



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Home Science
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Sc. Food and Nutrition
Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC101	CC	Advanced Human Nutrition	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

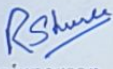
Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course outcomes: After completion of the course, the student will be able to:

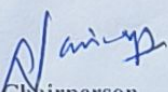
CO-1	Explain the concepts of energy metabolism, nutrient digestion, absorption and utilization in human nutrition.
CO-2	Understand the role of carbohydrates, lipids, proteins, vitamins and minerals in maintaining health and preventing diseases.
CO-3	Analyze metabolic disorders, nutrient deficiencies and therapeutic nutritional approaches related to human health.
CO-4	Apply principles of clinical and therapeutic nutrition in dietary assessment, nutritional management and lifestyle disorders.
CO-5	Evaluate recent advancements including AI applications, digital tools and research approaches in nutrition and health sciences.

Teaching Pedagogy:

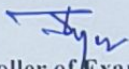
T1	Classroom Teaching, PowerPoint Presentations, Interactive Learning
T2	Assignments, Group Discussions, Seminars, Quiz and Case Studies


Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



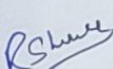
Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Home Science
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Sc. Food and Nutrition
Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC101	CC	Advanced Human Nutrition	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

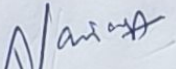
Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Experiential Learning: Project Based Learning(PBL) and Case Studies

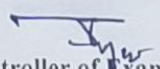
Module	Activity	Type	Bloom's Taxonomy
Unit I	Assessment of energy expenditure and BMI analysis	Case Study	Apply, Analyze
Unit II	Glycemic index analysis of foods	PBL	Apply
Unit III	Preparation of heart friendly diet plan	Case Study	Analyze, Evaluate
Unit IV	Protein quality assessment using dietary survey	PBL	Apply, Evaluate
Unit V	AI-based dietary assessment using nutrition apps	Case Study	Apply, Analyze


Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Home Science
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Sc. Food and Nutrition
Semester I

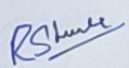
COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC101	CC	Advanced Human Nutrition	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

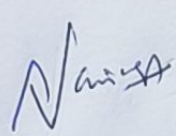
Assessment Tools

AT1-1	Quiz
AT1-2	Assignment
AT1-3	Midterm Exams
AT1-4	Case Study
AT1-5	Seminar Presentation
AT1-6	Project Based Learning
AT1-7	Hands on Experiments
AT1-8	Oral Viva-voce examination

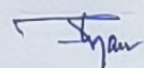
Prerequisites: Knowledge of basic chemical concepts, quantitative skills, laboratory techniques, and data analysis ability.


Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC101	CC	Advanced Human Nutrition	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Module-wise Syllabus Structure:

Module	Descriptors / Topics	Hours	Assessment Tools
I	Energy Metabolism • Components of energy expenditure • Current methodology for determining energy requirements • Current recommendations for energy intake of different age and sex groups • Disorders of energy metabolism: Obesity and undernutrition • Metabolic syndrome from cardiology and endocrinology perspective	08	Quiz, Case Study, Mid-Term Exam, Problem Solving Exercise
II	Carbohydrates • Classification, digestion, absorption and utilization of carbohydrates • Simple and complex carbohydrates • Non-starch polysaccharides and fiber constituents and their role in nutrition • Functional role of carbohydrates in human nutrition • Disorders related to carbohydrate metabolism • Polyols, Glycemic Index, Glycemic Load and Satiety Index • Clinical implications • Nutrition in eating disorders: Anorexia Nervosa and Bulimia	08	Mid-Term Exam, Seminar, Oral Viva-Voce, Hands-on Activity
III	Lipids • Classification, digestion, absorption and transport of lipids • Essential fatty acids and long chain PUFA in human metabolism • Role of n3 and n6 fatty acids in health and disease • Hyperlipidemia and nutritional aspects • Phytochemicals and plant sterols in human nutrition • Visible and invisible fats in diets • Human requirements of essential fatty acids • Assessment of lipid status and heart friendly diets	08	Quiz, Assignment, Problem Solving, Presentation

Chairperson

Board of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Chairperson

Faculty of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Registrar

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC101	CC	Advanced Human Nutrition	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

IV	Proteins • Classification, digestion, absorption and transport of proteins • Protein metabolism: role of liver and muscles • Nitrogen balance and obligatory nitrogen losses • Human protein requirements • Methodology for determining protein and essential amino acid requirements • Concept and methods of measuring protein quality	08	Quiz, Assignment, Mid-Term Exam, Oral Viva-Voce
V	Vitamins and Minerals • Fat soluble and water soluble vitamins • Major and trace minerals and electrolytes • Assessment of vitamin and mineral status • Interaction with other nutrients, toxicity and deficiency disorders • RDA 2020 • Drug-nutrient interrelationships • Applications of AI in Nutrition and Health • AI in dietary assessment and personalized nutrition • AI-based nutrition and health monitoring tools • Machine learning in clinical nutrition and disease management • Digital technologies for assessment of nutrient deficiencies and lifestyle disorders	08	Quiz, Assignment, Oral Viva-Voce Examination, Case Study
	Total Hours	40	

Chairperson

Board of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Chairperson

Faculty of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Registrar

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC101	CC	Advanced Human Nutrition	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Additional Resources

A .Value addition to course content/ Skill enhancement content:

- WHO – Healthy Diet — <https://www.who.int/en/news-room/fact-sheets/detail/healthy-diet>
- ICMR – National Institute of Nutrition (NIN) — <https://www.nin.res.in/>
- PubMed – National Library of Medicine — <https://pubmed.ncbi.nlm.nih.gov/>
- USDA – FoodData Central — <https://fdc.nal.usda.gov/>
- NIH – Office of Dietary Supplements — <https://ods.od.nih.gov/>
- NIH – Human Microbiome Project — <https://commonfund.nih.gov/hmp>
- Harvard T.H. Chan School of Public Health – The Nutrition Source — <https://nutritionsource.hsph.harvard.edu/>
- FAO – Nutrition — <https://www.fao.org/nutrition/en/>
- MedlinePlus – Drugs and Supplements — <https://medlineplus.gov/druginformation.html>
- National Human Genome Research Institute — <https://www.genome.gov/>
- WHO – Nutrition — <https://www.who.int/health-topics/nutrition>
- WHO – Sustainable Healthy Diets — <https://www.who.int/publications/i/item/9789241516648>
- FAO – Food-Based Dietary Guidelines — <https://www.fao.org/nutrition/education/food-dietary->

SWAYAM Course: https://onlinecourses.swayam2.ac.in/e-learning/preview/cec26_ag02.

Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC101	CC	Advanced Human Nutrition	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

B. Remedial classes for slow learners:

- Special classes will be arranged outside regular lecture hours with a focus on fundamental concepts and problem-solving techniques.
- Individual attention will be provided to address specific difficulties faced by students.
- Bridge courses or foundation modules may be introduced for students lacking prerequisite knowledge.
- Peer learning and mentoring will be encouraged, where advanced learners assist slow learners under faculty supervision.
- Remedial sessions will be customized based on student needs, focusing on topic-wise weaknesses rather than a general approach.

Suggested Readings:

Text Books:

- Jatana, A. Daphnee, D. K. Haritha, S. Rohatgi, R. & Pandya Yephtho, K. (2022). Apollo Clinical Nutrition Handbook. Jaypee Publisher.
- Sohi, D. and Randhawa T. (2022). Textbook of Applied Nutrition & Dietetics. S. Vikas and Company
- Bamji, M. S. (2021). Textbook of Human Nutrition. CBS Publishers.
- Venkatraman, S. and Dandekar, P. S. (2021). Nutrition and Biochemistry for Nurses. Elsevier India

Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC101	CC	Advanced Human Nutrition	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

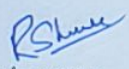
Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

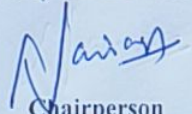
- Denis, M. M. and Robert E.C. (2018). Advanced Human Nutrition. Jones & Bartlett Learning.
- D Souza. and Pradhan, S.B.S. (2010). Handbook Of Applied Nutrition, Dietotherapy & Diet Management. D Publishers and Distributors Pvt Ltd.
- Wardlaw, G. (2010). Contemporary Nutrition and Diet Therapy. Benchmark publications.
- Shils, M. Olson, JA. Shike, M. Ross, AC. Cabellaro, B. and Cousins, RJ. (2006). Nutrition Modern Health and Disease. Lippincott, Williams and Wilkins publications.
- Shils. M.E. (2006). Modern Nutrition in Health and Disease. Lippincott, Williams & Williams, USA.
- Mahan, L.K. & Escott Stump, S. (2000). Krause's Food Nutrition and Diet Therapy. WB Saunders & Co. London
- Whitney, E.R and Rodney Roltes, S. (1996). Under Standing Nutrition. West Publishing Company, New York, USA

Reference Books

1. Gopalan, C., Rama Sastri, B.V., and Balasubramanian, S.C. **Nutritive Value of Indian Foods**. National Institute of Nutrition, Hyderabad.
2. Krause, M. V. and Mahan, L. K. **Krause's Food and Nutrition Therapy**. Elsevier Publications.
3. Srilakshmi, B. **Nutrition Science**. New Age International Publishers.
4. Wardlaw, G. M. and Insel, P. M. **Perspectives in Nutrition**. McGraw Hill Publications.
5. Gibney, M. J., Lanham-New, S. A., Cassidy, A., and Vorster, H. H. **Introduction to Human Nutrition**. Wiley-Blackwell Publications.


Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

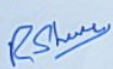
COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC101	CC	Advanced Human Nutrition	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

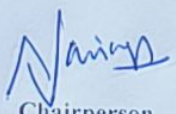
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Articulation Matrix (Mapping of COs with POs)

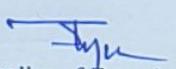
Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	3	1				2	1	1
CO2	2	3	3	2				2	3	2
CO3	2	3	3	2			1	2	2	1
CO4	2	3	2	3			2	3	3	2
CO5	2	2	2	2	1	1	3	3	2	3


Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC101	CC	Advanced Human Nutrition	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

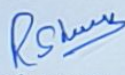
COURSE OBJECTIVES

The student will have ability to:

1. **Recall** and **explain** the concepts of energy metabolism, digestion, absorption, transport and utilization of nutrients in human nutrition.
2. **Understand** the physiological and biochemical role of carbohydrates, lipids, proteins, vitamins and minerals in maintenance of health and prevention of diseases.
3. **Analyze** nutritional disorders, metabolic abnormalities, nutrient deficiencies and therapeutic dietary approaches related to human health.
4. **Evaluate** nutritional status, dietary requirements, drug-nutrient interactions and clinical implications of nutrients across different age groups and health conditions.
5. **Apply** modern approaches, including AI-based nutrition tools, digital technologies and research methods, for dietary assessment, personalized nutrition and lifestyle disease management.

Course Alignment with UNSDG:

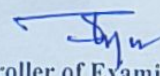
The Course aims to fulfill the United Nations Sustainable Development Goals, **SDG 2 – Zero Hunger**, **SDG 3 (Good Health and well being)** **SDG 4 (Quality Education)**. **SDG 9 (Industry Innovation and Infrastructure)**


Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC104	Core	Advanced Meal Planning	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

COURSE OBJECTIVES: The students will have ability to:

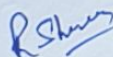
1. discuss key considerations in developing and managing a foodservice establishment
2. menu.
3. illustrate the importance of accurate and complete product descriptions as it relates to
4. menu design.
5. examine the impact of nutrition and nutrition standards as it relates to menu preparation.
6. exploration of various menus and foodservice establishments.
7. identify the relationship between the menu and marketing.

Course Alignment with UNSDG:

The Course aims to fulfill the United Nations Sustainable Development Goals, **SDG 2 – Zero Hunger**, **SDG 3 (Good Health and wellbeing)** **SDG 4 (Quality Education)**. **SDG 8 (Decent Work and Economic Growth)**, **SDG 12 (Responsible Consumption and Production)**

Course Outcomes (COs): Student should be able to:

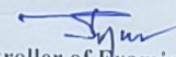
CO1	plan and produce various types of menus for varied purposes.
CO2:	identify key aspects of menu design
CO3:	appraise a menu for any changes based on the requirement.
CO4:	develop the ability to plan nutritious, appealing food combinations and menu patterns that meet the requirements.
CO5	understand various cooking methods, standardization of recipes and principles of various cookeries.


Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC104	Core	Advanced Meal Planning	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Teaching Pedagogy:

T1	Classroom teaching (white board), Power Point Presentations, Interactive lectures, Inquiry-based teaching
T2	ABL activities, Assignments, Flip Class/ Seminars, Quizzes, Oral Viva-voce examination

Experiential Learning: Project Based Learning (PBL) and Case Studies

Module	Activity	Type	Bloom's Taxonomy
UNIT 1	Development of balanced menus for different age groups using Food Exchange System and ICMR (2022) recommendations	PBL	Apply, Analyze
UNIT 2	Case study on planning and management of food services in hospitals, including purchasing, receiving and storage systems	Case Study	Analyze, Evaluate
UNIT 3	Standardization of recipes and quantity food production for institutional food service establishments	PBL	Apply, Evaluate
UNIT 4	Comparative analysis of food service systems (hospital, hostel, cafeteria and community kitchen) and manpower planning	Case Study	Analyze, Evaluate
UNIT 5	HACCP plan development and quality assurance assessment for a food service establishment	PBL	Apply, Create
UNIT 5	Case study on food safety incidents, quality control failures and corrective actions in food service operations	Case Study	Analyze, Evaluate

P. Shrivastava

Chairperson

Board of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

N. Anand

Chairperson

Faculty of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

S. Jyoti

Controller of Examination

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

R. P. Singh

Registrar

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC104	Core	Advanced Meal Planning	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Assessment Tools

AT1-1	Quiz
AT1-2	Activity Based Learning
AT1-3	Midterm Exams
AT1-4	Seminar Presentation
AT1-5	Assignments
AT1-6	Poster
AT1-7	Oral Viva-voce examination

Prerequisite (Major): Basic knowledge of biology, food science, health concepts, and elementary chemistry related to human nutrition and well-being

Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

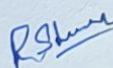
COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME							L	T	P	CREDITS
			Marks	THEORY			PRACTICAL						
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*					
MSFNC104	Core	Advanced Meal Planning	Max	60	20	20	0	0	3	0	0	3	
			Min	24	16		0	0					

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

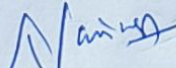
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Module-wise Syllabus Structure:

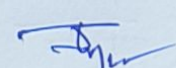
Module	Descriptors / Topics	Hours	Assessment Tools
I	Meal and Menu Planning • Concept, definitions and objectives of meal planning • Factors affecting meal planning • Meal patterns and types of meals • Principles and mechanics of menu planning • Menu format, menu design and display • Food Exchange System • Recommended Dietary Allowances (ICMR-NIN 2022) • Computer applications and AI-assisted menu planning • IKS: Traditional Indian meal planning concepts and regional dietary patterns	08	Quiz, Assignment, Mid-Term Exam
II	Food Service Management: Purchasing, Receiving and Storage • Planning food services in hospitals • Physical plant: location, floor plans and space allocation • Kitchen layout and organization • Storage, baking, dishwashing and service units • Food purchasing: principles, methods and specifications • Ethical and regulatory considerations in purchasing • Food receiving procedures • Storage systems and inventory management • Digital inventory and procurement systems	08	Assignment, Case Study, Presentation


Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

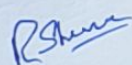
Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC104	Core	Advanced Meal Planning	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

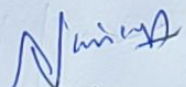
Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

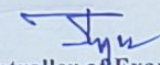
III	Quantity Food Production and Cookery Principles • Quantity food production and menu execution • Standardization of recipes • Principles of cookery for cereals, pulses, vegetables, fruits, meat and poultry • Preparation of baked products and desserts • Salads and salad dressings • Cooking methods: moist heat, dry heat, fat-based cooking and microwave cooking • Quality evaluation of prepared foods • AI-enabled recipe standardization and nutrient analysis	08	Practical Demonstration, Quiz, Viva
IV	Food Service Systems and Institutional Management • Evolution and development of food service systems • Types of food service systems: hospitals, hostels, cafeterias and community kitchens • Equipment selection and maintenance • Food preparation, storage, distribution and serving equipment • Personnel management • Recruitment, training, supervision and performance evaluation • Budgeting and cost control in food service operations	08	Seminar, Assignment, Mid-Term Exam
V	Food Safety and Quality Assurance • Concepts of food safety and quality assurance • Quality control systems • Quality planning and documentation • Product standards and purchase specifications • Process control and quality monitoring • HACCP implementation • Hygiene and housekeeping practices • Corrective actions and continuous quality improvement • Total Quality Management (TQM) • AI-assisted food safety monitoring and traceability systems	08	Project, Case Study, Viva-Voce


Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC104	Core	Advanced Meal Planning	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Additional Resources

A. Value Addition to Course Content / Skill Enhancement Content

• **Advanced Menu Planning and Nutrient Optimization:** ICMR-NIN Dietary Guidelines for Indians

• **Institutional Food Service Management:** Food Service Management Educational Resources – IFSEA

• **Quantity Food Production and Recipe Standardization:** Institute of Food Technologists (IFT) – Food Production Resources

• **Food Safety, HACCP and Quality Assurance Systems:** Food Safety and Standards Authority of India (FSSAI) – Food Safety Training and Certification

• **Digital Technologies and Artificial Intelligence in Food Service**

Operations:FAO Digital Agriculture and Food Systems Program.

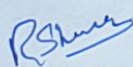
SWAYAM Course: https://onlinecourses.nptel.ac.in/noc26_bt43/preview

B. Remedial classes for slow learners: As per the AUMP SOP for slow and fast learners.

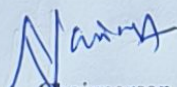
Suggested readings:

Text Books:

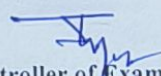
- Raske, L. (2017). Food service Management Fundamentals. Scitus Academics.
- Kariya, P. (2016). Meal Planner. India: Kahootie Co.
- Terrel, M.E. and Haigu, V.F. (2016). Professional Food preparation. New York: John Wiley and sons.
- Sethi, M. (2016). Institutional Food Management. New Age International Private Limited.
- Bansal, T. (2011). Hotel facility and planning. Oxford publishing, New Delhi


Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Home Science
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Sc. Food and Nutrition
Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC104	Core	Advanced Meal Planning	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

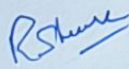
Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
 *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Reference Books:

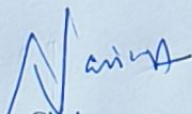
- Marzia M. Canty, Mc, and Brighton, R. (2010). Introduction to Catering. London: Oxford Blackwell, Scientific Publications.
- Davis, B., Lockwood, A and Pantelidis, I. (2008). Food And Beverage Management. Butterworth Heinemann.
- Sethi, M. (2008). Catering Management. New Age International (P) Ltd.
- Khanna, K. (2007). Textbook of Nutrition and Dietetics. New Delhi: Elite publishing house

Course Articulation Matrix (Mapping of COs with POs)

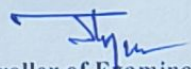
Course Outcomes	Correlation with POs									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	–	2	3	1	1	–	–	1	–
CO2	1	–	2	3	–	–	–	–	1	–
CO3	2	–	2	3	1	2	–	–	1	1
CO4	3	2	2	3	2	2	–	–	1	–
CO5:	2	–	2	2	–	–	–	3	–	1


 Chairperson

Board of Studies, Shri Vaishnav
 Vidyapeeth Vishwavidyalaya, Indore


 Chairperson

Faculty of Studies, Shri Vaishnav
 Vidyapeeth Vishwavidyalaya, Indore


 Controller of Examination

Shri Vaishnav Vidyapeeth
 Vishwavidyalaya, Indore


 Registrar

Shri Vaishnav
 Vidyapeeth
 Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC103	Core	Advanced Food Science	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

COURSE OBJECTIVES

The student will have ability to:

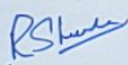
1. Understand advanced concepts of food science, processing and sensory evaluation.
2. Analyze effects of cooking, processing and storage on food quality and nutrient retention.
3. Evaluate food additives, toxicants and preservation technologies.
4. Apply food safety and adulteration detection principles.
5. Integrate AI and Indian Knowledge Systems (IKS) in food science.

Course Alignment with UNSDG:

The Course aims to fulfill the United Nations Sustainable Development Goals, **SDG 2 – Zero Hunger**, **SDG 3 (Good Health and wellbeing)** **SDG 4 (Quality Education)**. **SDG 9 (Industry Innovation and Infrastructure)**, **SDG 12 (Responsible Consumption and Production)**

Course outcomes: After completion of the course, the student will be able to:

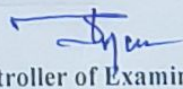
CO-1	Explain scientific principles involved in food preparation and sensory evaluation.
CO-2	Analyze effects of processing and storage on food quality.
CO-3	Evaluate food additives and food toxicants
CO-4	Apply food preservation and food safety principles.
CO-5	Assess AI and IKS applications in food systems.


Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Sc. Food and Nutrition
Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC103	Core	Advanced Food Science	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

COURSE OBJECTIVES

The student will have ability to:

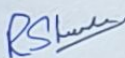
1. Understand advanced concepts of food science, processing and sensory evaluation.
2. Analyze effects of cooking, processing and storage on food quality and nutrient retention.
3. Evaluate food additives, toxicants and preservation technologies.
4. Apply food safety and adulteration detection principles.
5. Integrate AI and Indian Knowledge Systems (IKS) in food science.

Course Alignment with UNSDG:

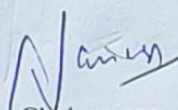
The Course aims to fulfill the United Nations Sustainable Development Goals, SDG 2 – Zero Hunger, SDG 3 (Good Health and wellbeing) SDG 4 (Quality Education). SDG 9 (Industry Innovation and Infrastructure), SDG 12 (Responsible Consumption and Production)

Course outcomes: After completion of the course, the student will be able to:

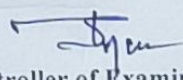
CO-1	Explain scientific principles involved in food preparation and sensory evaluation.
CO-2	Analyze effects of processing and storage on food quality.
CO-3	Evaluate food additives and food toxicants
CO-4	Apply food preservation and food safety principles.
CO-5	Assess AI and IKS applications in food systems.


Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC103	Core	Advanced Food Science	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

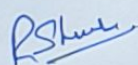
Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
 *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Teaching Pedagogy:

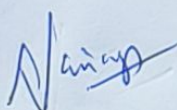
T1	Classroom Teaching, PowerPoint Presentations, Interactive Learning
T2	Assignments, Group Discussions, Seminars, Quiz and Case Studies

Experiential Learning: Project Based Learning (PBL) and Case Studies

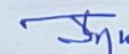
Module	Activity	Type	Bloom's Taxonomy
Unit I	Sensory evaluation of food products using hedonic rating and difference tests	Case Study	Apply, Analyze
Unit II	Assessment of nutrient retention during cooking, processing and storage of foods	PBL	Apply, Analyze
Unit III	Evaluation of food additives in commercial food products and label analysis	Case Study	Analyze, Evaluate
Unit IV	Food toxin identification and risk assessment in selected food samples	PBL	Apply, Evaluate
Unit V	Detection of food adulteration and comparative study of preservation methods	Case Study	Apply, Analyze
Unit V	AI-based food quality assessment and shelf-life prediction using digital tools	Case Study	Apply, Analyze


Chairperson

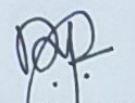
Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC103	Core	Advanced Food Science	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Assessment Tools

AT1-1	Quiz
AT1-2	Assignment
AT1-3	Midterm Exams
AT1-4	Case Study
AT1-5	Seminar Presentation
AT1-6	Project Based Learning
AT1-7	Hands on Experiments
AT1-8	Oral Viva-voce examination

- Prerequisites: Knowledge of basic chemical concepts, quantitative skills, laboratory techniques, and data analysis ability

Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC103	Core	Advanced Food Science	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Module-wise Syllabus Structure:

Module	Descriptors / Topics	Hours	Assessment Tools
I	Introduction to Food Science and Sensory Evaluation • Scope, development and recent trends in Food Science • Scientific principles of food preparation • Basic terminology of cooking methods • Chemical, physicochemical and microbiological effects of heat on food constituents • Heat transfer during cooking • Sensory evaluation of foods: objectives, principles and methods • Consumer acceptance tests, difference tests and preference tests • Applications of AI in sensory evaluation and consumer preference analysis • IKS: Traditional Indian food preparation methods and their scientific basis	08	Quiz, Case Study, Mid-Term Exam, Problem Solving Exercise
II	Effects of Processing, Cooking and Storage on Foods • Effects of cooking, processing and storage on nutrients in cereals and millets • Pulses and legumes • Fruits and vegetables • Milk and milk products • Meat, fish and poultry • Sugars and beverages • Nutrient retention and bioavailability • Factors affecting nutrient losses during processing • Emerging food processing technologies • AI applications in food quality monitoring and prediction of nutrient retention • IKS: Traditional processing methods such as fermentation, germination and sun drying	08	Mid-Term Exam, Seminar, Oral Viva-Voce, Hands-on Activity

R. Shrivastava

Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

A. Mishra

Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

S. J. Singh

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

R. P. Singh

Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC103	Core	Advanced Food Science	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Module-wise Syllabus Structure:

Module	Descriptors / Topics	Hours	Assessment Tools
III	Food Additives and Functional Food Ingredients • Classification and functions of food additives • Antioxidants and anti-browning agents • Colouring agents and flavouring agents • Curing agents and emulsifiers • Leavening agents • Sweeteners and nutrient supplements • pH controllers and preservatives • Regulatory aspects of food additives • Functional foods and nutraceutical ingredients • AI-assisted formulation and quality optimization of food products	08	Quiz, Assignment, Problem Solving, Presentation
IV	Food Toxicology and Food Safety • Naturally occurring food toxins: Trypsin inhibitors, hemagglutinins, lathrogens, aflatoxins, saponins, cyanogenic glycosides, gossypol and glucosinolates • Chemical toxins and environmental contaminants • Pesticides, insecticides and heavy metals • Health implications of food toxicants • Methods of detoxification and removal • Food safety standards and regulations • AI-based food contaminant detection and risk assessment systems • IKS: Traditional detoxification and food safety practices in Indian foods	08	Quiz, Assignment, Mid-Term Exam, Oral Viva-Voce

Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC103	Core	Advanced Food Science	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L – Lectures; T – Tutorials; P – Practicals; C – Credits

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
 *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Module	Descriptors / Topics	Hours	Assessment Tools
V	Food Preservation, Adulteration and Emerging Technologies • Causes and mechanisms of food spoilage • Principles of food preservation • Thermal processing, refrigeration, freezing, drying, dehydration and fermentation • Novel preservation technologies • Food adulteration: concepts, common adulterants and detection methods • Food authentication and quality assurance • Shelf-life studies and food packaging • Applications of AI in food preservation, shelf-life prediction, traceability and smart food systems • Sustainable food systems and future foods	08	Quiz, Assignment, Oral Viva-Voce Examination, Case Study

Additional Resources:

- **Food Science and Food Processing Fundamentals** National Institute of Food Technology Entrepreneurship and Management (NIFTEM)
- **Food Safety and Standards Regulations** Food Safety and Standards Authority of India (FSSAI)
- **Food Preservation and Post-Harvest Management:** ICAR-Central Institute of Post-Harvest Engineering and Technology (CIPHET)
- **Food Composition and Nutrient Retention:** Indian Food Composition Tables (IFCT) – ICMR-NIN

R. Shrivastava

Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

N. Anand

Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

S. Jyoti

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

P. P. Singh

Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC103	Core	Advanced Food Science	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

- **Sensory Evaluation and Food Quality Assessment**
:Institute of Food Technologists (IFT) Resources
- **Food Additives and Food Toxicology** – Codex Alimentarius Commission
- **Traditional Indian Foods and Indigenous Food Systems (IKS)**:Indian Knowledge Systems Division, Ministry of Education
- **Artificial Intelligence in Food Science**: FAO Digital Agriculture and Food Systems Resources
- **Food Adulteration Detection and Consumer Awareness**: Food Safety Connect – FSSAI
- **Sustainable Food Systems and Future Foods**:
Food and Agriculture Organization (FAO) – Sustainable Food Systems

SWAYAM Course:

https://onlinecourses.nptel.ac.in/noc26_cy24/preview.

https://onlinecourses.swayam2.ac.in/e-learning/preview/cec26_cy02,

https://onlinecourses.swayam2.ac.in/e-learning/preview/nos25_sc50

Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC103	Core	Advanced Food Science	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

B. Remedial classes for slow learners:

- Special classes will be arranged outside regular lecture hours with a focus on fundamental concepts and problem-solving techniques.
- Individual attention will be provided to address specific difficulties faced by students.
- Bridge courses or foundation modules may be introduced for students lacking prerequisite knowledge.
- Peer learning and mentoring will be encouraged, where advanced learners assist slow learners under faculty supervision.
- Remedial sessions will be customized based on student needs, focusing on topic-wise weaknesses rather than a general approach.

Suggested Readings:

Textbooks:

- Srilakshmi, B. (2022). *Food Science*. New Age International Publishers, New Delhi.
- Potter, N.N. & Hotchkiss, J.H. (2019). *Food Science*. Springer Science & Business Media
- Manay, N.S. & Shadaksharaswamy, M. (2021). *Food Facts and Principles*. New Age International Publishers, New Delhi.
- Lawless, H.T. & Heymann, H. (2018). *Sensory Evaluation of Food: Principles and Practices*. Springer.
- National Institute of Nutrition (NIN). (2024). *Dietary Guidelines for Indians*. ICMR-NIN, Hyderabad.

R. Shukla

Chairperson

N. Anand

Chairperson

S. Kumar

Controller of Examination

R. J.

Registrar

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC103	Core	Advanced Food Science	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Learning; P - Practical

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Reference Books:

- Vaclavik, V.A. & Christian, E.W. (2021). *Essentials of Food Science*. Springer Publications.
- Rahman, M.S. (2020). *Handbook of Food Preservation*. CRC Press.
- Goldberg, I. (2017). *Functional Foods: Designer Foods, Pharmafoods, Nutraceuticals*. Springer

Course Articulation Matrix (Mapping of COs with POs)

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1:	3	1	2	1	2	3	1	3	1	1
CO2	3	1	2	1	3	3	2	3	1	1
CO3:	3	1	2	1	3	2	2	2	1	2
CO4:	3	1	2	2	3	3	2	3	2	2
CO5:	2	1	1	2	2	2	3	2	2	3

RS

Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

N

Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Shw

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

RP

Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC102	Core	Human Physiology	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives (COs): The Student will have ability to-

1. Gain knowledge regarding the physiology of important systems of the human body.
2. Differentiate cells, tissues, and body structures based on morphology and function.
3. Acquire knowledge regarding immunity, immunological responses, and disease processes.

Course Alignment with UNSDGs

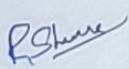
The course aims to fulfill the following United Nations Sustainable Development Goals, **SDG 2** (Zero Hunger), **SDG 3** (Good Health and Well-Being), **SDG 4** (Quality Education), **SDG 9** (Industry, Innovation and Infrastructure).

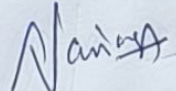
Course Outcomes (COs): After completion of the course, students should be able to:

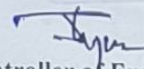
CO1:	Learn the structures of various body systems and explain their significance.
CO2	Understand and describe specific physiological functions of different body systems.
CO3	Explain the integrated and coordinated functioning of body systems.
CO4	Understand concepts of immunity and immunological responses in maintaining health and disease prevention.
CO5	Analyze physiological mechanisms involved in disease conditions and body regulation.

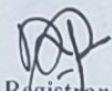
Teaching Pedagogy:

T1	Classroom teaching (white board), Power Point Presentations, Interactive lectures, Inquiry-based teaching
T2	ABL activities, Assignments, Flip Class/ Seminars, Quizzes, Oral Viva-voce examination


Chairperson


Chairperson


Controller of Examination


Registrar

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC102	Core	Human Physiology	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Experiential Learning: Project Based Learning (PBL) and Case Studies

Modules	Name	Experiment/ABL/PBL	Bloom Taxonomy
Module 1	Study of endocrine disorders and hormone imbalance	Case Study	Analyze
Module 2	Preparation of chart/model of neuron and nervous pathways	ABL	Apply
Module 3	Case study on kidney disorders and urine abnormalities	Case Study	Analyze
Module 4	Study of reproductive health and menstrual cycle patterns	Case study	Apply
Module 5	Project on immune disorders and cancer mechanisms	PBL	Apply, Analyze

Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC102	Core	Human Physiology	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

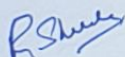
Legends: L - Lecture; T - Tutorial; Pr - Practical; Cr - Credit

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

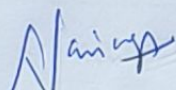
• Assessment Tools

AT1-1	Quiz
AT1-2	Activity Based Learning
AT1-3	Midterm Exams
AT1-4	Poster presentation
AT1-5	Assignments
AT1-6	Poster
AT1-7	Oral Viva-voce examination

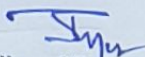
- **Prerequisites:** Basic knowledge of biology, cell structure, anatomy, and elementary concepts of physiology and health sciences


Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC102	Core	Human Physiology	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
 *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Module-wise Syllabus Structure:

S. No.	Descriptors / Topics	Hours	Assessment Tools
Module - 1	Basic Physiological Principles • Cell structure and function • Body fluid compartments • Transport mechanisms across cell membrane • Homeostasis and feedback control systems • Physiological regulation and adaptation mechanisms	08	AT1-1, AT1-2, AT1-3
Module - 2	Nervous System • General organization of nervous system • Sensory and motor nerves • Major levels of nervous system function • Central nervous system and autonomic nervous system • Transmission of nerve impulses • Synapse and neurotransmitters	08	AT1-1, AT1-2, AT1-3, AT1-4
Module - 3	Blood and Circulatory System • Composition and functions of blood • Functions of blood constituents • Hemostasis and blood coagulation • Blood transfusion and tissue transplantation • Structure and functions of heart • Cardiac cycle and electrocardiogram (ECG) • Blood pressure and its regulation	08	AT1-1, AT1-2, AT1-3
Module - 4	Digestive and Endocrine Systems • Structure and functions of gastrointestinal tract • Structure and functions of liver, gallbladder and pancreas • Digestion and absorption of nutrients • Structure and functions of pituitary gland • Structure and functions of thyroid, parathyroid and adrenal glands • Endocrine functions of pancreas and regulation of blood glucose	08	AT1-1, AT1-2, AT1-3, AT1-4

Chairperson

Chairperson

Controller of Examination

Registrar

Board of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Faculty of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC102	Core	Human Physiology	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

S. No.	Descriptors / Topics	Hours	Assessment Tools
Module - 5	Excretory System, Immunology and Cancer Biology • Structure and functions of skin • Regulation of body temperature • Structure and functions of kidney with special reference to nephron • Physiology of urine formation • General principles of immunology • Types and structure of immunoglobulins (Ig) • Structure and functions of T-cells and B-cells • Cancer: Basic principles, DNA duplication, replication and genetic mode of transmission	08	AT1-1, AT1-2, AT1-3, AT1-4

Additional Resources:

A. Value Addition to Course Content / Skill Enhancement Content:

- **Endocrine Health and Hormonal Regulation:** Endocrine
- **Immunology and Disease Resistance:** National Institute of Allergy and Infectious Diseases (NIAID) – Immunology Resource
- **Reproductive Health and Wellness Education:** World Health Organization – Reproductive Health
- **Artificial Intelligence (AI) in Human Physiology and Healthcare:** National Institutes of Health – Artificial Intelligence in Healthcare.
- **Human Physiology and Lifestyle Management:** World Health Organization – Healthy Living Resources.

Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC102	Core	Human Physiology	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

- **Indian Knowledge Systems (IKS) and Human Health:** Indian Knowledge Systems Division
- **Dietary Guidelines and Nutrition-Physiology Relationship:** ICMR-National Institute of Nutrition Dietary Guidelines for Indians

SWAYAM Course:

https://onlinecourses.nptel.ac.in/noc26_bt43/preview https://onlinecourses.swayam2.ac.in/e-learning/preview/cec20_bt19 https://onlinecourses.nptel.ac.in/noc25_bt50/preview

B. Remedial classes for slow learners:

- Special classes will be arranged outside regular lecture hours with a focus on fundamental concepts and problem-solving techniques.
- Individual attention will be provided to address specific difficulties faced by students.
- Bridge courses or foundation modules may be introduced for students lacking prerequisite knowledge.
- Peer learning and mentoring will be encouraged, where advanced learners assist slow learners under faculty supervision.
- Remedial sessions will be customized based on student needs, focusing on topic-wise weaknesses rather than a general approach.

RS Kumar

Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Narayan

Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Syama

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

DP

Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Sc. Food and Nutrition

Semester I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNC102	Core	Human Physiology	Max	60	20	20	0	0	3	0	0	3
			Min	24	16		0	0				

Legends: L - Lecture; T - Tutorial; E - Experiment; C - Clinical; P - Practical

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Suggested readings:

Text Books

- G.K. Pal (2021). *Textbook of Medical Physiology, 4th edition*. Elsevier.
- Gyton A.C., Hall, J.E. (2020). *Textbook of medical physiology*, Bangalore: Prism Books(Pvt) ltd.

Reference Books

- Pears, E.C. (2017) *Anatomy and Physiology for nurses*, Delhi: Oxford University.
- Chaterzee (2018). *Human Physiology*, Calcutta: Medical agency.

Course Articulation Matrix (Mapping of COs with POs)

Course Outcomes	Correlation with POs									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	—	2	3	1	1	—	—	1	—
CO2	1	—	2	3	—	—	—	—	1	—
CO3	2	—	2	3	1	2	—	—	1	1
CO4	3	2	2	3	2	2	—	—	1	—
CO5:	2	—	2	2	—	—	—	3	—	1

Chairperson

Board of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Chairperson

Faculty of Studies, Shri Vaishnav
Vidyapeeth Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Registrar

Shri Vaishnav
Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Science

Choice Based Credit System (CBCS) in the light of NEP-2020

M.Sc. Food and Nutrition

SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNL105	Lab	Nutrition Lab- I	Max	0	0	0	30	20		0	8	4
			Min	0	0		14	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives: The student will have ability to:

To develop integrated practical competencies in food science, human physiology, dietary assessment, meal planning, food safety, and clinical measurements through hands-on, evidence-based, and technology-enabled learning, including the application of digital tools and AI for nutrition and food-related practice.

Course Alignment With UNSDG:

The course aligns primarily with **UNSDG 2 (Zero Hunger)**, **SDG 3 (Good Health and Well-being)**, **SDG 4 (Quality Education)**, and **SDG 12 (Responsible Consumption and Production)**.

Course Outcome:

After successful completion of the course, students will be able to integrate and apply practical knowledge of food science, human physiology, nutrition, dietary assessment, food safety, and meal planning, using standard techniques and digital/AI-enabled tools to assess food and nutritional quality and develop balanced and therapeutic diets.

TEACHING PEDAGOGY:

- T1** Classroom teaching (white board), Power Point Presentations, Interactive lectures, Inquiry-based teaching
- T2** ABL activities, Assignments, Flip Class/ Seminars, Quizzes, Oral Viva-voce examination

Chairperson

Board of Studies,
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson

Faculty of Studies,
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Registrar

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Science

Choice Based Credit System (CBCS) in the light of NEP-2020

M.Sc. Food and Nutrition

SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNL105	Lab	Nutrition Lab- I	Max	0	0	0	30	20		0	8	4
			Min	0	0		14	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Assessment Tool

Code	Assessment Tool
ATL1	Quiz
ATL2	Activity-Based Learning / Practical Performance
ATL3	Mid-Term Examination
ATL4	Viva-Voce Examination
ATL5	Assignment / Practical Record
ATL6	Product Development and Sensory Evaluation
ATL7	Nutrition Education / Community Activity

Prerequisites:

Basic knowledge of **Human Nutrition, Food Science, Community Nutrition, Diet Planning, and Food Processing.**

Chairperson

Board of Studies,
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson

Faculty of Studies,
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Registrar

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Science

Choice Based Credit System (CBCS) in the light of NEP-2020

M.Sc. Food and Nutrition

SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNL105	Lab	Nutrition Lab- I	Max	0	0	0	30	20		0	8	4
			Min	0	0		14	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

S. No.	List of Practicals	Course Outcomes
1	Sensory Evaluation of Food Products using Hedonic Rating, Difference and Preference Tests	CO1, CO2
2	Study of Various Cooking Methods and their Effects on Food Quality	CO1, CO2
3	Identification and Evaluation of Food Additives, Preservatives and Sweeteners in Commercial Food Products	CO3, CO4
4	Detection of Common Food Adulterants in Milk, Ghee, Spices, Cereals and Edible Oils	CO4, CO5
5	Food Label Analysis and Evaluation of Additives, Preservatives and Nutritional Claims	CO3, CO5
6	Determination of Blood Group and Rh Factor	CO2, CO3
7	Estimation of Hemoglobin using Sahli's/Digital Hemoglobinometer Method	CO2, CO3
8	Measurement and Interpretation of Pulse Rate, Blood Pressure and Heart Rate under Different Physiological Conditions	CO2, CO3, CO4
9	Calculation of Recommended Dietary Allowances (RDA) using ICMR-NIN Guidelines for Different Age Groups and Physiological Conditions	CO1, CO2
10	Planning and Preparation of Balanced Meals using the Food Exchange System	CO1, CO2

Chairperson

Board of Studies,
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson

Faculty of Studies,
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Registrar

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Science

Choice Based Credit System (CBCS) in the light of NEP-2020

M.Sc. Food and Nutrition

SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNL105	Lab	Nutrition Lab- I	Max	0	0	0	30	20		0	8	4
			Min	0	0		14	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

11	Planning and Preparation of Meal Plans for Different Age Groups and Physiological Conditions	CO1, CO2
12	Planning and Preparation of Therapeutic Meal Plans using Food Exchange Lists	CO2, CO3
13	AI-Assisted Menu Planning and Nutrient Analysis using Nutrition Software and Digital Applications	CO2, CO5

Additional Resources

A. Value addition to course content/ Skill enhancement content:

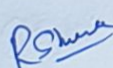
- <https://www.nin.res.in/dietaryguidelinesforindians.html?>
- <https://www.fao.org/nutrition/en/>

SWAYAM Course:

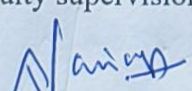
- https://onlinecourses.swayam2.ac.in/e-learning/preview/cec26_hs91
- https://onlinecourses.swayam2.ac.in/e-learning/preview/cec20_ag07

B. Remedial classes for slow learners:

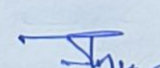
- Special classes will be arranged outside regular lecture hours with a focus on fundamental concepts and problem-solving techniques.
- Individual attention will be provided to address specific difficulties faced by students.
- Bridge courses or foundation modules may be introduced for students lacking prerequisite knowledge.
- Peer learning and mentoring will be encouraged, where advanced learners assist slow learners under faculty supervision.


Chairperson

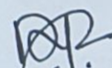
Board of Studies,
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Chairperson

Faculty of Studies,
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Science

Choice Based Credit System (CBCS) in the light of NEP-2020

M.Sc. Food and Nutrition

SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNL105	Lab	Nutrition Lab- I	Max	0	0	0	30	20		0	8	4
			Min	0	0	14	9					

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

- Remedial sessions will be customized based on student needs, focusing on topic-wise weaknesses rather than a general approach.

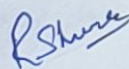
Suggested Readings

Textbooks

- Joshi, S. A. (2022). *Nutrition and Dietetics with Indian Case Studies*. McGraw Hill, 5th Edition.
- Srilakshmi, B. (2017). *Nutrition Science*. New Age International Publishers.
- Bamji, M. S., Krishnaswamy, K., & Brahmam, G. N. V. (2013). *Textbook of Human Nutrition*. Oxford & IBH.
- Chadha, R., & Mathur, P. (Eds.). (2015). *Nutrition: A Lifecycle Approach*. Orient Blackswan.
- Srilakshmi, B. (2018). *Dietetics*. New Age International Publishers.

Reference Books

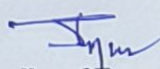
- Rekhi, T., & Yadav, H. (2014). *Fundamentals of Food and Nutrition*. Elite Publishing House.
- Potter, N. N., & Hotchkiss, J. H. (2012). *Food Science*. Springer.
- Swaminathan, M. (2005). *Handbook of Food and Nutrition*. Ganesh & Co.
- Gopalan, C., Rama Sastri, B. V., & Balasubramanian, S. C. *Nutritive Value of Indian Foods*. National Institute of Nutrition


Chairperson

Board of Studies,
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Chairperson

Faculty of Studies,
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore


Registrar

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Science

Choice Based Credit System (CBCS) in the light of NEP-2020

M.Sc. Food and Nutrition

SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MSFNL105	Lab	Nutrition Lab- I	Max	0	0	0	30	20		0	8	4
			Min	0	0		14	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

COURSE ARTICULATION MATRIX (MAPPING OF COs WITH POs)

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	3	1	3	1	2	1	3	3	1

Chairperson

Board of Studies,
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson

Faculty of Studies,
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Registrar

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore