B.SC IN CLINICAL NUTRITION & DIETETICS

Overview of BSc Clinical Nutrition & Dietetics

BSc in Clinical Nutrition & Dietetics is an undergraduate program focused on the study of nutrition, dietetics, and their application in clinical settings. The program aims to equip students with the knowledge and skills to promote healthy eating habits, prevent and manage diet-related diseases, and work in healthcare settings as nutrition experts. It combines scientific knowledge with practical skills related to the role of dietitians and nutritionists in hospitals, clinics, and other healthcare environments.

Affiliated Institution: School of Medical Sciences and Technology, Malla Reddy Vishwavidyapeeth (Deemed to be University)****** The minimum eligibility for B.Sc. Clinical Nutrition & Dietetics is a pass in 10+2 with at least 50% marks in Physics, Chemistry and Biology from a recognized board (CBSE/ISC/PUC) or equivalent

Key Highlights

1. **Comprehensive Curriculum**: The program integrates subjects like biochemistry, physiology, food science, microbiology, and clinical nutrition.
2. **Clinical Practice**: Emphasis is placed on internships and clinical training in hospitals and clinics where students get hands-on experience in real-world healthcare settings.
3. **Focus on Health Promotion**: Students learn how to develop nutrition plans, assess patients' dietary needs, and educate individuals on healthy eating habits to manage or prevent health issues.
4. **Interdisciplinary Approach**: Includes collaboration with doctors, nurses, and other healthcare professionals to provide holistic care to patients.
5. **Global Relevance**: With increasing health concerns worldwide, the need for clinical nutrition professionals is rising, making the course highly relevant.

Course Curriculum

The curriculum varies slightly by institution, but here are the key subjects typically covered:

1. **First Year**:

    - ✓ Introduction to Nutrition and Dietetics
    - ✓ Human Physiology
    - ✓ Anatomy
    - ✓ Biochemistry
    - ✓ Food Chemistry
    - ✓ Microbiology
    - ✓ Introduction to Public Health

2. **Second Year**:

- ✓ Medical Nutrition Therapy
- ✓ Community Nutrition
- ✓ Food Science & Technology
- ✓ Clinical Nutrition & Dietetics
- ✓ Nutrition for Special Populations (e.g., elderly, pregnant women, children)
- ✓ Nutritional Biochemistry

3. **Third Year**:

   - ✓ Advanced Medical Nutrition Therapy
   - ✓ Dietetics and Therapeutic Diets
   - ✓ Clinical Practicum (internship or hospital training)
   - ✓ Food Service Management
   - ✓ Nutritional Epidemiology
   - ✓ Research Methodology

4. **Additional/Optional Courses**:

   - ✓ Sports Nutrition
   - ✓ Clinical Research in Nutrition
   - ✓ Functional Foods
   - ✓ Nutrition for Chronic Diseases

Career & Academic Opportunities

Career Opportunities

Graduates of BSc Clinical Nutrition & Dietetics can pursue careers in various settings, such as:

- ➢ **Clinical Dietitian**: Working in hospitals, clinics, and healthcare centers to provide dietary guidance for patients with medical conditions (e.g., diabetes, hypertension, cardiovascular diseases).
- ➢ **Community Nutritionist**: Focusing on public health initiatives and promoting good nutrition in communities, schools, and institutions.
- ➢ **Sports Nutritionist**: Specializing in nutrition for athletes, helping to optimize performance and recovery.
- ➢ **Health and Wellness Coach**: Advising individuals on healthy eating habits, fitness, and lifestyle changes to improve overall well-being.
- ➢ **Food Safety Specialist**: Ensuring that food systems and establishments adhere to health and safety standards.
- ➢ **Corporate Wellness**: Companies often hire nutritionists to design wellness programs for employees.
- ➢ **Private Practice**: Starting a consultancy in clinical nutrition or dietetics, providing individual consultations and dietary plans.
- ➢ **Public Health Nutritionist**: Working with government or NGOs to design programs that address malnutrition and diet-related diseases at a community or national level.

Academic Opportunities

Post-graduation opportunities include:

- **Master's Degree in Clinical Nutrition/Dietetics**: Specializing further in particular fields of nutrition.
- **Master's Degree in Public Health (MPH)**: For those interested in working on large-scale health programs.
- **Master's in Sports Nutrition**: For those seeking careers in fitness and sports nutrition.
- **Master's in Food Science or Food Safety**: For those interested in food technology, processing, and quality control.

Professional Certification/Accreditation

- **Registered Dietitian Nutritionist (RDN)**: Certification required in many countries to practice as a dietitian. To earn this certification, one typically needs to complete an accredited dietetic internship and pass an examination.
- **Certified Clinical Nutritionist (CCN)**: A certification for those wishing to focus on clinical aspects of nutrition.

Professional Opportunities

There are diverse professional opportunities for Clinical Nutrition & Dietetics graduates, which may include roles in:

- **Healthcare Settings**: Hospitals, rehabilitation centers, and long-term care facilities.
- **Academic Institutions**: Teaching, lecturing, and conducting research.
- **Food Industry**: Working in food companies, focusing on food labelling, health claims, and marketing.
- **Nutrition Research**: Engaging in studies related to food science, diet trends, and health interventions.
- **Pharmaceuticals and Supplements**: Contributing to the development of nutritional supplements or pharmaceutical products that aid in nutrition.

Higher Education and Research Prospects

- **Research Opportunities**: Many institutions offer opportunities to engage in clinical research related to nutrition. Students may work on studies related to disease prevention, the role of specific nutrients in health, and the development of dietary guidelines.
- **PhD in Nutrition or Dietetics**: For those who wish to pursue a career in academia or research, a PhD is a good option. It can open doors to higher-level positions in universities, governmental health organizations, and research institutions.
- **Post-Graduate Fellowships**: Many countries and universities offer fellowships that provide further specialization in areas like pediatric nutrition, geriatric nutrition, and metabolic diseases.

Final Thoughts

A BSc in Clinical Nutrition & Dietetics provides a solid foundation in both theoretical knowledge and practical experience. It opens the door to a wide range of career options in healthcare, wellness, research, and education. With the growing awareness of the importance of nutrition in health, the demand for skilled nutrition professionals is expected to rise, making this an excellent field for those interested in making a positive impact on public health and well-being.

Labs

1. Food Science & Analysis Lab

- **Purpose**: Understanding the composition, properties, and nutritional value of food.
- **Equipment & Facilities**:
  - ✓ Food microscopes
  - ✓ pH meters
  - ✓ Spectrophotometers (for food color analysis)
  - ✓ Food adulteration testing kits
  - ✓ Digital refractometers (for sugar content analysis)
  - ✓ Bomb calorimeters (for caloric value estimation)

2. Clinical Nutrition & Dietetics Lab

- **Purpose**: Training in dietary assessment, meal planning, and clinical nutrition therapy.
- **Equipment & Facilities**:
  - ✓ Body composition analysers (BIA, BMI calculators)
  - ✓ Diet planning software
  - ✓ Food models and portion control tools
  - ✓ Calorimeters for energy expenditure measurement
  - ✓ Anthropometric measurement tools (stadiometers, skinfold calipers)

3. Biochemistry & Metabolism Lab

- **Purpose**: Understanding human metabolism, nutrient absorption, and biochemical analysis.
- **Equipment & Facilities**:
  - ✓ Spectrophotometers
  - ✓ Centrifuges
  - ✓ Chromatography units (for vitamin and mineral analysis)
  - ✓ Blood glucose monitoring kits
  - ✓ Lipid profile analysers

4. Food Processing & Preservation Lab

- **Purpose**: Learning methods to enhance food shelf life and safety.
- **Equipment & Facilities**:

  - ✓ Freeze dryers
  - ✓ Dehydrators
  - ✓ Vacuum sealers
  - ✓ Canning and fermentation units
  - ✓ Food irradiation and pasteurization setups

5. Community Nutrition & Public Health Lab

- **Purpose**: Training in nutrition surveys, dietary interventions, and public health policies.
- **Equipment & Facilities**:

  - ✓ Survey and nutritional assessment tools
  - ✓ WHO growth charts and malnutrition assessment kits
  - ✓ Community kitchen setups
  - ✓ Health education models and posters

6. Therapeutic Diet Preparation Lab

- **Purpose**: Preparing and modifying therapeutic diets for specific medical conditions.
- **Equipment & Facilities**:

  - ✓ Dietetic kitchens with cooking stations
  - ✓ Texture-modified food preparation tools
  - ✓ Gluten-free and diabetic food processing units
  - ✓ Meal preparation guides and dietetic scales

7. Microbiology & Food Safety Lab

- **Purpose**: Understanding foodborne pathogens, hygiene, and food safety regulations.
- **Equipment & Facilities**:

  - ✓ Autoclaves and sterilization units
  - ✓ Culture media and microbial testing tools
  - ✓ ELISA kits for food allergy testing
  - ✓ HACCP (Hazard Analysis Critical Control Point) monitoring equipment

PROGRAM OUTCOMES (POs)

PO	Program Outcomes
PO-1	**Comprehensive Knowledge in Clinical Nutrition** Graduates will develop a strong foundation in the principles of human nutrition, dietetics, food science, and their applications in maintaining health and managing diseases.
PO-2	**Nutritional Assessment and Dietary Management** Graduates will acquire skills to assess nutritional status, analyze dietary habits, and design personalized diet plans for individuals with diverse health conditions.
PO-3	**Evidence-Based Practice and Research in Nutrition** Graduates will be trained to critically evaluate scientific research, apply evidence-based nutritional interventions, and contribute to advancements in clinical nutrition and dietetics.
PO-4	**Interdisciplinary Collaboration and Ethical Practice** Graduates will demonstrate effective communication and teamwork in healthcare settings, working collaboratively with medical professionals while upholding ethical and cultural considerations in patient care.
PO-5	**Community Nutrition and Public Health Awareness** Graduates will actively engage in community outreach programs, promoting public health initiatives, nutrition education, and disease prevention strategies to improve societal well-being.
PO-6	**Entrepreneurial and Leadership Skills in Nutrition Industry** Graduates will develop entrepreneurial abilities to establish nutrition-related ventures, manage diet clinics, and contribute to food and healthcare industries with innovative solutions.
PO-7	**Technological Integration in Nutrition Care** Graduates will be adept at using modern technologies, including digital health tools and dietary software, to enhance nutritional assessment, counseling, and patient care.
PO-8	**Lifelong Learning and Professional Growth** Graduates will embrace continuous learning, professional development, and active participation in national and global nutrition organizations to stay updated with emerging trends in clinical nutrition and dietetics.

COURSE STRUCTURE – B.Sc. Clinical Nutrition and Dietetics

Semester 1

Sl. No.	Broad Category	Course Code	Name of the Subject/Practical	Contact hours/week			Credits
				L	T	P	
1.	Major (Core)	BSCND101	Fundamentals of Human Anatomy & Physiology	2	1	0	3
2.		BSCND 102	Introduction to Nutrition & Dietetics	2	1	0	3
3.		BSCND 103	Basics of Biochemistry for Nutrition	2	0	2	3
4.		BSCND 104	Principles of Food Science	1	1	0	2
5.	**Minor** Select any two minor courses, each worth 2 credits, for a maximum of 4 credits per semester	BSCND 105	1. Food Safety & Hygiene 2. Basics of Food Microbiology 3. Fundamentals of Public Health Nutrition 4. Nutritional Anthropology & Food Habits 5. Sociology of Food & Nutrition 6. Sustainable Food Systems & Organic Farming	1 1	1 1	0 0	4
6.	Skill Enhancement Courses	BSCND 106	1. Basic Culinary Skills & Meal Planning 2. Food Labelling & Nutritional Analysis	0 0	0 0	2 2	2
7.	Ability Enhancement Courses	BSCND 107	1. English Communication Skills 2. Medical Terminology & Documentation	0	0	2	1
8.	Value-Added Courses	BSCND 108	1. Yoga & Wellness for Healthy Living 2. Mindful Eating & Lifestyle Management	1	0	2	2
			Total	10	5	10	**20**
			Total Contact Hours	**25**			

Course outcomes for B.Sc. Clinical Nutrition and Dietetics MAJOR- Fundamentals of Human Anatomy & Physiology

Sr. No.	Course Outcome	Description
1	**Understand the Structure and Function of Human Body Systems**	Explain the anatomy and physiology of major organ systems and their role in maintaining homeostasis.
2	**Describe the Basics of Cell and Tissue Structure**	Understand the organization of cells, tissues, and organs in the human body.
3	**Explain the Cardiovascular and Respiratory Systems**	Learn the structure, function, and regulation of the heart, blood vessels, and lungs.
4	**Understand the Digestive System and Nutrient Absorption**	Explain the physiological processes involved in digestion, absorption, and metabolism of nutrients.
5	**Describe the Endocrine System and Hormonal Regulation**	Understand how hormones regulate metabolism, growth, and body functions.
6	**Analyze the Nervous System and Sensory Organs**	Explain the role of the nervous system in maintaining body functions and sensory perception.
7	**Understand the Musculoskeletal System**	Learn about bones, muscles, and joints, and their role in movement and posture.
8	**Apply Knowledge of Anatomy & Physiology to Clinical Nutrition**	Relate anatomical and physiological concepts to dietary planning and disease management.

Course outcomes for B.Sc. Clinical Nutrition and Dietetics MAJOR- Introduction to Nutrition & Dietetics

Sr. No.	Course Outcome	Description
1	**Understand the Basic Concepts of Nutrition**	Define nutrients, their functions, and their importance for health and well-being.

Sr. No.	Course Outcome	Description
2	**Describe the Role of Macronutrients and Micronutrients**	Explain the functions, sources, and requirements of carbohydrates, proteins, fats, vitamins, and minerals.
3	**Explain the Relationship Between Diet and Health**	Understand the impact of balanced nutrition on disease prevention and health promotion.
4	**Analyze the Principles of Meal Planning**	Learn about food groups, portion sizes, and dietary guidelines for different age groups.
5	**Understand Nutritional Assessment Techniques**	Explain methods to evaluate nutritional status, such as BMI, dietary recall, and biochemical assessments.
6	**Describe the Importance of Hydration and Electrolyte Balance**	Understand the role of water and electrolytes in maintaining physiological functions.
7	**Explain the Role of Nutrition in Special Conditions**	Learn the dietary modifications needed for pregnancy, lactation, infancy, and aging.
8	**Apply Nutritional Principles in Dietetic Practice**	Develop skills for counselling, menu planning, and health promotion through diet.

Course outcomes for B.Sc. Clinical Nutrition and Dietetics
MAJOR- Basics of Biochemistry for Nutrition

Sr. No.	Course Outcome	Description
1	**Understand the Fundamentals of Biochemistry**	Explain the chemical basis of life, including biomolecules and metabolic pathways.
2	**Describe the Structure and Function of Carbohydrates**	Understand the metabolism of carbohydrates and their role in energy production.
3	**Explain the Metabolism of Proteins and Amino Acids**	Learn about protein digestion, amino acid metabolism, and nitrogen balance.
4	**Describe the Role of Lipids in Human Metabolism**	Understand lipid digestion, transport, and their significance in nutrition.

Sr. No.	Course Outcome	Description
5	**Analyze the Importance of Enzymes and Coenzymes**	Learn about enzyme function, regulation, and their role in metabolism.
6	**Understand the Biochemical Basis of Vitamins and Minerals**	Explain the metabolic roles of essential vitamins and minerals in human health.
7	**Describe Energy Metabolism and ATP Production**	Understand the biochemical pathways involved in energy generation and utilization.
8	**Apply Biochemical Concepts in Clinical Nutrition**	Relate biochemical principles to diet planning, metabolic disorders, and nutrition therapy.

Course outcomes for B.Sc. Clinical Nutrition and Dietetics

MAJOR- Principles of Food Science in Clinical Nutrition and Dietetics

Sr. No.	Course Outcome	Description
1	**Understand the Fundamentals of Food Science**	Explain the composition, structure, and properties of food components.
2	**Describe the Functional Properties of Carbohydrates, Proteins, and Fats**	Learn how macronutrients affect food texture, stability, and nutrition.
3	**Explain Food Processing and Preservation Methods**	Understand techniques such as freezing, drying, pasteurization, and fermentation.
4	**Analyze the Impact of Cooking on Nutritional Quality**	Learn how heat, pH, and food processing affect nutrient retention and bioavailability.
5	**Describe Food Additives and Their Role in Food Industry**	Understand the functions, benefits, and risks of preservatives, emulsifiers, and stabilizers.
6	**Explain Food Safety and Hygiene Principles**	Learn about foodborne diseases, contamination, and safe food handling practices.
7	**Understand Sensory Evaluation and Food Quality Assessment**	Explain methods for analysing texture, color, flavour, and overall food acceptability.

Sr. No.	Course Outcome	Description
8	**Apply Food Science Principles in Clinical Nutrition**	Use knowledge of food science to design therapeutic diets and improve food product development.

Course outcomes for B.Sc. Clinical Nutrition and Dietetics Minor- Food Safety & Hygiene

Sr. No.	Course Outcome	Description
1	**Understand the Principles of Food Safety**	Explain the importance of food safety in preventing foodborne illnesses.
2	**Describe Food Hygiene Practices**	Learn proper handling, storage, and preparation of food to maintain hygiene.
3	**Explain HACCP and Food Safety Regulations**	Understand hazard analysis and critical control points in food production.
4	**Identify Common Food Contaminants**	Learn about biological, chemical, and physical contaminants in food.
5	**Understand Personal and Environmental Hygiene in Food Handling**	Explain sanitation measures for food safety at personal and industrial levels.
6	**Describe Food Safety Standards and Certifications**	Understand food safety laws, labelling regulations, and certification processes.
7	**Analyze the Impact of Food Processing on Safety**	Learn how food processing techniques affect microbial growth and safety.
8	**Apply Food Safety Knowledge in Nutrition and Dietetics**	Implement hygiene practices in clinical nutrition, community settings, and food industries.

Course outcomes for B.Sc. Clinical Nutrition and Dietetics Minor- Basics of Food Microbiology

Sr. No.	Course Outcome	Description
1	**Understand the Basics of Microbiology**	Explain the classification and characteristics of microorganisms related to food.

Sr. No.	Course Outcome	Description
2	**Describe the Role of Microorganisms in Food Spoilage**	Learn about microbial growth, contamination, and foodborne pathogens.
3	**Explain the Principles of Fermentation**	Understand how microbes are used in food processing and preservation.
4	**Identify Methods for Microbial Detection in Food**	Learn laboratory techniques for detecting foodborne pathogens.
5	**Understand the Role of Probiotics and Prebiotics**	Explain the health benefits of beneficial bacteria in the human gut.
6	**Describe Food Preservation Methods**	Learn about sterilization, pasteurization, and refrigeration in controlling microbial growth.
7	**Analyze Foodborne Diseases and Their Prevention**	Understand the epidemiology of foodborne illnesses and safety measures.
8	**Apply Microbiological Knowledge in Food Safety**	Implement microbiological principles in food handling, storage, and quality control.

Course outcomes for B.Sc. Clinical Nutrition and Dietetics Minor- Fundamentals of Public Health Nutrition

Sr. No.	Course Outcome	Description
1	**Understand the Concept of Public Health Nutrition**	Explain the role of nutrition in health promotion and disease prevention.
2	**Describe Nutritional Assessment Methods**	Learn anthropometric, biochemical, and dietary assessment techniques.
3	**Analyze the Impact of Malnutrition and Deficiency Diseases**	Understand the causes and consequences of undernutrition and over nutrition.
4	**Explain Nutritional Interventions for Public Health**	Learn about supplementation, food fortification, and dietary diversification.
5	**Describe National and Global Nutrition Programs**	Understand government initiatives like ICDS, mid-day meals, and WHO guidelines.
6	**Understand the Role of Public Health Policies**	Explain the impact of food policies and programs on community nutrition.

Sr. No.	Course Outcome	Description
7	**Analyze Social and Cultural Determinants of Nutrition**	Learn how socioeconomic factors influence dietary habits and health outcomes.
8	**Apply Public Health Nutrition Strategies in Community Settings**	Develop interventions to improve nutrition at the population level.

Course outcomes for B.Sc. Clinical Nutrition and Dietetics Minor- Nutritional Anthropology & Food Habits

Sr. No.	Course Outcome	Description
1	**Understand the Relationship Between Culture and Nutrition**	Explain how cultural practices influence dietary habits and nutrition.
2	**Describe Food Habits Across Different Societies**	Learn how traditional diets are shaped by geography, history, and economy.
3	**Explain the Role of Religion and Beliefs in Food Choices**	Understand dietary restrictions and preferences based on religious beliefs.
4	**Analyze the Impact of Globalization on Food Habits**	Learn how modernization affects dietary transitions and food security.
5	**Understand Traditional and Indigenous Food Systems**	Explain the nutritional value of traditional diets and their role in health.
6	**Describe the Role of Anthropology in Nutritional Studies**	Learn anthropological research methods in studying food and nutrition.
7	**Analyze the Social Determinants of Dietary Patterns**	Understand how factors like income, education, and occupation shape eating habits.
8	**Apply Anthropological Knowledge in Nutrition Planning**	Develop culturally appropriate dietary interventions for different populations.

Course outcomes for B.Sc. Clinical Nutrition and Dietetics Minor- Sociology of Food & Nutrition

Sr. No.	Course Outcome	Description
1	**Understand the Social Aspects of Food and Eating**	Explain how food choices are influenced by social structures and cultural norms.
2	**Describe the Impact of Socioeconomic Factors on Nutrition**	Learn how income, education, and lifestyle affect dietary habits.
3	**Explain the Relationship Between Gender and Nutrition**	Understand the role of gender in food distribution, cooking, and nutritional status.
4	**Analyze Food Security and Global Hunger Issues**	Learn about poverty, food accessibility, and social inequality in nutrition.
5	**Understand the Role of Media in Shaping Food Trends**	Explain how advertising, social media, and marketing influence eating habits.
6	**Describe the Effects of Urbanization on Dietary Patterns**	Learn how urban lifestyles and fast food culture affect nutrition.
7	**Analyze the Cultural Significance of Food Practices**	Understand food as a symbol of identity, tradition, and social status.
8	**Apply Sociological Knowledge in Public Nutrition Policies**	Develop strategies to improve community nutrition through social interventions.

Course outcomes for B.Sc. Clinical Nutrition and Dietetics Minor- Sustainable Food Systems & Organic Farming

Sr. No.	Course Outcome	Description
1	**Understand the Concept of Sustainable Food Systems**	Explain the principles of sustainability in food production and consumption.
2	**Describe the Environmental Impact of Food Production**	Learn about soil degradation, water use, and greenhouse gas emissions in agriculture.
3	**Explain the Principles of Organic Farming**	Understand the benefits of chemical-free agriculture for health and the environment.
4	**Analyze Food Security and Sustainable Agriculture**	Learn about global challenges in ensuring food availability and access.

Sr. No.	Course Outcome	Description
5	**Describe the Role of Agro ecology and Permaculture**	Understand ecological farming practices that promote biodiversity.
6	**Understand the Economic and Social Aspects of Sustainable Food Systems**	Learn about fair trade, local food movements, and ethical sourcing.
7	**Explain Food Waste Management and Reduction Strategies**	Learn about composting, food redistribution, and minimizing food losses.
8	**Apply Sustainable Practices in Nutrition and Dietetics**	Promote sustainable eating habits and advocate for environmentally friendly food choices.

B.Sc. in Clinical Nutrition & Dietetics – Course Structure & Syllabus

Course Duration: 4 Years (8 Semesters)
Total Credits: 160
Total Teaching & Training Hours: ~4,500

Total Teaching Hours Distribution:

1. **Theory Classes:** ~1,800–2,000 hours
2. **Practical & Laboratory Training:** ~1,000–1,200 hours
3. **Clinical & Internship Training:** ~1,000–1,200 hours
4. **Research Work & Dissertation:** ~300–500 hours

Assessment Methods

Assessment Component	Weightage (%)	Details
Continuous Internal Assessment (CIA)	**40%**	Includes internal exams, assignments, presentations, case studies, and practical performance
End-Semester Examination (ESE)	**60%**	Divided into theory (40%) and practical (20%)
Mid-Semester Exams	**20%** (Part of CIA)	Two internal tests per semester

Assessment Component	Weightage (%)	Details
Assignments & Case Studies	**5%** (Part of CIA)	Research-based assignments, patient case studies, and literature reviews
Seminars & Presentations	**5%** (Part of CIA)	Oral/poster presentations on diabetes management and treatment approaches
Practical Performance & Clinical Evaluation	**5%** (Part of CIA)	Skill-based assessments in diabetic labs and clinical settings
Attendance & Participation	**5%** (Part of CIA)	Regularity in theory & practical sessions
Theory Examination (Final)	**40%** (Part of ESE)	Structured written paper covering subject knowledge
Practical Examination (Final)	**20%** (Part of ESE)	Includes viva, skill demonstration, and clinical diabetes case handling
Dissertation/Research Project (Final Year)	**Mandatory**	Evaluated in the final year by internal & external examiners
Clinical Internship/Training in Diabetes Care Centers	**Pass/Fail**	Logbook-based evaluation with mentor review

Program Details

- **Duration**:4Years (8 Semesters)
- **Total Credits**: **160–180 credits**
- **Total Teaching & Training Hours**: **6,000–6,500 hours**
- **Mode**: Classroom, Laboratory, Clinical Training, and Internship
- **Assessment**: Continuous Internal Assessment (CIA), Semester-End Examinations, Practical Examinations, Clinical Case Presentations, and Research Project
- **Internship & Research**: **One-Year Clinical Internship (Final Year)**

Total Hours Distribution

- **Theory Classes** – 2,500–2,800 hours
- **Practical & Laboratory Training** – 1,500–1,800 hours
- **Clinical Training & Internship** – 1,000–1,200 hours
- **Research & Dissertation** – 300–500 hours

Marking System & Grading

Marks (%)	Grade	Grade Point (GPA/CGPA Equivalent)	Classification
90 - 100	O (Outstanding)	10	First Class with Distinction
80 - 89	A+ (Excellent)	9	First Class with Distinction
70 - 79	A (Very Good)	8	First Class
60 - 69	B+ (Good)	7	First Class
50 - 59	B (Satisfactory)	6	Second Class
<50 (Fail)	F (Fail)	0	Fail (Re-exam Required)

Pass Criteria:

- **Minimum 50% marks in each subject** (Theory & Practical separately).
- **Aggregate of 55% required for progression** to the next semester.
- **No more than two backlogs** allowed for promotion to the final year.

Exam Pattern for Theory & Practical

A. Theory Examination Pattern

Total Marks: 100 (Converted to 40% for End-Semester Assessment)
Duration: 3 Hours

Section	Question Type	No. of Questions	Marks per Question	Total Marks
Section A	Short Answer Type (SAQ)	10 (Attempt all)	2	20
Section B	Long Answer Type (LAQ)	5 (Attempt any 4)	10	40
Section C	Case-Based/Clinical Scenarios	3 (Attempt any 2)	15	30
Section D	MCQs/Objective Type	10 (Compulsory)	1	10
Total				**100**

Weightage:

- Human Nutrition & Biochemistry – 40%
- Dietetics & Therapeutic Nutrition – 30%

- Research & Case Studies in Clinical Nutrition – 20%
- Public Health & Community Nutrition Strategies – 10%

Passing Criteria: Minimum **50% (50/100 marks)**

B. Practical Examination Pattern

Total Marks: 100 (Converted to 20% for End-Semester Assessment)
Duration: 4–6 Hours

Component	Marks Distribution
Clinical Case Presentation & Diabetes Assessment	30
OSCE (Objective Structured Clinical Examination) – Skill Demonstration	25
Diet & Lifestyle Counseling for Diabetic Patients	20
Lab-Based Examination (Blood Glucose Monitoring, HbA1c Test, Lipid Profile Analysis)	15
Record Work (Logbook & Assignments)	10
Total	**100**

OSCE (Skill-based Assessment) includes stations on:

- Anthropometric Measurements & Body Composition Analysis
- Diet Planning for Clinical Conditions (Diabetes, CKD, CVD, Cancer)
- Nutritional Assessment & Meal Planning
- Food Label Analysis & Nutrient Profiling

Passing Criteria: Minimum **50% (50/100 marks)** in practicals

Recommended Books & E-Resources

Textbooks

- **"Krause's Food & Nutrition Therapy"** – L. Kathleen Mahan
- **"Clinical Nutrition: A Functional Approach"** – Deanna Minich
- **"Human Nutrition & Dietetics"** – J. Garrow
- **"Essentials of Nutrition & Dietetics"** – Swaminathan

E-Resources & Journals

- **American Journal of Clinical Nutrition (AJCN)**
- **Academy of Nutrition & Dietetics (AND)** – www.eatright.org
- **World Health Organization (WHO) Nutrition Guidelines**
- **Indian Journal of Nutrition & Dietetics**

Career Opportunities after B.Sc. in Clinical Nutrition & Dietetics

- Clinical Dietitian in Hospitals & Clinics
- Sports & Fitness Nutritionist
- Public Health & Community Nutritionist
- Food Safety & Quality Control Expert
- Researcher in Nutrition & Metabolism