

# DIETETICS & NUTRITION

## Programme Structure

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits (15)
DAN2151	Principles of Nutrition	3	-	-	3
DAN2251	Family Meal Management	3	-	-	3
DAN2351	Basic Dietetics	2	-	2	3
DAN2451	Advanced Dietetics	2	-	2	3
DAN2551	Community Nutrition	3	-	-	3
DAN2651	Food Chemistry	3	-	-	3
	<b>TOTAL</b>				<b>18</b>

# DIETETICS & NUTRITION

## Syllabus - Semester First

### PRINCIPLES OF NUTRITION

Course Code: DAN2151

Credit Units: 03

#### Course Objective

This Course is designed to enable students

1. Understand the vital link between nutrition and health
2. Gain knowledge on functions, metabolism and effects of deficiency of nutrients

#### Course Contents:

##### Module -I

**Nutrition** - General introduction, Classification of nutrients, Functions of food, social function of food, psychological functions of food.

**Energy** - Definition of Kilocalories, Joule, energy value of foods, determination, physiological fuel values, SDA of foods, determination of energy requirements of body, basal metabolic rate determination, factors influencing BMR, Recommended Dietary Allowances for energy.

**Carbohydrates** - Classification, functions, source, digestion, absorption and utilization, dietary fiber and health.

##### Module -II

**Protein** - Classification, functions, sources and requirements, digestion, absorption and Utilization, Protein quality - Definition of biological value, NPU, digestibility coefficient, PER definition and measurement. Deficiency due to shortage of protein and energy – PCM, kwashiorkor. Reference protein, essential amino acids and mutual supplementation of dietary protein.

**Fats and Lipids** - Classification, functions, sources, requirement, digestion, absorption and utilization, importance of essential fatty acids, their requirements and deficiency.

##### Module -III

**Vitamins** – Fat soluble vitamins –A, D, E and K- functions, source, requirements, deficiency disorders. Water soluble vitamins –The B-complex vitamins – Thiamine, Riboflavin, Niacin, Folic acid, Biotin, Pantothenic acid and Vitamin C - functions, source, requirements and deficiency disorders.

##### Module -IV

**Minerals** - General functions in the body, classification- macro and micro minerals.

Micro minerals – Iron, Fluorine, Zinc, copper, Iodine -functions, absorption, utilization, requirements, deficiency and toxicity. Macro minerals – Calcium & phosphorus - functions, absorption, utilization, requirements, deficiency and toxicity.

##### Module -V

**Water Balance** – Functions of water, water distribution, maintenance of water and electrolyte balance, regulation of acid-base balance in the body.

**Examination Scheme:**

<b>Components</b>	<b>ATT</b>	<b>P</b>	<b>HA</b>	<b>CT</b>	<b>EE</b>
<b>Weightage (%)</b>	5	5	5	15	70

(ATT-Attendance; P-Project; HA-Home Assignment; CT-Class Test; EE-End Semester Examination)

**Text and References:**

- Essential of food & Nutrition –Vol. 1 M. Swaminathan, Bappco, Bangalore.
- Human Nutrition and Dietetics –Davidson S. Passmore
- Normal and Therapeutic Nutrition- Corinne .H.Robinson & Marilyn Lawler
- Contemporary Nutrition - Gordon M. Wardlaw, Paul Insel et, al., (2000) Mosby, Chicago.
- Nutrition- concepts and controversies- Eleanor Whitney –Eighth Edition (2000)
- Basic principles of Nutrition- Seema Yadav, First edition (1997)
- Essentials of Nutrition and Diet therapy -Sue Rodwell Williams, fifth edition, Times Mirror Mosby College Publishing, 1990.
- Understanding Nutrition -Whitney P.N. and Roes S.R., West Publication Co, 1996

# Syllabus - Semester Second

## FAMILY MEAL MANAGEMENT

**Course Code: DAN2251**

**Credit Units: 03**

**Course Objectives:** To enable the students

1. Understand the nutritional demands in various stages of life cycle.
2. Acquire skills in planning adequate meals in different stages of life cycle.

**Course Contents:**

### **Module I**

**Basic Principles of Meal Planning** - Basic meal pattern and its need to suit different income levels age and physiological stages. Recommended allowance-RDA for Indians, basis for requirement, energy allowance for different growth pattern of children, energy allowance for various activities.

### **Module II**

**Nutritional Needs during Pregnancy** - Normal growth and weight change. Nutritional requirements, complications during various stages of pregnancy – hyper emesis gravidarum, preeclampsia and eclampsia and their management at family level.

**Nutrition during Lactation** - Function of breast, physiology of lactation, hormonal control and relaxation, Milk output and factors affecting it, frequency of nursing- supply and demand, nutritional components of colostrum and mature milk. Nutritional requirements of lactating women.

### **Module III**

**Nutrition during Infancy** - Growth and development, factors influencing growth, Advantages of breast feeding, difference between breast feeding and bottle feeding, factors to be considered in bottle feeding. Different types of milk formulae.

**Weaning Foods** - Weaning foods and commercially prepared baby foods. Uses of growth chart to monitor growth & development. Nutritional requirements of infants' upto one year. Weaning foods developed by different organizations. Problems of feeding in normal and premature infants.

### **Module IV**

Nutritional needs of pre-school children (1-5 year) - Nutritional and food requirements of preschool children. Factors to be considered while planning meals for pre-school children. Eating problems of children and their management, preparation of supplementary foods using available low cost foods.

**Nutrition for School children** - Nutritional requirement, meal planning for school children, dental caries and packed lunch.

### **Module-V**

**Nutrition during Adolescence** - Physical Growth- changes and factors affecting height and weight, increments during menarche, Nutritional requirement. Nutritional problems in adolescence- Iron deficiency anemia, obesity, anorexia nervosa and bulimia nervosa.

**Nutritional needs of adults (men and women)** – Nutrition and work efficiency. Menopausal and post menopausal women, hormonal changes, nutritional requirement of the adult in relation to occupation.

**Nutrition During Old Age** - Physiological changes in ageing- psycho-social and economic factors affecting eating behavior. Nutritional problems of aged and their management.

**Examination Scheme:**

Components	ATT	P	HA	CT	EE
Weightage (%)	5	5	5	15	70

(ATT-Attendance; P-Project; HA-Home Assignment; CT-Class Test; EE-End Semester Examination)

**Text and References :**

- Nutrition Trends in India -Vinodhini Reddy, Prahlad Rao, Govmth Sastry and Kashinath, NIN, Hyderabad, 1993.
- Modern Nutrition in Health and Diseases- Shills, E.M. Olson, A.J. and Shike, Lea and Febiger
- Dietetics -B. Srilakshmi, New Age International Pvt. Ltd, 2003.
- NutritionScience-B.Srilakshmi,NewAgeInternationalPvt.Ltd., 2003.
- Food,nutrition and diet therapy -Krause, Eleventh edition
- Human Nutrition and Dietetics- Davidson S Passmore R, Brock JP, ELBS and Churchill, Livingstone.
- Fundamentals of foods and Nutrition - Mudambi SR and Rajagopal M Y, Wiley Eastern Ltd.
- ICMR- Nutritive value of Indian Foods, 1989.
- Nutrition throughout the life cycle, Bonnie S.Worthinton, Roberts, Sue Rod well Williams., TheMcGraw- Hill company,1996.
- Nutrition in the life span- Virginia Beal, John Wiley & sons New York.

# Syllabus - Semester Third

## BASIC DIETETICS

**Course Code: DAN2351**

**Credit Units: 03**

**Course Objectives:**

- To understand the modifications in nutrients and dietary requirements for various diseases.
- To acquire the ability to plan and prepare diets for various diseases.

**Course Contents:**

**Module I**

1. Role of Dietician-hospital and community
2. Basic concepts in Diet Therapy
3. Therapeutic Adaptation of the normal diet
4. Routine Hospital Diets- Regular diet, light diet, soft diet, full liquid diet and tube feeding.
5. Modifications of Diet -Febrile conditions, infections & surgical conditions.

**Module II**

6. Diets of gastro intestinal disorders, renal diseases, liver diseases, obesity, cardio vascular disorders and diabetes mellitus.
7. Geriatrics - Role of diet.
8. Feeding infants & children - problems in feeding children in the hospital.
9. Feeding the patient - psychology of feeding the patient, assessment of patients needs.
10. Nutrition & Diet Clinics - Patients check up and dietary counseling, education of the patient and follow up.

**Examination Scheme:**

Components	ATT	P	HA	CT	EE
Weightage (%)	5	5	5	15	70

(ATT-Attendance; P-Project; HA-Home Assignment; CT-Class Test; EE-End Semester Examination)

# Syllabus - Semester Fourth

## ADVANCED DIETETICS

Course Code: DAN2451

Credit Units: 03

**Course Objectives:** To enable students

1. Gain knowledge about principles of diet therapy and different therapeutic diets.
2. Develop aptitude for taking up dietetics as a profession.

**Course Contents:**

### Module-I

**Objectives of diet therapy** - Role of a dietitian. Principles of diet preparation and counselling.

**Normal diet in the hospitals** –regular diet, liquid ,semi liquid, light , soft diet, and bland diet.

**Different types of Feeding** - Basic concepts of oral feeding, tube feeding, IV feeding, gastrostomy feeding.

### Module-II

**Therapeutic diets for the following disorders:**

- a. Under weight - definition, etiology, treatment
- b. Obesity - definition, etiology, treatment.
- c. Diseases of the gastro intestinal tract-Peptic ulcer and duodenal ulcer, Dumping syndrome, constipation
- d. Acute and chronic diarrhea -rehydration therapy.

### Module-III

**Diseases of the liver and gall bladder** (risk factors and diet therapy)

- a) jaundice b) hepatitis c) cirrhosis d) fatty liver and diet therapy

**Diseases of the cardio vascular system** (risk factors and diet therapy)

- a) atherosclerosis b) arteriosclerosis c) hypertension d) congestive heart failure

### Module-IV

**Diabetes mellitus** – causes, symptoms, bio-chemical changes, insulin, hypo- glycemic drugs, changes in the metabolism of carbohydrate, fat and protein, food exchange list, dietary management

**Diseases of the kidney and urinary tract**

- a. Acute and chronic nephritis
- b. Nephrotic syndrome
- c. Renal failure
- d. Urinary calculi
- e. Uremia

Causes and dietary treatment of kidney diseases and dialysis.

**Nutrition and cancer** - Dietary guidelines for management.

### Module-V

**Diet in Allergy** - Definition, classification, common food allergy, test of allergy, diet therapy. Pre operative and post operative diets.

**Diet in febrile conditions** - Short duration e.g. Typhoid, Long duration e.g. Tuberculosis. Dietetic management of gout and phenyl ketonuria.

**Diet in relation to deficiency diseases**-Protein calorie deficiency, vitamin A deficiency and anemia.

**Examination Scheme:**

Components	ATT	P	HA	CT	EE
Weightage (%)	5	5	5	15	70

(ATT-Attendance; P-Project; HA-Home Assignment; CT-Class Test; EE-End Semester Examination)

**Text and References:**

- Krause and Mahan – Food ,Nutrition and Diet therapy, 6th Edition W.B. Saunders company, London
- Normal and therapeutic nutrition –17th Edition, Robinson et. al ., Mac Millan Pub.Co., New York
- ICMR(1989) Nutrient Requirements and recommended dietary allowances for Indians.
- Antia FP (1987) Clinical Dietetics and Nutriton, Oxford University Press, New Delhi
- Srilakshmi (2002) Dietetics, IVth Edition. New Age International (P) Limited, Publishers, New Delhi
- Shubhangini. A. Joshi (2002) Nutrition and dietetics, Tata Mc Graw- Hill publishing company limited, New Delhi.
- B. Srilakshmi (2002) Nutrition science, New age international (P) limited, New Delhi
- Carolyn E.Town send and Ruth A. Roth (2002) Nutrition and Diet Therapy, Delmar publisher
- Sue rod Williams, Nutrition and diet Therapy, Times Mirror Mosby College publishing, Boston, 1989.
- The Indian journal of nutrition and dietetics, Avinashilingam Deemed University, Coimbatore



# Syllabus - Semester Fifth

## COMMUNITY NUTRITION

**Course Code: DAN2551**

**Credit Units: 03**

**Course Objectives:** To enable the students

1. Know about the application of basics of nutrition in the community
2. Gain knowledge of community nutrition programmes of national and international organization

**Course Contents :**

### **Module-I**

**Definition** - Community, family, village and block

Meaning of Optimum Nutrition, Malnutrition- Under nutrition and over nutrition..

**Characteristics of community**- Demography, Vital statistics, IMR, MMR, morbidity. Causes of **malnutrition**-Factors contributing to malnutrition in the community - food habits, customs and practices, availability of food, Socio-economic factors, Housing and hygienic conditions, population explosion.

### **Module-II**

**Assessment of the nutritional status of the community** -direct and indirect methods - Anthropometry, Clinical and Biochemical, Diet Surveys.

Nutritional problems of women and men- Anemia, Vitamin A deficiency, B-complex deficiency.

**Nutritional problems of infants and children**- PEM-Marasmus and Kwashiorkor, Vitamin A deficiency, B-complex deficiency diseases, anemia-incidence, prevalence, epidemiology and prevention , other problems- Goitre, fluorosis and Lathyrism- prevalence, causes and symptoms and programmes to control.

### **Module-III**

**Nutrition intervention programmes** - ICDS: Objectives and services, Noon meal programme, TINP, SNP, Vitamin A prophylaxis.

**National Organization**- Role of ICMR, NIN, NNMB & ICAR

**International organization**- WHO, FAO , UNICEF, DANIDA & World Bank.

### **Module-IV**

**Home Science**- Meaning and Objectives. Role of Home-Scientists in rural development-with reference to ongoing programmers like Family Welfare Programme, Adult Education for community-different methods, advantages and disadvantages. Nutrition education- merits and demerits of different methods, Concept of nutrition garden.

### **Module-V**

**Communication**- Principles, methods and classification. Advantages and limitations of different methods.

**Audio-visual aids**- Types, advantages and limitations.

**Health care**- delivery, challenges & strategies. Set up of PHC, school health services and employees state insurance.

**Examination Scheme:**

<b>Components</b>	<b>ATT</b>	<b>P</b>	<b>HA</b>	<b>CT</b>	<b>EE</b>
<b>Weightage (%)</b>	5	5	5	15	70

(ATT-Attendance; P-Project; HA-Home Assignment; CT-Class Test; EE-End Semester Examination)

**Text and References:**

- Jelliffe DN, Assessment of Nutritional Status of the community.
- Ritchie JA, Teaching Nutrition FAO, 1979.
- Rajalakshmi R, Applied Nutrition, Oxford and JBH Publishers, 1981.
- Devadas RF, Nutrition in Tamil Nadu, Sanfam Publishers, Madras, 1972.
- Mc.Laren S, Nutrition and the community, John Wiley & Sons, 1982.
- Reddy AA, Extension Education, Srilakshmi Press, Bapla, 1971.
- Dahama OP and Bhatnagar OP Education and Communication for development.Oxford IBH Publishing Co.,1980.
- Savile AH, Extension in rural communities, Oxford University Press,1965.
- Nutrition Science, Srilakshmi (2001).
- Nutritional problem in India-PK Shukla,Prentice Hall, India.
- Foundations of community Health Education, Mc Graw Hill,London.

# Syllabus - Semester Sixth

## FOOD CHEMISTRY

**Course Code: DAN2651**

**Credit Units: 03**

### **Course Contents:**

#### **Module-I**

Study of various cooking methods - Boiling, steaming, stewing, frying, baking, roasting, broiling, cooking under pressure. Stages of sugar cookery, crystallization and factors affecting crystallization.

#### **Module-II**

Cereals - Structure, composition of rice, wheat, effects of cooking on parboiled and raw rice, principles of starch cookery, gelatinization, flours-types, formation of dough and batter

Pulses and Legumes – Varieties of pulses & legumes, composition, nutritive value, cooking quality of pulses, germination and its effect.

#### **Module III**

Vegetables - Classification, composition, nutritive value, selection and preparation for cooking

Fruits - Classification, composition, nutritive value, changes during ripening, methods and effects of cooking, enzymatic browning

#### **Module IV**

Milk - Composition, nutritive value, kinds of milk, pasteurization and homogenization of milk, changes in milk during heat processing, preparation of cheese and milk powder.

#### **Module V**

Egg - Structure, composition, selection, nutritive value, uses of egg in cookery

Fleshy foods - meat structure, composition, nutritive value, selection of meat, post mortem changes in meat, aging, methods of cooking meat

a)Poultry – types, composition, nutritive value, selection

b)Fish - Structure, composition, nutritive value selection of fish

#### **Module VI**

Fats and Oils - Types of oils, function of fats and oils, shortening effects of oil, smoking point of oil

#### **Examination Scheme:**

<b>Components</b>	<b>A</b>	<b>CT</b>	<b>S/V/Q</b>	<b>HA</b>	<b>EE</b>
<b>Weightage (%)</b>	5	10	8	7	70

#### **Texts & References:**

- Food Science, Chemistry and Experimental Foods by M. Swaminathan.
- Food Science by Norman.N.Potter.
- Experimental Study of Foods by Griswold R.M.
- Food Science by Helen Charley.
- Foundation of Food Preparation by A.G. Peckam.
- Modern Cookery for teaching and trade, volume I&II ,Thangam Philip. OrientLongmans Ltd.
- Food Fundamentals by MacWilliams, John Willy and son's, New York.
- Food Facts & Principles by Shakunthala manay & Shadakhraswamy.
- Food Science by Srilakshmi , second edition,2002.