

MANONMANIAM SUNDARANAR UNIVERSITY, TIRUNELVELI

UG COURSES – AFFILIATED COLLEGES

B.Sc. NUTRITION & DIETETICS

(Choice Based Credit System)

(with effect from the academic year 2017-2018 onwards)

Se m. (1)	Pt. I/II/ III/ IV/ V (2)	Sub No. (3)	Subject Status (4)	Subject Title (5)	Con - tact Hrs./ Week (6)	L Hr s./ we ek (7)	T Hr s./ we ek (8)	P Hrs / wee k (9)	C Cre- dits (10)
I	I	1	Language	Tamil/Other Language	6	6	0	0	4
	II	2	Language	English	6	6	0	0	4
	III	3	Core -1	Food Science	4	4	0	0	4
	III	4	Core -2	Human Development	4	4	0	0	4
	III	5	Major Practical - I	Food Science	2	0	0	2	2
	III	6	Allied - I	Human Physiology - I	4	4	0	0	4
	III	7	Allied Practical - I	Human Physiology	2	0	0	2	2
	IV	8	Common	Environmental Studies	2	2	0	0	2
Subtotal					30				26
II	I	9	Language	Tamil/Other Language	6	6	0	0	4
	II	10	Language	English	6	6	0	0	4
	III	11	Core-3	Principles of Nutrition	4	4	0	0	4
	III	12	Core -4	Public Health and Community Nutrition	4	4	0	0	4
	III	13	Major Practical - II	Principles of Nutrition	4	0	0	4	2
	III	14	Allied - II	Human Physiology - II	3	3	0	0	3
	III	15	Allied Practical - II	Human Physiology	4	0	0	4	2
	IV	16	Common	Value Based Education. :சமூக ஒழுக்கங்களும் பண்பாட்டு விழுமியங்களும். : Social Harmony	2	2	0	0	2
Subtotal					30				26

L: Lecture

T: Tutorials

P: Practicals

MSU/2017-18/UG-Colleges/Part-III (B.Sc Nutrition & Dietetics) Semester-I / Core-1

FOOD SCIENCE

Objectives

1. To obtain knowledge of different food groups and their nutritional value
2. To gain experience in the preparation of foods

Unit - 1

Introduction to foods

- a) Definition - food, food science, food additives, food fortification, phytochemicals, food safety and regulations, antioxidants
- b) Nutrients present in foods
- c) Nutritional classification of foods
- d) Need for grouping foods and Basic food groups - basic four and basic five

Unit - 2

Food preparation techniques

- a) Preliminary techniques
- b) Different methods of cooking and their influence on nutrient retention

Unit - 3

Cereals, Pulses, Nuts and Oilseeds

- a) Cereals - rice, wheat - structure, milling, parboiling, by products, nutritive value and changes in nutritive value during cooking, role in cookery
- b) Pulses - nutritive value, milling, germination, role in cookery
- c) Nuts and Oilseeds - Nutritive value and its importance in the diet

Unit - 4

Fruits, Vegetables, Beverages, Spices and Condiments

- a) Fruits - classification based on pigments, ripening of fruits, serving of fruits, nutritive value
- b) Vegetables - Classification according to structure, selection, loss of nutrients during cooking, effect of cooking on pigments, nutritive value, effect of heat, acid and alkali, role in cookery
- c) Beverages - Classification and their role in the diet
- d) Spices and Condiments - Uses and abuses

Unit - 5

ANIMAL FOODS

- a) Milk and milk products - nutritive value, types of milk, role of milk and milk products in cookery
- b) Flesh Foods - Meat, Fish and Poultry - classification, nutritive value - methods of cooking
- c) Egg - Structure, composition, testing the quality, role in cookery

REFERENCES

1. Dr. M. Swaminathan, Advanced Text - Book on Food & Nutrition, Bappco, Bangalore 1985
2. N.Shakuntala Manay , M.Shadaksharaswamy, Foods Facts and principles, New age International (P) Ltd., Publishers Second Edition 2001
3. Seema Yadav, Basic Principles of Nutrition, Anmol Publications PVT Ltd., First Edition 1997
4. B.Srilakshmi ,Food science, New age International (P) Ltd.,2001
5. Vijay Kaushik, Food science and nutrition, Mangal Deep Publications, 2000
6. MeeraVashist, Introduction to Food, Nutrition and Food processing, Anmol Publications PVT. Ltd., 1998
7. S.R. Sharma Vijay Kaushik, Food Nutrition and Cookery, Anmol Publications PVT.Ltd, 1994

HUMAN DEVELOPMENT

OBJECTIVES

To enable students

1. Understand the philosophy and aims of preschool education and its value to children, parents and community
2. Gain practical experience by observation and participation in the pre-school

Unit - 1

FUNDAMENTALS OF GROWTH AND DEVELOPMENT

- a) The principle of Growth and development, Factors that influence the development
- b) Methods of child study with special emphasis on case study and observation methods

Unit - 2

PERIOD OF INFANCY

- a) Appearance, size and proportion of new born
- b) Physical care and daily routine, feeding - natural and artificial, bathing, clothing and sleeping
- c) Health and hygiene
- d) Behavioural patterns

Unit - 3

EARLY AND LATE CHILDHOOD PERIOD

- a) Physical and motor growth
- b) Language and intellectual development
- c) Emotional and social development
- d) Needs and interest of the school child
- e) Habits and Habit formation

Unit - 4

ADOLESCENCE

- a) Physical and psychological changes during adolescence
- b) Needs, interests, problems of the adolescents
- c) Personality development of adolescents
- d) The influence of the peer group
- e) The value of the healthy relationship between the adolescent, his home and community
- f) Delinquency in children

Unit - 5

PERIOD OF SENESENCE

- a) Age related changes, theories of ageing, modulating process of ageing
- b) Physical and Physiological problems, psychology, family attitudes towards the aged

REFERENCES

1. Breckenridge, M.E & Vincent , E . Lee - Child Development, W.B.Saunders & Co.,1956
2. Hurlock , E.B. Child Development Mcgraw Hill Co., New York 1950
3. Breckenridge : Marian. E.Murphy: Margaret Neatitt - Growth and Development of the young child W.D.Saunders & Co.,Phildelphia : 1958
4. Read, K.H. The nursery school,W.B.Saunders & Co.,1955
5. Crow and Cros - Adolescent Development and Adjustment , McGraw Hill Book Co.,1956
6. Malm and Jamison - Adolescent, McGraw Hill Book Co., 1952
7. Burgess, E.W. The Family American Book Co., New York 1953
8. Foster, Roberts - Marriage Family relationship, Macmillan Co., 1952
9. Skindmore, Rex.A. Cannon, Arthur, S. Building your marriage
10. Muralidharan R. (Edited) - System Preschool education in India. IAPE, New Delhi .1972
11. Journals Childhood Education - Journal of the Association for childhood

Major Practical - I

FOOD SCIENCE

- a) Preparation of cereals
- b) Preparation of pulses
- c) Preparation of with fruits
- d) Preparation of vegetables
- e) Preparation of dishes with meat, fish and poultry
- f) Preparation with egg
- g) Preparation with milk
- h) Preparation of beverages

HUMAN PHYSIOLOGY - I

Objectives

1. To understand the structure and physiology of various organs in the body
2. To identify the physiological process applicable to human nutrition

Unit - 1

CELL AND DIGESTIVE TISSUE

Cell and tissue - cell structure and functions of epithelial, connective, muscular and nervous tissue

Unit - 2

DIGESTIVE SYSTEM

Anatomy, process of digestion, liver and its functions

Unit - 3

CIRCULATORY SYSTEM

- a. Blood - Composition, functions, blood groups - RH factors- Blood coagulations
- b. Heart - Anatomy and physiology, blood vessels - structure of artery, vein, capillaries, cardiac cycle, blood circulation

Unit - 4

RESPIRATORY SYSTEM

Respiratory System: Structure and mechanism

Unit - 5

EXCRETORY SYSTEM

Physiology of kidney - Nephron, Structure and function, formation of urine

REFERENCES

1. Best and Taylor, 1971 4th edition, The Living Body, Chapman & Hall Ltd., London
2. Guyton, A.G. 4th Edition,1971. Text Book of Medical Physiology, W.B.Saunders Co.,
3. Mitchell, 1985, 5th edition General Physiology Mc.Graw Hill
4. D'amount 1984, Basic Physiology, Oxford & IBH Publishing Co.,
5. Best C.H. Taylor, B.B.3rd edition. The Human Body: its Anatomy & Physiology, Holt, Rineshart & Winston Inc.
6. Chatterjee. C.C; 2002, Human Physiology, Medical Allied Agency, Kolkata
7. Chatterjee. C.C; 2000, Human Physiology, Medical Allied Agency, Kolkata

MSU/2017-18/UG - Colleges/Part-III (B.Sc. Nutrition & Dietetics) Semester I /

Allied Practical - 1

HUMAN PHYSIOLOGY

1. Histology of epithelial, muscular, connective tissue bone, cartilage, nerve tissues
2. Determination of blood group, Rh factors and haemoglobin
3. Histology of artery and vein and capillaries
4. Visit to hospitals/clinics

PRINCIPLES OF NUTRITION

Objectives:

1. To understand the role of nutrition in the maintenance of good health
2. To study nutritional deficiencies and their prevention

UNIT - 1

BASIC CONCEPTS OF NUTRITION

Definition - Nutrition, Nutrients, Adequate Optimum and good nutrition, signs of malnutrition

UNIT - 2

CARBOHYDRATES

Classification, digestion, absorption, metabolism, functions, sources and requirements

UNIT - 3

PROTEIN

Classifications, digestion, absorption, EAA, metabolism, functions, sources, requirements and deficiency - Kwashiorkor, Marasmus

FATS (Lipids)

Classification, digestion, absorption, metabolism, functions, PUFA, Sources and effects of deficiency

UNIT - 4

MICRONUTRIENTS

a) Vitamins: History, absorption, functions, requirements, effects of deficiency

1. Fat soluble vitamins - A, D, E and K
2. Water soluble vitamins - C and B complex vitamins

b) Minerals: Functions, sources, requirements and effects of deficiency of minerals

1. Major Minerals - Calcium, Phosphorous, Sodium, Potassium, Iron
2. Trace Elements - Functions, sources, requirements and effects of deficiency - Copper, Zinc, Iodine, fluorine, selenium

UNIT - 5

ENERGY

Definition, energy needs of the body, BMR, factors affecting BMR, determination of energy value - Bomb calorimetric method, determination of energy requirements - Direct calorimetric method

REFERENCES

1. Dr.M.Swaminathan, Advanced Text - Book on Food and Nutrition, Bappco 1985
2. N.ShakuntalaManay, M. Shadaksharaswamy, Foods Facts and Principles, New Age International (P) Ltd. Publishers, Second Edition, 2001
3. Seema Yadav, Basic Principles of Nutrition, Anmol Publication Pvt.Ltd. First Edition ,1997
4. Robinson, C.H. and Lawler, R.M. Normal and Therapeutic Nutrition, Maxmillan Publication & Co., New York, 1994, 17th edition
5. Srilakshmi ,B.,Dietetics, New Age International Private Ltd.,New Delhi 1995
6. Mahtab, S. Bamji , Pralhab Rao,R and Vinodhini,Text Book of Human Nutrition, Oxford and IBH Publishing Co.Pvt.Ltd.,New Delhi.

MSU/2017-18/UG-Colleges/Part-III (B.Sc. Nutrition & Dietetics) Semester II / Core -4

PUBLIC HEALTH AND COMMUNITY NUTRITION

OBJECTIVES

1. To understand the basic concepts, principles, components and importance of health
2. To obtain knowledge about various diseases and control measures
3. To understand the ongoing community nutrition programmes
4. Appreciate the national and international contribution towards national improvement in alleviating nutrition problems

Unit - 1

COMMON WATER AND FOOD BORNE DISEASES

- a) Cholera, dysentery, diarrhoea, typhoid, paratyphoid
- b) Salmonellosis, Listeriosis, Campylobacteriosis, Botulism, E. Coli, Hepatitis A- Causes, Symptoms, treatment and preventive measures

Unit - 2

METHODS OF ASSESSMENT OF NUTRITIONAL STATUS

- a) Sampling
- b) Direct assessment - Diet Survey, anthropometry, clinical and biochemical estimation
- c) Indirect assessment - Food balance sheet, Agricultural data, Ecological parameter and vital statistics, use of growth chart

Unit - 3

FOOD ADULTERATION

Definition, common food adulterants, specifications

Unit -4

HEALTH PROGRAMMES

- a) Immunization programmes
- b) National Malaria Education programme
- c) Leprosy control programme
- d) Tuberculosis control programme

Unit - 5

NUTRITION EDUCATION

- a) Meaning, Scope
- b) Methods - Planning, Conduct of evaluation of nutrition education programme

REFERENCES

1. Park J.E. and Park K.K. "Preventive and social medicine",Bannar, Sidas Bhanot and Company Ltd, India 1975
2. Joshua A.K, "Microbiology", India Printing Works
3. Frazier, W. C. "Food Microbiology" Tata McGrew Hill Book Company, Bombay 1992
4. Rao and Bhat, 1997 Food Safety, Bappco Publishers, Bangalore
5. Bamji, 1997, Text Book of Human Nutrition Oxford Publishers, New Delhi

Major Practical - 2

PRINCIPLES OF NUTRITION

1. Formation of spot test
2. Identification of deficiencies through spot test
3. Qualitative test for Sugars
4. Qualitative test for proteins
5. Qualitative test for Minerals
6. Qualitative estimation of Vitamin C in Greens
7. Qualitative estimation of Vitamin C in Lime Juice
8. Quantitative estimation of Vitamin C in Curds
9. Quantitative estimation of reducing sugar in fruit juices
10. Quantitative estimation of reducing sugar in honey
11. Quantitative estimation of Calcium
12. Quantitative estimation of Phosphorous

HUMAN PHYSIOLOGY - II

OBJECTIVES

1. To understand the structure and physiology of various organs in the body
2. To identify the physiological process applicable to human nutrition

Unit - 1

ENDOCRINE GLANDS 1

Structure and functions of Thyroid, Pituitary, Parathyroid

Unit - 2

ENDOCRINE GLANDS 11

Structure and functions of adrenals, pancreas and sex gland

Unit - 3

REPRODUCTIVE SYSTEM

- a) General anatomy of male reproductive system
- b) General anatomy of female reproductive system - Menstrual cycle, Fertilization, Pregnancy, Parturition and Physiology of Lactation

Unit -4

NERVOUS SYSTEM

Structure and function of brain - Cerebrum, thalamus, hypothalamus, mid brain, pons, Medulla oblongata and cerebellum

Unit - 5

NERVOUS SYSTEM

Spinal Cord - Structure and function

- a) Ascending and descending tract
- b) Sympathetic and Parasympathetic nervous system

**MSU/2016-17/UG-Colleges/Part-III (B.Sc. Food Science & Nutrition) Semester - II /
Allied Practical – II**

HUMAN PHYSIOLOGY

1. Histology of epithelial, muscular, connective tissue, bone, cartilage, nerve tissue, artery, vein
2. Estimation of Haemoglobin
3. Determination of blood group
4. Demonstration of WBC / RBC count