

# SHIVAJI UNIVERSITY, KOLHAPUR

## CENTRE FOR COMMUNITY DEVELOPMENT

### Nutrition and Dietetics

**Duration:** One Year

**Expected number of students:** 10 to 20

**Course Fee:** Rs.4000/- +250 Evaluation charges

**Objectives:**

1. To impart knowledge regarding human anatomy and physiology
2. To gain practical knowledge of foods and human nutrition
3. To acquire skills of diet therapy.

**Medium of Instruction:** English

**Eligibility for Admission** 12 pass in any faculty

**Required Infrastructure:**

1. Lecture hall with all essential facilities.
2. Laboratory facility required for under graduate nutrition/Biology/chemistry laboratory.
3. Link with I.C.D.S. scheme.
4. Collaboration with diet counseling center
5. Human anatomical charts.

**Staff qualification:**

1. M. Sc. Nutrition / M.A. Home science (Full time)
2. Diploma in Nutrition and Dietetics with minimum two years of experience.

**Evaluation & Credit Pattern:**

Theory & Practical	Marks	Credit	Teaching Hours
Paper I	100	04	60
Paper II	100	04	60
Paper III	100	04	60
Practical	200	08	240
Total	500	20	420

**Job Opportunities:** Diet consultant.

# **Paper – I Human Anatomy and Physiology**

( Credit-6. 140 Hours. 2 days/Week )

## **Objectives:**

To introduce anatomy and physiology of human body.

## **Theory:**

1. General principles of physiology
2. Elementary anatomy of various systems.
3. Cardiovascular system:-
  - Blood and its composition
  - Blood groups
  - Coagulation of blood
  - Structure and functions of heart
  - Heart rate, cardiac output, blood pressure and its regulation
  - Circulation of blood
4. Gastrointestinal system.
  - Structure and function of various organs in G. I. Tract.
  - Digestion and absorption of food and the role of enzymes and hormones.
5. Reproductive system
  - Structure and functions of sex glands and organs including hormones.
  - Menstrual cycle
  - Physiology of pregnancy, parturition, lactation and menopause.
6. Excretory System:
  - Structure and functions of kidney, bladder, formation of urine, role of kidney in homeostasis.
  - Structure and functions of skin.
  - Regulation of temperature of the body.
7. Respiratory system
  - Structure of lungs.
  - Mechanism of respiration and its regulations.
  - O<sub>2</sub> and CO<sub>2</sub> transport in blood.
  - Vital capacity and other volumes.
  - Muscular exercise.
8. Nervous system
  - Elementary anatomy of Nervous system.
  - Functions of different parts of the Brain in brief.
  - Automatic, Sympathetic and parasympathetic Nervous System.
9. Muscular skeletal system
  - Types of muscles, functions.
  - Skeletal system – Formation of bone and teeth.
10. Classification of microorganisms, moulds, yeasts and bacteria, characteristics of useful and pathogenic organisms.

## **Practical:** Demonstration of charts

## **References:**

1. Guyton, A.C. Hall, J.E. (1996) : Text book of Medical physiology , 9<sup>th</sup> Ed. Prism Books (Pvt.) Ltd. Bangalore.
2. Winwood (1988): Sear's Anatomy & physiology for nurses, London, Edward Arnold.
3. Wilson (1989) : Anatomy and physiology in Health and illness, Edinburgh, Churchill Livingstone.
4. Biochemistry- Leninger.

## **Paper II Food and Nutrition**

( Credit-6. 140 Hours. 2 days/Week)

1. Concept and Definitions of Food, Nutrients, Nutrition, Malnutrition, Health, Digestion and Absorption.
2. Nutritional requirements and RDA,  
Dietary guidelines, reference men and reference women,  
Body composition and changes through life cycle.
3. Classification and importance of food.
4. Basic dietary patterns, balanced diet and guidelines for  
Improving nutritional quality of food.
5. BMR and energy metabolism, energy balance, assessment  
of energy requirement, deficiency and excess of energy.
6. Proteins - Classification, digestion and absorption,  
requirement and deficiency and Sources..
7. Lipids - Classification, digestion and absorption, types of  
Fatty acids, role and nutritional significance of fatty acids,  
requirement and deficiency and Sources..
8. Carbohydrates – Classification, digestion and absorption  
Blood glucose and effects of different carbohydrates on  
blood glucose, glycemic index. and Sources..
9. Vitamins - Classification, digestion and absorption, requirement, sources,  
deficiency and excess.
10. Minerals and trace elements - Classification, digestion and absorption  
deficiency and excess and excess of Ca, P, Mg, Fe, I, Zn, Na and K. and  
Sources..
11. Dietary fibers - Classification, Composition, role of dietary fibers in  
Nutrition and Sources..
12. Water – Functions and requirements.
13. Assessment of nutritional status: Techniques:- Anthropometrical, Clinical  
methods, Biochemical methods, Vital statistics.
14. Diet Survey: Types.

### **Practical:**

1. Food types and source of nutrients.
2. Food types and its standard nutritive values.
3. Demonstration of Anthropometrical and clinical methods.

### **Project:**

Preparation and presentation of project regarding community nutrition with review of literature. (Sample size – 50)

**Assessment of nutritional status:** -Techniques: - Anthropometrical, Clinical methods, Biochemical methods, Vital Statistics, Diet survey  
Designs, findings, implications and evaluation of diet survey.

## **Paper III**

## **Dietetics**

( Credit-6. 140 Hours. 2 days/Week)

### **Section – 1**

1. Nutrition and food requirement during different stages of life cycle: Adult, Infancy, Preschool, School going, adolescence, Expectant mother, lactating women and old age.
2. Principles of diet therapy – Factors to consider in planning therapeutic diets, purpose, principles and classification therapeutic diet, Routine hospital diet – pre and post operative diet, regular, light, soft & fluid diet. Special feeding methods – tube feeding and parenteral feeding.
3. Types of Diet:- Full fluid, soft diet, semisolid and liquid diet.
4. Diet in obesity and underweight – causes, complication and health effect, theories on obesity, assessment, types, dietary treatment and modifications.
5. Diet in febrile conditions, infections and surgical conditions, types, metabolism in fevers, general dietary considerations and modification of diet
6. Diet in G. I. tract diseases, etiology, symptoms, diagnostic tests and dietary management of diseases of esophagus, stomach and liver such as gastric and duodenal ulcers, infective hepatitis, liver cirrhosis and hepatic coma.
7. Diet in disturbances of small intestine and colon, diarrhea. Classification, modifications of diet – fiber residue, fluids in diet and nutritional adequacy.
8. Dietary management in various conditions of malnutrition
  - a. Protein energy malnutrition
  - b. Iron and iodine deficiency

### **Section II**

9. Ulcerative colitis – Symptoms, dietary treatment, inflammatory bowel diseases, irritable bowel syndrome, constipation, disaccharide intolerance.
10. Diet in diseases of gall bladder and pancreas – cholelithiasis, cholecystitis, cholecystectomy, pancreatitis.
11. Diet in diabetes mellitus – etiology, metabolism in diabetes, symptoms, diagnostic tests, types, nutritional requirement and dietary modification, complications of diabetes, hypoglycemic agents - Insulin and its types.
12. Diet in diseases of kidney – Physiology and functions of kidney, Classification, etiology, characteristic symptoms and dietary management in glomerulonephritis, acute and chronic nephrotic syndrome, acute and chronic renal transplant, nephrolithiasis, urinary calculi and dialysis.
13. Diet in diseases of cardiovascular system – Diet in incidences of atherosclerosis, dietary modification and treatment, role of nutrition in cardiac efficiency, hyperlipidemia, lipoproteins and their metabolism, Classification of hyperlipidemia, Clinical and nutritional aspects of hyperlipidemia. Dietary management of ischemic heart disease, Nutritional management of congestive heart diseases. Nutritional management of hypertension – etiology, prevalence, Nutritional management, prevention of cerebrovascular diseases and diet.
14. Diet in gout, nature and occurrence of uric acid, causes and symptoms, dietary modification in gout.

15. Diet in various types of food allergy and skin disturbances: definitions, classification, manifestations, symptoms, diagnosis and dietary treatment..
16. Diet in hormonal and non-hormonal cancer
17. Dietary management in disorders of electrolyte metabolism.
18. Dietary management in disorders of nervous system.

### **Practical**

1. Types of diet: Full fluid, soft diet, semisolid and liquid diet.
2. Planning and preparation various of types of diet of above mentioned diseases with nutritive value calculations
4. Preparation of Diet Management program -1200, 1600, 1800 and 2200 Calories, according to geographical conditions.
5. Resource File: Preparation of food chart:  
Food types (Carbohydrates, proteins, fats, vitamins, minerals and fibers), approx. weight in grams, household measures, calorie value,

**Project:** Diet Management program for any of above-mentioned disease conditions and its applications.

### **References :**

- Food for Health by A. P. Dewan.
- Foods and Nutrition By M. Swaminathan.
- Handbook of Food Science and Experimental Foods by M. Swaminathan.
- Essential of Foods and Nutrition by M. Swaminathan.
- Biochemistry for Medical students by M. Swaminathan.
- You and Yours Foods by A. R. Acchaya.
- A Textbook of Foods Nutrition and Dietetics by Raheena Begum.
- Food Science by Srilaxmi.
- Textbook of Food and Nutrition by Shubhangi Joshi.
- आहार मिमांसा – सरल लेले
- आहार आणि पोषण – मिनाक्षी तारणेकर
- आहार आणि पोषण – आशा देऊसकर व सरल लेले
- आहारशास्त्रः डॉ .कमला सोहोनी

### **Research Journals ( INDIA )**

- Journal of Food Science and Technology, CFTRI
- Journal of Nutrition and Dietetics, Coimbatore.
- Journal of Home Science, New Delhi.

Journal of Plant Foods and Human Nutrition.

American Journal of Clinical Nutrition.

American Journal of Clinical Nutrition.

Food and Nutrition Bulletin.

Anderson, L. Dibble M. V. Tukki, P. R. Mitchall, H. S. and Rynergin, H. J. (1982)

Nutrition in Health and Disease, 17<sup>th</sup> Ed. J. B. Lippincott and Co. Philadelphia.

Antia, F. P. (1973) Clinical Dietetics and Nutrition , Second Edition, Oxford university press, Delhi.

Mahan, L. K. Arlin, M. T. (1992) Krause's Food, Nutrition and Diet therapy, 8<sup>th</sup> Ed. W. B. Saunders company London.

Robinson, C. H. Lawler M. R. Chenoweth, W. L. and Garwick, A. E. (1986) Normal and Therapeutic Nutrition , 17<sup>th</sup> Ed. Macmillan Publishing co.

Williams, S. R. (1989) Nutrition and Diet Therapy, 6<sup>th</sup> Ed. Times Mirror / Mosby College publishing St. Louis.

Raheena, Begum (1989) A textbook of foods, nutrition and dietetics. Sterling publishers New Delhi.

Joshi. S. A. (1992) : Nutrition and Dietetics, Tata MC Graw Hill publication, New Delhi.

Food Science and Nutrition – Vejaya Khadir.