APPLIED NUTRITION & DIETETICS

B.Sc. in Applied Nutrition & Dietetics

VISION

- To empower diverse learners to grow with curiosity, confidence, and compassion.

MISSION

- **Foster Scientific Thinking:**

Inspire students to develop a scientific and analytical mindset, encouraging them to apply their knowledge of food science, nutrition, and biochemistry to enhance everyday life and overall well-being.

- **Encourage Curiosity and Innovation:**

Harness students' natural curiosity, promoting inquisitiveness and creativity through engaging, research-driven, and application-based learning experiences.

- **Bridge Theory and Practice:**

Provide hands-on exposure and practical training that connects classroom learning with real-world challenges, enabling students to design and implement effective, science-based solutions.

- **Nurture Individual Growth:**

Support each student's intellectual, emotional, and professional development through personalized mentoring, fostering confidence, empathy, and lifelong learning.

- **Promote Holistic and Professional Excellence:**

Deliver a dynamic curriculum that builds both knowledge and skill, empowering students to achieve personal growth, contribute responsibly to society, and attain success in their professional journeys.

PROGRAMME EDUCATIONAL OBJECTIVES:

PEO1: Graduates will develop a strong foundation in nutrition science, dietetics, and food service management, enabling them to apply evidence-based knowledge and practical skills in clinical, community, and institutional settings.

PEO2: Graduates will demonstrate professional ethics, communication skills, and empathy while promoting sustainable nutrition practices and contributing to the health and well-being of individuals and communities from diverse socio-economic backgrounds.

PROGRAM SPECIFIC OUTCOME (PSOs)

PSO1: Apply the principles of food science, human nutrition, and dietetics to assess nutritional status and plan appropriate dietary interventions for individuals and communities.

PSO2: Analyze and interpret nutritional data using scientific reasoning, laboratory techniques, and research methodologies to promote evidence-based nutrition practices.

PSO3: Design and implement therapeutic diets and nutrition care plans for different physiological conditions and diseases, integrating current clinical and biochemical knowledge.

PROGRAMME OUTCOMES:

PO1: **Learning and Conceptual Understanding:** The students will have knowledge and holistic understanding of the core courses related to Nutrition and Dietetics. They will assimilate the wide spectrum of subjects encompassing Nutrition and acquire the capability of applying relevant information for problem solving.

PO2: **Develop Scientific and Critical Thinking:** Development of advanced knowledge, skills and holistic understanding of the discipline among students. Provide quality education to make the students technically competent to face the challenges and equip them for several opportunities such as— research laboratories, food industries, health sector and at the community level. The students will be guided and encouraged to apply the various principles of Food Science and Nutrition for alleviating nutrition-related problems. It will nurture the skills of the students and enhance their career prospects.

PO3: Promotion of Multi-disciplinary Research: Encouragement of scientific mode of thinking and scientific method of enquiry in students. Analyse the concerned problem in allied fields with the help of computational/analytical/statistical techniques

PO4: Health management and community upliftment: The course equips students with the ability to manage a healthy society and country. This goes a long way in the progress of the entire nation and thus world. Students can work at both national and international level after completion of higher studies in this course. This goal is achieved through the on-job training conducted by the Department in Hospitals and Community and the writing of a report on it.

PO5: Entrepreneurship and Skill development: The course gives an opportunity to the students to become self-dependant and encourage them to develop independent enterprise in

relevant sectors such as food, health, well-being, and fitness. Construct, select, and apply appropriate techniques, resources, and modern scientific and IT tools for the purpose.

PO6: Promote Nutrition Education/Communication: Students will be able to demonstrate a variety of communication strategies in nutrition and food education emphasizing information technology. Explain and use sociological concepts and theories and compile, interpret and analyse data of social systems.

PO7: Resource Management: The students will be able to exhibit efficient resource use potentials, blend relevant instructions with real time applications in career, and enjoy a competitive edge in career options.

PO8: Life Long Learning: The students will develop the ability to reason out, learn and improve oneself in the changing dynamic scenario by strengthening the strength and weakening of weakness for sustainable developmental needs, technological changes, career requirements and new avenues.

Credit Definition

Type	Duration (in hours)	Credit
Lecture (L)	1	1
Tutorial (T)	1	1
Practical (P)	2	1

Total Credit Distribution for the Entire Programme

Semester	Credits										Credits/Semester
	MC	ME	Project	NM	NV	MDC	AEC	SEC	VAC	INT	
1	8	-	-	4	2	-	2	3	2	-	21
2	10	-	-		2	3	2	3	2	-	22
3	10	-	-	4	2	3	2	-	-	-	21
4	10	-	-	4	2	3	2	-	-	-	21
5	14	-	-		2	-	-	3	2	-	21
6	12	-	-	4	2	-	-	-	-	3	21
7	14	-	4	4		-	-	-	-	-	22
8	12	8	-	-	-	-	-	-	-	-	20
Credits/Course	**90**	**8**	**4**	**20**	**12**	**9**	**8**	**9**	**6**	**3**	**169**

Category Definition

Definition of Category/Type	Abbreviation
Major Compulsory	**MC**
Major Elective	**ME**
Non-Major Specific Subject Course	**NM**
Non-major Vocational Education and Training	**NV**
Multidisciplinary Courses	**MDC**
Ability Enhancement Courses	**AEC**
Skill Enhancement Courses	**SEC**
Value Added Courses	**VAC**
Internship	**INT**

FIRST YEAR

SEMESTER-I

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Basic Nutrition	NUTRU011T01	MC 1	3	3	0	0
2	Basic Nutrition Lab	NUTRU011P02		1	0	0	2
3	Food Science	NUTRU011T03	MC 2	3	3	0	0
4	Food Science Lab	NUTRU011P04		1	0	0	2
5	Chemistry: Stepping Stone	CHEMU021T04	NM 1	4	4	0	0
6	Vocational - EAA I (yoga/ Sports /NCC/NSS)	MVEAU022S01	NV 1	1	1	0	0
7	Soft Skill Development I	MVSSU022T01	NV 2	1	1	0	0
8	Communicative English I	AECEU041T01	AEC 1	2	2	0	0
9	Computer Application I	SECAU042T01	SEC 1	3	3	0	0
10	Environmental Science I	VAEVU043T01	VAC 1	2	2	0	0
Total Credits					21 Credits		

SEMESTER-II

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Nutritional Biochemistry	NUTRU 111T01	MC 3	3	3	0	0
2	Nutritional Biochemistry Lab	NUTRU 111T02		2	0	0	4
3	Human Physiology I	NUTRU 111T03	MC 4	3	3	0	0
4	Human Physiology I Lab	NUTRU 111P04		2	0	0	4
5	Vocational - EAA II (yoga/ Sports /NCC/NSS)	MVEAU 122S02	NV 3	1	1	0	0
6	Soft Skill Development II	MVSSU 122T02	NV 4	1	1	0	0
7	Selected by Candidate (Elective)		MDC 1	3	3	0	0
8	Communicative English II	AECEU141T02	AEC 2	2	2	0	0
9	Basic Management Skill	SEBMU 142T01	SEC 2	3	3	0	0
10	Environmental Science II	VAEVU 143T02	VAC 2	2	2	0	0
Total Credits				22 Credits			

SECOND YEAR

SEMESTER-III

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Human Physiology II	NUTRU211T01	MC 5	3	3	0	0
2	Human Physiology II Lab	NUTRU211P02		2	0	0	4
3	Basic Nutrition through Life Cycle	NUTRU211T03	MC 6	3	3	0	0
4	Basic Nutrition through Life Cycle Lab	NUTRU211P04		2	0	0	4
5	Microbiology/Psychology Minor	MIBIU221T05A/PSYCU221B05	NM 2	3/4	3/4	0	0
6	Microbiology Minor Lab	MIBIU221P06A		1	0	0	2
7	Vocational - Mentored Seminar I	MBMSU222S01	NV 5	1	1	0	0
8	Soft Skill Development III	SU222T03	NV 6	1	1	0	0
9	Selected by Candidate (Elective)		MDC 2	3	3	0	0
10	Logical Ability / Foreign Language I		AEC 3	2	2	0	0
Total Credits				21 Credits			

SEMESTER-IV

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Medical Nutrition Therapy I	NUTRU311T01	MC 7	3	3	0	0
2	Medical Nutrition Therapy I Lab	NUTRU311P02		2	0	0	4
3	Food Microbiology	NUTRU311T03	MC 8	3	3	0	0
4	Food Microbiology Lab	NUTRU311P04		2	0	0	4
5	Microbiology/Psychology Minor	MIBIU321B01/PSYCU321T01	NM 3	3/4	3	0	0
6	Microbiology/ Minor Lab	MIBIU321B01		1	0	0	2
7	Vocational - Mentored Seminar II	MVMSU322S02	NV 7	1	1	0	0
8	Soft Skill Development IV	MVSSU322T04	NV 8	1	1	0	0
9	Selected by Candidate (Elective)		MDC 3	3	3	0	0
10	Logical Ability / Foreign Language II		AEC 4	2	2	0	0
Total Credits				21 Credits			

THIRD YEAR

SEMESTER-V

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Basics of Molecular Biology	NUTRU 411T01	MC 9	3	3	0	0
2	Basics of Molecular Biology Lab	NUTRU 411P02		2	0	0	4
3	Medical Nutrition Therapy II	NUTRU 411T03	MC 10	3	3	0	0
4	Medical Nutrition Therapy II Lab	NUTRU 411P04		2	0	0	4
5	Public Health Nutrition	NUTRU 411T05	MC 11	3	3	0	0
6	Public Health Nutrition Lab	NUTRU 411P06		1	0	0	2
7	Vocational - Mentored Seminar III	MVMSU 422S03	NV 9	1	1	0	0
8	Soft Skill Development V	MVSSU 422T05	NV 10	1	1	0	0
9	Data Analysis	SEDAU4 42T02	SEC 3	3	3	0	0
10	Ethics study and IPR	VAESU4 43T01	VAC 3	2	2	0	0
Total Credits				22 Credits			

SEMESTER-VI

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Nutraceuticals, Functional Food and Nutrigenomics		MC 12	3	3	0	0
2	Nutraceuticals, Functional Food and Nutrigenomics Lab			1	0	0	2
3	Food Preservation, Safety and Quality Control		MC 13	3	3	0	0
4	Food Preservation, Safety and Quality Control Lab			1	0	0	2
5	Sports Physiology and Nutrition		MC 14	3	3	0	0
6	Sports Physiology and Nutrition Lab			1	0	0	2
7	Microbiology/Psychology Minor		NM 4	3	3	0	0
8	Microbiology/Psychology Minor Lab			1	0	0	2
9	Vocational - Mentored Seminar IV		NV 11	1	1	0	0
10	Vocational Skill Development VI		NV 12	1	1	0	0
11	Internship		INT 1	3	0	0	6
Total Credits				21 Credits			

FOURTH YEAR

SEMESTER-VII

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Geriatric Nutrition		MC 15	3	3	0	0
2	Geriatric Nutrition Lab			1	0	0	2
3	Pediatric Nutrition		MC 16	3	3	0	0
4	Pediatric Nutrition Lab			1	0	0	2
5	Advanced Nutritional Science		MC 17	4	4	0	0
6	Advanced Nutritional Science Lab			2	0	0	4
7	Microbiology/Psychology Minor		NM 5	3	3	0	0
8	Microbiology/Psychology Minor Lab			1	0	0	2
9	Project Minor/ Dissertation I		ME 1	4	0	0	8
10							
Total Credits				22 Credits			

SEMESTER-VIII

Sl No	**Course Title**	**Code**	**Type**	**Credit**	**Type**		
					L	**T**	**P**
1	Analytical Techniques		MC 18	4	4	0	0
2	Research Methodology and Biostatistics		MC 19	4	4	0	0
3	Theories of Human Development		MC 20	4	4	0	0
4	Dissertation II / (Medical Nutrition Therapy III, Food Processing Technology)		ME 2	8 / 4+4	0 / 4 + 4	0/ 0	16 / 0
Total Credits				20 Credits			

COURSE CO-PO-PSO MAPPING

SEMESTER-I

COURSE 1 (Basic Nutrition)

COURSE OUTCOMES:

CO1: Recall the structure, classification, and functional properties of the different nutrients present in food.

CO2: Utilize nutritional knowledge to assess nutritional status and diet planning with respect to age, sex, and other physiological conditions.

CO3: Integrate the scientific basis of nutrition-related guidelines and recommendations formulated with the objective of health-promotion.

CO4: Monitor the dietary requirements of nutrients across the different stages of human life.

CO5: Design effective nutrition interventions, programs, and policies at individual, community, and public health levels.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	2	2	2	2	2	3				2	1	1
CO2	3	2	3	3	2	2	2	3				3	1	3
CO3	3	2	1	1	-	1	-	2				3	2	2
CO4	3	2	-	2	1	1	1	2				3	1	2
CO5	2	3	2	3	2	3	2	3				3	2	1

COURSE 2 (Food Science)

COURSE OUTCOMES:

CO1: Recall and explain the classification, composition, and nutritional value of various food groups.
CO 2: Apply appropriate selection, preparation, and storage techniques for different categories of food
CO 3: Analyze the effects of various cooking methods on the nutritional quality and sensory properties of foods.
CO 4: Evaluate the processing and quality aspects of foods and beverages including milk, chocolate, and bakery items
CO 5: Create meal plans or food combinations using a variety of food groups with an emphasis on nutritional and cost-effectiveness.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	**3**	**1**	--	**2**	--	**3**	--	**2**				3	2	2
CO2	**3**	1	1	2	1	3	2	3				3	1	2
CO3	**2**	2	2	--	1	1	1	2				3	3	3
CO4	**2**	2	2	1	2	2	1	2				2	3	1
CO5	**1**	2	--	2	1	2	3	2				3	2	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

SEMESTER-II

COURSE 1 (Nutritional Biochemistry)

COURSE OUTCOMES:

CO1: Explain the principles of energy metabolism.
CO2: Illustrate the key biochemical pathways involved in the digestion, absorption, and transport of nutrients.
CO3: Differentiate between the metabolic roles and fates of nutrients in fed versus fasting states.
CO4: Integrate the biochemical function or deficiency of specific vitamins and minerals to associated clinical symptoms.
CO5: Integrate biochemical knowledge to design diet plans that meet specific metabolic and physiological needs.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	1	1	-	-	-	2				2	2	2
CO2	3	2	1	1	-	-	-	2				2	2	2
CO3	3	3	2	2	1	-	-	3				3	3	3
CO4	3	3	2	3	1	1	-	3				3	3	3
CO5	3	3	2	3	2	2	1	3				3	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 2 (Human Physiology I)

COURSE OUTCOMES:

CO1: Describe the structure and function of cells, tissues, and major organ systems in the human body.
CO2: Explain the physiological processes of the digestive, circulatory, cardiovascular, excretory, and respiratory systems, including their roles in maintaining homeostasis.
CO3: Illustrate the mechanisms of transport, digestion, blood circulation, gas exchange, and excretion with the help of diagrams and flowcharts.
CO4: Analyze the interrelationship between different organ systems and identify common physiological disorders related to each system.
CO5: Evaluate the significance of physiological mechanisms in health and disease and *propose* lifestyle or nutritional strategies to support proper system functioning.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	**2**	**2**	**1**	-	-	-	**2**	-				2	1	2
CO2	**2**	1	1	1	-	-	2	2				3	2	3
CO3	**2**	1	1	1	1	-	2	-				3	2	3
CO4	**2**	2	1	2	1	-	2	-				3	3	3
CO5	**3**	1	1	2	2	2	2	1				3	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

SEMESTER-III

COURSE 1 (Human Physiology II)

COURSE OUTCOMES:

CO1: To define the structure and function of the central and peripheral nervous systems, sensory organs, endocrine glands, and reproductive systems.
CO2: To illustrate the mechanisms involved in reflex actions, hormone-receptor interactions, and the menstrual cycle with real-life physiological examples.
CO3: To differentiate between the sympathetic and parasympathetic systems, types of vision defects, and hormone-related disorders based on their causes and symptoms.
CO4: To assess the impact of diseases and disorders such as Alzheimer's, schizophrenia, glaucoma, and osteoporosis on the normal functioning of human organ systems.
CO5: To create a comprehensive understanding of the functions and interrelationships of human physiological systems, enabling students to analyze, interpret, and apply physiological principles to real-world health and medical scenarios.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	**3**	**3**	**2**	**1**	**1**	**1**	**1**	**1**				2	1	2
CO2	**3**	3	1	1	1	-	-	-				2	2	3
CO3	**3**	3	2	-	1	-	-	1				2	2	3
CO4	**2**	2	2	-	2	1	1	1				2	3	3
CO5	**2**	2	-	1	-	2	2	1				3	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 2 (Basic Nutrition through life cycle)

COURSE OUTCOMES:

CO1: Explain the basic principles of nutrition and nutritional needs across different stages of life**.**
CO2: Execute the knowledge of RDA, food composition tables, and food exchange lists to plan balanced diets and menus for individuals across various age groups and physiological states.
CO3: Distinguish the changes in nutritional requirements and appropriate dietary modifications needed to manage nutrition-related problems throughout the human life cycle.
CO4: Detect the nutritive value and adequacy of common Indian recipes and meal plans using standard dietary guidelines and nutritional tools.
CO5: Design culturally appropriate and nutritionally adequate meal plans and dietary strategies for individuals at various life stages, considering physiological, social, and economic factors.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	2	-	-	-	-	-				3	2	2
CO2	3	3	-	2	-	2	-	-				3	3	2
CO3	-	3	-	3	-	3	-	-				3	2	3
CO4	1	-	3	3	2	3	3	3				3	3	3
CO5	-	2	-	-	3	2	2	3				3	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

SEMESTER-IV

COURSE 1 (Medical Nutrition Therapy-1)

COURSE OUTCOMES:

CO1: Explain the fundamental concepts, principles, and therapeutic adaptations of normal diets in Medical Nutrition Therapy.
CO2: Apply knowledge of diet prescription and feeding methods to formulate appropriate hospital diets for patients with varied nutritional needs.
CO3: Analyze the causes, complications, and dietary management strategies for obesity, underweight, and infection-related conditions.
CO4: Evaluate suitable dietary interventions for allergic conditions and deficiency diseases based on patient assessment and diagnostic data.
CO5: Design comprehensive dietary plans integrating principles of Medical Nutrition Therapy for clinical and community settings.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	1	1	-	-	-	2				3	2	2
CO2	2	3	2	2	1	-	-	1				3	2	2
CO3	2	3	3	2	-	-	-	1				2	3	3
CO4	2	3	3	3	-	1	-	2				2	3	3
CO5	2	2	2	2	3	3	2	3				3	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 2 (Food Microbiology)

COURSE OUTCOMES:

CO1: Explain microbial growth, nutrition, and reproduction, and describe the roles of microorganisms in health, food, and the environment.
CO2: Demonstrate aseptic techniques and perform basic microbiological procedures such as culture, staining, and microscopy.
CO3: Correlate the role of microorganisms in food spoilage, fermentation, and preservation.
CO4: Determine the importance of beneficial and pathogenic microorganisms in relation to human health and nutrition.
CO5: Integrate knowledge of microbiology to design strategies for maintaining food safety and hygiene.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	1	2	1	1	-	2				2	1	1
CO2	2	3	2	1	3	-	3	2				1	3	1
CO3	3	2	1	2	2	1	1	1				3	1	1
CO4	3	3	1	3	1	2	-	2				3	2	2
CO5	3	3	2	3	2	2	2	3				3	2	2

1. LOW 2. MODERATE 3. SUBSTANTIAL

SEMESTER-V

COURSE 1 (Medical Nutritional Therapy II)

COURSE OUTCOMES:

CO1: Recall disease-specific terminology, causes, symptoms, and diagnostic tools.
CO2: ·Explain the pathophysiology of various organ-specific diseases and the rationale behind nutritional interventions.
CO3: ·Utilize knowledge of clinical nutrition to design dietary plans based on disease conditions and patient needs.
CO4: · Interpret diagnostic test results and nutritional requirements to modify and adapt diet plans accordingly.

CO5: ·Assess the effectiveness of dietary interventions in managing disease outcomes and recommend improvements.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	-	1	-	2	-	-				3	2	1
CO2	-	3	-	3	-	3	-	1				3	2	2
CO3	-	3	-	2	3	-	3	-				3	3	2
CO4	3	3	3	-	2	-	-	2				2	3	2
CO5	-	-	3	-	-	-	3	3				2	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 2 (Public Health Nutrition)

COURSE OUTCOMES:

CO1: Recall disease classifications, causes, symptoms, and standard diagnostic tests.
CO2: Explain the pathophysiological basis and the role of diet in disease prevention and management.
CO3: Implement and recommend appropriate dietary plans tailored to specific disease conditions.
CO4: Differentiate between various disease conditions using symptoms and test results to guide diet.
CO5: Assess the effectiveness of dietary interventions and make modifications based on patient needs.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	-	1	-	-	-	-				3	2	2
CO2	3	3	-	3	-	3	2	-				3	3	3
CO3	1	3	3	-	3	-	-	-				2	2	1

CO4	-	-	-	3	-	2	1	2				2	3	3
CO5	-	-	2	-	2	1	2	3				3	2	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 3 (Basics of Molecular Biology)

COURSE OUTCOMES:

CO1: Define the fundamental concepts of molecular biology.
CO2: Illustrate the processes of DNA replication, transcription, and translation by demonstrating their steps and regulatory mechanisms in prokaryotic and eukaryotic systems.
CO3: Differentiate between various gene expression mechanisms and the role of regulatory elements involved in transcriptional and post-transcriptional control.
CO4: **E**valuate the significance of different enzymes and activators and inhibitors in transcriptional processes followed by its modification in prokaryotes.
CO5: Formulate a molecular overview of the translation process and a conceptual model illustrating post-translational modifications and their biological relevance.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	1	2	1	2	1	2				1	1	1
CO2	3	3	2	2	2	2	2	2				2	2	2
CO3	3	3	3	2	2	2	2	2				2	3	3
CO4	2	3	3	2	3	3	3	3				2	3	3
CO5	2	3	3	3	3	3	3	3				2	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

SEMESTER-VI

COURSE 1 (Food Preservation, Safety and Quality Control)

COURSE OUTCOMES:

CO1: Describe the principles and applications of food additives, preservation techniques, and quality control measures.
CO2: Identify factors affecting food safety and adulteration and the standards ensuring hygienic food production.
CO3: Explore preservation and safety methods to maintain the nutritional and microbial quality of foods.
CO4: Evaluate the food quality parameters and its compliance with national and international food regulations.
CO5: Develop effective strategies for ensuring food preservation, safety, and quality improvement in food industries.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	1	-	-	-	1	1				3	2	2
CO2	3	2	1	2	-	1	1	1				3	2	2
CO3	3	3	2	2	2	-	1	1				3	3	2
CO4	3	3	2	1	2	-	1	2				3	3	3
CO5	2	3	3	2	3	1	2	3				3	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 2: (Nutraceuticals,Functional Foods and Nutrigenomics)

COURSE OUTCOMES:

CO1: Describe the concepts, classification, and scope of nutraceuticals and functional foods in promoting human health.
CO2: Explain the role of bioactive compounds, antioxidants, and functional ingredients in preventing and managing diseases.
CO3: Analyze the therapeutic applications of nutraceuticals and their physiological effects in various health conditions.
CO4: Evaluate the impact of nutrigenomics and gene–diet interactions on disease prevention and personalized nutrition.

CO5: Design evidence-based and innovative strategies for developing functional and designer foods for future health needs.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	2	2	2	3	1	2				3	2	2
CO2	3	3	2	3	2	2	1	2				3	3	2
CO3	3	3	3	3	2	2	2	2				3	3	3
CO4	3	3	3	2	3	2	2	3				3	3	3
CO5	3	3	3	3	3	3	2	3				3	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 3: (Sports Physiology and Nutrition)

COURSE OUTCOMES:

CO1: *Define* and *explain* the fundamental concepts of work physiology, including types of work, work cycles, and physiological responses to workload.
CO2: *Describe* and *analyze* physiological responses of the cardiovascular, respiratory, and muscular systems during static and dynamic exercise.
CO3: *Apply* principles of bioenergetics to *assess* energy expenditure, aerobic and anaerobic capacity, and factors influencing athletic performance.
CO4:*Evaluate* training principles and methods for improving physical fitness and *assess* the physiological effects of overtraining and de-training.
CO5: *Integrate* knowledge of nutrition and exercise physiology to *design* dietary and hydration strategies for optimal sports performance.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PSO1**	**PSO2**	**PSO3**
CO1	**2**	**1**	**1**	**2**	**-**	**1**	**2**	**-**				1	1	-
CO2	**2**	2	1	2	-	-	2	-				1	2	1
CO3	**2**	1	1	1	1	1	2	-				3	3	1
CO4	**2**	2	2	2	-	2	3	3				1	1	-
CO5	**3**	2	2	2	2	2	3	3				3	2	2

1. LOW 2. MODERATE 3. SUBSTANTIAL

SEMESTER-VII

COs not finalised yet for this semester.

COURSE 1 (Geriatric Nutrition)

COURSE OUTCOMES:

CO1:
CO2:
CO3:
CO4:
CO5:

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1														
CO2														
CO3														
CO4														
CO5														

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 2 (Pediatric Nutrition)

COURSE OUTCOMES:

CO1:
CO2:
CO3:
CO4:
CO5:

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3

CO1														
CO2														
CO3														
CO4														
CO5														

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 3 (Advanced Nutritional Science)

COURSE OUTCOMES:

CO1:
CO2:
CO3:
CO4:
CO5:

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1														
CO2														
CO3														
CO4														
CO5														

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 4 (Project / Dissertation I)

COURSE OUTCOMES:

CO1:
CO2:
CO3:
CO4:
CO5:

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1														
CO2														
CO3														
CO4														
CO5														

1. LOW 2. MODERATE 3. SUBSTANTIAL

SEMESTER-VIII

COs not finalised yet for this semester.

COURSE 1 (Analytical Techniques)

COURSE OUTCOMES:

CO1:
CO2:
CO3:
CO4:
CO5:

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1														
CO2														
CO3														
CO4														
CO5														

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 2 (Research Methodology and Biostatistics)

COURSE OUTCOMES:

CO1: Explain the fundamental concepts of statistics, including data representation, measures of central tendency, and dispersion, to describe and summarize nutritional or research data.

CO2: Apply appropriate statistical tools such as correlation, regression, sampling techniques, and probability models to analyze and interpret real-life datasets in the context of research studies.

CO3: Analyze population parameters and sample data using tests of significance, estimation techniques, and analysis of variance to draw valid statistical inferences.

CO4: Evaluate the appropriateness of different research designs, statistical tests, and non-parametric methods for solving nutritional and behavioral science research problems.

CO5: Design and incorporate a research study by developing hypotheses, selecting sampling methods, applying suitable statistical analyses, and preparing a structured report adhering to research ethics.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	2	1	1	2	2	2				3	2	2
CO2	3	3	3	2	2	2	2	2				3	3	3
CO3	2	3	3	2	2	2	1	2				2	3	3
CO4	2	3	3	2	2	3	2	2				2	3	3
CO5	2	3	3	3	3	3	3	3				3	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 3 (Theories of Human Development)

COURSE OUTCOMES:

CO1:
CO2:
CO3:
CO4:
CO5:

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1														
CO2														
CO3														
CO4														
CO5														

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 4 (Dissertation II)

COURSE OUTCOMES:

CO1:
CO2:
CO3:
CO4:
CO5:

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1														
CO2														
CO3														
CO4														
CO5														

1. LOW 2. MODERATE 3. SUBSTANTIAL

OR

COURSE 5 (Medical Nutrition Therapy III)

COURSE OUTCOMES:

CO1: Identify key concepts, terminology, and clinical guidelines related to advanced

medical nutrition therapy.

CO2: Explain the principles underlying physiological changes, nutrient-drug interactions,and specialised feeding techniques in clinical nutrition.

CO3: Implement evidence-based clinical protocols and analyse patient data to develop appropriate, individualised nutrition care strategies.

CO4: Check the effectiveness of various medical nutrition approaches, including feeding methods and dietary modifications.

CO5: Create individualized nutrition care plans integrating clinical judgment, patient needs, and current best practices.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	3	1	-	-	-	-	2				3	2	2
CO2	3	3	3	1	-	-	-	2				3	3	2
CO3	2	3	3	3	2	3	1	3				3	3	3
CO4	-	-	-	3	2	3	2	-				3	3	3
CO5	-	-	3	3	3	-	3	3				3	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 6 (Food Processing Technology)

COURSE OUTCOMES:

CO1:
CO2:
CO3:
CO4:
CO5:

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES											PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1														
CO2														
CO3														
CO4														

CO5														

1. LOW 2. MODERATE 3. SUBSTANTIAL

Bloom's Taxonomy Verbs:

Remember (BT1)	**Understand (BT2)**	**Apply (BT3)**	**Analyze (BT4)**	**Evaluate (BT5)**	**Create (BT6)**
Cite	Add	Acquire	Analyze	Appraise	Abstract
Define	Approximate	Adapt	Audit	Assess	Animate
Describe	Articulate	Allocate	Blueprint	Compare	Arrange
Draw	Associate	Alphabetize	Breadboard	Conclude	Assemble
Enumerate	Characterize	Apply	Break down	Contrast	Budget
Identify	Clarify	Ascertain	Characterize	Counsel	Categorize
Index	Classify	Assign	Classify	Criticize	Code
Indicate	Compare	Attain	Compare	Critique	Combine
Label	Compute	Avoid	Confirm	Defend	Compile
List	Contrast	Back up	Contrast	Determine	Compose
Match	Convert	Calculate	Correlate	Discriminate	Construct
Meet	Defend	Capture	Detect	Estimate	Cope
Name	Describe	Change	Diagnose	Evaluate	Correspond
Outline	Detail	Classify	Diagram	Explain	Create
Point	Differentiate	Complete	Differentiate	Grade	Cultivate
Quote	Discuss	Compute	Discriminate	Hire	Debug
Read	Distinguish	Construct	Dissect	Interpret	Depict
Recall	Elaborate	Customize	Distinguish	Judge	Design
Recite	Estimate	Demonstrate	Document	Justify	Develop
Recognize	Example	Depreciate	Ensure	Measure	Devise
Record	Explain	Derive	Examine	Predict	Dictate
Repeat	Express	Determine	Explain	Prescribe	Enhance
Reproduce	Extend	Diminish	Explore	Rank	Explain
Review	Extrapolate	Discover	Figure out	Rate	Facilitate
Select	Factor	Draw	File	Recommend	Format
State	Generalize	Employ	Group	Release	Formulate
Study	Give	Examine	Identify	Select	Generalize
Tabulate	Infer	Exercise	Illustrate	Summarize	Generate
Trace	Interact	Explore	Infer	Support	Handle
Write	Interpolate	Expose	Interrupt	Test	Import
	Interpret	Express	Inventory	Validate	Improve
	Observe	Factor	Investigate	Verify	Incorporate
	Paraphrase	Figure	Layout		Integrate
	Picture graphically	Graph	Manage		Interface
	Predict	Handle	Maximize		Join
	Review	Illustrate	Minimize		Lecture
	Rewrite	Interconvert	Optimize		Model
	Subtract	Investigate	Order		Modify
	Summarize	Manipulate	Outline		Network
	Translate	Modify	Point out		Organize
	Visualize	Operate	Prioritize		Outline
		Personalize	Proofread		Overhaul

		Plot	Query		Plan
		Practice	Relate		Portray
		Predict	Select		Prepare
		Prepare	Separate		Prescribe
		Price	Subdivide		Produce
		Process	Train		Program
		Produce	Transform		Rearrange
		Project			Reconstruct
		Provide			Relate
		Relate			Reorganize
		Round off			Revise
		Sequence			Rewrite
		Show			Specify
		Simulate			Summarize
		Sketch			
		Solve			
		Subscribe			
		Tabulate			
		Transcribe			
		Translate			
		Use			