



# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

## DUAL DEGREE PROGRAM (B.Sc-M.Sc. Food and Nutrition)

### B. Sc. Food and Nutrition Sem II (2020-2021)

Subject Code	Category	Subject Name	Teaching and Evaluation Scheme								
			Theory			Practical		Th	T	P	CREDITS
			End Sem University Exam	Two Term Exam	Teachers Assessment	End Sem University Exam	Teachers Assessment				
FSN 201	II	Food Science II	60	20	20	0	0	4	0	0	4

Abbreviation		Teacher Assessment (Theory) based on following components: Quiz / Assignment / Project / Participation in class (Given that no component shall exceed 10 Marks).
Th	Theory	
T	Tutorial	Teacher Assessment (Practical) based on following components: Viva/ File/ Participation in Lab work (Given that no component shall exceed 50% of Marks).
P	Practical	

#### Course Objective

To impart knowledge pertaining to different food groups, nutritive value and importance in daily diet.

#### Course Outcome

- Student should be able to differentiate between the food and its groups.
- Student should be able to tell the nutritional importance of different food groups.

#### FSN 201: Food Science II

UNIT I: Fats and Oils: Types and sources (animal and vegetable), Processing, uses in different preparations, storage and nutritional aspects.

UNIT II: Meat, fish and poultry - Classification, structure and composition, identification of meat cuts, factors affecting quality, tenderization of meat, cooking methods, gelatin –composition, properties and uses.

Eggs: Production, grade, quality selection, storage and spoilage, nutritional aspects and use in different preparations.



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UNIT III: Fruits and Vegetables- Classification, names and sources of pigments, effects of cooking, canning, freezing, enzymes and flavour components in vegetables and fruits, nutritional loss during cooking, enzymatic browning.

UNIT IV: Condiments and spices: Composition and importance of spices.

Beverages: Tea; Coffee. Chocolate and Cocoa Powder-Processing, nutritional aspects, other beverages- Aerated beverages, juices.

UNIT V: Enzymes in food- Introduction, General characteristics, Specificity of enzymes, Sources of enzymes, Enzyme technology and application - Immobilized enzymes, Application of enzymes in food processing.

#### Reference Books:

- Food Science by B. Srilakshmi, publishing, New Age International (P) ltd. publications.
- Food Science by N.N. Potter, CBS publishing.
- Food Science by S. Manay, New Age International (P) ltd. publications.
- Mudambi S R (1985). Fundamentals of Foods & Nutrition, Wiley Eastern Ltd., New Delhi.



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			End Sem University Exam	Two Term Exam	Teachers Assessment	End Sem University Exam	Teachers Assessment				
FSN 202	II	Human Physiology II	60	20	20	0	0	4	0	0	4

Abbreviation		Teacher Assessment (Theory) based on following components: Quiz / Assignment / Project / Participation in class (Given that no component shall exceed 10 Marks).
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P	Practical	

#### Course Objective

To enable the student to understand the Physiology of human body.

#### Course Outcome

Students should have a command on the knowledge of working of human body and its different mechanisms.

#### FSN 202: Human Physiology-II

UNIT I: Excretory system: Structure and function of skin, regulation of temperature of the body, Structure and functions of kidney in special reference to nephron, Physiology of urine formation.

UNIT II: Reproductive system: Structure and functions of gonads, concept on menstrual cycle, Brief idea of pregnancy, parturition, lactation and menopause. Brief concept on spermatogenesis and Oogenesis process.

UNIT III: Nervous System: Concept on sympathetic and parasympathetic nervous system, Brief anatomy and functions of cerebrum, cerebellum, hypothalamus and neuron, Concept on synapse and synaptic transmission. Reflexes, Special senses.

UNIT IV: Endocrine system: Structure and functions of pituitary, thyroid, parathyroid and adrenal gland, Structure and functions of pancreas.



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UNIT V: Immunology - General principles, types of Ig, General structure of Ig., T-Cells, B-Cells structure & function.

Cancer - Basic principles-DNA duplication, replication, genetic mode of transmission. Nutritional Benefits to reduce the risk factors.

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FSNP 205	II	Human Physiology II- Practical	0	0	0	30	20	0	0	4	2

#### FSNP 205: Practicals:

- Harvard Step test
- Identification with reasons of histological slides (Lung, Liver, Kidney, Small intestine, Stomach, Thyroid, Adrenal, Pancreas, Testis, Ovary and Muscle of mammals).
- Qualitative determination of glucose acetone in urine.
- Blood film staining and identification of different types of blood cells.

#### Reference Books:

- Chaterzee (1988) Human Physiology, Calcutta , Medical agency.
- Pears E.C (1988) , Anatomy and Physiology for nurses – Delhi oxford University, Press.
- A text book of biology – Dhama and Dhama Pradeep Publications.
- Gyton A.C., Hall , J.E 1996 : Textbook of medical physiology, 9th Ed, prism Books (Pvt) ltd. Bangalore



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FSN 203	II	Basic Microbiology	60	20	20	0	0	4	0	0	4

Abbreviation		Teacher Assessment (Theory) based on following components: Quiz / Assignment / Project / Participation in class (Given that no component shall exceed 10 Marks).
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P	Practical	

#### Course Objectives

- To enable students to understand the basic characteristics of microorganisms, their growth requirement and describe sources of microorganisms in foods.
- To enable the students to classify and describe food borne diseases and use this information while reporting and investigating an outbreak in the region.

#### Course Outcome

- Knowledge of microorganisms, their action on food as well as on human body.
- Student should be able to differentiate between pathogenic and non-pathogenic microorganisms.

#### FSN: 203 Basic Microbiology

UNIT I: Introduction of microbiology, History and significance of food microbiology. Classification of microbes, Structure of microbes, Metabolism of microbes.

UNIT II: Source of microbes: microbiology of air, water and soil.

UNIT III: Growth of Microorganisms in food, Factors affecting growth of microorganisms-Nutrition, Oxygen, Temperature, Moisture requirement-the concept of water activity, Osmotic pressure, Hydrogen ion concentration, Light.



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UNIT IV: Food Hazards and Contaminants-Food Hazards-Physical hazards, Biological hazards, Chemical hazards, Microbial hazards.

Food Contamination-Introduction to Food contamination, Naturally occurring toxicants (toxicants in animal foods, toxicants in plant foods, antinutritional factors in foods), Environmental contaminants, biological contaminants, pesticide residues, veterinary drug residues , heavy metals.

UNIT V: Food borne Diseases : Introduction of Food Borne diseases, Diseases and their classification, Food borne intoxications or poisonings, Food borne infections, Food borne toxic infections, Viral infections, Parasitic infestations, Control of food borne illnesses.

#### Reference Books:

- Pelczar MJ, Chan ECS and Krieg NR (2011) Microbiology (5th ed.), New Delhi : Tata McGraw Hill Publishing Co Ltd
- Jay JM (2004). Modern Food Microbiology (7th ed.). CBS Publishers and Distributors Springer Publications, Delhi
- Banwart GJ (1998). Basic Food Microbiology (2nd ed.). CBS Publishers and Distributors, New Delhi
- William Frazier (2008). Food Microbiology (4th ed.). The Mc Graw Hill Co Inc., New York
- S. Roday (2011) Food Sanitation and Hygeine , Tata Mc graw Hill Publishing co Ltd, Delhi
- Food microbiology by V. Ramesh, MJP publishing.



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FSN 204	II	Basic Chemistry	60	20	20	0	0	4	0	0	4

Abbreviation		Teacher Assessment (Theory) based on following components: Quiz / Assignment / Project / Participation in class (Given that no component shall exceed 10 Marks).
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P	Practical	

#### Course Objective

To provide knowledge of basic principles and techniques of applied chemistry and instrumentation.

#### Course Outcome

- Should be able to handle basic instruments and perform experiments.
- To be able to execute accurate sampling and to avoid any error during experiments.

#### FSN 204: Basic Chemistry

UNIT I: Basic Aspects in Chemistry- Classification of matter, elements, compounds and mixtures. Chemical – symbols, formulae and equations. Atomic Structure, Valency and Classification of Elements, Concept of atom and atomic structure, Atomic weight, molecular weight and equivalent weight, Various types of chemical bonds, Periodic classification of elements.

UNIT II: Definitions of commonly used terms such as matter, mass, substance, element, compound, mixture, solution, Atomic weight, Molecular weight, Molarity, Normality, Molality, Mol fraction, Millimole, Milliequivalent, Angstrom unit.

UNIT III: Buffer systems –Acids, Bases, pH, Buffer, Colloids & its application, Acid & Alkaline forming Foods.



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UNIT IV: Biophysical Phenomenon -Viscosity, Surface tension, Adsorption, Enzyme reaction – effect of temperature, time and pH, Diffusion, Osmosis, Absorption.

UNIT V: Spectrophotometric Techniques –Introduction, Beer Lambert’s law, Colorimetry and spectrophotometry, Atomic absorption spectroscopy, Flame photometry.

#### Reference Books:

- Bahl BS (1994). Textbook of Organic Chemistry (13th ed.). Published by Chand & Sons, New Delhi
- Soni PL (1994). Fundamental Organic Chemistry (16th ed.). Published by Chand & Sons, New Delhi
- Srivastava VK and Srivastava KK (1987) Introduction to Chromatography – Theory and Practice. S. Chand & Co., New Delhi.
- Raghuramulu N, Madhavan Nair and K Kalyanasundaram S (1983) A Manual of Laboratory Techniques. NIN, ICMR.
- Srivastava AK and Jain PC (1986) Chemical Analysis: An Instrumental Approach (2nd ed.). S. Chand Company Ltd., New Delhi.



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FSNP 206	II	Basic Instrumentation Practical	0	0	0	30	20	0	0	4	2

Abbreviation		Teacher Assessment (Theory) based on following components: Quiz / Assignment / Project / Participation in class (Given that no component shall exceed 10 Marks).
Th	Theory	
T	Tutorial	Teacher Assessment (Practical) based on following components: Viva/ File/ Participation in Lab work (Given that no component shall exceed 50% of Marks).
P	Practical	

#### Course Objective

To provide knowledge of basic principles and techniques of instrumentation in food and nutrition.

#### Course Outcome

- Should be able to handle basic instruments and perform experiments.
- To be able to execute accurate sampling and to avoid any error during experiments.

#### List of Practicals:

- Titration method, eg to find acidity of a fruit juice.
- To study the use of different laboratory glassware.
- To study the use of different thermometers- laboratory & clinical
- To study the working of equipments which can be used in food analysis eg. oven, muffle furnace, centrifuge, pH meter, refractometer, texture analyser, kjeldhal, soxhlet, crude fibre etc.
- To study the use of different balances- common balance, electrical, electronic, scales
- Use of pH meter to find pH of different solutions.
- To study the use of UV-VIS spectrophotometer.

#### Reference Books:

- Raghuramulu N, Madhavan Nair and K Kalyanasundaram S (1983) A Manual of Laboratory Techniques. NIN, ICMR.
- Srivastava AK and Jain PC (1986) Chemical Analysis: An Instrumental Approach (2nd ed.). S. Chand Company Ltd., New Delhi.



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			End Sem University Exam	Two Term Exam	Teachers Assessment	End Sem University Exam	Teachers Assessment				
HU 201	II	Foundation English II	60	20	20	30	20	3	0	2	4

Abbreviation		Teacher Assessment (Theory) based on following components: Quiz / Assignment / Project / Participation in class (Given that no component shall exceed 10 Marks).
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P	Practical	

#### Course Objectives

- The students will be able to participate in seminars, group discussions, paper presentation and general personal interactions at the professional level.
- Have adequate mastery over communicative English, reading and writing skills, secondarily listening and speaking skills.

#### Course Outcomes

- The students should be able to improve their language skills, oral communication skills, group discussion skills, personal skills and confidence level.
- To express his /her ideas and thoughts in speech or writing,
- To bridge the language gap vital to their success.
- To communicate effectively.

#### HU 201: Foundation English II

UNIT I: Communication: Objectives of Communication, Formal and Informal Channels of Communication, Advantages and Disadvantages, Extrapersonal communication, Interpersonal communication, Intrapersonal communication, Principles of communication.

UNIT II: Developing Reading Skills: Reading Comprehension, Process, Active & Passive reading, Reading speed Strategies, Benefits of effective reading, SQ3R Reading technique.



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UNIT III: Vocabulary Building: Using Dictionaries and Thesaurus, Synonyms, Antonyms, Homophones, One Word Substitution, Affixation: Prefixes & Suffixes, Derivation from root words, Jargon, Scientific Jargon, Word Formation.

UNIT IV: Developing Writing Skills: Planning, Drafting and Editing, Developing Logical Paragraphs, Report Writing: Importance of Report, Characteristics of Good Report, Types of Report, Various Structures of a Report.

UNIT V: Professional Skills: Negotiation Skills, Telephonic Skills, Interview Skills: Team building Skills and Time management

#### Practicals:

- Listening
- Linguistics and Phonetics
- Telephonic Conversation
- Mock Interviews
- Group discussions
- Extempore
- Debate
- Role Plays

#### Reference Books:

- Ashraf Rizvi.(2005).*Effective Technical Communication*. New Delhi:Tata Mc Graw Hill
- Prasad, H. M.(2001) *How to Prepare for Group Discussion and Interview*. New Delhi: Tata McGraw-Hill.
- Pease, Allan. (1998).*Body Language*. Delhi: Sudha Publications.
- Morgan, Dana (1998).*10 Minute Guide to Job Interviews*. New York: Macmillan.