Re-Accredited 'B++' 2.86 CGPA by NAAC
VEER NARMAD SOUTH GUJARAT UNIVERSITY
University Campus, Udhna-Magdalla Road, SURAT - 395 007, Gujarat, India.
વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી
યુનિવર્સિટી કેમ્પસ, ઉધના-મગદલ્લા રોડ, સુરત - ૩૯૫ ૦૦૭, ગુજરાત, ભારત.
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ક્રમાંકઃઓથો./પરિપત્ર/૧૩૬૮૮/૨૦૨૬
તા.૨૩/૦૬/૨૦૨૬

પ્રતિ,
આચાર્યશ્રી,
શેઠ પી.ટી.મહિલા કોલેજ ઓફ આર્ટસ એન્ડ હોમસાયન્સ,
વનિતા વિશ્રામ કોલેજ કેમ્પસ,
અઠવાગેટ, સુરત.

વિષયઃ– NEP-2020 અંતર્ગત શૈક્ષણિક વર્ષ ૨૦૨૬–૨૭ થી અમલમાં આવનાર B.Sc. Home Science Sem.-7 & 8 ના અભ્યાસક્રમ બાબત.

સુજ્ઞશ્રી,

સવિનય જણાવવાનું કે, NEP-2020 અંતર્ગત શૈક્ષણિક વર્ષ ૨૦૨૬–૨૭ થી અમલમાં આવનાર B.Sc. Home Science Sem.-7 & 8 Honours (with OJT / without OJT) અને Honours with Research નો અભ્યાસક્રમ હોમસાયન્સ વિષયની અભ્યાસ સમિતિની તા.૧૯/૧૨/૨૦૨૫ની સભાનાં ઠરાવ ક્રમાંક :૦૩ થી મંજૂર કરવા વિજ્ઞાન વિદ્યાશાખાને કરેલ ભલામણ વિજ્ઞાન વિદ્યશાખાના અધ્યક્ષશ્રીએ વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને કરેલ ભલામણ એકેડેમિક કાઉન્સિલની તા.૧૮/૦૬/૨૦૨૬ની સભાના ઠરાવ ક્રમાંકઃ૧૦૧ થી મંજૂર કરેલ છે. જેનો અમલ કરવા આથી જાણ કરવામાં આવે છે.

(બિડાણઃ ઉપર મુજબ)

કુલસચિવ

પ્રતિ,
(૧) અધ્યક્ષશ્રી, વિજ્ઞાન વિદ્યાશાખા,
(૨) પરીક્ષા નિયામકશ્રી, પરીક્ષા વિભાગ, વીર નર્મદ દ. ગુ. યુનિવર્સિટી, સુરત.

.....જાણ સારૂ.

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

PROGRAM TITLE: BACHELOR OF SCIENCE, HOME SCIENCE (FOOD SCIENCE AND NUTRITION)

Name of Program	**B. Sc. Home Science (Honours) (Food Science and Nutrition)**
Program Abbreviation	B. Sc. Home Science (Food Science and Nutrition) Honours
Duration	Three Years (Degree) / Four Year (Honours Degree)
Eligibility Criteria	H.S.C. Passed with Arts /Commerce/ Science / Home Science / relevant stream from a recognized board
Pre-requisite	Basic knowledge of Biology, Chemistry, and Food Science concepts
Medium of Instruction	Gujarati & English
Objective of Program	1. To impart fundamental and advanced knowledge in food science and nutrition 2. To develop skills in food analysis, diet planning, and health promotion 3. To prepare students for careers in healthcare, food industry, and research 4. To promote awareness of community nutrition and public health 5. To encourage entrepreneurship in food and nutrition sector
Program Outcome (PO)	**PO1:** Apply knowledge of food science, nutrition, and health for problem-solving **PO2:** Understand principles of food processing, preservation, and safety **PO3:** Develop skills in diet planning for individuals and communities **PO4:** Analyse nutritional issues and provide appropriate solutions **PO5:** Conduct basic research and interpret scientific data **PO6:** Demonstrate communication, entrepreneurship, and professional skills **PO7:** Promote sustainable practices and ethical responsibility in food and nutrition
Program Specific Outcomes (PSO)	**PSO1:** Apply scientific knowledge in food preparation, processing, and preservation **PSO2:** Plan balanced diets for different age groups and disease conditions **PSO3:** Understand clinical and therapeutic nutrition practices **PSO4:** Analyse food quality, safety, and nutritional value **PSO5:** Conduct research and statistical analysis in food and nutrition **PSO6:** Develop entrepreneurial skills in food products and nutrition service

Mapping between Pos and PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
PO1	3	2	2	2	1	1
PO2	3	1	1	3	1	2
PO3	2	3	3	1	1	1
PO4	1	3	3	2	2	1
PO5	1	1	2	2	3	3
PO6	1	2	1	1	2	3
PO7	2	2	1	2	1	2

Structure of Program Honours B.Sc. Home Science (Food Science and Nutrition) Semester – 7

Course Category	Course Code	Course Title	Mark sheet Title in English	Course Level	Teaching Hours/ Week		Exam Duration		Credit		Internal Marks		External Marks		Total Marks		Grand total
					TH	PR	TH	PR	TH	PR	TH	PR	TH	PR	TH	PR	T+P
MAJOR	BFSNMJ-17	Nutritional Epidemiology &Anthropology	Nutritional Epidemiology &Anthropology	400-499	2	4	1	6	2	2	25	25	25	25	50	50	100
MAJOR	BFSNMJ-18	Scientific Writing in Food Science and Nutrition	Scientific Writing in Food Science and Nutrition	400-499	2	4	1	6	2	2	25	25	25	25	50	50	100
MAJOR	BFSNMJ-19	Functional Foods and Nutraceuticals	Functional Foods and Nutraceuticals	400-499	2	4	1	6	2	2	25	25	25	25	50	50	100
MINOR	706	Fundamentals of Cyber Security	Fundamentals of Cyber Security	400-499	4	-	2	-	4	-	50	-	50	-	100	-	100
Research Project / Dissertation/OJT		On Job Training or Research Project	On Job Training or Research Project	400-499	-	12	-	6	-	6	-	50	-	50	-	100	100
	Total Credit- 22																

[Subject code for Theory-2603030307011001]

[Subject code for Practical-2603030307011002]

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

SYLLABUS

Program Name	**B. Sc. Home Science (Honours) (Food Science and Nutrition)**					
Semester	**07**					
NCrF Credit Level	**06**					
Course Type	**Major**					
Course Subtype	**NIL**					
Subject Type	**Discipline Specific**					
Course Code	**BFSNMJ-17**					
Course Level	**400-499**					
Course Title	**Nutritional Epidemiology & Anthropology**					
Credit	**Theory:**	**2**	**Practical:**	**2**	**Total:**	**4**
Effective From	**Academic Year : 2026-27**					

Course Outcomes

CO1: Apply ethnographic and qualitative research methods in nutrition studies.
CO2: Conduct field-based data collection using interviews, observations, and surveys.
CO3: Analyse the role of cultural and social factors in food habits and nutritional status.
CO4: Interpret health and nutrition issues using a medical anthropology approach.
CO5: Integrate epidemiological and anthropological methods for community health assessment.
CO6: Prepare and present field reports based on research findings

Mapping between Cos and PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	✓	✓		✓		✓
CO2	✓		✓		✓	
CO3	✓		✓	✓		
CO4		✓		✓	✓	
CO5	✓	✓	✓		✓	
CO6	✓		✓	✓	✓	✓

Course Content

Theory
Unit - 1
A.
1. Introduction to Epidemiology
2. Definition, uses, branches of Epidemiology
3. Epidemiology and public health nutrition:
   a) Causation of diseases based on nutritional deficiencies
   b) Natural history of disease based on nutritional deficiencies
   c) Health status of populations
   d) Evaluating interventions

B.
1.Measurements in Health and Disease with a focus on nutrition
2.Definitions of diagnostic criteria: Measuring disease frequency, Population at

	risk, Incidence and prevalence, Case fatality **Unit – 2** 1.Interrelationships of the different measures: a) Mortality- Death rates, Infant mortality, Child mortality rate, Maternal mortality rate, adult mortality rate, Life expectancy, Age-standardized rates. b) Morbidity -Disability, Health determinants, indicators, and risk factors 2.Epidemic and endemic disease: Epidemics, Endemic diseases, Emerging and re-emerging infections, Chain of infection. **Practical** **Unit - 1** Methods of assessing anthropology and its relevance in food and nutrition 1.Ethnographic Research Methods a) Mixed Methods b) Observations c) In depth Interviews d) Transect Walk **Unit-2** **A.** Critical Medical Anthropology a) Medical ecological approach to understand biomedicine, public health and global political economic structures which focus on Health care systems b) Micro level c) Intermediate level **B.** Food and Nutrition Anthropology for combating health and disease
Reference Books	1. Bonita,R.,Beaglehole,R.,&Kjellström,T.(2006).Basicepidemiology. World Health Organization. 2. Norell, S. E. (1995). Workbook of epidemiology. Oxford University Press, USA.Moon, G., & Gould, M. (2000). Epidemiology: an introduction. McGraw-Hill Education (UK). 3. Chrzan, J., & Brett, J. (Eds.). (2017). Research Methods for Anthropological Studies of Food and Nutrition: Volumes I-III (Vol. 1). Berghahn Books. 4. Nambiar, V. (Ed.). (2021). Indian Food Anthropology and the Eat Right Movement- Volume 1. Selective & Scientific Books. ISBN: 978-81-951492-2-3. 5. Nambiar, V. (Ed.). (2021). Indian Food Anthropology and the Eat Right Movement- Volume 2. Selective & Scientific Books. ISBN: 978-81-951492-4-7.
Teaching Methodology	Lecture, Discussion, Field Visit , Lab work, Projects, Seminar, Assignments, Workshop
Evaluation Method	**Theory** Internal Assessment : 25 Marks External Assessment : 25 Marks **Practical** Internal Assessment : 25 Marks External Assessment : 25 Marks

[Subject code for Theory-2603030307022001]

[Subject code for Practical-2603030307022002]

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

SYLLABUS

Program Name	**B. Sc. Home Science (Honours) (Food Science and Nutrition)**					
Semester	**07**					
NCrF Credit Level	**06**					
Course Type	**Major**					
Course Subtype	**NIL**					
Subject Type	**Discipline Specific**					
Course Code	**BFSNMJ-18**					
Course Level	**400-499**					
Course Title	**Scientific Writing in Food Science and Nutrition**					
Credit	**Theory:**	**2**	**Practical:**	**2**	**Total:**	**4**
Effective From	**Academic Year : 2026-27**					

Course Outcomes

CO1: Understand the fundamentals and importance of scientific writing in food science and nutrition.
CO2: Apply appropriate structure and referencing methods in scientific documents.
CO3: Demonstrate ethical and effective scientific communication skills.
CO4: Enhance clarity, precision, and ethical standards in academic communication.
CO5: Provide hands-on practice in preparing manuscripts, abstracts, posters, and presentations.
CO6: Train students in structuring manuscripts, reports, and reviews in food science and nutrition.

Mapping between Cos and PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	✓		✓	✓	✓	
CO2	✓	✓				✓
CO3	✓		✓	✓	✓	
CO4		✓	✓		✓	✓
CO5	✓			✓		
CO6	✓	✓			✓	

Course Content

Theory

Unit - 1

1.Foundations of Scientific Writing

- Introduction to Scientific Writing
  Importance of scientific communication in food science and nutrition
  Types of scientific documents
  o Research articles
  o Review articles
  o Case studies
  o Scientific reports

- Principles of Scientific Writing
  - o Clarity
  - o Conciseness
  - o Accuracy
- Structure of Scientific Papers (IMRAD Format)
  - o Introduction
  - o Methods
  - o Results
  - o Discussion
- Technical Writing Components
  - o Writing titles, abstracts, and keywords
  - o Writing references and citations
  - o Writing style followed in food science and nutrition journals
- Literature Review and Reference Management
- Conducting Literature Searches
- Summarizing and Synthesizing Research Findings
- Referencing Styles
  - o APA
  - o Vancouver
  - o Harvard
- Use of Reference Management Tools
  - o Mendeley
  - o Zotero

Unit – 2

Ethics and Advanced Scientific Communication

- Ethics in Scientific Writing
  - o Plagiarism and its types
  - o Data fabrication and falsification
  - o Authorship criteria and acknowledgments
  - o Ethical issues in food and nutrition research publications
- Advanced Scientific Communication
  - o Writing grant proposals and project reports
  - o Preparing review articles and meta-analysis
  - o Communicating science to non-specialist audiences
    - Policy briefs
    - Blogs
    - Public communication

Practical

Unit – 1

1. Writing Exercises
   a. Drafting abstracts
   b. Writing introductions and conclusions
   c. Writing short reports on food science experiments
2. Manuscript Preparation
   a. Preparing a mini research paper based on lab or field data
   b. Formatting manuscript according to journal guidelines
3. Peer Review Simulation
   a. Reviewing peers' drafts for clarity, originality, and accuracy
   b. Providing constructive feedback

	Unit – 2 1. Presentation Skills 1. Preparing scientific posters 2. Designing slides for conferences 3. Oral presentation practice 2. Digital Tools and Publishing 1. Use of plagiarism detection tools 2. Grammar and editing tools 3. Citation management tools 4. Submitting manuscripts on online platforms
Reference Books	1. Day, R. A., & Gastel, B. How to Write and Publish a Scientific Paper. Cambridge University Press. 2. Hofmann, A. Scientific Writing and Communication. Oxford University Press. 3. Selected research articles from food science and nutrition journals. 4. FSSAI and FAO guidelines for food and nutrition research communication.
Teaching Methodology	• Lectures using presentations • Demonstration of research papers and journal formats • Literature review exercises
Evaluation Method	**Theory** Internal Assessment : 25 Marks External Assessment : 25 Marks **Practical** Internal Assessment : 25 Marks External Assessment : 25 Marks

[Subject code for Theory-2603030307033001]

[Subject code for Practical-2603030307033002]

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

SYLLABUS

Program Name	**B. Sc. Home Science (Honours) (Food Science and Nutrition)**					
Semester	**07**					
NCrF Credit Level	**06**					
Course Type	**Major**					
Course Subtype	**NIL**					
Subject Type	**Discipline Specific**					
Course Code	**BFSNMJ-19**					
Course Level	**400-499**					
Course Title	**Functional Food and Nutraceuticals**					
Credit	**Theory:**	**2**	**Practical:**	**2**	**Total:**	**4**
Effective From	**Academic Year : 2026-27**					

Course Outcomes

CO1: Understand the concept, classification and importance of functional foods and nutraceuticals.
CO2: Explain the role of probiotics, prebiotics and 14symbiotic in digestion and immunity.
CO3: Identify major nutraceutical compounds and describe their health applications and safety aspects.
CO4: Introduce the concept and scope of functional foods and nutraceuticals.
CO5: Understand their role in prevention of lifestyle diseases.
CO6: To study major nutraceutical compounds and their health applications.

Mapping between Cos and PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	✓	✓	✓	✓	✓	✓
CO2	✓		✓		✓	✓
CO3	✓		✓	✓		✓
CO4		✓		✓	✓	
CO5	✓	✓	✓		✓	✓
CO6	✓		✓	✓	✓	✓

Course Content

Theory

Unit - 1

1. Introduction to Functional Foods & Nutraceuticals
   a. Definition and scope
   b. Difference between normal foods, functional foods and nutraceuticals
   c. Importance in prevention of lifestyle diseases
   d. Common examples used in daily diets
2. Specific Functional Foods (Simple Benefits):
   a. Whole grains – fibre and digestion
   b. Fruits & vegetables – vitamins and antioxidants
   c. Milk & fermented foods – gut health
   d. Nuts & seeds – healthy fats

	e. Oils & fish – omega-3 basics f. Tea / coffee – benefits and limits **Unit - 2** 1. Probiotics, Prebiotics and Synbiotic a. Definitions (simple explanation) b. Natural food sources c. Role in digestion and immunity d. Basic mechanism of action e. Guidelines for safe use 2. Forms in which Nutraceuticals are Used: Capsules, Tablets, Powders, Functional Food & beverages 3. Major Nutraceuticals and Their Health Applications: Bioactive peptides, Curcumin, Resveratrol, Coenzyme Q10, Conjugated Linoleic Acid (CLA), Carnitine, Creatine 4. Safety and Adverse Effects Associated with Consumption of Functional Foods and Nutraceuticals **Practical** **Unit - 1** 1. Market Survey: Study and classification of available functional foods and nutraceutical products (capsules, fortified foods, beverages, etc.). 2. Preparation of Functional Recipes: ○ High-fibre product using whole grains ○ Omega-3 enriched recipe (using seeds where applicable) ○ Antioxidant-rich beverage (using fruits/tea) ○ Preparation of prebiotic/probiotic-rich recipes. 3. Case Study Presentation: Study of one major nutraceutical (Curcumin / CoQ10 / Glucosamine etc.) – source, benefits, dosage, safety. **Unit - 2** 1. Product Development: ○ Development of a simple functional food product with: ○ Ingredient justification ○ Nutritional significance ○ Target group ○ Cost estimation 2. Label Analysis and Development: Preparation of label information, health claims, FSSAI logo, dosage instructions, and warnings.
Reference Books	1. Gibson, G. R., & Williams, C. M. (Eds.). (2000). Functional Foods: Concept to Product. Woodhead Publishing. 2. Wildman, R. E. C., & Kelley, M. (2016). Handbook of Nutraceuticals and Functional Foods (2nd ed.). CRC Press. 3. Shahidi, F. (Ed.). (2009). Nutraceuticals and Functional Foods: Whole

	Foods and Health. CRC Press. 4. Bagchi, D. (Ed.). (2014). Nutraceutical and Functional Food Regulations in the United States and Around the World (2nd ed.). Academic Press. 5. Rastall, R. A., & Gibson, G. R. (2015). Prebiotics and Probiotics Science and Technology. Springer. 6. Roberfroid, M. (2007). Prebiotics: The Concept Revisited. CRC Press.
Teaching Methodology	Lecture, Discussion, Field Visit Laboratory demonstrations Hands-on preparation of products Product evaluation and sensory assessment
Evaluation Method	**Theory** Internal Assessment : 25 Marks External Assessment : 25 Marks **Practical** Internal Assessment : 25 Marks External Assessment : 25 Marks

Structure of Program Honours B.Sc. Home Science (Food Science and Nutrition) Semester – 8

Course Category	Course Code	Course Title	Mark Sheet Title in English	Course Level	Teaching Hours/Week		Exam Duration		Credit		Internal Marks		External Marks		Total Marks		Grand total
					TH	PR	TH	PR	TH	PR	TH	PR	TH	PR	TH	PR	
MAJOR	BFSNMJ-20	Food and Drug Interaction	Food and Drug Interaction	400-499	2	4	1	6	2	2	25	25	25	25	50	50	100
MAJOR	BFSNMJ-21	Sports Nutrition	Sports Nutrition	400-499	2	4	1	6	2	2	25	25	25	25	50	50	100
MAJOR	BFSNMJ-22	Statistics-Advance Research in Food science and Nutrition	Statistics-Advance Research in Food science and Nutrition	400-499	2	4	1	6	2	2	25	25	25	25	50	50	100
M INOR		Entrepreneurship	Entrepreneurship	400-499	4	-	2	-	4	-	50	-	50	-	100	-	100
Research Project / Dissertation/ OJT		On Job Training or Research Project	On Job Training or Research Project		-	12	-	6	-	6	-	50	-	50	-	100	100
Total Credit- 22																	

[Subject code for Theory-*2703030308011001*]

[Subject code for Practical-*2703030308011002*]

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

SYLLABUS

Program Name	**B. Sc. Home Science (Honours) (Food Science and Nutrition)**					
Semester	**08**					
NCrF Credit Level	**06**					
Course Type	**Major**					
Course Subtype	**NIL**					
Subject Type	**Discipline Specific**					
Course Code	**BFSNMJ-20**					
Course Level	**400-499**					
Course Title	**Food and Drug Interaction**					
Credit	**Theory:**	**2**	**Practical:**	**2**	**Total:**	**4**
Effective From	**Academic Year : 2026-27**					
Course Outcomes	**CO1:** Describe the concepts, classification, and significance of food–drug interactions **CO2:** Explain mechanisms affecting pharmacokinetics and nutrient metabolism **CO3:** Identify common food–drug interactions and their clinical implications **CO4:** Plan appropriate dietary modifications and counseling strategies during drug therapy					

Mapping between Cos and PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	✓	✓	✓	✓	✓	✓
CO2	✓	✓			✓	
CO3	✓		✓	✓	✓	✓
CO4	✓	✓	✓			✓

Course Content

Theory

Unit - 1

1.Concepts and Classification of Food–Drug Interactions

a. Definition, scope, and significance of food–drug interactions in clinical nutrition and public health

b. Classification of interactions:

- Food–drug interactions
- Drug–nutrient interactions
- Drug–drug interactions (brief correlation with food)

c. Factors affecting food–drug interactions:

- Physiological factors: age, gender, pregnancy, lactation
- Pathological conditions: liver disease, renal disorders, gastrointestinal disorders
- Drug-related factors: dosage, frequency, route of administration, formulation
- Dietary factors: meal composition, nutrient density, timing of food intake

d. Clinical significance and implications in patient care

Unit – 2

1.Specific Food–Drug Interactions

a. Interaction of antibiotics (tetracyclines, quinolones) with milk and mineral-rich foods
b. Interaction of anticoagulants (warfarin) with vitamin K-rich foods (green leafy vegetables)
c. Grapefruit juice interaction with statins and cardiovascular drugs
d. Interaction of antihypertensive drugs with sodium and potassium intake
e. Alcohol interactions with sedatives, hypoglycemic agents, and hepatotoxic drugs
f. Caffeine interactions with bronchodilators and central nervous system drugs
g. Fiber interactions affecting drug absorption and bioavailability
h. Drug-induced nutrient deficiencies:
- Oral contraceptives and vitamin metabolism
- Antitubercular drugs and vitamin B6 deficiency
- Diuretics and electrolyte loss (potassium, magnesium)

i. Clinical case examples and interpretation

2.Clinical Management and Nutritional Care

a. Identification and assessment of food–drug interactions in clinical settings
b. Methods for minimizing adverse interactions:
- Adjusting timing of drug administration with meals
- Modification of diet composition

c. Nutritional management during drug therapy:
- Planning balanced diets considering medication
- Prevention and correction of nutrient deficiencies

d. Patient counseling and education

Practical

Unit - 1

1. Case Study Analysis
- Detailed study of patient cases involving food–drug interactions
- Identification of interaction type, mechanism, and clinical outcome
- Documentation and presentation of findings

2. Diet Planning During Drug Therapy
- Preparation of therapeutic diets considering specific medications
- Modification of diets for patients on:
  - Antibiotics
  - Antihypertensive drugs
  - Antidiabetic drugs
  - Anticoagulants
- Calculation of nutrient intake and adjustments

Unit - 2

1. Interaction Identification Exercise
- Identification of potential food–drug and drug–nutrient interactions
- Suggestion of preventive and corrective measures

	2. Development of Patient Education Materials • Preparation of charts, posters, and leaflets on common food–drug interactions • Designing counselling guidelines for patients
Reference Books	1. Mahan, L. K., & Raymond, J. L. Krause's Food & the Nutrition Care Process. 2. Gropper, S. S., & Smith, J. L. Advanced Nutrition and Human Metabolism 3. Escott-Stump, S. Nutrition and Diagnosis-Related Care 4. Pronsky, Z. M. Food-Medication Interactions 5. Hospital Manuals 6. Case Records
Teaching Methodology	Lecture, Discussion, Assignments, Group discussion Demonstration, Case Study Method, Role Play, Practical Exercises
Evaluation Method	**Theory** Internal Assessment: 25 Marks External Assessment: 25 Marks **Practical** Internal Assessment: 25 Marks External Assessment: 25 Marks

[Subject code for Theory-*2703030308022001*]

[Subject code for Practical-*2703030308022002*]

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

SYLLABUS

Program Name	**B. Sc. Home Science (Honours) (Food Science and Nutrition)**					
Semester	**08**					
NCrF Credit Level	**06**					
Course Type	**Major**					
Course Subtype	**NIL**					
Subject Type	**Discipline Specific**					
Course Code	**BFSNMJ-21**					
Course Level	**400-499**					
Course Title	**Sports Nutrition**					
Credit	**Theory:**	**2**	**Practical:**	**2**	**Total:**	**4**
Effective From	**Academic Year : 2026-27**					
Course Outcomes	**CO1:** Explain energy systems and nutrient metabolism in sports. **CO2:** Assess dietary intake and energy expenditure of athletes. **CO3:** Design pre-, intra-, and post-event diet plans. **CO4:** Evaluate hydration strategies and electrolyte balance. **CO5**: Critically analyze sports supplements and ergogenic aids. **CO6:** Apply ethical principles in sports nutrition practice.					

Mapping between Cos and PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	✓	✓	✓	✓	✓	✓
CO2	✓	✓	✓		✓	✓
CO3	✓		✓	✓	✓	
CO4	✓	✓		✓	✓	✓
CO5	✓	✓	✓	✓	✓	✓
CO6	✓		✓	✓	✓	✓

Course Content

Theory

Unit - 1

Introduction to Sports Nutrition – scope, energy systems, athlete vs. non-athlete nutrition. Assessment of health and fitness of an athlete, assessment of physique –

- Kin anthropometry
- Dietary assessment
- Physical fitness

	• Biochemical and Clinical assessment **Unit – 2** ● Macronutrients – carbohydrate loading, protein requirements, and fat adaptation. ● Metabolism, intake,, and performance of an athlete. ● Metabolism, intake, performance and nutrient periodization and meal timing ● Micronutrients & Hydration strategies – vitamins, minerals, fluid balance, sports drinks. ● Metabolism, intake, performance and nutrient periodization, and meal timing. ● Applied Sports Nutrition – endurance vs. strength sports, supplements, recovery, ethics. **Practical** **Unit – 1** 1. Body Composition & Fitness Assessment o BMI, waist-hip ratio, skinfold thickness o VO2 max estimation (field methods) 2.Dietary Assessment – o 24-hour recall, food frequency questionnaire, nutrient analysis using software/tools 3.Meal Planning for Athletes o Sport-specific meal plans (endurance, strength, weight-class) o Vegetarian/vegan adaptations **Unit – 2** 1. Hydration & Electrolyte Balance o Preparation and evaluation of sports drinks o Sweat rate calculation and hydration plan 2. Supplement Evaluation o Label reading o Efficacy and safety analysis o Mock counseling sessions 3. Case Study Analysis o Athlete profiles, performance issues o Nutrition interventions, group presentations 4. Field Exposure / Guest Interaction o Visit to sports academy or session with a sports dietitian or Ayurvedic practitioner
Reference Books	• Burke, L. & Deakin, V. Clinical Sports Nutrition. • Williams, M.H. Nutrition for Health, Fitness, & Sport. • Jeukendrup, A. & Gleeson, M. Sport Nutrition: An Introduction to Energy

	Production and Performance. • Journal: International Journal of Sport Nutrition and Exercise Metabolism.
Teaching Methodology	Lectures with multimedia support, Case studies and group discussions. Practical demonstrations (diet planning, hydration assessment, Supplement evaluation), Project-based learning (athlete diet chart preparation), Field visit to sports complex and stadiums
Evaluation Method	**Theory** Internal Assessment: 25 Marks External Assessment: 25 Marks **Practical** Internal Assessment: 25 Marks External Assessment: 25 Marks

*[*Subject code for Theory-*2703030308033001]*

*[*Subject code for Practical-*2703030308033002]*

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

SYLLABUS

Program Name	**B. Sc. Home Science (Honours) (Food Science and Nutrition)**					
Semester	**08**					
NCrF Credit Level	**06**					
Course Type	**Major**					
Course Subtype	**NIL**					
Subject Type	**Discipline Specific**					
Course Code	**BFSNMJ-22**					
Course Level	**400-499**					
Course Title	**Statistics-Advance Research in Food science and Nutrition**					
Credit	**Theory:**	**2**	**Practical:**	**2**	**Total:**	**4**
Effective From	**Academic Year : 2026-27**					
Course Outcomes	**CO1:** Demonstrate understanding of statistical principles and advanced research approaches used in food science and nutrition. **CO2:** Analyse nutritional and food-related data using appropriate descriptive and inferential statistical methods. **CO3:** Utilize statistical software to manage data, perform analyses, and present results effectively. **CO4:** Plan and execute basic research studies, including formulation of hypotheses, sampling strategies, and data interpretation. **CO5:** Evaluate scientific evidence critically and apply findings to support research and professional practice in food science and nutrition.					

Mapping between Cos and PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	✓	✓		✓	✓	✓
CO2	✓	✓	✓		✓	✓
CO3	✓		✓	✓		
CO4	✓	✓		✓	✓	✓
CO5	✓	✓	✓		✓	

Course Content

Theory

Unit - 1

A.

- Types of research:
  Basic, applied, clinical, and epidemiological research
- Role of statistics in research planning and interpretation
  Data, Variables, and Measurement Scales
- Types of data
  Primary and secondary data
- Types of variables: Independent and dependent variables
- Measurement scales:

Nominal, Ordinal, Interval, Ratio

- Indicators and levels of measurement
- Introduction to data quality in research

B.

Descriptive Statistics and Data Presentation

- Measures of central tendency:
  - Mean
  - Median
  - Mode
- Measures of dispersion:
  - Range
  - Standard deviation
- Z-score and its significance
- Presentation of data:
  - Tables
  - Diagrams
  - Graphs and charts

Unit – 2

A.

Sampling, Hypothesis Testing, and Statistical Errors

- Concept and importance of sampling
- Sample size considerations
- Hypothesis:
  - Null hypothesis
  - Alternative hypothesis
- Levels of significance
- Errors in statistical testing:
  - Type I error
  - Type II error

B.

Inferential Statistics, Correlation, Regression, and Software Application Inferential statistics: concept and importance

Statistical tests:

- Z- test
- t-test
- Paired t-test
- F-test (ANOVA)
- Chi-square test

- Correlation:
  - Karl Pearson's correlation coefficient
- Regression analysis:
  - Simple linear regression
- Introduction to statistical software:
  - MS Excel
  - SPSS
  - JASP / JAMOVI (overview)
- Interpretation of outputs and results

	Practical **Unit – 1** **1.** Data Handling and Descriptive Analysis ● Data entry and coding using statistical software ● Preparation of frequency tables and charts (bar diagram, histogram, pie chart) ● Calculation of mean, median, mode ● Computation of variance and standard deviation ● Analysis of dietary intake and anthropometric data 2. Inferential Statistical Analysis ● Testing of hypotheses using sample data ● Application of t-test (independent and paired) ● Chi-square test for categorical data ● One-way ANOVA for comparison of groups ● Correlation and simple regression analysis **Unit – 2** 1. Advanced Statistical Techniques ● Two-way ANOVA ● Non-parametric tests (Mann–Whitney U test, Wilcoxon test) ● Multiple regression analysis (basic level) ● Interpretation of software-generated outputs ● Presentation of results in tables and graphs 2. Research Project and Report Writing ● Designing a small-scale research study ● Development of questionnaire/survey tool ● Data collection and sampling procedure ● Data analysis using statistical software ● Preparation and presentation of research report/project
Reference Books	1. Daniel, W. W. (1978). Biostatistics: A foundation for analysis in the health sciences (Vol. 129). New York, NY: Wiley. 2. Daniel, W. W., & Cross, C. L. (2013). Biostatistics: A foundation for analysis in the health sciences (10th ed.). Hoboken, NJ: Wiley. 3. Hooda, B. K. (2017). Manual on statistical methods for applied statistics. Retrieved from ResearchGate. Statistical Methods for Applied Sciences (Manual) 4. Kothari, C. R. (2004). Research methodology: Methods and techniques. New Delhi, India: New Age International Publishers. 5. Nelson, M. (2020). Statistics in nutrition and dietetics. Oxford, UK: Wiley-Blackwell. 6. Pounis, G. (2018). Analysis in nutrition research: Principles of statistical methodology and interpretation of results. London, UK: Academic Press. 7. Smith, G. (1998). Introduction to statistical reasoning. Upper Saddle River, NJ: Prentice Hall. 8. Bruce, P., & Bruce, A. (2017). Practical statistics for data scientists: 50 essential concepts. Sebastopol, CA: O'Reilly Media.
Teaching Methodology	Lecture, Discussion, Assignments, Group discussion Demonstration, Case Study Method, Role Play, Practical Sessions, , Problem-Based Learning

Evaluation Method	**Theory** Internal Assessment: 25 Marks External Assessment: 25 Marks **Practical** Internal Assessment: 25 Marks External Assessment: 25 Marks