



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

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**School of Allied Health Sciences
Department of Clinical Nutrition & Dietetics**

1.1.3 Courses having focus on Employability / Entrepreneurship / Skill Development

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SACA1501	ADVANCED DIETETICS	L	T	P	Credits	Total
		4	0	0	5	100

Course Objectives

- To know the importance and principles of dietetics as a distinct therapy for diseases.
- Gain knowledge on the types and role of dietitians.

Unit I

Concept of Diet therapy: growth and source of dietetics, purpose and principles of therapeutic diets, modification of normal diet, classification of therapeutic diets.

Unit II

Role of Dietician: Definition of nutritional care, interpersonal relationship with patient, planning and implementary dietary care, Team approach to nutritional care.

Unit III

Routine hospital diets: Preoperative and postoperative diets, study and review of hospital diet. Basic concepts and methods of - (a) Oral feeding (b) Tube feeding (c) Parental nutrition (d) Intravenous feeding.

Unit IV

Diet in surgical conditions, burns and cancer, Obesity and leanness- causes, complication and health effects, dietary treatment and other recommendation, Diet in fever and infections- Types- metabolism in fever, general dietary consideration diet in influenza, typhoid fever, recurrent malaria and tuberculosis.

Unit V

Diet in gastritis, peptic ulcer- symptoms, clinical findings, treatment, dietary modification, adequate nutrition, amount of food, and intervals of feeding, Chemically and mechanically irrigating foods, four stage diet (Liquid, soft, convalescent, liberalized diet), Diet in disturbances of small intestine and color. • Diarrhoea- (child and adult)- classification, modification of diet, fibre, residue. Fluids & nutritional adequacy. • Constipation- flatulence - dietary considerations. • Ulcerative colitis (adults)- symptoms, dietary treatment. • Spruce, coeliac disease- disaccharide intolerance, dietary treatment.

Unit VI

Diet in diseases of the liver, gall bladder and pancreas, a) Etiology, symptoms and dietary treatment in - Jaundice, hepatitis, cirrhosis and hepatic coma. b) Role of alcohol in liver diseases. c) Dietary treatment in cholecystitis, cholelithiasis and pancreatitis, Gout- Nature and occurrence of uric acid, causes, symptoms and diet.

Unit VII

Diet in allergy and skin disturbances: Definition, classification, manifestations, common food allergies and test and dieteric treatment, Diet in Diabetes mellitus: a) Incidence and predisposing factors. b) Symptoms-types and tests for detection. c) Metabolism in diabetes d) Dietary treatment & meal management e) Hypoglycemic agent, insulin and its types. f) Complication of diabetes.

Unit VIII

Diet in Renal diseases: Basic renal function, symptoms and dietary treatment in acute and chronic glomerulonephritis, Nephrosis, renal failure, dialysis. urinary calculi-causes & treatment, acid and alkali producing and neutral foods and dietary treatment, Diet in Cardiovascular diseases: Role of nutrition in cardiac efficiency, incidence of Atherosclerosis, dietary principles, Hyperlipidenmia, Hypertension- causes and dietary treatment, Sodium restricted diet, level of sodium restriction, sources of sodium, danger of severe sodium restriction.

Course Outcomes:

On completion of the course, students will be able to

CO1 Interpret and apply nutrition concepts to evaluate and improve the nutritional health of individuals with medical conditions

CO2 Integrate knowledge and skills in food and nutrition with issues affecting the nutrition and/or dietetics field

CO3 Apply principles and theories of management to the administration of human, physical and financial resource in food and nutrition services

CO4 Utilize advanced principles of health literacy, including critical thinking skills, literature searches, data collection and interpretation

CO5 Apply counseling methods to patients with different diseases

CO6 Utilize basic nutrition knowledge and the dietary guidelines for making food choices that will promote optimal health

Text / Reference books

1. Modern Nutrition in Health & Disease – Eds – Maurice E. Shils, James A. Olson, 2012.
2. Clinical Dietetics and Nutrition – F P Antia and Philip Abraham, 2002.
3. Nutrition and Metabolism – Michael J. Gibney, Marinos Elia, OlleLjungqvist, Julie Dowsett (Eds.) Nutrition Society Textbook series, Blackwell Publishers, 2005
4. Nutrition Science – B Sri Lakshmi, New Age International Publishers, 2017.
5. Normal and Therapeutic Nutrition – Robinson & Lawler, 17th edition, Mac Millan Publishers, 2001.
6. Text Book of Human Nutrition – Mahtab S Bamji, N Prahlada Rao, Vinodini Reddy, 2nd edition, Oxford & IBH Publishing Co. Pvt. Ltd, 2003.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

Max. Marks: 100

Exam Duration: 3Hrs

PART A: 10 Questions – 2 marks each – No choice

20 Marks

PART B: Short Answers – 5 Questions 8 marks each – 5 out of 8

40 Marks

PART C: Long Answers – 2 Questions 20 marks each – 2 out of 3

40 Marks

 Employability

SACA1502	COMMUNITY NUTRITION	L	T	P	Credits	Total
		4	0	0	5	100

Course Objectives:

- To list the basic goals of a community assessment.
- To describe how a community assessment can be conducted including specification of the types of data that are relevant. .

Unit I

Nutrition and health in National development, Malnutrition- meaning. factors contributing to malnutrition, over nutrition.

Unit II

Nutritional disorders- Epidemiology, clinical features, prevention and dietary treatment for Protein Energy malnutrition, nutritional anaemias & vitamin deficiency disorders.

Unit III

Methods of assessing nutritional status: a) Sampling techniques, Identifications of risk groups, b) Direct assessment - Diet surveys, anthropometric, clinical and biochemical estimation. c) Indirect assessment- Food balance sheet, ecological parameters and vital statistics.

Unit IV

Improvement of nutrition of a community: a) Modern methods of improvement or nutritional quality of food, food fortification, enrichment and nutrient supplementations. b) Nutrition education themes and messages in nutrition and health, Antenatal and postnatal care.

Unit V

Nutritional and infection relationship: Immunization and its importance.

Unit VI

Food borne infection and intoxication diseases, foods involved, methods of prevention, Infestation of food borne diseases, Outbreak, Prevention signs and control of infection.

Unit VII

National and International agencies in uplifting the nutritional status -WHO, UNICEF, CARE, ICMR, ICAR, CSIR, CFTRI. Various nutrition related welfare programmes, ICDS, SLP, MOM, and others

Unit VIII

Community nutrition programme planning - Identification of problem, analysis of causes, resources constraints, selection of interventions, setting a strategy, implementations and evaluation of the programme

Course Outcomes:

On completion of the course, students will be able to

CO1 Able to interpret and apply nutrition concepts to evaluate and improve the nutritional health of communities

CO2 Plan a community intervention based upon a needs assessment

CO3 Advocate for a public policy related to nutrition programs or health care

CO4 Provide nutrition counseling and education to individuals, groups, and communities throughout the lifespan using a variety of communication strategies

CO5 Provide culturally competent nutrition services for individuals and communities

CO6 Competence in the skills of assessment, planning, management and evaluation of food service, nutrition and dietetic services in institutional food, community nutrition, and clinical dietetics settings

Text / Reference books

1. Park K(2017): Textbook of Preventive and Social Medicine,24th Ed. BanarsidasBhanot Publishers.

2. King MH, King PMA, Morley D and AP Burgess(2015):Nutrition for Developing Countries, ELBS Oxford University Press.
3. SeshubabuVVR(2011): Review in Community Medicine, 2nd Ed, Paras Medical Books Pvt Ltd. 4. Mahajan BK, Roy RN ,Saha I, Gupta, MC (2013):Text book of Preventive and Social Medicine, 4th Ed. Japee Brothers.
5. VirSC(2011): Public Health Nutrition in Developing Countries, Woodhead Publishing India.
6. Bamji MS, Krishnaswamy K and Brahmam GNV(2017): Textbook of Human Nutrition , 4th Ed. Oxford & IBH Publishing Co. Pvt. Ltd

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Employability

S736ACT	CLINICAL TRAINING	L	T	P	Credits	Total marks
		0	0	5	10	100

- The students of first year shall do the survey of patients suffering from various diseases and shall plan appropriate diet for them.
- They shall maintain logbook of patients and their diets.

At the end of academic year their logbooks will be evaluated by the faculty concerned.

Employability

SACA1305	PERSONNEL MANAGEMENT	L	T	P	Credits	Total marks
		3	0	0	5	100

Course Objectives:

- To understand the Management and system at various levels in general and in certain specific organizations
- To help the students focus on and analyse the issues and strategies required to select and develop manpower resources.

Unit I Organization and management, Definition and types of organization, Definition- functions and tools of management, Technique of effective management and its application to food preparation and science.

Unit II Food material management, Meaning, definition, and importance, Food selection, purchasing, receiving and store room management.

Unit III Control in relation to the operations (material planning, budgeting, material identification, modification and standardization, inventory control, store keeping, definition, objectives, functions, factors underlying successful storekeeping, duties and responsibilities of a storekeeper, purchasing, organization, principle, procedure, systems and quality control).

Unit IV Personnel Management: Recruitment, selection and training of personalities, work standards, productivity, supervision, performance appraisal and motivation incentives for effective performances.

Unit V Labour policies and legislation: (Personnel policies related to salaries, other emoluments, allowances, leave, uniform and other prize benefit, laws and organization)

Unit VI Laws affecting food service institution to study the following: (hospital, flight kitchen, hotel, restaurant, canteen, Industrial)

Unit VII a. Organization b. Physical plan and layout. c. Food and silver equipment

Unit VIII Sanitation and hygiene with personal emphasis on Hospital.

Course Outcomes:

On completion of the course, students will be able to

CO1 Understand the principles and tools of management for techniques of effective food preparation

CO2 Acquire the special characteristics and its operations of food service

CO3 Evaluate the quality control techniques for standardization

CO4 Analyse the Productivity skills in effective management of human in food service establishment

CO5 Demonstrate the laws and legislation in relation to food service Institution

CO6 Create components of layout with personal emphasis on hospital

Text / Reference books

1. Organization and Management, R.D. Agarwal, Tata McGraw-Hill Education
2. Human Resource Management by Dr. Roy Anvari
3. Personnel Management, C. B. Mamoria, Himalaya Publishing House
4. Rutherford, D.G. Hotel Management and operation, van Nostrand Reinhold. 115, fifth Avenue, New York, 10003, 2010.
5. West. B.B. Wood L., Harger, V.F. (2005) Food Service Institutions, John Wiley and sons, Inc., New York, V Ed
6. Waighrich, H. and Koontz, H (2000) Management – a global perspective. McGraw Hill. International

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40 Marks

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40 Marks

SACA1503	DIETETICS AND COUNSELLING	L	T	P	Credits	Total marks
		3	0	0	5	100

Course objectives:

- To understand principles of diet therapy, modification of normal diet for therapeutic purposes and the role of dietitian.
- To demonstrate counseling techniques to facilitate behavior change.

Unit I

Practical consideration in giving dietary advice and counseling - a) Factors affecting and individual food choice. b) Communication of dietary advice c) Consideration of behaviour modification d) Motivation.

Unit II

Counseling and educating patient: Introduction to nutrition counseling, determining the role of nutrition counselor, Responsibilities of the nutrition counselor

Unit III

Practitioner v/s client managed care, Conceptualizing entrepreneur skills and behavior, Communication and negotiation skills

Unit IV

Teaching aids used by dietitians- charts, leaflets, posters etc., preparation of teaching material for patients suffering from Digestive disorders, Hypertension, Diabetes, Atherosclerosis & Hepatitis and cirrhosis.

Unit V

Computer application: Use of computers by dietitian, Dietary computations.

Unit VI

Dietetic management, Education/ training, Information storage, Administrations, Research

Unit VII

Computer application a) Execution of software packages b) Straight line, frequency table, bar diagram, pie chart, Preparation of dietary charts for patients.

Unit VIII

Statistical computation- mean, median, standard deviation, conclusion and regression test

Course Outcomes:

On completion of the course, students will be able to

CO1 Understand principles of diet therapy

CO2 Realize the roles and responsibilities of a nutrition counselor

CO3 Demonstrate awareness of counseling techniques

CO4 Recognise dietetic management, education/ training

CO5 Understand principles of diet therapy and counseling

CO6 Familiarize with the teaching aids and software tools used by dietitians in counseling

Text / Reference books

1. Nutrition in clinical Practice – David L. Katz, Lippincott, Williams & Wilkins, 2008.
2. Clinical Dietetics and Nutrition – F P Antia and Philip Abraham, 2002.
3. Perspectives in Nutrition – WardlawKessel, McGraw Hills, 2001
4. Food, Nutrition and Diet Therapy – Kathleen Mahan & Krause, Sylvia Escott Stump, 2003
5. Clinical Nutrition – Ed Michael J Gibney, MarinosElia, OlleLjungqvist and Julie Dowsett, 2012.
6. Basics of Clinical Nutrition, 2nd Edition, Joshi, Jaypee Publishers, 2009.
7. Gable J, Counselling skills for dieticians Blackwell publishing house, 2016.
8. Computer Fundamentals, P.K. Sinha&PrithiSinha, 2004

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40 Marks

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40 Marks

Entrepreneurship

SACA1304	FOOD SCIENCE	L	T	P	Credits	Total marks
		3	0	0	5	100

Course Objectives:

- To impart knowledge on the classification of food groups, composition and nutritive value of different food ingredients.
- To understand the role of each food group in cookery

Unit I

Cereal- Structure and composition, Nutritional value, Processing- Milling, polishing. Parboiling, flaking, parching, roasting, use in variety of preparations selection, storage and care, breakfast cereals.

Unit II

Pulses, composition and nutritional value, processing, soaking, germination, Cooking and fermentations: Toxic constituents of pulses, Lathyrism

Unit III

Nuts and oil seeds: Nutritive value, importance & classification, Milk and milk products, Composition of milk, properties and effect of heat, nutritional importance, milk processing, milk products.

Unit IV

Flesh foods- selection, storage, uses and nutritional aspects of meat, fish and poultry, spoilage of fish

Unit V

Fruits and vegetables: Classifications, composition and importance in human nutrition storage, cooking of vegetables, changes during cooking, effect of heat, acid and alkali.

Unit VI

Sugar and Sugar products (a) Form of sugar and liquid sweetness (b) Caramelization, Hydrolysis, Crystallization (c) Indian confectionery, Beverages: Coffee, tea, and cocoa, processing composition and preparation, spices and condiments, types and composition.

Unit VII

Fats and oils: Types, role of fat in cookery, Egg - composition & classification of egg & egg products, its nutritive value.

Unit VIII

Baking - Types of bake products & its nutritive value, Role of spices in food science - Importance, composition & classification

Course Outcomes:

On completion of the course, students will be able to

CO1 Understand basic composition & structure of food grains

CO2 Learn processing of food grains into value added products

CO3 Acquire knowledge of physical, biological and chemical makeup of food and its components

CO4 Understand the compositional and technological aspects of meat, egg, milk and fish

CO5 Understand the importance of fruits and vegetable in daily usage and its different processing methods

CO6 Understand processing of various spices, tea, coffee and cocoa

TEXT / Reference Books

1. Srilakshmi B, Food Science, Sixth Edition, New Age International Ltd Publishers, New Delhi, 2015
2. Manay S and Swamy S, Food Facts and Principles, New Age International (P) Ltd Publishers, New Delhi, 2001.
3. Reddy SM, Basic Food science and Technology, New Age Publishers, New Delhi, 2015
4. Lowe B, Experimental cookery from chemical and physical stand point, Forgotten books, UK, 2015
5. Potter NM and Hotchkiss JH, Food Science, C.B.S. Publishers, New Delhi, reprint 2008
6. Roday S, Food science and Nutrition, Oxford university press, New Delhi, 2007
7. McCance and Widdowson, Composition of food, 6th Edition, Food Standards Agency, 2004
8. Subramani A, Concise Food Science, Soundarya Publications, 1998

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20 Marks

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40 Marks

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40 Marks

S736APROJ	PROJECT	L	T	P	Credits	Total marks
		0	0	8	18	100

- **Basic concepts of project planning**

- a) Defining objectives- Need, problem, project, feasibility, planning, formulation. - . Identifying resources
- b) Methods/approaches, Project Appraisal- Project Format
- Guideline for project writing – Title of the project - Type of project.
- Aims and objectives - **summary of the proposed project** - Project information, location, people and personnel involved. – Working / methodology
- Evaluation - Writing and reporting

Entrepreneurship

SACA2102	HUMAN PHYSIOLOGY LAB	L	T	P	Credits	Total marks
		0	0	3	3	100

Course Objectives:

- To learn the basic physiology lab procedures
- To apply the physiological aspects to clinical studies

List of Experiments

1. Compound Microscope
2. Determination of Blood groups
3. Measurement of Human blood pressure
4. Respiratory rate and pulse rate
5. Estimation of hemoglobin
6. RBC Estimation
7. WBC Estimation
8. ESR Estimation

Course Outcomes:

On completion of the course, students will be able to

CO1 Identify the use of compound microscope

CO2 Determine blood groups

CO3 Measure blood pressure, respiratory rate and pulse rate essential during therapies and surgeries

CO4 Estimate hemoglobin, thereby predict anemia and other related diseases

CO5 Determine blood cell count indicative of pathological conditions

CO6 Predict infections and inflammations by estimating ESR

Skill Development

SACA2103	NUTRITIONAL BIOCHEMISTRY LAB	L	T	P	Credits	Total marks
		0	0	3	3	100

Course Objectives:

- To identify and estimate various biochemical parameters in blood and urine
- To learn enzyme assays and renal function tests

List of Experiments

1. Identification of carbohydrates (Qualitative Tests)
2. Identification of proteins (Qualitative Tests)
3. To study general properties of the enzyme Urease & Achromatic time of salivary amylase
4. Estimation of glucose in urine by Benedict's methods
5. Urine analysis - normal & abnormal constituents of urine.
6. Blood glucose estimation.
7. Renal Function test

Course Outcomes:

On completion of the course, students will be able to

- CO1** Acquire knowledge about identifying different type of carbohydrates
CO2 Acquire knowledge about Identification of proteins
CO3 Understand about the activity of urease and amylase
CO4 Acquire knowledge about estimation of glucose
CO5 Understand the various normal & abnormal constituents of urine
CO6 Attain knowledge about renal function test

Skill Development

SACA2303	FOOD MICROBIOLOGY LAB	L	T	P	Credits	Total marks
		0	0	3	2	100

Course Objectives:

- To identify the microbes in food products
- To apply the equipment and methods in diagnostic field and food industry

List of Experiments

1. Study of equipments in a microbiology lab.
2. Detection of number of bacteria in milk by standard plant count.
3. Determination of quality of milk sample by methylene blue reductase test
4. Determination of quality of milk sample by Resorzurin method.
5. Isolation of yeast and molds from spoiled fruits, and vegetables by appropriate cultivation and staining method
6. Bacteriological examination of microbes from curd sample
7. Demonstration of available rapid methods and diagnostic kits used in identification of microorganisms or their products
8. Determination of BOD of wastewater.
9. Water analysis by MPN method
10. Visits (at least two) to food processing units or any other organization dealing with advanced methods in food microbiology and sewage treatment plant

Course Outcomes:

On completion of the course, students will be able to

CO1 Acquire knowledge about the instruments in microbiology lab

CO2 Identify bacteria in milk

CO3 Check the quality of milk and milk products

CO4 Isolate yeasts and molds from spoilt food

CO5 Check the water purity and microbial contamination

CO6 Gain practical knowledge about food microbiology

Skill Development