

B.Sc. NUTRITION AND DIETETICS

SEM	COURSE CODE	PART	COURSE	COURSE TITLE	Ins. Hrs /Week	CREDIT	MARKS		TOTAL
							CIA	ESE	
I	20U1LT1/LA1/L F1/LH1/LU1	I	Language – I	Language – I	6	3	25	75	100
	20UCN1LE1	II	English - I	English - I	6	3	25	75	100
	20UND1CC1	III	Core – I	Food science	5	5	25	75	100
	20UND1CCP2		Core – II	Food science Practical	3	2	25	75	100
	20UND1AC1		Allied –I	Human Physiology	5	4	25	75	100
	20UND1ACP2	IV	Allied –II	Human Physiology Practical	3	2	25	75	100
	20UCN1AE1		AEC-I	Value Education	2	2	-	100	100
TOTAL					30	21			700
II	20U2LT2/LA2/L F2/LH2/LU2	I	Language – II	Language – II	6	3	25	75	100
	20UCN2LE2	II	English – II	English – II	6	3	25	75	100
	20UND2CC3	III	Core – III	Nutrition : Life Cycle Approach	6	5	25	75	100
	20UND2CCP4		Core – IV	Nutrition : Life Cycle Approach Practical	3	2	25	75	100
	20UND2AC3		Allied – III	Fundamentals of Nutrition	4	3	25	75	100
	20UND2ACP4	IV	Allied –IV	Fundamentals of Nutrition Practical	3	2	25	75	100
	20UCN2AE2		AEC-II	Environmental Studies	2	2	-	100	100
TOTAL					30	20			700
III	20U3LT3/LA3/L F3/LH3/LU3	I	Language– III	Language– III	6	3	25	75	100
	20UCN3LE3	II	English – III	English – III	6	3	25	75	100
	20UND3CC5	III	Core– V	Diet Therapy-I	4	4	25	75	100
	20UND3CCP6		Core– VI	Diet Therapy-I Practical	3	2	25	75	100
	20UND3AC5		Allied– V	Nutritional Biochemistry	4	3	25	75	100
	20UND3ACP6	IV	Allied–VI	Nutritional Biochemistry Practical	3	2	25	75	100
	20UND3GE1		Generic Elective I #		2	2	-	100	100
20UCN3SE1	Skill Enhancement Course - I @		Soft Skills Development	2	2	-	100	100	
TOTAL					30	21			800
IV	20U4LT4/LA4/L F4/LH4/LU4	I	Language–IV	Language–IV	6	3	25	75	100
	20UCN4LE4	II	English– IV	English– IV	6	3	25	75	100
	20UND4CC7	III	Core– VII	Diet Therapy-II	5	5	25	75	100
	20UND4CCP8		Core - VIII	Diet Therapy- II Practical	3	2	25	75	100
	20UND4AC7		Allied– VII	Food Microbiology	5	3	25	75	100
	20UND4ACP8	IV	Allied–VIII	Food Microbiology Practical	3	2	25	75	100
	20UND4GE2		Generic Elective – II#		2	2	-	100	100
20UCN4EA	V	Extension Activities	NCC, NSS, etc.	-	1	-	-	-	
TOTAL					30	21			700
V	20UND5CC9	III	Core – IX	Diet Therapy Internship	6	5	25	75	100
	20UND5CC10		Core – X	Physical Facilities for Food Service	5	5	25	75	100
	20UND5CC11		Core – XI	Food Preservation and Bakery Techniques	5	5	25	75	100
	20UND5CCP12	IV	Core - XII	Food Preservation and Bakery Techniques Practical	5	5	25	75	100
	20UND5DE1		DSE – I **		5	4	25	75	100
	20UND5SE2P	IV	Skill Enhancement Course II @		2	2	-	100	100
	20UND5SE3P		Skill Enhancement Course – III @		2	2	-	100	100
20UND5EC1		Extra Credit Course - I	General Intelligence for competitive examinations	-	4*	--	100*	100*	
TOTAL					30	28			700
VI	20UND6CC13	III	Core– XIII	Food Service Management	5	5	25	75	100
	20UND6CC14		Core– XIV	Public Health Nutrition	5	5	25	75	100
	20UND6CCP15		Core - XV	Food Service Management Practical	5	5	25	75	100
	20UND6CC16	IV	Core - XVI	Food Product Development and Quality Control	5	5	25	75	100
	20UND6DE2		DSE II **		5	4	25	75	100
	20UND6DE3		DSE III **		4	4	25	75	100
	20UCN6AE3	IV	AEC-III	Gender Studies	1	1	-	100	100
20UND6EC2		Extra Credit Course - II	Nutrition and Dietetics for competitive examinations	-	4*	--	100*	100*	
20UNDAECA		Extra Credit Course for all	Online Course	-	1*	--	-	-	
TOTAL					30	29			700
GRAND TOTAL					180	140	-	-	4300

*Not considered for grand total and CGPA

Generic Elective for other major departments

SEM	COURSE TITLE
III	Nutrition in Health and wellbeing
IV	Nutrition for Women

@ Skill Enhancement Courses

SEM	Elective No.	COURSE CODE	COURSE TITLE
V	II	20UND5SE2AP	Computer Application in Nutrition and Dietetics Practical
		20UND5SE2BP	Food Adulteration Practical
V	III	20UND5SE3AP	Techniques in Bakery Practical
		20UND5SE3BP	Interior Design Practical

**** Discipline Specific Elective**

SEM	DSE No.	COURSE CODE	COURSE TITLE
V	I	20UND5DE1A	Food Chemistry
		20UND5DE1B	Functional Foods
VI	II	20UND6DE2A	Life Span Development
		20UND6DE3B	Food Packaging
VI	III	20UND6DE3C	Home Science Extension
		20UND6DE3C	Family Resource Management

Semester	Code	Course	Title of the Course	Hours	Credits	Max. marks	Internal marks	External marks
I	20UND1CC1	Core – I	FOOD SCIENCE	5	5	100	25	75

Course outcomes:

1. Understand to use the four food groups in daily life
2. Apply various preparation methods for various foods
3. Explain the nutrient in foods and the specific functions in maintaining health.
4. Apply food science knowledge to describe the functions of ingredients in food.
5. Identify various changes in cooking the food

UNIT-I

15 hours

Introduction to Food science:

1.1 Food - Definition: Food, Food Science. Basic Four, Functions of food –Energy yielding, Body Building and Protective foods.

1.2 Cooking Methods: Objectives of cooking, cooking methods-Moist, Dry and Combination methods of cooking.

UNIT-II

15 hours

Cereals, Millets and Pulses:

2.1 Cereals: Structure, composition and nutritive value – Rice, Wheat and Millets- ragi, bajra, jowar and maize Cereal starch-Effect of moist heat-Gelatinisation, gelatinisation temperature, factors affecting gelatinization- agitation, addition of sugar, acid, fats and protein. Changes in cooked starch- Gel formation, Retrogradation, syneresis. Effects of Dry heat - Dextrinisation. Cereal protein- Gluten, factors affecting gluten formation- mechanical action, oxidizing agent & other factors, Role of cereals in cookery.

2.2. Pulses: Types, Composition and Nutritive value, cooking process- soaking, germination, advantages of germination, fermentation.

2.3. Toxic constituent :presence and removal, factors affecting cooking quality, Germination- Process and its advantages. Role of pulses in cookery.

UNIT-III

15 hours

Milk and Animal products:

3.1. Milk: Composition and nutritive value. Milk products - Non fermented and fermented products.

3.2. Cooking process- Effect of heat- Scum formation, Boiling over. Effect of acid and enzymes. Pasteurization and its general methods.

3.3. Egg :Structure, composition and nutritive value, quality of egg, factors affecting foam formation and coagulation of egg. Role of egg in cookery

3.4. Fleshy foods: Meat- Structure, composition and nutritive value, postmortem changes, ageing and tenderizing of meat , factors affecting cooking quality of meat. **Poultry:** Classification, composition and nutritive value, preparation of tandoori chicken. **Fish:** Classification, composition and nutritive value, selection of fish and fish cookery.

UNIT-IV

15 hours

Vegetables and Fruits:

4.1. Vegetables: Classification, composition and nutritive value. Changes occur during cooking of vegetables, Role of Vegetables in cookery.

4.2. Fruits: Classification, composition and nutritive value, Ripening of fruits, Enzymatic browning reaction and its preventive measures.

4.3. Pigments: Classification- water insoluble and insoluble. Effect of heat, acid, alkali and fat on pigments present in fruits and vegetables.

UNIT-V

15 hours

Other food groups:

5.1.Fats and Oils: Composition and nutritive value, specific fats and oils(butter, margarine, sesame oil, coconut oil, groundnut oil) Effects of heat on cooking of fat, Rancidity- Types and its prevention. Role of fats and oils in cookery.

5.2.Nuts and Oil seeds: Nuts: Composition of specific nuts -almonds, coconut, groundnut, walnut and their importance, role of nuts in cookery.

Oil seeds :Composition of specific oil seeds (Flaxseed, Pumpkin seed, Gingelly seed) and their importance. Role of oil seeds in cookery.

5.3.Sugar: Nutritive value, sugar cookery, crystallization- meaning, factors affecting crystallization, stages of sugar cookery, Role of sugars in cookery.

Beverages: Classification - coffee, tea, fruit beverages, soup and malted beverages.

Spices and condiments – Specific spices, medicinal properties of Indian spices, #role of spices in cookery#

#.....# Self Study portion

Text Books:

T.B-1 Srilakshmi, B, “Food science”, 5th edition, New Age International Pvt. Ltd. Publishers, New Delhi,(2010).

T.B-2 Norman N.Potter,Joseph H.Hotchkiss, “Food Science”, 5th edition, CBS Publishers & Distributors Pvt. Ltd. (2007).

UNIT- I Chapter I T.B-1, Chapter XVIII T.B-2

UNIT-II Chapter II, III, V, VI, VII T.B-1, Chapter XII, XIII, XIV T.B-2

UNIT-III Chapter V, VI, VII T.B-1, Chapter XII, XIII, XIV T.B-2

UNIT-IV Chapter IV IX T.B-1

UNIT-V Chapter IV IX T.B-1

Book for Reference:

1. Mohini sethi-Food Science Experiments and Applications, 2nd Edition, CBS publishers and distributors pvt ltd, New delhi, 2011.

Web Reference:

[http:// pulses.org](http://pulses.org)

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Paper					Hours	Credits			
I	20UND1CC1	FOOD SCIENCE					5	5			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓	✓	✓	✓		
CO2	✓	✓	✓	✓		✓	✓	✓	✓		
CO3	✓		✓	✓		✓		✓	✓		
CO4	✓			✓		✓			✓		
CO5	✓	✓		✓	✓	✓	✓		✓	✓	
Number of Matches= 34, Relationship : Moderate											

Prepared by:

1. B.Rajalakshmi
2. A.Yasmin Fathimaa

Checked by: Dr.A.Sangeetha

Semester	Code	Course	Title of the Course	Hours	Credits	Max. marks	Internal marks	External marks
I	20UND1CCP2	Core – II	FOOD SCIENCE PRACTICAL	3	2	100	20	80

Course outcomes:

1. Know the basic principle of cooking
2. Explain the basic principle involved in cooking of different food groups
3. Understand the different method of cooking
4. Identify the changes that occur during cooking of different food groups
5. Prepare and evaluate the recipes based on the principles

Objectives:

1. To gain the fundamental practical knowledge and skills in food science.
 2. To analyze the changes of different food groups during cooking by various methods
- 1. INTRODUCTION TO LABORATORY:** (a) Laboratory rules (b) Familiarizing with laboratory equipments, weighing methods and preliminary preparation for cooking.(c)testing quality of prepared food (sensory attributes)-Hedonic scale-9 point scale
- 2. CEREALS: (a)Experiments:** (i) Microscopic examination of raw and cooked starch granules of different cereals(ii)Gel formation in different cereal starch: cooking time and gelatinisation temperature.(iii) Determination of Gluten content in Wheat, Maida and rice flour- percentage of water absorption,weight of wet and dry gluten.
(b)Recipes:(i) Cereal preparations using by various cooking methods (Boiling, steaming- any 2 recipes on each methods)
- 3. PULSES: (a)Experiments:** (i) Germination of few pulses-soaking and germination (ii)Factor affecting the quality of pulses- Use of hard water, soft water, sodium bi Carbonate, vinegar; pressure cooking .
(b)Recipes: (i) Preparation of few pulse based recipes-use germinated and soaked pulse forms for the preparation (any 2 recipes on each forms)
- 4. VEGETABLES AND FRUITS: (a)Experiments:** (i) Effect of heat and pH on vegetable pigments like: chlorophyll, carotenoids, anthocyanin, anthoxanthin. (ii) Browning reaction in vegetables and fruits and methods of its prevention.
(b)Recipes: (i) Preparation of vegetables and fruits based recipes (any 2 recipes on each group)
- 5. MILK COOKERY: (a)Experiments:** (i) Effect of prolonged heat, acid and enzyme on cooking milk. (ii) Preparation of Milk products-curd, paneer, whey water.
(b)Recipes: (i) Preparation of milk recipes-non fermented and fermented recipes.
- 6. EGG COOKERY: (a) Experiments:** (i) Quality of egg-Floating test, candling and test for interior quality. (ii)Boiled egg – Hard (30minutes) and Soft (10minutes) cooked egg. (iii)Effect of acid and salt in egg white and yolk foam **(b)Recipes:** (i) Preparation of scrambled, poached egg, custards (double boiling method), omelette, egg curry.
- 7. SUGAR: (a) Experiments:** (i) Identify the stages of sugar cookery using food thermometer-refined sugar and country's jaggery powder (Thread test, cold water test, plate test, temperature test)**(b)Recipes:**(i) Sweet preparations - chocolate fudge, peanut brittle, laddu, mysore pak and Athirasam

8. FATS AND OILS: (a) Experiments: (i) Smoking point temperature of different fats and oils (gingelly oil, groundnut oil & coconut oil) (ii) Frying poori at different smoking temperature
(b) Recipes: (i) Preparation of few fat fried snacks- shallow fry and deep fat fry methods

9. BEVERAGES: (a) Experiments: Preparation and evaluation of (i) Coffee (Filter and instant method) (ii) Tea **(b) Recipes** (i) Soup (ii) fruit and milk based drinks (iii) malted beverages- any 2 recipes on each class

10. SPICES: (a) Recipes : Preparation of medicinal value foods by using spices and condiments- Turmeric milk, Rasam, Panagam, Cinnamon tea and detoxifying drink

REFERENCE BOOKS

1. Mohini sethi-Food Science Experiments And Applications, 2nd Edition, CBS publishers and distributors pvt ltd, New delhi, 2011, ISBN :9788123916934.

2. B.Srilakshmi-Food science Laboratory Manual, Scitech Publications (India) Pvt Lt, 2003.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code		Title of the Paper			Hours	Credits			
I	20UND1CCP2		FOOD SCIENCE PRACTICAL			3	2			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	✓	✓	✓	✓		✓	✓	✓	✓	
CO2	✓	✓		✓		✓	✓		✓	
CO3	✓	✓				✓	✓			
CO4	✓	✓	✓			✓	✓	✓		
CO5	✓	✓		✓		✓	✓		✓	
Number of Matches= 30, Relationship : Moderate										

Prepared by:
1.B.Rajalakshmi
2. A.Yasmin Fathimaa

Checked by: Dr.V.Kavitha

Semester	Code	Course	Title of the Course	Hours	Credits	Max. marks	Internal marks	External marks
I	20UND1AC1	Allied - I	HUMAN PHYSIOLOGY	5	4	100	25	75

Course outcomes:

1. Able to understand the composition and functions of blood and lymph
2. Understand the physiology of Respiratory system and Cardiovascular system
3. Able to integrate the physiological functions of the digestive system and excretory system
4. Apply the physiological concepts of the reproductive system and endocrine system
5. Analyse the vital organ functions in respect to maintenance of human health

UNIT-I

15 hours

Blood and lymph:

- 1.1 Blood-** composition and functions, RBCs, WBCs, Platelets - structure and functions. Coagulation of blood (mechanism only), bleeding time & coagulation time (meaning only). Blood grouping and Rh factors.
- 1.2 Lymph and lymphatic system** – #structure and functions#.

UNIT –II

15 hours

Respiratory and cardiovascular system:

- 2.1 Respiratory system** – structure and functions of respiratory tract, process of respiration, transport and exchange of gases.
- 2.2 Heart-** structure and functions. Cardiac cycle, cardiac output, factors affecting cardiac output, heart rate, pulse rate, blood pressure- measurement through sphygmomanometer and factors affecting blood pressure, Electrocardiogram (ECG).

UNIT –III

15 hours

Digestive and Excretory System:

- 3.1 Digestive system** – structure and functions of gastrointestinal tract, structure of villi, physiology of digestion, movements of intestine. Liver – structure and its functions
- 3.2 Excretory system** –structure and functions of kidney, structure of nephron, # composition of urine, factor affecting formation of urine#, micturition. **Skin-** Structure and functions (list only).

UNIT-IV

15 hours

Reproductive and Endocrine System:

- 4.1 Reproductive system:** structure and functions of male and female reproductive system, spermatogenesis, oogenesis and menstrual cycle.
- 4.2 Endocrine system** – structure and function of pituitary, thyroid, parathyroid, and Pancreas and adrenal glands.

UNIT –V

15 hours

Nervous system and special senses:

- 5.1 Nervous system-** structure and functions- nerve cell, brain and spinal cord. Autonomic nervous system – sympathetic and parasympathetic nervous system and functions (list only).

5.2 Ear, Eye, Nose and Tongue- structure and functions of ear, eye, nose and tongue (concept only)

#.....# self study

Text Books

T.B.1 K. Sembulingam, and Prema Sembulingam Essentials of Medical Physiology, Second Edition, \ Jay Pee Brothers Medical Publishes (p) Limited, New Delhi.2 (2010).

T.B.2 Ross and Wilson, Anatomy and Physiology in Health and Illness, Eleventh Edition, Library Cataloguing in Publication (2010).

UNIT I Chapter- VI-XXVII .T.B.1, Chapter- VI, T.B.2

UNIT II Chapter-V, X T.B.2

UNIT III Chapter- XII, XIII, T.B.2

UNIT IV Chapter-IX, XVIII, T.B.2

UNIT V Chapter-VII, VIII ,T.B.2

REFERENCE BOOKS

1. S.M .Subramanian and Mathavan kutty, Text book of Physiology, Chand and Company, New Delhi (2001).
2. K. Sembulingam and Prema Sembulingam, Essentials of Medical Physiology, Second Edition, Jay Pee Brothers Medical Publishes (p) Limited, New Delhi (2000).
4. Vidya Tatna, Hand book of Human physiology, Seventh Edition Jay Pee Brothers Medical Publishers (p) Limited, New Delhi (1993).
5. C.C. Chatterjee, Human physiology, Medical allied agency, Volume I &II, 82/1 Mahatma Gandhi road, Calcutta(1998).

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Paper					Hours	Credits				
I	20UND1AC1	HUMAN PHYSIOLOGY					5	4				
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)						
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
CO2	✓	✓		✓		✓	✓		✓			
CO3		✓	✓	✓			✓	✓	✓			
CO4	✓	✓		✓	✓	✓	✓		✓	✓		
CO5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Number of Matches= 40, Relationship : High												

Prepared by:

1. J.Harine Sargunam
2. Dr.M.Angel

Checked by: D.Bhuvaneshwari

Semester	Code	Course	Title of the Course	Hours	Credits	Max. marks	Internal marks	External marks
II	20UND1ACP4	Allied - II	HUMAN PHYSIOLOGY - PRACTICAL	3	2	100	20	80

Course Outcomes:

1. Know the composition of Blood
2. Understand the features of tissues, muscles and organs.
3. Acquire skills in estimating the haemoglobin and measuring the blood pressure.
4. Determine the normal and abnormal value of blood constituent
5. Demonstrate the organ functions using apparatus

Objectives

To enable the students to

1. Gain knowledge to examine the features of tissues, muscles and organs under microscope.
2. Become familiar in estimation of haemoglobin and in measuring the blood pressure
1. Histology of tissues- columnar, cubical, ciliated, squamous and stratified squamous.
2. Histology of muscles- cardiac, striated and non-striated.
3. Microscopic structure of organs- stomach, liver, ovary and pancreas.
4. Estimation of haemoglobin by Shali's method.
5. Measurement of blood pressure using Sphygmomanometer
 - i. Before and after exercise.
 - ii At different positions standing, sitting and reclined.
6. Determination of pulse rate.
7. Determination of blood group.
8. Bleeding time, clotting time and enumeration of Red Blood Cells - Demonstration.
9. Enumeration of White Blood Cells.
10. Visit to a clinical laboratory.

REFERENCES:

1. Applied Physiology – S. Wright.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Paper					Hours	Credits			
II	20UND1ACP4	HUMAN PHYSIOLOGY - PRACTICAL					3	2			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓	✓	✓	✓		
CO2	✓	✓	✓	✓		✓	✓	✓	✓		
CO3	✓		✓	✓	✓	✓		✓	✓	✓	
CO4	✓			✓	✓	✓			✓	✓	
CO5	✓	✓		✓	✓	✓	✓		✓	✓	
Number of Matches= 38, Relationship : High											

Prepared by:

1. Dr.M.Angel
2. J.Harine Sargunam

Checked by: B.Rajalakshmi

Semester	Code	Course	Title of the Course	Hours	Credits	Max. marks	Internal marks	External marks
II	20UND2CC3	Core - III	NUTRITION: LIFE CYCLE APPROACH	6	5	100	25	75

Course out comes:

1. Understand to use the food groups and RDA to plan the balanced diet
2. Understand the nutritional needs during pregnancy and lactation.
3. Describe the growth and development of infancy and importance of breast feeding
4. Study the need of nutritional requirement to school going children, Adolescence and to overcome their Nutritional problems.
5. Understand the physio and psychosocial changes during old age and to overcome their health problems

Objectives

To enable the students

1. Understanding the growth, development and maintenance of good health throughout the life.
2. Get familiar with planning meal at different age group.

UNIT I

RDA AND MEAL PLANNING:

- 1.1 RDA-Definition, RDA FOR INDIAN (2010), General Principles of deriving RDA (list only), factors affecting RDA & its uses.
- 1.2 Balanced Diet & meal planning- five food groups, food guide pyramid, balanced diet, food exchange lists, principles of planning meal, steps involved in planning a menu.

UNIT II

PREGNANCY & LACTATION:

- 2.1 Pregnancy –Physiological changes, nutritional requirements, dietary guidelines, general dietary problems-nausea, vomiting, heart burn, weight gain during pregnancy pica. Complications during pregnancy- Anaemia, Gestational Diabetes, Constipation, Odema, Hypertension.
- 2.2 Lactation–structure of Mammary gland, physiology of lactation & role of hormones in milk production. Nutritional requirements, dietary guidelines, lactation failure – factors responsible for lactation failure.

UNIT III

INFANCY & PRESCHOOL CHILDREN

- 3.1 Infancy- Growth & Development, Nutritional Requirement, Breast Milk-Colostrums, Transition milk, Foremilk, Hind milk. Advantages of breast milk to the infant, Artificial feeding.
- 3.2 Preschool Children- Growth & development nutritional requirements, food requirements, feeding problems, feeding disorders, # midday meal programme # ICDS- Objectives.

UNIT IV

SCHOOL GOING & ADOLESCENCE:

4.1 School going children- Growth & development nutritional requirement, importance of breakfast, family meals, dietary guidelines, packed lunch, school lunch programme, and diet related problems- Underweight, Obesity, Constipation, Dental caries.

4.2 Adolescence- growth & development, nutritional requirements, dietary guidelines, nutritional problems- obesity, eating disorders- anorexia nervosa, bulimia nervosa, binge eating.

UNIT V

ADULT & ELDERLY

5.1 Adult- Indian reference man & women, Nutritional requirement of adult in relation to activity pattern, dietary guidelines, #low cost balanced diet#.

5.2 Elderly- Physiological, psychological and socio-economic aspects influencing nutritional intake. Process of ageing, Nutritional Requirement, dietary guidelines, Nutritional related problems- osteoporosis, obesity, anaemia.

#.....# **Self - study portion.**

TEXT BOOKS

T.B.1 B.Srilakshmi, Dietetics, Sixth edition, New Age International Pvt. Ltd (2010).

T.B.2 B.Srilakshmi, Nutrition Science, Fourth edition, New Age International Pvt. Ltd (2012).

UNIT I Chapter – II T.B.1 Chapter – II T.B.2

UNIT II Chapter – VI, VIII T.B.1

UNIT III Chapter – III, IV T.B.1

UNIT IV Chapter – V, VI T.B.1

UNIT V Chapter – II, IX T.B.1

Reference Book

1. E.M. Shills, A.J Olson, Shike, Lea and Febiger, Modern Nutrition in Health and Diseases, Lippincott Williams and Wilkins publishing (2006).

2. L.K Mahan, M.T Arlin, Krause's, Food, Nutrition and Diet Therapy, Eleventh edition, W.B.Saunders Company, London (2000).

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Paper					Hours	Credits			
II	20UND2CC3	NUTRITION: LIFE CYCLE APPROACH					6	5			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO2	✓	✓		✓		✓	✓		✓		
CO3		✓	✓	✓			✓	✓	✓		
CO4	✓	✓		✓	✓	✓	✓		✓	✓	
CO5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Number of Matches= 40, Relationship : High											

Prepared by:
1. D.Bhuvanewari
2. R.R.Sangeetha

Checked by: J.Harine Sargunam

Semester	Code	Course	Title of the Course	Hours	Credits	Max. marks	Internal marks	External marks
II	20UND2CC4P	Core - IV	NUTRITION: LIFE CYCLE APPROACH PRACTICALS	3	2	100	20	80

Course outcomes:

1. Know the principles of menu planning for different age groups
2. Describe the nutrient need for different age group
3. Acquire skills in planning menu for different age groups
4. Identify the food source based on the requirement and able to prepare a menu for physiological stress period and throughout lifecycle
5. Design, standardize and prepare weaning food for Infancy.

Objectives:

This course will enable the students to

- To develop the concept of portion size for different age groups.
 - To impart basic cooking skills and healthy cooking practices.
1. Introduction to meal planning & portion controlling
 2. Planning, calculate nutritive value and preparation of whole day menu for following age groups
 - a. Pregnancy
 - b. Lactation
 - c. Infancy-weaning food
 - d. Preschool children (1-6 years)
 - e. School children (7-12 years)
 - f. Adolescence (13-17 years)
 - g. Adult man & women
 - h. Elderly
 3. A Diet Survey based on Dietary Habits by indirect method.
 4. Visit to an Anganwadi centre- Midday Meal Programme- **case study**

REFERENCES BOOKS

1. Swaminathan,M. Advanced text book on Food and Nutrition,, An mol Publication Pvt,Ltd, Second Edition.2004.
2. MahtabS.Bamji, Prasad Rao, N.Vinodini Reddy. Textbook of Human Nutrition, Oxford and IBH Publishing Co. Pvt .Ltd, Second Edition, 2003.
3. Srilakshmi, B. Nutrition Science, New Age International [p] ltd, New Delhi, 2002.
4. Bahasahe and B. Dosa, Hand book of nutrition and diet.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Paper					Hours	Credits			
II	20UND2CC4P	NUTRITION: LIFE CYCLE APPROACH PRACTICALS					3	2			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO3	✓	✓	✓		✓	✓	✓	✓		✓	
CO4	✓	✓	✓		✓	✓	✓	✓		✓	
CO5	✓	✓		✓	✓	✓	✓		✓	✓	
Number of Matches= 42, Relationship : High											

Prepared by:

1. D.Bhuvanewari
2. R.R.Sangeetha

Checked by Dr.V.Kavitha

Semester	Code	Course	Title of the Course	Hours	Credits	Max. marks	Internal marks	External marks
II	20UND21AC3	Allied - III	FOUNDAMENTALS OF NUTRITION	4	3	100	25	75

Course Outcomes

1. Understand the role of nutrients in human health
2. Provide scientific knowledge on the signs and symptoms of nutrient deficiency and Toxicity
3. Acquire knowledge in energy determination and expenditure
4. Able to differentiate the functions and deficiency of vitamins.
5. Know the role of water and electrolyte balance in the human body

Objectives:

To enable the students to

1. Gain basic knowledge on nutrients and their role in human health
2. Acquire scientific knowledge on health problems associated with imbalance of nutrient consumption.

Specific Learning Outcomes

1. Understand the role of nutrients in human health
2. Provide scientific knowledge on the signs and symptoms of nutrient deficiency and Toxicity

UNIT-I

CARBOHYDRATES:

- 1.1 Carbohydrates-Nutritional classification and functions (list), sources and requirements, digestion and absorption and utilization.
- 1.2 Glycemic index of foods. Nutritional problems due to excess and deficit intake of carbohydrates. Dietary fibre-definition, classification and food sources. Role of fibre in human health.

PROTEINS:

- 1.3 Protein- Nutritional classification and functions, sources and requirements, digestion and absorption and utilization.
- 1.4 Protein quality evaluation methods-NPU, BV, PER (Definition & formula).Nutritional problems due to excess and deficit intake of protein.Aminoacids-Essential and non-aminoacids.

UNIT-II

LIPIDS:

- 2.1 Lipids- classification and functions, sources and requirements, digestion, absorption and utilization.
- 2.2 Nutritional problems due to excess and deficit intake of lipids.Essential fatty acid- Definition and functions (list).

UNIT-III

ENERGY METABOLISM:

- 3.1 Energy –Definition;Unit of measurement-calorie & joule.Measurement of energy value of foods by Bomb calorimeter.Thermic effects of foods.
- 3.2 Basal metabolic rate-Definition,factors affecting basal metabolic rate,methods for determination of energy expenditure-direct and indirect calorimetry.Calculation of energy requirements for an individual.(Atwater’s Rosa,Benedict’s Roth Apparatus)

UNIT-IV

VITAMINS:

- 4.1 Classification of vitamins-fat and water soluble vitamins. Fat soluble vitamins (A, D, E &K)- functions(list), requirements and food sources. Nutritional problems due to deficiency or excess intake of fat soluble vitamins.
- 4.2 Water soluble vitamins (B₁, B₂, B₃, B₆, B₁₂ , Vitamin C) - functions, requirements and food sources.

UNIT-V

MINERALS, WATER AND ELECTROLYTE:

- 5.1 Minerals: Macrominerals- calcium, phosphorus, magnesium, sodium, potassium & chloride – Functions(list), requirements, food sources, deficiency and toxicity.
- 5.2 Micro minerals& Trace minerals: Iron, copper, zinc, manganese, iodine, fluoride, selenium, cobalt, chromium & nickel- Functions(list), requirements, food sources, deficiency and toxicity.
- 5.3 Water-Distribution, functions of water & electrolytes. Water balance and water intoxication.

TEXT BOOKS

1. B. Srilakshmi, Nutrition Science, Fifth Edition, New Age International (P) Ltd, New Delhi (2008).
2. Ambika Shanmugam, Fundamentals of Biochemistry for Medical Students, Seventh Edition, New Age Publishing Pvt.Ltd., New Delhi (1986).

UNIT I Text book – 1 Chapter – III, IV, VIII

UNIT II Text book –1 Chapter – V

UNIT III Text book –1 Chapter – VI

UNIT IV Text book – 1 Chapter – XIV, XV, XVI, XVII, XVIII, XIX

UNIT V Text book – 1 Chapter – X, XI, XII,XIII,XX

REFERENCE BOOKS

- 1.Joshi.A.S, “Nutrition & Dietetics”, Third Edition, Tata McGraw Hill Education Pvt. Ltd., New Delhi, (2010).
2. R. Passmore and M.A. Eastwood, Human Nutrition and Dietetics, 8th language book Society/Churchill Livingstone, Hong Kong, (1986).
3. Neiman N. Catherine, Nutrition, Wm. C. Brown Publishers. USA (1990).
4. U. Sathyanarayana and U. Chakrapani, Biochemistry, Third Edition, Uppala Author – Publisher Interlinks, Vijayawada (2010).

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Paper					Hours	Credits			
II	20UND2AC3	FOUNDAMENTALS OF NUTRITION					4	3			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO3	✓	✓	✓		✓	✓	✓	✓		✓	
CO4	✓	✓	✓		✓	✓	✓	✓		✓	
CO5	✓				✓	✓				✓	
Number of Matches= 40, Relationship : High											

Prepared by:

1. J.Priya
2. Dr.M.Angel

Checked by A.Yasmin Fathimaa

Semester	Code	Course	Title of the Course	Hours	Credits	Max. marks	Internal marks	External marks
II	20UND21AC4P	Allied - IV	FOUNDAMENTALS OF NUTRITION PRACTICAL	3	2	100	20	80

Course Outcomes

1. Know the source of food content
2. Understand the identification of different types of sugars, proteins and minerals.
3. Know the principles of analytical instruments
4. Demonstrate competency in the use of standard techniques of food analysis
5. Acquire skills to analyse various nutrients.

Objectives

To enable the students to

1. Know the difference between qualitative and quantitative analytical tests in foods.
2. Gain knowledge on the identification of different types of sugars, proteins and minerals.

1. Qualitative tests for Carbohydrates, Proteins and Minerals.

Qualitative analysis for Carbohydrates in food samples.

- a) Monosaccharide – Glucose and Fructose
- b) Disaccharide – Lactose and Sucrose
- c) Polysaccharide - Starch

2. Qualitative analysis for protein in food samples

- a) Albumin
 - b) Casein
3. Estimation of Moisture content in the given sample. (Hot air oven method)
 4. Preparation of ash samples for mineral analysis.

5. Qualitative analysis for minerals in food samples.

- a) Calcium
 - b) Iron
 - c) Phosphorus
6. Estimation of glucose.
 7. Estimation of ascorbic acid.

Specific Outcomes:

After studying this paper, the students will

1. Understand the identification of different types of sugars, proteins and minerals.
2. Acquire skills to analyse various nutrients.

REFERENCE BOOKS:

1. Sadasivam, S. and Manickam, A. Biochemical Method, Second Edition, New Age International P. Ltd., Publishers, New Delhi, 2003.
2. Raghuramulu, N., Madhavannair, K. and Kalyana Sundaram, National Institute of Nutrition, 2013, A Manual of Laboratory Techniques, Hyderabad, 500007.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Paper					Hours	Credits			
II	20UND2CC4P	NUTRITION: LIFE CYCLE APPROACH PRACTICALS					3	2			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO3	✓	✓	✓		✓	✓	✓	✓		✓	
CO4	✓	✓	✓		✓	✓	✓	✓		✓	
CO5	✓	✓		✓	✓	✓	✓		✓	✓	
Number of Matches= 42, Relationship : High											

Prepared by:
1. J.Priya
2. Dr.M.Angel

Checked by D.Bhuvaneshwari