

VANITA VISHRAM WOMEN'S UNIVERSITY
SCHOOL OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF FOOD AND NUTRITION

Ph.D. (Food and Nutrition)



VANITA VISHRAM
WOMEN'S UNIVERSITY
— SURAT —

*Syllabus applicable to the students seeking
admission in the following program*

Ph.D. Entrance Examinations under LOCF w.e.f. the Academic

Year 2022-2023

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1. PREAMBLE – VVWU

Vanita Vishram Women's University (VVWU) is the First-ever Women's University of Gujarat approved by the Government of Gujarat under the provisions of the Gujarat Private Universities Act, 2009. It is a University committed to achieve Women's Empowerment through Quality Education, Skill Development, and by providing employment opportunities to its girl students through its model curriculum, integration of technology in pedagogy and best-in-class infrastructure. The focus is on prioritizing practical component and experiential learning supported through academia-industry linkages, functional MoUs, skill development training, internships etc. It aims at providing opportunities to the girl students for holistic development and self-reliance.

VISION

Empowerment of women through quality education and skill development, so as to make them strong pillars of stability in the society.

MISSION

To provide Education & Professional Training to all women for their all-round development, so as to enable them to become economic

2. **Introduction of the Program**

Ph.D. in Food and Nutrition is the study of Science and in this program, the primary focus is food, nourishment, nutrition, diet and their production, management, safeguarding, preservation, etc. The program helps to provide candidates with a wide range of both innovative practices and fundamental principles in the subject areas. Students will be trained in a way that they will be able to work as an integral part of the Healthcare team.

3. **Program Specific Objectives (PSOs)**

- To train new researchers and prepare teams that can successfully tackle the challenge that Food and Nutrition and their relationship with Health represent.
- To promote the training of new university teachers in the disciplines related to these sciences.
- To specialise those postgraduates who are interested in this broad and extremely important field of research for their professional, scientific and technical development.

4. **Program Specific Outcomes (PSOs)**

Upon completion of the Ph.D. degree in Food and Nutrition, students will demonstrate:

- **Knowledge**
Identify and conduct original research in the field of nutrition.
- **Critical thinking and problem solving**
Think critically, creatively and solve problems in their field of study.
- **Ethical Conduct**
Conduct research in an ethical and responsible manner.
- **Professional Development**
Demonstrate attributes of professional development consistent with the expectation within their field of study.
- **Presentations and publications**
- The student is also expected to show a high level of written and oral communication skills exhibited in the research presentations at national/international conferences, and publications in Food and Nutrition.

**Ph.D. Entrance Exam
Course-I**

Food Science	
Course Objectives	
<ul style="list-style-type: none"> • Understand the concept of Food Science • Learn general principles of Food Science 	
Course Outcome:	
<ul style="list-style-type: none"> • Students will get acquainted with various basic concepts of food science and nutrition. • Students will learn about various food processing techniques. 	
THEORY COURSE CONTENT	
S.No.	STRUCTURE
Unit 1	Principles of Food Preparation and Preservation
	<ul style="list-style-type: none"> • Food Groups • Food Preparation • Food Preservation • Food Processing • Macro/micronutrients and trace element:- Food sources – general and specific sources. Relevance and essentiality – involvement in biochemical reactions and nutritional implications. • Assessment of nutrient analysis in food materials. Toxicity and deficiency - levels, symptoms, health consequences and their management.
Unit 2	Processing of foods <ul style="list-style-type: none"> • Wheat • Millets • Rice • Fruits and vegetables • Legumes • Fats and oils • Milk and milk products • Sugar and confectionaries • Eggs, meat and fish • Beverages <ul style="list-style-type: none"> ○ Quality evaluation of foods- objectives and subjective. ○ Effects of cooking and processing techniques on nutritional components and other physical parameters, food preservation and application.

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| | ○ Food pigments and additives. |
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REFERENCES

1. Food and the Nutrition Care Kraine, Mahan and Escott-Stump (Latest Ed.)
2. Modern Nutrition in Health and Disease, Shills Etd.
3. Tressler DK and Joslyn MA : Fruit and Vegetable juice production, Connecticut,USA: AVI
4. Bhatia SC., Canning and Preservation of Fruits and Vegetables, - New Delhi India.
5. Fellows PJ. Food Processing Technology : Principles and Practice, II edition, CRC Woodhead Publishing Ltd. Cambridge.
6. Desrosier N W: Elements of Food Technology, Connecticut, USA: AVI Publishing Company.

**Ph.D. Entrance Exam
Course-II**

Nutrition during Life Span	
Course Objectives	
<ul style="list-style-type: none"> ● To enable the students to get acquainted with the requirements of nutrients for various age groups. ● To make the students aware of the importance of maintaining good health through diet during various criteria of life. 	
Course Outcome:	
<ul style="list-style-type: none"> ● Students will get acquainted with the special characteristics of various ages during the life span. ● Students will become aware about the latest advantages and disadvantages of various age groups and modify the diet accordingly. 	
THEORY COURSE CONTENT	
S.No.	STRUCTURE
Unit 1	<ul style="list-style-type: none"> ● Pregnancy – Physiological adjustments, nutritional requirements, nutritional status of Indian Pregnant women, effect of malnutrition on outcome of pregnancy, complications of pregnancy. ● Lactation – Physiology of lactation, factors affecting lactation, nutritional requirements, effect of lactation on maternal malnutrition and fertility. ● Infancy – Growth and development, nutritional requirements, feeding pattern, compositional differences between human milk and milk substitute and their suitability for infant feeding. Weaning practices, weaning and supplementary foods.
Unit 2	<ul style="list-style-type: none"> ● Preschool age - Growth and development, nutritional requirements, special care in feeding preschoolers, nutritional problems specific to this age. ● School age and adolescent children – Growth and development, nutritional requirements, factors affecting their eating habits, nutritional problems specific to this age. ● Young adults – Nutritional requirements, nutritional status of Indian adult population, nutritional problems common to this age. ● Elderly – Nutritional requirements, special needs, nutritional problems.
REFERENCES	
<ol style="list-style-type: none"> 1. Mudambi, S.R., Rajgopal, M.V.(1990) Fundamentals of Foods and Nutrition, New Age International Pvt. Ltd. 2. Nutrient Requirements and Recommended Dietary Allowances for Indians I.C.M.R. Publication 1999. 	

ANNEXURE-I

3. Robinsson, and Lawler. (1986) Normal and Therapeutic Nutrition. Mac Millan Pub. Co.
4. Elenor N., Whitney S., Rady R. (1993): Understanding Nutrition, West Publishing Company, Minneapolis.
5. Guthrie Helen (1986) Introductory Nutrition. Times Mirror/ Mosby College Publishing.
6. Joshi, Shubhangini (2009), Nutrition and Dietetics, Mcgraw Hill.

**Ph.D. Entrance Exam
Course-III**

Public Health Nutrition	
Course Objectives	
<ul style="list-style-type: none"> ● To recognize the importance of malnutrition as an obstacle for community development. ● To understand various methods of assessment of nutritional status in the community. ● To be familiar with strategies and programs for improving nutrition and health of vulnerable groups in the community. 	
Course Outcome:	
<ul style="list-style-type: none"> ● This course will help to get in depth knowledge about various public health agencies, strategies to improve public health status. 	
THEORY COURSE CONTENT	
S.No.	STRUCTURE
Unit 1	<p>Public Health Nutrition</p> <ul style="list-style-type: none"> ● Aims and scope, primary prevention, nutritional epidemiology, public health and health promotion. ● Public Health Nutrition: Aims and scope, primary prevention, nutritional epidemiology, public health and health promotion. b. Nutrition related non-communicable diseases (Indian Perspective) – Demographic, developmental and nutrition transition and its impact on chronic diseases, prevalence and determinants, nutritional management and prevention strategies.
Unit 2	<ul style="list-style-type: none"> ● Food standards, microbiological safety of food, HACCP, food packaging. ● Perspectives of food service-menu planning, food cost analysis. ● Food service management of institutional level-hospital, educational institutions, social and special institutions.
REFERENCES	
<ol style="list-style-type: none"> 1. Oxford University, Press 2. Nutrient requirements & Recommended Dietary Allowances for Indians Indian Council of Medical Research, NIN Hyderabad. 3. Sachdeva, H.P. Nutrition in children. Department of Pediatrics, Maulana Azad Medical College, New Delhi. 	

Ph.D. Entrance Exam
Course- IV

Therapeutic Nutrition	
Course Objectives	
<ul style="list-style-type: none"> • Understand the basic principles of diet therapy • Understand the etiology, Physiologic and Metabolic Anomalies of acute and chronic diseases and patient needs. • Know the effect of the various diseases on nutritional status and nutritional and dietary requirements. • Be able to recommend and provide appropriate nutritional care for the prevention and treatment of various diseases. 	
Course Outcome:	
<ul style="list-style-type: none"> • Students will understand the concept of research and different types of research in the context of Food, Nutrition and Dietary management. 	
THEORY COURSE CONTENT	
S.No.	STRUCTURE
Unit 1	<ul style="list-style-type: none"> • Dietary Management of diseases • Medical Nutrition therapy- Febrile conditions, gastro-intestinal disorders, liver diseases, renal disorders. • Nutrition in critical care- nutrition support systems and associated complications. • Nutrition related non-communicable diseases (Indian Perspective) – Demographic, developmental and nutrition transition and its impact on chronic diseases, prevalence and determinants, nutritional management and prevention strategies
Unit 2	<ul style="list-style-type: none"> • Assessment methods for research and practice – Dietary, anthropometric, clinical, functional, biochemical tests, body composition, as applicable in individuals, populations and specific situations, Integrating assessment data – subjective global assessments. • Nutrition in health care – Illness and nutrition status, health professionals and nutrition care, nutrition screening, nutrition care process, ethical issues in nutrition care.
REFERENCES	
<ol style="list-style-type: none"> 1. Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd. 2. Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9th Edition, Williams and Wilkins. 3. Escott-Stump, S. (1998): Nutrition and Diagnosis-Related Care, 4th Edition, Williams and Wilkins. 4. Garrow, J.S., James, W.P.T. and Ralph, A. (2000): Human Nutrition and Dietetics, 10th Edition, Churchill Livingstone. 	

Ph.D. Entrance Exam**Course- V**

Food Quality and Safety	
Course Objectives	
<ul style="list-style-type: none"> • Understand the importance of micro-organism in food spoilage • Understand the latest procedures adopted to prevent food-borne disorders and legal aspects involved in these areas. 	
Course Outcome:	
<ul style="list-style-type: none"> • To gain deeper knowledge of the role of microorganisms in humans and the environment. 	
THEORY COURSE CONTENT	
S.No.	STRUCTURE
Unit 1	<ul style="list-style-type: none"> • Concept and meaning of food quality and food Safety. • National and international food laws, food standards and Governing bodies. • Hazard analysis and critical control points in processing of foods. • Quality control in the Food industry. • Product development and sensory evaluation.
Unit 2	<ul style="list-style-type: none"> • Food spoilage and its control. Contamination and spoilage of cereal, pulses, vegetables, fruits, flesh foods, eggs, poultry, marine products, milk & milk products. • Preservation of foods: Principles and techniques of preservation - Food dehydration and concentration, heat processing, cold preservation, chemicals and irradiation.
REFERENCES	
<ol style="list-style-type: none"> 1. Frazier, W.C. (1988): Food Microbiology, McGraw Hill Inc. 4th Edition. 2. Jay, James, M.(2000) : Modern Food Microbiology, 6th Edition, Aspen Publishers Inc. Maryland. 3. Banwant, G. (1989): Basic Food Microbiology, 2nd Edition. CBS Publishers. 4. Garbutt, J. (1997): Essentials of Food Microbiology. 1st Edition, Arnold International Students Editions. 5. Doyle, P. Benehat, L.R. and Mantville, T.J. (1997): Food Microbiology, Fundamentals and Frontiers, ASM, Washington DC. 	

**Ph.D. Entrance Exam
Course- VI**

Recent concepts in Food Science and Nutrition	
Course Objectives	
<ul style="list-style-type: none"> ● To understand the scientific approaches to recent advances. ● To understand the significance of advancement in food and nutrition. 	
Course Outcome:	
<ul style="list-style-type: none"> ● Students will understand the recent concepts in Food Science, Nutrition and Applied Science. 	
THEORY COURSE CONTENT	
S.No.	STRUCTURE
Unit 1	<ul style="list-style-type: none"> ● Nutrigenomics, nutrition for space travelers, nutraceuticals, functional foods.
Unit 2	<ul style="list-style-type: none"> ● Genetically modified foods, fat substitutes, emerging food processing technologies (nanotechnology, microencapsulation, biopolymers for packaging, active packaging, edible gums and coatings, pulsed electric fields, supercritical extraction, membrane filtration).
REFERENCES	
<ol style="list-style-type: none"> 1. International Food Policy Research Institute (1997). Care and Nutrition : Concepts and Measurement. International Food Research Institute Washington DC., USA. 2. International Child Health : A Digest of Current Information. 3. Barker, D.J.P. (1998). Mothers, Babies and Health in Later Life. Edinburgh, Churchill Livingstone 4. Ward, R.H.T; Smith, S.K. Donnai, D. (Eds.) (1994) Early Fetal Growth and Development. London, RCOG Press. 5. Sachdev, IIPS and Choudhary, P. (1995), Nutrition in Children Developing Country Concerns. Cambridge Press, New Delhi. 	

**Ph.D. Entrance Exam
Course- VII**

Applied Science	
Course Objectives	
<ul style="list-style-type: none"> ● To understand the scientific approaches to human anatomy and physiology. ● To understand the significance of biochemistry in the field of nutrition. 	
Course Outcome:	
<ul style="list-style-type: none"> ● Students will understand the basic concepts in human physiology, nutritional biochemistry and applied science. 	
THEORY COURSE CONTENT	
S.No.	STRUCTURE
Unit 1	<ul style="list-style-type: none"> ● Carbohydrate Metabolism ● Lipid Metabolism ● Protein Metabolism ● Vitamins ● Regulation of enzymes
Unit 2	<ul style="list-style-type: none"> ● General meaning and definition of anatomy and physiology ● Cell structure and its function ● Organization, physical structure, functional system of cell ● Blood physiology ● Cardiac physiology ● Renal physiology ● Gastrointestinal tract physiology
REFERENCES	
<ol style="list-style-type: none"> 1. Ross and Wilson. (2006): Anatomy and Physiology in Health and Illness, 10th Edition, Churchill Livingstone Elsevier. 2. Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd. 3. Murray, R.K. Granner, P.A. Mayes, V.W. Rodwell (1988) Harper's Biochemistry. 21st Edition. Prentice Hall of Australia Pvt. Ltd. 4. Lehninger, A.L. (1987) Principles of Biochemistry – CBS Publishers and Distributors. 	