Institute for Excellence in Higher Education (IEHE), Bhopal (MP)

NAAC Re-accredited (Fourth Cycle) Autonomous College
Under the UGC Scheme with 'A+' Grade (CGPA-3.45)

Program Outcomes (POs), Program Specific Outcome (PSOs) & Course Outcomes (COs) of Department of Food Science & Quality Control

Clinical Nutrition & Dietetics as Major/Minor/Generic Elective Course

(Session: 2023-24)

Program Outcomes (PO) of the Under-Graduate Courses Offered

PO1: **Domain Knowledge:** Capable of demonstrating comprehensive knowledge &understanding of one or more other disciplines that form a part of an undergraduate programme of study.

PO2: **Critical Thinking:** Critically evaluate practices, policies and theories by following scientific approach to knowledge development. Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO3: **Problem-solving and Analytical Skills:** Ability to think rationally, analyse situations and solve problems adequately.

PO4: **Information and Digital Literacy:** Capability to use ICT in a variety of learning situations. Demonstrate ability to access, evaluate and use a variety of relevant information sources; and use appropriate software for analysis of data.

PO5: **Communication Skills:** The capacity to communicate effectively using appropriate media, to present complex information in a clear & concise manner. Acquire the learning abilities by focusing on LSRW (Listening, Speaking, Reading & Writing skill, which provide a stage to the students to sharpen their capacity to learn more.

PO6: **Social Interaction and sensitivity towards the societal issues:** Work effectively and respectfully with diverse teams; facilitate cooperative or coordinated effort on the part of a group and act together as a group or a team in the interests of a common cause. Elicit views of others, mediate disagreements and help reach conclusions in group settings.

PO7: **Self-directed & Life-long Learning**: Acquire the potential to engage in independent & life-long learning in the broadest context socio-technological changes. Critical sensibility to live experiences, with self-awareness and reflexivity of both and society.

PO8: **Environment and Sustainability**: Understand the issues of environmental contexts & sustainable development.

PO9: **Moral and Ethical Awareness:** Ability to embrace moral/ ethical values in conducting one's life, possess knowledge of the values and beliefs of multiple cultures and a global perspective; and capability to effectively engage in a multicultural society and interact respectfully with diverse groups.

PO10: **Effective Citizenship:** Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

PO11: **Research-related skills:** A sense of inquiry and capability for asking relevant/appropriate questions, problematizing, synthesizing and articulating; Ability to recognize cause and effective relationships, define problems, formulate hypotheses, interpret and draw conclusions from data, ability to plan, execute and report the results of an experiment or investigation. Efficiency to apply one's learning to real life situations or in interdisciplinary areas.

PO12: **Leadership and Management Skills:** Competence to use skills in organizing for people to reach a shared goal. During leading a project, ability to motivate others to complete a series of tasks, often according to a schedule.

PO13: **Employability and Entrepreneurial Skill:** Ability to develop employability skills such as, positive attitude, good business sense, willingness to learn, resilience, ability to work under pressure, optimism, adaptability, perseverance and motivation, and a host of similar skills.

PROGRAMME OUTCOMES (PO): **B.Sc. Honours**

Predefined Programme Outcomes	*Students taking admission to this program of B.Sc. get equipped with following outcomes:*
PO1	**Domain Knowledge:** Acquiring knowledge of fundamentals, basic Mathematics, domain knowledge of proper scientific models and Computing Specialization from defined problems and explaining the basic scientific principles and methods.
PO2	**Scientific thinking:** Inculcating scientific thinking and awareness, getting an ability to use necessary current techniques, skills, and modern tools.
PO3	**Problem Analysis:** Identifying, formulating, &analysing complex problems, reaching substantiated conclusions using first principles of Mathematics, natural sciences and electronic sciences.
PO4	**Communication:** Communicate concepts, designs, and solutions of scientific activities effectively and professionally with society at large.
PO5	**Information & Digital Literacy:** Capability to use ICT in a variety of learning situations. Demonstrate ability to access, evaluate and use a variety of relevant information sources; and use appropriate software for analysis of data.
PO6	**Ethical Awareness:** Ability to embrace moral/ ethical values in conducting one's life, possess knowledge of the values and beliefs of multiple cultures and a global perspective; and capability to support the values required for collaborative work such as mutual trust & fairness.
PO7	**Environment &Sustainability:** Understanding the impact of scientific solutions on societal and environmental contexts and demonstrate knowledge of and need for sustainable development.
PO8	**Self-directed and Life-long Learning**: Acquire the ability to engage in independent and life- long learning in the broadest context socio-technological changes. Critical sensibility to live experiences, with self-awareness and reflexivity of both and society.
PO9	**Research-related skills:** • Acquiring familiarity with emerging areas of different subjects in science and their applications in various spheres of sciences and getting appraise of its relevance in future studies. • Getting ability to apply various statistical tools to research problems and ability to build statistical knowledge and knowing the statistical organization in India and abroad. • Developing scientific intuition, ability and techniques to tackle problems either theoretical or experimental in nature.
PO10	**Employability Skill:** Ability to develop employability skills such as, positive attitude, good business sense, willingness to learn, resilience, ability to work under pressure, optimism, adaptability, perseverance and motivation, and a host of similar skills.

Programme Specific Outcomes (PSO):**Clinical Nutrition & Dietetics**
(As Major/Minor/Generic Elective/ Course)

Programme Specific Outcomes	***The students taking up this program of** Clinical Nutrition &Dietetics(BSc) **with** Chemistry (Major/Minor/Generic Elective)**as a special subject of study, receive the following outcomes:***
PSO-1	**Domain Knowledge:** Acquiring knowledge of fundamentals of Food & Nutrition domain, knowledge of proper scientific methods, problems and explaining the basic scientific principles and procedure regarding Food-products.
PSO-2	**Scientific thinking:** Inculcating scientific thinking and awareness, getting an ability to use necessary current techniques, skills, and modern tools in food sector.
PSO-3	**Communication:** Communicate concepts, designs, and solutions of scientific activities effectively and professionally with society at large scale.
PSO-4	**Ethical Awareness:** Ability to embrace moral/ ethical values in conducting one's life, possess knowledge of the values and beliefs of multiple cultures and a global perspective; and capability to support the values required for collaborative work such as mutual trust & concern regarding health, fitness, food security and feeding programmes for vulnerable groups of society.
PSO-5	**Environment &Sustainability:** Understanding the impact of scientific solutions on social and environmental contexts and demonstrate knowledge of and need for sustainable development in various sector related to food industries. Impact of pollution, adulteration, pesticides, chemical fertilizers and non-permitted food additives on the health of people consuming processed food.
PSO-6	**Self-directed and Life-long Learning**: Acquire the ability to engage in independent and life- long learning in the broadest context socio-technological changes. Critical sensibility to live experiences, with self-awareness and reflexivity of both in society.
PSO-7	**Employability Skill:** Ability to develop employability skills such as, positive attitude, good business sense, willingness to learn, resilience, ability to work under pressure, optimism, adaptability, perseverance and motivation, and a host of similar skills in the field of food related industries, agriculture sector, packaging, adulteration testing, laboratories, hospitals, gym, sports nutrition, food plant sanitation, preservation etc.

Course Outcomes (CO)s

Semester: I

Introduction to Food (Paper Code: **MJS-189 (TH)** (Major)

Course Outcomes	***The students taking up this course of****(BSc)Clinical Nutrition & Dietetics* ***with*** *Introduction to Food(Major)****as a special subject of study receive the following outcomes:***
CO-1	**Identify** the relationship between food, nutrition & health.
CO-2	**Understand** the concept of balanced diets & meal planning
CO-3	**Analyse** different methods of cooking & ways to prevent nutrients losses.
CO-4	Plan & prepare meals &**evaluate** nutritious diet for various age groups.
CO-5	To **understand** various methods of cooking.

Semester: I

Introduction to Food (Paper Code: **MJS-189(PR)** (Major) (Practical)

Course Outcomes	***The students taking up this course of*** *(BSc)Clinical Nutrition & Dietetics* ***with*** *Introduction to Food(Major)****as a special subject of study receive the following outcomes:***
CO-1	**Understand** the relationship in recipes & nutrition.
CO-2	**Learn** advantages & disadvantages of cooking
CO-3	**Learn** different methods of cooking.
CO-4	**Learn** different ways to prevent losses.
CO-5	**Prepare** meals & nutritious dishes for various age groups.

Semester: I

Introduction to Food (Paper Code: **MNS-190 (TH)** (Minor)

Course Outcomes	***The students taking up this course of****(BSc)Clinical Nutrition & Dietetics* ***with*** *Introduction to Food(Major)****as a special subject of study receive the following outcomes:***
CO-1	**Identify** the relationship between food, nutrition & health.
CO-2	**Understand** the concept of balanced diets & meal planning
CO-3	**Analyse** different methods of cooking & ways to prevent nutrients losses.
CO-4	Plan & prepare meals &**evaluate** nutritious diet for various age groups.
CO-5	To **understand** various methods of cooking.

Semester: I

Introduction to Food (Paper Code: **MNS-190 (PR)** (Minor) (Practical)

Course Outcomes	***The students taking up this course of*** *(BSc)Clinical Nutrition & Dietetics* ***with*** *Introduction to Food(Major)****as a special subject of study receive the following outcomes:***
CO-1	**Understand** the relationship in recipes &nutrition.
CO-2	**Learn** advantages & disadvantages of cooking
CO-3	**Learn** different methods of cooking.
CO-4	**Learn** different ways to prevent losses.
CO-5	**Prepare** meals & nutritious dishes for various age groups.

Semester: I

Nutrition & Fitness (Paper Code: **GES-189 (TH)** (Generic Elective)

Course Outcomes	***The students taking up this course of*** *(BSc)Clinical Nutrition & Dietetics* ***with*** *Nutrition & Fitness(Generic Elective)****as a special subject of study receive the following outcomes:***
CO-1	Students will be able to **understand** the importance of fitness.
CO-2	**Role** of nutrition for maintaining health and fitness.
CO-3	**Create** importance of nutrition for sports person.
CO-4	**Calculate** diet for sports person, Height / Weight and BMI for sports person.
CO-5	**Evaluate** healthy food and energy expenditure in sports person for various sports.

Semester: I

Nutrition & Fitness (Paper Code: **GES-189 (PR)** (Generic Elective) (Practical)

Course Outcomes	***The students taking up this course of*** *(BSc)Clinical Nutrition & Dietetics* ***with*** *Nutrition & Fitness(Generic Elective)****as a special subject of study receive the following outcomes:***
CO-1	Students will be able to **understand** the importance of fitness.
CO-2	**Role** of nutrition for maintaining health and fitness.
CO-3	**Create** importance of nutrition for sports person.
CO-4	**Calculate** diet for sports person, Height / Weight and BMI for sports person.
CO-5	**Evaluate** healthy food and energy expenditure in sports person for various sports.

Semester: II

Basic Nutrition (Paper Code: **MJS-289 (TH)** (Major)

Course Outcomes	***The students taking up this course of*** *(BSc)Clinical Nutrition & Dietetics* ***with*** *Basic Nutrition(Major)****as a special subject of study receive the following outcomes:***
CO-1	**Apply** basic nutrition knowledge in making foods choices and obtaining an adequate diet.
CO-2	**Calculate** energy requirements & RDA.
CO-3	**Understand** the functions and role of macronutrients & their requirement.
CO-4	To **understand** importance of water & electrolytes in the human body.
CO-5	To **develop** standardize traditional recipes.

Semester: II

Basic Nutrition (Paper Code: **MJS-289 (PR)**) (Major) (Practical)

Course Outcomes	***The students taking up this course of*** *(BSc)Clinical Nutrition & Dietetics* ***with*** *Basic Nutrition(Major)****as a special subject of study receive the following outcomes:***
CO-1	**Identify** predominant food sources
CO-2	Plans &**develop** recipes with varying amount of energy
CO-3	**Explain** the nutritional related concepts.
CO-4	**Identify** predominant food sources for these selected vitamins & minerals.
CO-5	Plan &**develop** recipes using rich food sources of the selected vitamins, minerals & calculate the percent of RDA met by the recipe.

Semester: II

Basic Nutrition (Paper Code: **MNS-290 (TH)**) (Minor)

Course Outcomes	***The students taking up this course of*** *(BSc)Clinical Nutrition & Dietetics* ***with*** *Basic Nutrition(Minor)****as a special subject of study receive the following outcomes:***
CO-1	**Apply** basic nutrition knowledge in making foods choices and obtaining an adequate diet.
CO-2	**Calculate** energy requirements & RDA.
CO-3	**Understand** the functions and role of macronutrients & their requirement.
CO-4	To **understand** importance of water & electrolytes in the human body.
CO-5	To **develop** standardize traditional recipes.

Semester: II

Basic Nutrition (Paper Code: **MNS-290 (PR)** (Minor) (Practical)

Course Outcomes	***The students taking up this course of*** *(BSc)Clinical Nutrition & Dietetics* ***with*** *Basic Nutrition(Minor)****as a special subject of study receive the following outcomes:***
CO-1	**Identify** predominant food sources
CO-2	Plans & **develop** recipes with varying amount of energy
CO-3	**Explain** the nutritional related concepts.
CO-4	**Identify** predominant food sources for these selected vitamins & minerals.
CO-5	Plan &**develop** recipes using rich food sources of the selected vitamins, minerals & calculate the percent of RDA met by the recipe.

Semester: III

Human Physiology (Paper Code: **MJS-389** (Major) (Theory)

Course Outcomes	***The course will help the students to develop the knowledge about different organs, their functions and their relation to different diseases. It will be helpful in daily life. The student will be able to build a foundation in the field of nutrition*** ***The student will be able to –***
CO-1	Understand the functional structure of the human body.
CO-2	Develop insight of normal functioning of all the organs and systems of the body and their interactions.
CO-3	Comprehend the pathophysiology of commonly occurring diseases.
CO-4	Correlate physiology with various disorders and their pathogenesis.

Semester: III

Human Physiology (Paper Code: **MJS-389(PR)**) (Major) (Practical)

Course Outcomes	*On completion of this course ,Student will be able to-*
CO-1	Identify different organs and tissues of the human body.
CO-2	Estimate Haemoglobin and Blood group
CO-3	Measure Bleeding time and clotting time
CO-4	Measure blood pressure, pulse rate, body temperature, blood sugar level.
CO-5	Observe the hormonal activity responses in patients.

Semester: III

Human Physiology (Paper Code: **MNS-390** (Minor) (Theory)

Course Outcomes	***The course will help the students to develop the knowledge about different organs, their functions and their relation to different diseases. It will be helpful in daily life. The student will be able to build a foundation in the field of nutrition.*** ***The student will be able to –***
CO-1	Understand the functional structure of the human body.
CO-2	Develop insight of normal functioning of all the organs and systems of the body and their interactions.
CO-3	Comprehend the pathophysiology of commonly occurring diseases.
CO-4	Correlate physiology with various disorders and their pathogenesis.

Semester: III

Human Physiology (Paper Code: **MNS-390** (Minor) (Practical)

Course Outcomes	*On completion of this course ,Student will be able to-*
CO-1	Identify different organs and tissues of the human body.
CO-2	Estimate Haemoglobin and Blood group
CO-3	Measure Bleeding time and clotting time
CO-4	Measure blood pressure, pulse rate, body temperature, blood sugar level.
CO-5	Observe the hormonal activity responses in patients.

Semester: II

Nutrition: A Life Span Approach (Paper Code: **GES-289(TH)** (Generic Elective)

Course Outcomes	***The students taking up this course of*** *(BSc)Clinical Nutrition & Dietetics* ***with*** *Nutrition: A Life Span Approach(Generic Elective)****as a special subject of study receive the following outcomes:***
CO-1	**Describe** importance of nutrition during life span.
CO-2	**Analyze** growth & Development of infants to adulthood.
CO-3	**Develop** meal Planning for each age group
CO-4	**Recognize** workmanship of Sedentary, Moderate & hard work
CO-5	**Assess** nutrition during pregnancy, lactation.

Semester: II

Nutrition: A Life Span Approach (Paper Code: **GES-289(PR)** (Generic Elective) (Practical)

Course Outcomes	***The students taking up this course of*** *(BSc)Clinical Nutrition & Dietetics* ***with*** *Nutrition: A Life Span Approach(Generic Elective)****as a special subject of study receive the following outcomes:***
CO-1	**Describe** importance of nutrition during life span.
CO-2	**Analyze** growth & Development of infants to adulthood.
CO-3	**Develop** meal Planning for each age group
CO-4	**Recognize** workmanship of Sedentary, Moderate & hard work
CO-5	**Assess** nutrition during pregnancy, lactation.

A brief note on Bloom's Taxonomy:

According to the revised version of Bloom's Taxonomy there are six levels of cognitive learning. Each level is conceptually different. The six levels are (1) remembering, (2) understanding, (3) applying, (4) analyzing, (5) evaluating, and (6) creating. We follow the Bloom's Taxonomy in deciding the course outcome & the levels (1/2/3/4/5/6) are displayed in the mapping table of COs with the PSOs of each program of NEP-2020. Details of the terms used in the levels are as follows:

Level-1: **REMEMBER** - this level include:

cite, define, describe, identify, label, list, match, name, outline, quote, recall, report, reproduce, retrieve, show, state, tabulate, and tell.

Level-2: **UNDERSTAND** - this level include:

abstract, arrange, articulate, associate, categorize, clarify, classify, compare, compute, conclude, contrast, defend, diagram, differentiate, discuss, distinguish, estimate, exemplify, explain, extend, extrapolate, generalize, give examples of, illustrate, infer, interpolate, interpret, match, outline, paraphrase, predict, rearrange, reorder, rephrase, represent, restate, summarize, transform, and translate.

Level-3: **APPLY** - this level include:

apply, calculate, carry out, classify, complete, compute, demonstrate, dramatize, employ, examine, execute, experiment, generalize, illustrate, implement, infer, interpret, manipulate, modify, operate, organize, outline, predict, solve, transfer, and use.

Level-4: **ANALYZE** - this level include:

analyze, arrange, break down, categorize, classify, compare, contrast, deconstruct, detect, diagram, differentiate, discriminate, distinguish, divide, explain, identify, integrate, inventory, order, organize, relate, separate, and structure.

Level-5: **EVALUATE** - this level include:

appraise, apprise, argue, assess, compare, conclude, consider, contrast, convince, criticize, critique, decide, determine, discriminate, evaluate, grade, judge, justify, measure, rank, rate, recommend, review, score, select, standardize, support, test, and validate.

Level-6: (highest level): **CREATE** - this level include:

arrange, assemble, build, collect, combine, compile, compose, constitute, construct, create, design, develop, devise, formulate, generate, hypothesize, integrate, invent, make, manage, modify, organize, perform, plan, prepare, produce, propose, rearrange, reconstruct, reorganize, revise, rewrite, specify, synthesize, and write.

Semester: I

Programme: BSc -*Subject-Clinical Nutrition & Dietetics* *(Major/Minor/Generic Elective)*

Mapping of COs with PSOs for Semester-I*(Major)*

Course		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
Paper Title: ***Introduction to Food*** Paper Code:**MJS-189**	CO1	1									
	CO2		2								
	CO3				4						
	CO4					5					
	CO5		2								

Mapping of COs with PSOs for Semester-I *(Major)* Practical

Paper Title: ***Introduction to Food*** Paper Code:**MJS-189 (PR)**	CO1		2								
	CO2		2								
	CO3		2								
	CO4		2								
	CO5						6				

Mapping of COs with PSOs for Semester-I *(Minor)*

Course		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
Paper Title: ***Introduction to Food*** Paper Code:**MNS-190**	CO1	1									
	CO2		2								
	CO3				4						
	CO4					5					

Mapping of COs with PSOs for Semester-I *(Minor)* Practical

Paper Title: ***Introduction to Food*** Paper Code:**MNS-190 (PR)**	CO1		2								
	CO2		2								
	CO3		2								
	CO4		2								
	CO5						6				

Mapping of COs and PSOs for Semester-I*(Generic Elective)*

Paper Title: ***Nutrition & Fitness*** *Paper Code:* ***GES-189***		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
	CO1		2								
	CO2			3							
	CO3						6				
	CO4			3							
	CO5						6				

Mapping of COs and PSOs for Semester-I *(Generic Elective)* Practical

Paper Title: ***Nutrition & Fitness*** *Paper Code:* ***GES-189 (PR)***	CO1		2								
	CO2			3							
	CO3						6				
	CO4			3							
	CO5						6				

Mapping of COs and PSOs for Semester-II *(Major)*

Course		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
Paper Title: ***Basic Nutrition*** *Paper Code:* ***MJS-289***	CO1			3							
	CO2			3							
	CO3		2								
	CO4		2								
	CO5					5					

Mapping of COs and PSOs for Semester-II (*Major)* Practical

Paper Title: ***Basic Nutrition*** *PaperCode:****MJS-289(PR)***		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
	CO1	1									
	CO2						6				
	CO3		2								
	CO4	1									
	CO5						6				

Mapping of COs and PSOs for Semester-II *(Minor)*

Course *Paper Title:* ***Basic Nutrition*** *Paper Code:* ***MNS-290***		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
	CO1			3							
	CO2			3							
	CO3		2								
	CO4		2								

Mapping of COs and PSOs for Semester-II (*Minor)* Practical

Course		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
Paper Title: ***Basic Nutrition*** *PaperCode:****MNS-290(PR)***	CO1	1									
	CO2						6				
	CO3		2								
	CO4	1									
	CO5						6				

Mapping of COs and PSOs for Semester-III *(Major)*

Course		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
Paper Title: ***Human Physiology*** *Paper Code:* ***MJS-389***	CO1	1									
	CO2		2								
	CO3		2								
	CO4		2		4						

Mapping of COs and PSOs for Semester-III (*Major)*Practical

Paper Title: ***Human Physiology***	CO1	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
	CO1	1									
	CO2		2					7			
Paper Code: ***MJS-389***	CO3		2					7			
	CO4		2					7			
	CO5		2								

Mapping of COs and PSOs for Semester-III *(Minor)*

Course		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
Paper Title: ***Human Physiology***	CO1	1									
	CO2		2								
Paper Code: ***MNS-390***	CO3		2								
	CO4		2		4						

Mapping of COs and PSOs for Semester-III (*Minor)*Practical

Paper Title: ***Human Physiology***		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
	CO1	1									
	CO2		2					7			
Paper Code: ***MNS-390***	CO3		2					7			
	CO4		2					7			
	CO5		2								

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