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HIGHER EDUCATION COMMISSION

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Deputy Director (Curriculum)
Academics Division

No. HEC/NCRC/HND/2025/7992
September 10, 2025

SUBJECT: **REVISED CURRICULUM FOR DEGREE PROGRAMS IN THE DISCIPLINE OF HUMAN NUTRITION & DIETETICS**

The Higher Education Commission (HEC) of Pakistan, as mandated by its law, provides guidance to Higher Education Institutions (HEIs) on curricula for tertiary education levels in alignment with the National Qualifications Framework (NQF). To address evolving academic trends and market demands, HEC has revised the curriculum standards for Human Nutrition & Dietetics programs at NQF levels 5 & 6. These updated standards are aligned with HEC's Undergraduate Education Policy V 1.1 (2023) ensuring coherence with national priorities and adherence to international benchmarks.

2. The revised curriculum for the Human Nutrition & Dietetics degree program is hereby notified. All universities offering this program are required to align their Human Nutrition & Dietetics curriculum with these updated standards / framework as the minimum benchmark for quality and compliance. Additionally, the respective departments must develop course contents in accordance with the prescribed framework, ensuring that the programs address both national and local industry needs. The finalized course contents be submitted electronically to this office at the earliest. An electronic copy of the revised curricula is available on HEC's official website.

HIDAYATULLAH KASI

Vice Chancellors/Rectors/Heads
All Public/Private Sector Universities/DAIs

Copy for information to:

i. ES to Chairman, Higher Education Commission, Islamabad
ii. ES to Executive Director, Higher Education Commission, Islamabad
iii. PS to Secretary, Allied Health Professional Council, Islamabad
iv. Prof. Dr. Tahir Zahoor, Convener NCRC Human Nutrition & Dietetics
v. PS to Consultant, Quality Assurance, Higher Education Commission, Islamabad
vi. PS to Managing Director, NAHE, Higher Education Commission, Islamabad
vii. PS to Advisor, Human Resource Development Division, Higher Education Commission, Islamabad
viii. PS to Director General, Academics Division, Higher Education Commission, Islamabad
ix. PS to Director General, A&A Division, Higher Education Commission, Islamabad
x. PS to DG, Higher Education Commission, Regional Centers in Karachi, Lahore, Peshawar & Quetta
xi. Director, Academics Division, Higher Education Commission, Islamabad
xii. Director / In-charge, Higher Education Data Repository, Higher Education Commission, Islamabad
xiii. Director / In-charge, Quality Assurance Agency, Higher Education Commission, Islamabad

CURRICULUM

FOR

HUMAN NUTRITION & DIETETICS

ASSOCIATE DEGREE | BS

(2025)

HIGHER EDUCATION COMMISSION
ISLAMABAD – PAKISTAN

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PREFACE

The curriculum, with varying definitions, is said to be a plan of the teaching-learning process that students of an academic program are required to undergo to achieve some specific objectives. It includes a scheme of studies, objectives & learning outcomes, course contents, teaching methodologies and assessment/ evaluation. Since knowledge in all disciplines and fields is expanding at a fast pace and new disciplines are also emerging; it is imperative that curricula be developed and revised accordingly.

Higher Education Commission, since its inception, has been involved in developing /revising the curricula on periodic basis through National Curriculum Revision Committees (NCRCs) comprising of eminent academics, researchers from HEC recognized universities/DAIs, professional councils, R&D organizations of repute and industry professionals. So far, HEC has developed and revised curricula of 150+ disciplines for undergraduate and graduate programs in various fields of Natural Sciences, Applied Sciences, Social Sciences, Art & Humanities, Engineering & Technology, Medical, Allied Health Sciences, Agriculture, Computing, Law, and Administration.

Over the period of time, labor markets in the world have substantially changed, hence, the demand for workforce skills has also altered. Due to these transformations, there is a need to produce well-rounded individuals who not only have the required knowledge base of specific discipline but also possess the required skills to increase their market readiness for them to contribute to the overall socio-economic development of the country. HEC has introduced the Undergraduate Education Policy 2023, which provides an overarching framework for undergraduate programs. This curriculum document is prepared in light of the UGE Policy 2023.

The revised Human Nutrition and Dietetics curriculum has been designed to integrate the latest global developments in the discipline, with a stronger emphasis on practical training and application in line with industry and healthcare needs. It also introduces specialization tracks, allowing HEIs and students to pursue focused areas that broaden their career prospects. Moreover, the inclusion and promotion of international certifications in relevant domains of Human Nutrition and Dietetics will strengthen the global recognition and competitiveness of Pakistani graduates.

I extend my sincere gratitude to the Global Alliance for Improved Nutrition (GAIN) and GCUF for supporting this activity of curriculum development and revision. The partnership between HEC, academia, and industry will play a pivotal role in advancing the standards of Human Nutrition and Dietetics in Pakistan, aligning them with international best practices and the evolving needs of health care and nutritional sector.

Dr. Amjad Hussain
Director General
Academics Division

GUIDING PRINCIPLES

Minimum Standards

The curriculum standards and guidelines prescribed under this policy are mandatory at minimum level. Universities or the concerned departments may however set higher standards provided that the standards prescribed herein are not reduced or compromised.

Course Sequence, Titles and Credits

For BS in Human Nutrition & Dietetics, the sequence of courses prescribed under this document is logically arranged and is suggestive only. The offering department may rearrange the sequence and alter the course titles and credits provided that the essence of the courses prescribed in policy remains intact. The department may add more courses as and when required subject to approval of university's relevant statutory body.

Course Learning Outcomes

Course learning outcomes (CLOs) are the bare minimum standards of learning that students must achieve upon completing a specific course. These outcomes serve as essential benchmarks, ensuring consistency in the quality of education across institutions. The CLOs prescribed herein represent the minimum level of competency and understanding expected from students. While these standards must not be compromised, departments are encouraged to enhance the rigor of the CLOs by incorporating additional learning outcomes, provided these do not alter the essence of the prescribed standards. In this policy, CLOs are exclusively developed for major field courses within the program. For interdisciplinary courses, departments offering these courses are responsible for developing their CLOs in alignment with their respective disciplines and program requirements. Moreover, CLOs for elective courses are not prescribed here, as these are advanced or specialized courses. The development of CLOs for electives is the responsibility of the respective departments, taking into account the course's advanced nature and relevance to the program. For general education courses as required under the HEC Undergraduate Education Policy V 1.1., departments may adopt the CLOs prescribed in the HEC-developed model courses.

Course Syllabus

This document serves as a comprehensive guideline describing the course learning outcomes (CLOs) for each course offered in the Associate Degree, BS in Human Nutrition & Dietetics as minimum standards. The offering department is mandated to meticulously prepare, modify, and tailor the syllabus of each course, ensuring alignment with the stipulated learning outcomes. It is in this regard imperative that the department utilizes instructional, reference, and reading materials that it deems appropriate to effectively meet the CLOs.

General Education

For Associate degree and BS in Human Nutrition & Dietetics, the courses prescribed for General Education component must mandatorily be offered with the same titles and credits as prescribed under HEC Undergraduate Education Policy V 1.1. The concerned departments may adopt and follow the learning outcomes and study contents developed by HEC for these courses as available on its website. The requirement of general education is not valid for MS in Human Nutrition & Dietetics other than Fehm e Quran.

Requirement of Field Experience / Internship

It is a mandatory degree award requirement of three (03) credit hours for BS in Human Nutrition & Dietetics. Internship of six (06) to eight (08) weeks (preferably undertaken during semester or summer break) must be graded by a faculty member in collaboration with the supervisor in the field. This requirement cannot be substituted with additional course work, capstone or project work.

Requirement of Capstone Project

It is a mandatory degree award requirement of three (03) credit hours for BS in Human Nutrition & Dietetics. A capstone project is multifaceted body of work that serves as a culminating academic and intellectual experience for students. The capstone project must be supervised and graded by a faculty member as per the protocols prescribed by the concerned department. This requirement cannot be substituted with additional course work or internship.

Associate Degree in Human Nutrition & Dietetics

The first-four semesters of the BS Human Nutrition & Dietetics as prescribed in this policy are aligned with the structure of Associate Degree Program in Human Nutrition & Dietetics. Capstone Project and Field experience is not a mandatory requirement for the Associate Degree in Human Nutrition & Dietetics.

Entry and Exit Provisions at Undergraduate Level

a. Pathway for Graduates with Associate Degree

- Students having completed Associate Degree in Human Nutrition & Dietetics or related disciplines are allowed admission in the fifth semester of the BS in Human Nutrition & Dietetics.

- Students having completed Associate Degree in disciplines other than Human Nutrition & Dietetics and related disciplines may be offered deficiency courses from 15-18 credits through bridging semester prior to enrollment in 5th Semester of BS Human Nutrition & Dietetics Program. The bridging courses shall be determined by the concerned admitting department.

- The minimum eligibility for admission in the fifth semester in above cases is 2.00/4.00 CGPA in the prior qualification i.e., Associate Degree. The concerned university may, however, set higher eligibility and admission criteria for admission in the fifth semester of BS in Human Nutrition & Dietetics.

b. Pathway for Graduates with Conventional BSc/Equivalent Degree Programs

- Students having completed two-year conventional BSc/equivalent degree programs are allowed admission in the fifth semester of BS in Human Nutrition & Dietetics in which case, such students shall be required to complete deficiency courses from 15-18 credit hours through bridging semester. The bridging courses shall be determined by the concerned admitting department.

- The minimum eligibility for admission in the fifth semester in this case is 45% cumulative score in the prior qualification i.e., two-year conventional BSc/equivalent degree programs. The concerned university may however set higher eligibility and

admission criteria for admission in the fifth semester of BS Human Nutrition & Dietetics.

c. Exiting from BS in Human Nutrition & Dietetics with the Associate Degree

- Students enrolled in BS Human Nutrition & Dietetics are allowed to exit the program with Associate Degree in Human Nutrition & Dietetics provided that they have completed the requirements of the first-four semesters of the BS Human Nutrition & Dietetics program as prescribed in this policy.

BACHELOR OF SCIENCE – HUMAN NUTRITION & DIETETICS

Program Description

The BS Human Nutrition & Dietetics program, structured in line with the HEC Undergraduate Education Policy V 1.1. is a comprehensive four-year degree program focused on the science of human health and nutrition, integrating principles from biology, chemistry, physiology, food science, and behavioral sciences to prepare students as professionals capable of assessing nutritional needs, planning therapeutic diets, conducting nutritional research, and promoting health and wellness. The program emphasizes both clinical and community nutrition, blending classroom instruction, laboratory training, research projects, and practical internships to equip graduates with the scientific expertise and counseling skills needed to address public health issues, prevent chronic diseases, NCDs and contribute to sustainable food and nutrition practices, leading to diverse careers in healthcare settings, public health organizations, the food industry, wellness programs, and research institutions.

Standard Nomenclature

For the sake of standardization, all the undergraduate degree programs (NQF level 6 qualifications) in the discipline of Human Nutrition & Dieteticsmust have the title of **"Bachelor of Science Human Nutrition & Dietetics"**. Henceforth all the degree programs at equivalent level with same purpose and scope having different nomenclatures shall accordingly be renamed.

Program Learning Outcomes

By the end of a degree in BS Human Nutrition & Dietetics, a graduate shall be able to

- Demonstrate scientific knowledge in Human Nutrition, metabolism, and dietetics to assess nutritional status and develop appropriate dietary plans for individuals and communities.
- Apply evidence-based practices to manage clinical nutrition therapy for various diseases and health conditions in clinical and public health settings.
- Conduct research and critically analyze data related to nutrition, health, and dietary interventions to promote evidence based decision making.
- Communicate effectively and ethically with diverse populations, providing nutrition education, counseling, and health promotion in professional and interdisciplinary environments.

Eligibility Criteria

Higher Secondary School Certificate/A-levels (involving minimum 12 years of schooling) or an IBCC equivalent qualification as per following details is the eligibility criteria for admission;

- FSc (Pre Medical)

- FSc (Pre-Agri)
- FSc (Pre Eng)
- FSc (Food related subjects)
- A-Levels (having equivalency of any of above offshoot)
- DAE in Food related subjects

Program Structure

The BS Human Nutrition & Dietetics degree program follows HEC Undergraduate Education Policy 2023 V 1.1 and comprises a minimum of 08 regular semesters (04 years). Universities may offer courses consisting of a minimum of 140 credit hours provided that the total number of credit hours are reasonably set to achieve the Program Leaning Outcomes.

Minimum Credit Hours		140
General Education Courses		34 credit hours (14 courses)
Discipline Related Courses / Major	Total	**88 credit hours (31 courses)**
	Compulsory Major	70 credit hours (25 courses)
	Electives Major	18 credit hours (06 courses)
Interdisciplinary/ Allied Courses		12 credit hours (4 courses)
Field Experience/Internship		3 credit hours
Capstone Project		3 credit hours
Program Duration		Minimum: 4 Years Maximum: 6 Years (Further extendable to another year subject to the approval of the university's statutory body following the provisions of HEC Undergraduate Education Policy 2023 V 1.1)
Semester Duration		16-18 weeks for regular semesters (1-2 weeks for examination) 8-9 weeks for summer semesters (1 week for examination)
Course Load (per semester)		15-21 credit hours for regular semesters Credit hours to be offered in Summer/winter semesters, as per HEC guidlines

	(For remedial/deficiency/failure/repetition courses only)
3 Credit Hours (Theory)	3 classes (1 hour each) OR 2 classes (1.5 hours each) OR 1 class (3 hours) per week throughout the semester.
1 Credit Hours (Practical Work)*	1 Credit hour of practical work requires three contact hours per week throughout the semester.
Policy for Probation in Semester	i) The students acquiring less than 2.00/4.00 GPA in a semester but passing in all papers will be promoted with the condition to achieve more than 2.0 GPA in the next semester and s/he will be put on probation for the next semester. ii) The students acquiring GPA 1.7 and above but failing in any paper(s) will be placed on probation and promoted to the next semester conditionally. They will have to be registered for summer semester to improve the grade. iii) Students acquiring GPA less than 1.7 in two consecutive semesters and failing in any paper(s) even after attending summer semester for one academic year will be dropped from university rolls.

General Education Courses: 34 Credits (14 courses)

As per HEC UGE Policy V 1.1 and subsequent notifications, following courses are mendatory to be part of every undergraduate degree program including Associate Degree HND, hence the same are included in the schemes of BS Human Nutrition & Dietetics;

S No	GE Course Category	No. of Courses	Credit Hours
1	Arts & Humanities *	1	02
2	Natural Sciences *	1	03 (2+1)
3	Social Sciences *	1	02
4	Functional English, Expository Writing	2	06
5	Quantitative Reasoning	2	06
6	Islamic Studies / Ethics	1	02
7	Ideology & Constitution of Pakistan	1	02
8	Application of ICT	1	03= 2+1
9	Entrepreneurship	1	02
10	Civics and Community Engagement	1	02
11	Pakistan Studies	1	02
12	Fehm e Quran	1	02
	Total	**14**	**34**

Note: *In the course categories from Serial Number 4-12, HEC has developed the model course outlines for guidance of the Institutions. In the course cateogories from Serial Number 1-3, as the Choice in selection of courses is available, the same was deliberated in detail in the NCRC Human Nutrition & Dietetics, the recommended courses are given below.*

Major Courses (Compulsory): 70 Credit Hours (25 Courses)

These courses are mandatory in a BS Human Nutrition & Dietetics program that helps to provide students with a strong and comprehensive foundation in the field of HND.

S. No	Courses	Credit hours
1.	Introduction to Food Science and Technology	3 (2-1)
2.	Food Microbiology and Biotechnology	3 (2-1)
3.	Analytical Techniques in Food and Nutrition	3 (1-2)
4.	Food Safety & Quality Management	3 (3-0)
5.	Food & Drug Laws and Regulations	2 (2-0)
6.	Food Product Development	3 (1-2)
7.	Functional Foods & Nutraceuticals	2 (2-0)
8.	Research Methods in Food and Nutrition	2 (1-1)
9.	Fundamentals of Human Nutrition and Dietetics	3 (3-0)

10.	Community and Public Health Nutrition	3 (3-0)
11.	Food Service Management	2 (1-1)
12.	Fundamentals of Food Systems	3 (3-0)
13.	AI in Food and Nutrition	2 (1-1)
14.	Food and Nutrition Policies	3 (3-0)
15.	Food and Nutrition Certifications	3 (3-0)
16.	Macro and Micro Nutrients	3 (3-0)
17.	Nutrition through life cycle	3 (3-0)
18.	Meal planning and Management	3(2-1)
19.	Nutritional Assessment	3 (2-1)
20.	Dietetics-I	3 (2-1)
21.	Dietetics-II	3 (2-1)
22.	Supervised Practicum-I	3 (0-3)
23.	Supervised Practicum-II	3 (0-3)
24.	Nutrition Education & Counseling	3 (2-1)
25.	Nutritional Epidemiology	3 (3-0)
	Total	70

Interdisciplinary Courses: Minimum 12 Credits

As per HEC UGE Policy V 1.1, interdisciplinary courses of 12 credit hours are required in four year Undergraduate Degree Programs, to complement holistic understanding of the major. The item was thoroughly deliberated in the NCRC of HND, it was emphasized that in order to effectively utilize the compartment of interdisciplinary courses, the list be given so that no important area is left unattended.

S. No	Interdisciplinary / Allied Courses	Credit hours
1.	Human Anatomy	3 (2-1)
2.	Human Physiology	3 (2-1)
3.	General Pathology	3 (2-1)
4.	Clinical Biochemistry	3 (2-1)

*Note: As recommended by the NCRC, the Allied Courses are mandatory for the BS HND Program.

Scheme of Studies

The suggestive scheme of studies for BS Human Nutrition & Dietetics program is given below;

SEMESTER I			
S. No	**COURSE**	**CREDIT HOURS**	**CATEGORY**
1	Quantitative Reasoning-I*	3 (3-0)	General Education
2	Functional English*	3 (3-0)	General Education
3	Applications of Information and Communication Technologies*	3 (3-0)	General Education
4	Introduction to Food Science and Technology	3 (2-1)	Major
5	Fundamentals of Human Nutrition and Dietetics	3 (3-0)	Major
6	Human Anatomy	3 (2-1)	Interdisciplinary
Total Credits (18)			

SEMESTER II			
S. No	**COURSE**	**CREDIT HOURS**	**CATEGORY**
1	Quantitative Reasoning-II*	3 (3-0)	General Education
2	Social Science**	2 (2-0)	General Education
3	Expository Writing**	3 (3-0)	General Education
4	Natural Science**	3 (2-1)	General Education
5	Fehm-e-Quran – I (for Muslim Students)	01(0-1)	General Education
6	Macro and Micro Nutrients	3 (3-0)	Major
7	Food Microbiology and Biotechnology	3 (2-1)	Major
Total Credits (18)			

SEMESTER III			
S. No	**COURSE**	**CREDIT HOURS**	**CATEGORY**
1	Arts and Humanities**	2 (2-0)	General Education
2	Islamic Studies (Religious Education / Ethics for non-Muslim students) *	2 (2-0)	General Education
3	Pakistan Studies*	2 (2-0)	General Education
4	Fehm-e-Quran – II (for Muslim Students)	01(0-1)	General Education
5	Functional Foods & Nutraceuticals	2 (2-0)	Major
6	Food Safety & Quality Management	3 (3-0)	Major
7	Human Physiology	3 (2-1)	Interdisciplinary
Total Credits (15)			

SEMESTER IV			
S. No	**COURSE**	**CREDIT HOURS**	**CATEGORY**
1	Civics and Community Engagement*	2 (2-0)	General Education
2	Ideology and Constitution of Pakistan*	2 (2-0)	General Education
3	Entrepreneurship*	2 (2-0)	General Education
4	Fundamentals of Food Systems	3 (3-0)	Major
5	Food Service Management	2 (1-1)	Major
6	Clinical Biochemistry	3 (2-1)	Interdisciplinary
7	General Pathology	3 (2-1)	Interdisciplinary
Total Credits (17)			

***** *The student may Exit with Associate Degree in Human Nutrition & Dietetics after completion of 04 Semesters in BS HND degree program subject to given terms and conditions.*

SEMESTER V			
S. No	**COURSE**	**CREDIT HOURS**	**CATEGORY**
1	Analytical Techniques in Food and Nutrition	3 (1-2)	Major
2	Community and Public Health Nutrition	3 (3-0)	Major
3	Nutrition through life cycle	3 (3-0)	Major
4	Meal planning and Management	3 (2-1)	Major
5	Nutritional Assessment	3 (2-1)	Major
6	Dietetics-I	3 (2-1)	Major
Total Credits (18)			

SEMESTER VI			
S. No	**COURSE**	**CREDIT HOURS**	**CATEGORY**
1	Food & Drug Laws and Regulations	2 (2-0)	Major
2	Food Product Development	3 (1-2)	Major
3	Dietetics-II	3 (2-1)	Major
4	Supervised Practicum-I	3 (0-3)	Major
5	Elective-I***	3 (3-0)	Major
6	Elective-II***	3 (3-0)	Major
Total Credits (17)			

SEMESTER VII			
S. No	**COURSE**	**CREDIT HOURS**	**CATEGORY**
1	AI in Food and Nutrition	2 (1-1)	Major
2	Research Methods in Food and Nutrition	2 (1-1)	Major
3	Food and Nutrition Certifications****	3 (3-0)	Major
4	Supervised Practicum-II	3 (0-3)	Major
5	Nutrition Education & Counseling	3 (2-1)	Major
6	Elective-III***	3 (3-0)	Major
7	Elective-IV***	3 (3-0)	Major
Total Credits (19)			

SEMESTER VIII			
S. No	**COURSE**	**CREDIT HOURS**	**CATEGORY**
1	Food and Nutrition Policies	3 (3-0)	Major
2	Nutritional Epidemiology	3 (3-0)	Major
3	Elective-V***	3 (3-0)	Major
4	Elective-VI***	3 (3-0)	Major
5	Capstone Project	3 (3-0)	Capstone Project
Total Credits (15)			

Note: Internships of three (03) credit hours must be completed in accordance with HEC Undergraduate Education Policy V 1.1. This requirement cannot be substituted with additional coursework, capstone, research, or project work.

* The university may use HEC-designed model courses.

** The university/offering department may offer any course within the broader subject domain/cluster to meet the given credits.

*** The university/offering department may offer any cluster course as elective in Human Nutrition & Dietetics program based on available academic and physical resources, depending on its geographical location and program objectives. The university may offer Generic HND degree, if the specialization is not offered. In such case, the 06 electives may be chosen from any cluster.

**** BS Human Nutrition & Dietetics students are required to complete three certifications (equivalent to 3 credit hours in total) over the period of foue-year program as a mandatory condition for degree completion. Each certification will be considered equivalent to 1 credit hour if it comprises at least 16 hours. The respective department will guide students in selecting relevant certifications, ensuring alignment with current market needs and the program's objectives.

SPECIALIZATION CLUSTERS:

Specialization-1: Community & Public Health Nutrition

S. No	Courses	CR HR
1.	Nutrition in Emergencies	3(3-0)
2.	Maternal & Child Nutrition	3(3-0)
3.	Dietary Diversity & Food Security	3(3-0)
4.	Sports Nutrition & Exercise	3(2-1)
5.	Nutrition Behavior Change Communication	3(3-0)
6.	Nutrition program planning and evaluation	3(3-0)
7.	Early Childhood Development	3(3-0)
8.	Food & Nutrition Entrepreneurship	3(2-1)
9.	Nutrition through Social Protection	3(3-0)

Specialization-2: Clinical Nutrition

S. No	Courses	CR HR
1.	Nutrition Metabolism & Endocrinology	3(3-0)
2.	Nutritional Psychology	3(3-0)
3.	Diet Therapy for Individuals with Special Needs	3(2-1)
4.	Medical Nutrition Therapy I	3(2-1)
5.	Medical Nutrition Therapy II	3(2-1)
6.	Supervised Clinical Practicum I	3(0-3)
7.	Supervised Clinical Practicum II	3(0-3)
8.	Nutrition & Mental Health	3(3-0)
9.	Nutrition Practices in Critical Care	3(2-1)

10.	Nutrition in Inborn Errors of Metabolism	3(2-1)
11.	Preventive Nutrition	3(2-1)

Degree Award Requirements

The following minimum requirements are prescribed for the award of a BS Human Nutrition & Dietetics

a) All courses in the General Education category must be completed as prescribed by HEC Undergraduate Policy 2023 V 1.1.
b) As prescribed in this document as per recommendation of the NCRC, 140 credit hours must be completed in a minimum of 08 semesters spread over a minimum of four years.
c) The capstone project (03 credit hours) must be completed following HEC-prescribed guidelines for the degree award. This requirement cannot be substituted with additional coursework.
d) Internships of three (03) credit hours must be completed in accordance with HEC Undergraduate Education Policy V 1.1. This requirement cannot be substituted with additional coursework, capstone, research, or project work.
e) CGPA must not be below 2.00/4.00 at the completion of the degree program. The university may, however, set a higher standard in this regard.

Guidelines:

1. The listed specializations and courses are not exhaustive. Higher Education Institutions (HEIs) are encouraged to offer additional specializations and/or courses, if available. It's essential to note that all BS Human Nutrition & Dietetics program, regardless of specialization, are considered equivalent under this scheme of studies. There is no inherent difference between them. However, employers may prefer specific specializations, depending on their requirements.
2. It is noteworthy that universities can redistribute courses across the first four and last four semesters. This adjustment can be made based on factors such as teaching staff availability and other facilities. However, while distributing courses, the basic (prerequisite) courses shall be offered prior to the advanced courses. The course distribution outlined is not rigid and is subject to modification by the concerned universities.
4. All universities are directed to implement this revised scheme of studies and align their degree programs and degree nomenclature accordingly, with effective from spring 2026. The degrees offered with other nomenclature shall not be considered equivalent / relevant to BS Human Nutrition & Dietetics and will not be attested by HEC.
5. Degrees awarded in the relevant discipline before this notification will be treated as per the existing HEC equivalence procedure.

Recommendations / Decisions

Following decisions are made by NCRC Human Nutritiona & Dietetics to improve the quality of Human Nutrition & Dietetics programs keeping in view the latest trends and demands of the market;

a) The NCRC committee recommended establishment of the National Food and Nutrition Education Accreditation Council **(NFNEAC)** in order to accredit the food science and human nutrition related degree programs for uniform quality education policy in Pakistan.

COURSE LEARNING OUTCOMES (CLOs)

MAJOR COURSES

For BS Human Nutrition & Dietetics program

Introduction to Food Science and Technology

By the end of this course the student will be able to:

- Describe the scope and interdisciplinary nature of food science.
- Identify the physical, chemical, and microbiological properties of food.
- Discuss key food processing and preservation techniques.
- Explain the role of food science in public health and food security.
- Evaluate food quality and safety parameters

Macro and Micro Nutrients

By the end of this course the student will be able to:

- Classify macro and micronutrients and their dietary sources.
- Describe the biochemical functions and physiological roles of each nutrient.
- Assess the nutritional status of individuals using dietary intake and biomarkers.
- Interpret the signs and symptoms of deficiency and toxicity of nutrients.
- Formulate diet plans that ensure adequate intake of essential nutrients.

Food Microbiology and Biotechnology

By the end of this course the student will be able to:

- Demonstrate knowledge of probiotics, prebiotics, and gut microbiota, including their roles in human health and functional food development
- Apply principles of microbial genetics and molecular biology to understand the genetic manipulation of microbes used in food biotechnology
- Evaluate industrial fermentation processes and enzyme technologies for large-scale food production, bioconversion, and quality enhancement
- Analyze the mechanisms, detection, and control of foodborne pathogens and toxins, ensuring food safety and public health
- Design bioprocesses and assess the ethical, regulatory, and technological aspects of GMOs and environmental microbiology in food systems

Functional Foods & Nutraceuticals

By the end of this course the student will be able to:

- Define and classify functional foods and nutraceuticals.
- Discuss bioactive components and their health benefits.
- Analyze regulatory and labeling aspects of nutraceuticals.
- Evaluate clinical evidence supporting functional food claims.
- Formulate functional food products targeting specific health issues

Food Safety & Quality Management

By the end of this course the student will be able to:

- Explain principles and importance of food safety and hygiene.
- Interpret national and international food safety regulations.

- Apply HACCP, GMP, and other quality management systems in food industries.
- Assess risks and control measures for foodborne hazards.
- Evaluate food safety auditing and certification procedures.

Fundamentals of Food Systems

By the end of this course the student will be able to:

- Define and explain the dimensions and determinants of food security.
- Gain insights into historical overview, components and significance of sustainable food systems.
- Evaluate impact of climate change, gender and youth mainstreaming on food, nutrition, and health
- Understand Pakistan Food System Dashboard (PFSD) and its utilization for data acquisition
- Analyze the interconnections between food production, distribution, consumption, and sustainability within local and global food systems.

Food Service Management

By the end of this course the student will be able to:

- List and describe the basic principles of food service operations and systems.
- Apply principles of menu planning, procurement, and budgeting in institutional settings.
- Demonstrate practical skills in food production, quality control, and hygiene management.
- Analyze the workflow, staffing, and equipment requirements in different food service models.
- Design an efficient food service operation plan tailored to local institutional needsEvaluate the financial and human resource aspects of food service units.

Analytical Techniques in Food and Nutrition

By the end of this course the student will be able to:

- Describe the basic principles of instrument, theories and operations of key components of the instrument used for food component analysis.
- Explain modern extraction and food analyzing techniques
- Acquire knowledge about sampling and sampling procedure, with special reference to intended instruments
- Demonstrate the basic principles behind analytical techniques
- Learn different working principles, parts and applications of different instruments used in food analysis

Community and Public Health Nutrition

By the end of this course the student will be able to:

- Describe the scope and objectives of public health nutrition in Pakistan.
- Interpret national and international nutritional surveillance data.
- Develop community-based nutrition interventions targeting vulnerable populations.
- Assess the effectiveness of nutrition programs in addressing malnutrition.
- Formulate policies to overcome nutrition-related challenges in different communities.

Nutrition through life cycle

By the end of this course the student will be able to:

- Describe the changing nutritional needs throughout different stages of life, from conception to old age.
- Explain the physiological and metabolic changes affecting nutrient requirements during pregnancy, lactation, infancy, childhood, adolescence, adulthood, and aging.
- Analyze the impact of malnutrition during critical periods of growth and development.
- Recommend appropriate dietary interventions tailored to each life stage.
- Evaluate national and international programs that support nutrition across the life cycle.

Research Methods in Food and Nutrition

By the end of this course the student will be able to:

- Differentiate among various types of research (qualitative, quantitative, and mixed methods) relevant to food and nutritional sciences, and formulate clear, testable research questions and hypotheses.
- Critically evaluate scientific literature to identify research gaps, methodological strengths and weaknesses, and justify the selection of appropriate study designs and data collection methods.
- Design and implement a research study using suitable tools such as surveys, interviews, focus groups, or laboratory experiments within the context of food and nutrition.
- Analyze quantitative and qualitative data using statistical software (e.g., SPSS, R, or Excel), and interpret findings in relation to research objectives.
- Communicate research findings effectively through structured written reports and oral presentations tailored to academic and professional audiences.

Food and Nutrition Certifications

By the end of this course the student will be able to:

- Identify key national and international food and nutrition certification frameworks and their core requirements.
- Explain the role of certification in ensuring food quality, safety, and consumer trust.
- Evaluate the scientific and regulatory standards behind certifications like HACCP, ISO 22000, FSSC 22000 and Codex guidelines.
- Analyze labeling, health claims, and certification logos in relation to legal and ethical communication.
- Demonstrate knowledge of documentation, audit procedures, and compliance for nutrition-related certifications.

Food and Nutrition Policies

By the end of this course the student will be able to:

- Recall key historical milestones in food and nutrition policy development.
- Interpret existing food and nutrition policies in Pakistan and globally.
- Analyze the impact of policies on food security, safety, and public health.
- Compare and contrast policy frameworks used in different countries.
- Recommend evidence-based policy improvements for the national nutrition agenda.

Food & Drug Laws and Regulations

By the end of this course the student will be able to:

- Understand the legal framework governing food and drug safety.
- Interpret food labeling, claims, and advertising laws.
- Analyze global regulatory standards (e.g., Codex, FDA, EFSA).
- Apply national regulations such as PSQCA and DRAP in food businesses.
- Evaluate the role of regulatory bodies in ensuring consumer protection

Food Product Development

By the end of this course the student will be able to:

- Explain the stages of food product development from concept to commercialization.
- Apply sensory, nutritional, and functional criteria to design novel food products.
- Utilize ingredient technologies and formulation techniques for product optimization.
- Evaluate prototypes through sensory analysis, shelf-life testing, and consumer feedback.
- Develop a business plan and marketing strategy for launching a new food product.

Fundamentals of Human Nutrition and Dietetics

By the end of this course the student will be able to:

- Define key concepts, terminologies, and principles of human nutrition and dietetics.
- Explain the role of essential nutrients in human metabolism and health.
- Apply dietary guidelines to assess and plan balanced diets for various age groups.
- Analyze the impact of nutrient deficiencies and excesses on public health.
- Evaluate and propose nutritional strategies to promote health and prevent disease.

AI in Food and Nutrition

By the end of this course the student will be able to:

- Develop a comprehensive understanding of artificial intelligence methodologies and their integration into food science and nutritional research
- Apply machine learning, deep learning, and data analytics to model, predict, and optimize food quality, safety, and nutritional outcomes
- Design and implement AI-driven systems for personalized nutrition, dietary recommendations, and metabolic health monitoring
- Evaluate ethical, regulatory, and data privacy considerations in the use of AI for food and nutrition application
- Develop problem solving skills through AI-based solutions for real world challenges in food systems and nutritional health

Meal Planning and Management

By the end of this course the student will be able to:

- Identify the principles of a balanced diet, food exchange lists, and dietary guidelines used in meal planning.
- Prepare meal plans considering individual needs, cultural preferences, economic status, and health conditions.
- Demonstrate practical skills in calculating nutrient content and food portions.
- Modify meal plans for special populations such as diabetics, hypertensives, renal, and weight management patients.

- Evaluate the adequacy, acceptability, and feasibility of planned diets through case studies.

Nutritional Assessment

By the end of this course the student will be able to:

- Explain the components and importance of comprehensive nutritional assessment.
- Demonstrate the use of nutrition screening, dietary, anthropometric, biochemical, and clinical methods in assessing nutritional status.
- Apply appropriate tools and techniques for assessing individuals in different age groups and physiological conditions.
- Interpret assessment data and formulate nutrition care strategies accordingly.
- Critically evaluate the reliability and validity of different nutritional assessment tools.

Dietetics-I

By the end of this course the student will be able to:

- Describe the role of dietetics in the prevention and management of non-communicable diseases.
- Explain the pathophysiology, clinical manifestations, and dietary management of obesity, diabetes, protein energy malnutrition, cardiovascular diseases, and hypertension.
- Apply dietary guidelines and evidence-based protocols in planning therapeutic diets.
- Demonstrate the ability to modify regular diets into therapeutic diets for common conditions.
- Evaluate case studies using nutrition care process (NCP) and medical nutrition therapy (MNT) models.

Dietetics-II

By the end of this course the student will be able to:

- Describe advanced dietary management for renal, hepatic, gastrointestinal, respiratory, and metabolic disorders.
- Apply medical nutrition therapy for patients in critical care, oncology, and infectious disease settings.
- Plan enteral and parenteral nutrition support with consideration of patient-specific requirements.
- Demonstrate skills in interpreting biochemical and clinical indicators in complex cases.
- Evaluate patient outcomes using evidence-based dietetic practices.

Supervised Practicum-I

By the end of this course the student will be able to:

- Demonstrate practical skills in applying nutritional knowledge in clinical/community settings.
- Assess patients' nutritional needs through interviews, history-taking, and chart reviews.
- Observe and participate in the implementation of diet plans under supervision.
- Maintain accurate documentation following clinical protocols and ethical standards.
- Reflect on learning experiences and identify areas for professional improvement.

Supervised Practicum-II

By the end of this course the student will be able to:

- Independently conduct nutritional assessments and provide appropriate dietary recommendations.
- Collaborate with healthcare professionals in developing and executing care plans.
- Demonstrate advanced clinical judgment in managing multiple case scenarios.
- Develop patient education materials and conduct diet counseling sessions.
- Evaluate the effectiveness of nutrition interventions based on follow-up and feedback.

Nutrition Education & Counseling

By the end of this course the student will be able to:

- Explain key theories and models of behavior change relevant to nutrition education.
- Design effective nutrition education materials and messages for diverse populations.
- Demonstrate counseling skills including active listening, motivational interviewing, and goal setting.
- Conduct individual and group nutrition education and counseling sessions.
- Assess the impact of counseling and education strategies on client behavior and health outcomes.

Nutritional Epidemiology

By the end of this course the student will be able to:

- Describe basic epidemiological concepts and their relevance to nutritional science.
- Analyze the relationship between diet, nutrition, and disease distribution in populations.
- Interpret data from epidemiological studies including cohort, case-control, and cross-sectional designs.
- Evaluate the strengths and limitations of dietary assessment methods used in large-scale studies.
- Use evidence from nutritional epidemiology to inform public health recommendations and policies.

INTERDISCIPLINARY / ALLIED COURSES

Human Physiology

By the end of this course the student will be able to:

- Describe the structure and physiological functions of major organ systems in the human body.
- Explain the mechanisms of homeostasis and the role of regulatory systems in maintaining internal balance.
- Interpret physiological responses to physical activity, fasting, stress, and dietary intake.
- Relate physiological changes to nutritional needs during different life stages.
- Apply knowledge of body systems to understand the effects of nutrient imbalances and deficiencies.

General Pathology

By the end of this course the student will be able to:

- Define fundamental concepts of pathology, including inflammation, infection, degeneration, and neoplasia.

- Explain the pathological basis of diseases commonly influenced by nutrition, such as atherosclerosis, diabetes, and cancer.
- Identify tissue and cellular changes in response to injury, stress, or malnutrition.
- Relate clinical signs and symptoms to underlying pathological mechanisms.
- Apply pathological knowledge to interpret disease progression and its dietary implications.

Human Anatomy

By the end of this course the student will be able to:

- Describe the structure and organization of major organ systems and their relevance to human nutrition.
- Identify key anatomical features of the digestive, circulatory, endocrine, and musculoskeletal systems.
- Illustrate anatomical interrelationships essential for nutrient absorption, transport, and metabolism.
- Explain the anatomical basis for clinical conditions affecting nutritional status (e.g., GI disorders).
- Apply anatomical knowledge to assess the functional impact of disease on nutrient utilization

Clinical Biochemistry

By the end of this course the student will be able to:

- Explain the biochemical basis of digestion, absorption, and metabolism of nutrients.
- Interpret common biochemical markers and their relevance to nutritional assessment and disease diagnosis.
- Analyze blood, urine, and other body fluids for indicators of nutritional deficiencies and imbalances.
- Demonstrate the use of basic biochemical laboratory techniques for clinical nutrition practice.
- Evaluate biochemical changes associated with metabolic disorders such as diabetes, renal disease, and liver dysfunction.

SPECIALIZATION-1: COMMUNITY & PUBLIC HEALTH NUTRITION

Nutrition in Emergencies

By the end of this course the student will be able to:

- Describe the types, phases, and nutritional consequences of emergencies and disasters.
- Explain the principles of emergency nutrition assessment and response planning.
- Analyze the causes and outcomes of malnutrition in displaced and vulnerable populations.
- Evaluate nutrition-specific interventions during emergencies (e.g., CMAM, IYCF-E).
- Design a basic emergency nutrition response plan based on global frameworks (e.g., Sphere Standards).

Maternal & Child Nutrition

By the end of this course the student will be able to:

- Explain the nutritional requirements during pregnancy, lactation, infancy, and early childhood.
- Analyze the impact of maternal and child malnutrition on health, development, and survival.
- Evaluate national and global programs promoting maternal and child nutrition (e.g., stunting prevention).
- Propose context-specific strategies to improve maternal and child feeding practices.
- Interpret growth monitoring data to assess child nutritional status and program effectiveness.

Dietary Diversity & Food Security

By the end of this course the student will be able to:

- Define the concepts of dietary diversity, food security, and food sovereignty.
- Assess the determinants of household and community food insecurity using appropriate tools.
- Analyze the relationship between dietary diversity, nutrition outcomes, and socio-economic status.
- Evaluate food-based interventions to improve household dietary diversity in vulnerable populations.
- Recommend multisectoral strategies for sustainable food security and nutrition-sensitive agriculture.

Sports Nutrition & Exercise

By the end of this course the student will be able to:

- Explain the role of nutrition in exercise performance, endurance, and recovery.
- Describe the nutritional needs of athletes and active individuals based on sport and training load.
- Plan sport-specific dietary interventions and hydration strategies.
- Demonstrate the use of anthropometric and performance indicators in sports nutrition assessment.
- Evaluate the use and safety of dietary supplements and ergogenic aids in athletes.

Nutrition Behavior Change Communication

By the end of this course the student will be able to:

- Describe communication models and behavior change theories relevant to nutrition.
- Design evidence-based BCC messages and materials tailored to diverse audiences.
- Demonstrate practical skills in using interpersonal and mass media channels for BCC delivery.
- Implement nutrition BCC activities using participatory and culturally appropriate methods.
- Evaluate the impact of nutrition BCC interventions on knowledge, attitude, and practices.

Nutrition Program Planning and Evaluation

By the end of this course the student will be able to:

- Explain the steps in planning, implementing, and evaluating community nutrition programs.

- Apply logical framework and results-based management tools in program design.
- Develop measurable objectives, indicators, and budgets for a nutrition intervention.
- Conduct monitoring and process evaluation of nutrition programs.
- Analyze program impact data to inform future program decisions and policy advocacy.

Early Childhood Development

By the end of this course the student will be able to:

- Explain the relationship between nutrition, stimulation, and brain development in early childhood.
- Describe the stages and domains of child development and factors influencing them.
- Analyze the impact of malnutrition, poverty, and neglect on early child development outcomes.
- Evaluate integrated nutrition and ECD programs at national and global levels.
- Recommend strategies to promote nurturing care and responsive feeding in ECD settings.

Food & Nutrition Entrepreneurship

By the end of this course the student will be able to:

- Describe the principles of entrepreneurship and innovation in the context of food and nutrition.
- Identify market needs and opportunities for nutrition-related products or services.
- Develop a basic business plan including product development, branding, and pricing.
- Demonstrate skills in marketing, budgeting, and customer engagement.
- Evaluate success indicators and sustainability of nutrition-focused business ventures.

Nutrition through Social Protection

By the end of this course the student will be able to:

- Explain the role of social protection programs (e.g., cash transfers, school feeding) in improving nutrition.
- Analyze the pathways through which social protection contributes to food and nutrition security.
- Evaluate Pakistan's major social protection schemes (e.g., BISP, Ehsaas Nashonuma) in the context of nutrition.
- Recommend nutrition-sensitive design modifications for social safety nets.
- Assess the effectiveness and equity of nutrition outcomes achieved through integrated social protection.

SPECIALIZATION-2: CLINICAL NUTRITION

Nutrition Metabolism & Endocrinology

By the end of this course the student will be able to:

- Describe the hormonal regulation of metabolism and nutrient utilization.
- Explain the metabolic pathways of macronutrients and their integration during fed and fasting states.
- Analyze the role of endocrine glands in regulating appetite, energy balance, and weight.
- Interpret biochemical indicators of metabolic and endocrine disorders.

- Apply knowledge of metabolic pathways in developing dietary strategies for metabolic syndromes.

Nutritional Psychology

By the end of this course the student will be able to:

- Describe the psychological factors influencing eating behavior and food choices.
- Explain the relationship between nutrition, cognition, mood, and mental well-being.
- Analyze the role of stress, addiction, and emotional states in dietary behaviors.
- Evaluate psychological theories of behavior change in the context of nutrition counseling.
- Propose evidence-based interventions to support healthy eating behaviors using psychological principles.

Diet Therapy for Individuals with Special Needs

By the end of this course the student will be able to:

- Identify the unique nutritional requirements of individuals with disabilities, chronic illnesses, and special conditions.
- Explain the dietary challenges associated with physical, developmental, and sensory impairments.
- Plan modified diets suitable for tube feeding, texture-modified diets, and feeding assistance.
- Demonstrate skills in preparing adaptive meal plans and nutrition support protocols.
- Evaluate the impact of tailored diet therapy on nutritional status and quality of life in special needs populations.

Medical Nutrition Therapy-I

By the end of this course the student will be able to:

- Demonstrate foundational understanding of basic pathophysiology and related dietary modifications in common disorders.
- Evaluate case studies using nutrition care process (NCP) and medical nutrition therapy (MNT) models.
- Apply dietary guidelines and evidence-based protocols in planning therapeutic diets.
- Explain the principles and process of medical nutrition therapy (MNT) for acute and chronic diseases.
- Describe advanced dietary management for renal, hepatic, gastrointestinal, respiratory, and metabolic disorders etc.
- Interpret clinical and biochemical data to support MNT decisions.
- Integrate knowledge of drug–nutrient interactions into the design of safe and effective nutrition interventions

Medical Nutrition Therapy-II

By the end of this course the student will be able to:

- Describe advanced clinical conditions requiring specialized nutrition care (e.g., renal, hepatic, pulmonary, and oncology) etc.
- Demonstrate responsible use of technologies (e.g., EMRs, nutrient analysis software) for patient data and quality assurance.
- Plan enteral and parenteral nutrition support tailored to specific disease states.

- Demonstrate critical thinking in handling complex clinical scenarios using MNT protocols.
- Collaborate with healthcare teams to deliver comprehensive nutrition care.
- Evaluate nutrition interventions using outcome-based measures and patient follow-up.
- Develop individualized diet plans for commonly encountered clinical conditions.

Supervised Clinical Practicum-I

By the end of this course the student will be able to:

- Apply nutrition assessment techniques in clinical settings under supervision.
- Assist in developing diet plans and documenting patient care using the NCP model.
- Demonstrate communication and interpersonal skills in patient interaction.
- Observe ethical and professional standards in clinical nutrition practice.
- Reflect on clinical experiences to identify learning needs and improve future performance.

Supervised Clinical Practicum-II

By the end of this course the student will be able to:

- Independently conduct nutritional assessments and develop care plans for diverse clinical cases.
- Implement MNT for patients with complex health conditions.
- Document patient progress and outcomes using standard clinical formats.
- Demonstrate leadership, responsibility, and professionalism in clinical environments.
- Critically analyze clinical cases and present evidence-based recommendations.

Nutrition & Mental Health

By the end of this course the student will be able to:

- Describe the bidirectional relationship between mental health and nutrition.
- Explain the role of specific nutrients in neurotransmitter synthesis and brain function.
- Analyze dietary patterns linked with depression, anxiety, and other mental disorders.
- Evaluate nutritional interventions used in the management of mental health conditions.
- Recommend diet and lifestyle strategies to promote mental well-being and resilience.

Nutrition Practices in Critical Care

By the end of this course the student will be able to:

- Identify the nutritional challenges and needs of critically ill patients.
- Explain the principles and protocols of enteral and parenteral nutrition in ICU settings.
- Apply clinical judgment to assess and monitor nutrition status in critical care.
- Collaborate in the formulation of nutrition support plans for trauma, sepsis, burns, and post-operative patients.
- Evaluate outcomes of nutritional support using patient data and care indicators.

Nutrition in Inborn Errors of Metabolism

By the end of this course the student will be able to:

- Describe the pathophysiology and classification of major inborn errors of metabolism (IEMs).

- Explain dietary restrictions and nutrient modifications required in common IEMs (e.g., PKU, MSUD, galactosemia).
- Develop specialized meal plans and formulas suitable for managing IEMs.
- Interpret genetic, biochemical, and clinical markers relevant to nutrition management.
- Evaluate case scenarios and implement evidence-based dietary interventions for IEMs.

Preventive Nutrition

By the end of this course the student will be able to:

- Explain the role of nutrition in the prevention of chronic diseases and health promotion.
- Analyze risk factors and population data to identify nutritional prevention priorities.
- Design dietary and lifestyle interventions to reduce the risk of NCDs.
- Implement health promotion strategies in community and clinical settings.
- Evaluate the effectiveness of preventive nutrition programs using measurable outcomes