

SARDAR PATEL UNIVERSITY, VALLABH VIDYANAGAR

B.Sc. Home Science

(Under Choice Based Credit Scheme)

Semester - Fourth (Food Science and Quality Control) Vocational

IN EFFECT FROM : 2019-2020

Sr. No.	Course Type	Course Code (10 Digit)	Name of Course	Theory (T) Practical (P)	Credit	Contact hrs/ week	Exam Durati on in hrs	Marks		
								Internal	External	Total
1	Foundation Courses	UH04FCOM21	Communication process in development	T	3	3	2	30	70	100
2		UH04FCOM22	Communication process in development	p	1	2	3	15	35	50
3	Core Courses	UH04CFDN23	Human Nutrition	T	3	3	3	30	70	100
4		UH04CFDN24	Food science	T	3	3	3	30	70	100
5		UH04CFDN25	Food science	P	1	2	3	15	35	50
6		UH04CFDN26	Biochemistry	T	3	3	3	30	70	100
7		UH04CFDN27	Biochemistry	P	2	4	3	30	70	100
8		UH04CFDN28	Food Microbiology	T	2	2	2	15	35	50
9		UH04CFDN29	Food Microbiology	P	1	2	3	15	35	50
10		UH04CFDN30	Anatomy and Physiology	T	2	2	2	15	35	50
11		UH04CFDN31	Anatomy and Physiology	P	1	2	3	15	35	50
Elective Course (Any One 12,13,14,15)										
12	Elective Courses	UH04EHSC01	Counselling Technique	T	2	2	2	15	35	50
13		UH04EHSC02	Basics of Fashion	T	2	2	2	15	35	50
14		UH04EHSC03	First aid and Home Nursing	T	2	2	2	15	35	50
15		UH04EHSC04	Event Management	T	2	2	2	15	35	50
16		UH04EHSC05	Therapeutic Diets	T	2	2	2	15	35	50
Total					24	30		255	595	850

SARDAR PATEL UNIVERSITY
B.SC. (HOME) IV SEMESTER
FOUNDATION COURSE
UHO4FCOM21 COMMUNICATION PROCESS IN DEVELOPMENT

Theory
Credit: 3 Pd/Wk: 3 Marks: 100

OBJECTIVE:

1. To make the students understand the importance of communication in their day to day life
2. To acquaint the students with the types of communication and process of communication.
3. To shape the students future as a better citizen in the social networking.

UNIT	CONTENT	WEIGHTAGE
I.	Concepts of development communication Meaning and importance need of communication in development, Purpose and characteristics of communication, Existing patterns and types of communication, Role of communication in development and social change, Effective communication in Home Science.	30%
II	Communication Process One-way and two-way or interactive communication, Gaps in communication or distortions in transmission of message and their causes, Importance of two-way communication, Basis for effective, interactive, communication critical reflection of one-self in communication, Attitude of respect for others, Distinctions between information dissemination, Education and propaganda, Communication on educational process.	30%
III	Methods of Communication in Development methods to reach Individuals: (A) Personal conference, Interview, House visits, Exhibits, Clinics to solve individual problems of consultations, Methods to reach small groups, Illustrated lecture ,Group discussion a. Fish bowl b. Small group (B) Stimulation Exercises , Trust – building in groups, Co-operation, Affirmative environment creation , Role plays, Demonstrations, Workshops, Camps , Methods to reach masses, Radio announcements / programmes, Newspaper stories, Posters, exhibits in strategic plans, Video, films, Television programmes , Letters, folders and pamphlets, Public meetings, Selection and effective use of methods.	20%

IV Media for developments communication:

20%

- (A) Folk media, Songs, Stories, Street – theatre, Games, Arts , Riddles – proverbs, Puppet ,Print media, Posters, Pamphlets, leaflets, Newspapers – articles, stories, Periodicals – articles, stories, songs, Books, Cartoons, Audio/visual, audio-video media, Audio – tapes, radio broadcasts, Slides, pictures, drawings, photographs etc., Video, telecasts, Films – documentary features
- (B) Selection preparation and effective use of media in development ,education and evaluation of the effectiveness of the media

OUTCOMES:

1. Improved personal relations with immediate and extended communication.
2. Students will function more effectively & assertively in public and work environment..
3. Students will be able to identify their strengths & weaknesses and improve on weakness.
4. Students will be better equipped to use media in their professional endeavors.

REFERENCES:

1. Media and Methods of Education by Dr. Sita Ram Sharma
2. Mass Communication in India by Keval J. Kumar
3. Media and Communication Management by C.S.Rayudu
4. Designing Messages for Development Communication: An Audience Participation Based Approach by Bella Mody
5. Mass Media and Communication by Narendra Ojha
Education and Communication for Development 2nd edition: by O.P. Dharma and O.P Bhatnagar.

SARDAR PATEL UNIVERSITY
B.SC. (HOME) IV SEMESTER
FOUNDATION COURSE
UHO4FCOM22 COMMUNICATION PROCESS IN DEVELOPMENT

Credits:1	Practical Pd/Wk:2	Marks:50
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Objectives:

1. To Develop skill for mass communication
 2. To prepare effective communication aids
 3. To develop an ability to communicate in various situations.
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1. Communication methods for rural and urban communities.
 - a. Making charts / posters / cartoons
 - b. Preparing leaflets / folders
 - c. Preparing slides for power point Presentation
 2. Demonstration methods / techniques or any innovative method for
 - a. Communication.
 - b. Preparing scripts for role play/ street play/ puppet shows /Radio and T.V talk show
 - c. Preparing puppets for puppet show
 3. Organizing an exhibition of various products related to their respective fields.
 4. To sensitize the students about the power of various media.
 - a. Print media
 - b. Electronic media

SARDAR PATEL UNIVERSITY
B.SC. (HOME) IV SEMESTER
UH04CFDN23 HUMAN NUTRITION

Theory
PD/WK: 3

Credit: 3

Marks: 100

OBJECTIVES:

This course will enable the students to:

1. Understand the functions and sources of nutrients.
2. Apply the knowledge in maintenance of good health for the individual and the community.
3. Be familiar with the factors affecting availability and requirements.

UNIT	CONTENT	WEIGHTAGE
I	Concept and definition of terms Nutrition, malnutrition and health. Brief history of Nutritional Science. Scope of Nutrition. Minimal nutrition requirements and RDA- formulation of RDA and dietary guidelines- Reference man and reference woman.	15%
II	Body composition and changes through the life cycle. Water- functions and requirements	20%
III	Proteins- Assessment of protein quality (BV, PER, NPU), digestion and absorption, Factors affecting bioavailability.	15%
IV	Lipids- digestion and absorption, intestinal resynthesis of triglycerides. Types of fatty Acids.	15%
V	Energy in Human Nutrition- Energy Balance, Assessment of energy requirements. Carbohydrates- digestion and absorption, blood glucose and effect of different Carbohydrates on blood glucose, Glycemic index.	20%
VI	Minerals and Trace elements- digestion, absorption and bioavailability (Calcium, Phosphorus, Iron, Fluoride, Zinc, Selenium, Iodine).	15%
VII	Vitamins- Fat soluble and Water soluble.	15%

OUTCOMES:

1. The students will get the knowledge of sources and functions of various nutrients.
2. They are familiar with digestion, metabolism and bioavailability of nutrients in our body.

REFERENCES:

1. Guthrie A.H. (1986) Introductory Nutrition 6th Ed. The C.V. Mos by company.
2. Robinsin C.H. Laweler M.N. Chenoweth W.L. and Garwicl A.E. (1986) Normal and therapeutic nutrition 17th Ed. Mac Millan publishing Co.
3. Indian council of medical research (198) Nutrient requirements and recommended dietary allowances for Indians, New Delhi.
4. FAO/WHO/UNU: Technical report series, 74 (1985) energy and protein requirements Geneva.
5. WHO Technical reports series for different nutrients. .

SARDAR PATEL UNIVERSITY
B.SC. (HOME) IV SEMESTER
UH04CFDN24 FOOD SCIENCE

Credits: 3

Theory
Pd/Wk: 3

Marks: 100

OBJECTIVES:

Course will enable students to:-

1. Get acquainted with the composition of different food stuffs.
2. Understand the chemistry of foods and food systems.
3. Apply the theoretical aspects in ensuring food quality.

UNIT	CONTENT	WEIGHTAGE
I.	a) Introduction to food science, approach to the study of food science and its scope. b) Physical foundation of food science solids and amorphous foods, liquids and role in food products, gases and role in products, true solutions, dispersions & suspensions, sols, gels, foams and emulsions.	15%
II.	Moisture in foods, structure & hydrogen bonds & states of water, water activity & food stability	10%
III.	Carbohydrates: Classes and types, chemical reaction in food hydrolysis, thermal degradation, dehydration, caramalization, maillard reaction, applications in food industry & other sweetening agents	15%
IV.	Lipids: Physio-chemical properties of fat & application in food preparation, shortenings- shortening value and factors affecting it, fat substitutes determination of fats/oils rancidity reversion & polymerization	15%
V.	Proteins: Physio-chemical properties of protein, hydration solubility viscosity gelation emulsification binding foams changes on cooking, denaturation, coagulation etc.	20%
VI.	Enzymes: Nomenclature definite specificity, catalysis regulation enzyme modification of food by endogenous enzyme, enzyme inhibitor in food Vitamins and mineral structure (in brief)	10%
VII.	a) Pigments endogenous to food, structure, chemical and physical properties, effect of processing and storage b) Flavours- vegetables and fruits and spice flavours.	15%

OUTCOMES:

1. The students can learn about the properties of food.

REFERENCES:

1. Birch, G.G.(1977) Sensory properties of foods applied science Publication
2. Charley Helen (1982) Food Science 2nd edition Macmillan Publishing Co.
3. Encyclopedia of Food technology AVI Publications.
4. Fennema, O.R. (1985) Food Chemistry 2nd edition Macrel Dekker inc. N.Y.
5. Ronsivalli, L.J. and Vieira, E.R. (1992) Elementary food science 3rd edition Chapman & Hall New York.
6. Swaminathan, M. (1982) Food Science, Chemistry, and Experimental foods Bangalore printing and publishing co. ltd. (BAPPCO).

SARDAR PATEL UNIVERSITY
B.SC. (HOME) IV SEMESTER
UH04CFDN25 FOOD SCIENCE

Credits: 1	Practical Pd/Wk: 2	Marks: 50
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PRACTICAL	CONTENT
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| Practical : 1 | Carbohydrate:
Preparation of starch from potatoes.
Microscopic examination of starch.
Effect of blending on distribution of starch granules in suspension.
Effect of adding sugar and other factors in gelatinization (heat, agitation etc). |
| Practical: 2 | Proteins:
To determine gluten from different flours.
To study the different methods of storage on quality of eggs.
Functional role of egg in cookery.
Factors contributing to the volume and stability of egg white foam.
Milk protein- coagulation of milk. |
| Practical : 3 | Fat:
Functional role of fat.
Melting point of fats and oils, smoke and flash points.
Factors affecting fat absorption and emulsion, frying (role of moisture and Surface area). |
| Practical :4 | Pigments:
Factors affecting color, pH, time and cooking. |
| Practical 5 | Enzymes:
Browning reactions- to study different types of browning reactions. |

SARDAR PATEL UNIVERSITY
B.SC. (HOME) IV SEMESTER
UH04CFDN26 BIOCHEMISTRY

Theory

Credits: 3

Pd/Wk: 3

Marks: 100

OBJECTIVES:

- (1) It will enable students to develop the principles of biochemistry as applicable to human nutrition.
- (2) Obtain an insight into chemistry of major nutrients and physiologically important compounds.
- (3) Understand the biological process and system as applicable to human nutrition

UNIT	CONTENT	WEIGHTAGE
I	Introduction to biochemistry (physiochemical principles): <ol style="list-style-type: none">1. pH and Buffer solution2. Bonding types3. Osmosis and Diffusion4. Electrophoresis.	15%
II	Carbohydrate – <ol style="list-style-type: none">1. Classification, General structure , Properties	15%
III	Metabolism – <ol style="list-style-type: none">1. Glycolysis ,Citric acid cycle, Gluconeogenesis, glycogen synthesis and degradation, HMP shunt, electron Transport chain, Oxidative phosphorylation	20%
IV	Proteins- <ol style="list-style-type: none">1. Classification, General structure , Properties2. Biosynthesis of protein, degradation(transamination, deamination, urea cycle)	25%
V	Fat – <ol style="list-style-type: none">1. Classification, General structure , Properties2. Oxidation of fatty acids(α,β)biosynthesis of lipids(ketone bodies formation, Cholesterol, Synthesis,etc)	25%

OUTCOMES:

1. The students will learn develop the principles of biochemistry as applicable to human nutrition.

REFERENCES:

1. West .S.Todd,W.R. Mason, H.S. Brugen,J.T(1974) Text Book of Biochemistry,Amerind Publishng co pvt .ltd.
2. Biochemistry for Medial students by Vasudevan
3. Biochemistry by Satynarayan
4. LehningerA.I.NelsonD.L.and Cox M.M. (1930) Principles of Biochemistry

SARDAR PATEL UNIVERSITY
B.SC. (HOME) IV SEMESTER
UH04CFDN27 BIOCHEMISTRY

Credits: 2

Practical
Pd/Wk: 4

Marks: 100

PRACTICALS

- 1 To determine acid value of given sample of oil or fat
- 2 To determine saponification value of given sample of oil or fat
- 3 To determine iodine value of a given sample of fat and oil
- 4 Qualitative tests for carbohydrates, find out unknown sugar.
- 5 Qualitative tests for Protein
- 6 Qualitative tests for oils and fat
- 7 To detect the presence of carbohydrate ,fat and proteins in food stuff
- 8 To measure pH of different solution wiith help of pH meter.
- 9 To study principle and working of colorimeter
- 10 To determine protein content of given sample by biuret method.
- 11 To determine Glucose content by Fehlings Soxhlets method

REFERENCES:

1. West .S.Todd,W.R. Mason, H.S. Brugen,J.T(1974)
Text Book of Biochemistry,Amerind Publishng co pvt .ltd.
2. Biochemistry for Medial students by Vasudevan
3. Biochemistry by Satynarayan
4. LehningerA.I.NelsonD.L.and Cox M.M. (1930)
Principles of Biochemistry

IV a. Public health hazards due to contaminated food: 25%
food borne infections and intoxication- symptoms, mode and
sources of transmission and methods of prevention.

b. HACCP-Food safety assurance system

OUTCOME:

1. This course will extend the student's knowledge and understanding of the attributes of micro-organisms.
2. It will develop depth of understanding of the microbiology of food, food-borne diseases, food spoilage and how to control them as well as fermentation of food.
3. It will help to evaluate different microorganisms through practicals in the laboratory.

REFERENCES:

1. Frazier, W.C. and Westhoff, D.C. (1988): fourth edition.
2. Food microbiology, Mc Graw Hill Inc, Jay James M. (1986) Third Edition
3. Modern Food Microbiology, Van Nostrand Reinhold company Inc. Pelzar, M.T. and Reid, R.D. (1978): Microbiology, Mc Graw Hill book company, New York.
4. Benson Harold J. (1990): Microbiological applications Wn. C. Brown Publishers U.S.A.
5. Collins C.H. and Layne, P.M. (1996) microbiological methods Buttersworth London.

SARDAR PATEL UNIVERSITY
B.SC. (HOME) IV SEMESTER
UH04CFDN29 FOOD MICROBIOLOGY

Credits: 1

Practical
Pd/Wk: 2

Marks:50

PRACTICAL

CONTENT

1. Introduction to laboratory, demonstration of different parts of the microscope, the use and care of the microscope, including oil immersion lens and Autoclave
2. Preparation of bacterial smears & simple staining
3. To carry out Differential staining- Gram staining
4. To carry out Metachromatic staining- lactobacilli staining.
5. Preparation of common laboratory media for isolation and cultivation of bacteria, different isolation methods and types of media.
6. To carry out Qualitative analysis of Milk by Methylene blue reducteise test.
7. To carry out qualitative & quantitative analysis of water (E-coli)
8. To carry out qualitative & quantitative analysis of soil
9. To study the quality of water using Presumptive test for detection of E-coli.[Multiple tube fermentation test]

SARDAR PATEL UNIVERSITY
B.SC. (HOME) IV SEMESTER
UH04CFDN30 ANATOMY AND PHYSIOLOGY

Theory
Credits: 2 Pd/Wk: 2 Marks: 50

OBJECTIVES: This course will enable students to:

1. To identify basic anatomy and physiology concepts.
2. To identify the anatomy and physiology of all the systems of the body .

UNIT	CONTENT	WEIGHTAGE
I	Structure and Functions – Cardiovascular Systems and Digestive System 1. Blood and its composition, blood groups, coagulation of blood. 2. Structure and function of heart, heart rate, cardiac cycle, cardiac output, blood pressure and their regulation, circulation of blood (general course of circulation) 3. Gastrointestinal System: Structure and function of various organ of the GI tract, digestion and absorption of food and the role of enzymes and hormones.	30%
II	Urino-Genital Systems 1. Excretory System: Structure and function of kidney, bladder, formation of temperature of the body. 2. Reproductive System: Structure and function of Sex glands and organs including hormones, Menstrual cycle, parturition.	25%
III	Respiratory System: Structure of respiratory System. Mechanism of respiration.	15%
IV	1. Elementary anatomy of nervous system. Function of different parts of the brain in brief. Sympathetic and parasympathetic nervous system. Special senses 2. Sensory organs: Eyes, Ears and Skin 3. Skeletal System	30%

OUTCOME:

1. The students can apply concepts and knowledge of general anatomical terminology and physiology towards clinical problem solving.
2. The students can develop scientific reasoning and the ability to interpret patient data.
3. The students will be able to correct terminology to communicate anatomical features and physiological processes.

REFERENCES:

1. Guyton, A.C, Hall, J. E. (1966) : Text book of Medical Physiology. 9th Ed. Prism Books (Pvt.) Ltd. Bangalore.
2. Winword (1988): Sear's Anatomy and Physiology for Nurses. London, Edward Arno ll.
3. Wilson (1989): Anatomy and Physiology and Health and illness, Edinburgh, churchil Livingstone.
4. Chatterjee, Chandni Charan (1998): Text book of Medical Physiology

SARDAR PATEL UNIVERSITY
B.SC. (HOME) IV SEMESTER
UH04CFDN31 ANATOMY AND PHYSIOLOGY

Credits: 1

Theory
Pd/Wk: 2

Marks: 50

PRACTICAL

CONTENT

1. Identification of prepared slides :
(a) Lungs , (b) Suprarenal gland, (c) Thyroid, (d) Pituitary, (e) Testis, (f) Ovary, (g) Kidney, (h) Liver, (i) Pancreas, (j) Small intestine, (k) Large intestine, (l) Spinal cord, (m) Cerebellum (n) other tissues.
2. Preparation of blood film and identification of white blood cell, counting of blood cells.
3. Determination of hemoglobin.
4. Preparation of Haematin Crystals.
5. Determination of bleeding time and clotting time of blood.
6. Determination of clothing time of blood.
7. Estimation of Blood group.
8. Measurement of blood pressure with digital instrument and Sphygmomanometer and measuring pulse rate
9. Study of muscles fibres and squamous epithelium

SARDAR PATEL UNIVERSITY
B.SC. (HOME) IV SEMESTER
UH04EHSC02 BASICS OF FASHION

Theory
PD/WK: 02

Credit: 02 **Marks: 50**

OBJECTIVES:

1. To enable students with concepts of fashion and fashion world.
2. To develop an understanding of the factors affecting fashion and fashion cycle.

UNIT	CONTENT	WEIGHTAGE
I	Introduction to fashion 1. Meaning 2. Terminologies 3. Areas of fashion design	20%
II	1. History of fashion design 2. Fashion life cycle	20%
III	Factors affecting fashion 1. Accelerating fashion 2. Receding fashion 3. Fashion tourism	30%
IV	Theories of fashion change 1. Trickle down theories 2. Trickle up theories 3. Trickle across theories	30%

OUTCOME:

1. The course will enable learner to understand the fashion world.
2. The learner can select her personal clothing as per the fashion

REFERENCE:

1. Introduction to Fashion Design; Patrick John Ireland; B.T. Bradford , London
2. Basic Fashion Design (1975); Ireland John Patrick; B.T .Bradford Ltd., London.
3. Elements of Fashion Design and Apparel Design (2002); Sumathi G.J.; New Age International Publishers, New Delhi
4. Textile Products, Selection, Use & Care(1977) ; Alexander; R.R Houghton Mifflin Co. Boston
5. Grooming Selection & Care(1972) ; Pandit Savitri & Tarpley Elizabeth; Unity Printers, Baroda

SARDAR PATEL UNIVERSITY
B.SC. (HOME) IV SEMESTER
UH04EHSC04 EVENT MANAGEMENT

Theory
Pd/Wk: 2

Credit: 2

Marks: 50

OBJECTIVES:

1. To make them understand the event planning process.
2. To inculcate the management skills required for managing an event effectively.
3. To find out the resources required in the staging of events.

UNIT	CONTENT	WEIGHTAGE
I	1. Introduction to Event Planning a) Basics of Event Planning b) Benefits of Successful and Safe Events 2. Role of an Event Planner a) Tasks Involved in Event Planning b) Skills Required for Event Planner	20%
II	Types of Events 1. Corporate Events : Conferences, Seminars, Meetings, Conventions, Educational or Training Events 2. Leisure Events: Sport Events, Festivals, Concerts, Fashion Shows 3. Private Events: Weddings, Special Party Celebrations,	15%
III	Event Planning Process 1. Establishing a theme 2. Setting objectives 3. Determining the Event Feasibility 4. Preparing an Event Management Plan 5. Key Steps in Event Marketing	35%
IV	Event Budgeting 1. Preparing Budget 2. Monitoring the Budget 3. Budget Review	30%

OUTCOMES:

1. The students can execute a successful event in-line with the needs and requirements of the client.
2. After the completion of the course the students will become a successful event planner.

REFERENCES:

1. Logan Gaspar “A Textbook of Event Management”
2. D.G. Conway “The Event Manager’s Bible: The Complete Guide to Planning and Organising a Voluntary or Public Event”, Viva Books
3. Shannon Kilkenny, “ The Complete Guide to Successful Event”
4. Laura Capell, “Event Management for Dummies”, Willey Publication
5. Alex Genadinik 2015, “Event Planning: Management and Marketing for Successful Events”, Create space Independent Publication

