality Control	2	2	2	---	---	---	50	20	2
Total (C+D)						**48**	**1040**	---	---	**160**	---	---

• Student contact hours per week: **32** Hours (Min.)	• Total Marks for M.Sc.-II: **1200**
• Theory and Practical Lectures: **60** Minutes Each	• Total Credits for M.Sc.-II (Semester III & IV: **48**
• CC-Core Course • CCS- Core Course Specialization • CCPR-Core Course Practical and Project • DSE-Discipline Specific Elective • AEC-Mandatory Non-CGPA compulsory Ability Enhancement Course • SEC- Mandatory Non-CGPA compulsory Skill Enhancement Course • EC (SWM MOOC) - Non-CGPA Elective Course • GE- Multidisciplinary Generic Elective	• Practical Examination is annual. • Examination for CCPR-305 shall be based on Semester III Practicals. • Examination for CCPR-405 shall be based on Semester IV Practicals. • *Duration of Practical Examination as per respective BOS guidelines • ***Separate passing is mandatory for Theory, Internal and Practical Examination***
• **Requirement for Entry at Level 9:** **Completed all requirements of the relevant Post Graduate Diploma (Level 8) in .....**	
• **Exit at Level 9:** Students will exit after Level 9 with **Master's Degree in .....** if he/she completes the courses equivalent to minimum of 96 credits.	

	M.Sc.-I	**M.Sc.-II**	**Total**
Marks	**1200**	**1200**	**2400**
Credits	**48**	**48**	**96**

I. CGPA course:

1. There shall be 14 Core Courses (CC)per programme.
2. There shall be 04 Core Course Specialization (CCS)of 16 credits per programme.
3. There shall be 02 Discipline Specific Elective (DSE) courses of 08 credits per programme
4. Total credits for CGPA courses shall be of 96 credits per programme

II. Mandatory Non-CGPA Courses:

1. There shall be 02 Mandatory Non-CGPA compulsory Ability Enhancement Courses (AEC) of 02 credits each per programme.
2. There shall be o1 Mandatory Non-CGPA compulsory Skill Enhancement Course (SEC) of 02 credits per programme.
3. There shall be one Elective Course (EC) (SWAYAM MOOC). The credits of this course shall be as specified on SWAYAM MOOC.
4. There shall be one Generic Elective (GE) course of 02 credits per programme. Each student has to take generic elective from the department other than parent department.
5. The total credits for Non-CGPA course shall be of 08 credits + 2-4 credits of EC as per availability.
6. The credits assigned to the course and the programme are to be earned by the students and shall not have any relevance with the work load of the teacher.