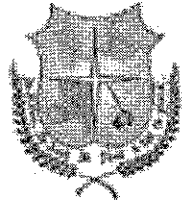


**ETHIRAJ COLLEGE FOR WOMEN
(AUTONOMOUS)
Chennai-600 008**



Syllabus

CLINICAL NUTRITION, FSM AND DIETITICS

**ETHIRAJ COLLEGE FOR WOMEN
CHENNAI – 600 008**

COURSE PROFILE (2015-2018 B.SC CLINICAL NUTRITION AND DIETETICS)

SEMESTER I

Course Code	Course Title	Hrs./Week	Credits	CA	End Semester	Total
	Part - I Foundation Course Language	5	3	40	60	100
	Part - II English	5	3	40	60	100
CN15/1C/FSE	Part - III Core -1 Food Science	7	5	40	60	100
CN15/2C/PR1 *	Core -3 Food Science and Physiology Practical	3	-	40	60	100
BC15/1A/CH1	Part III Allied I- Allied Chemistry I	4	4	40	60	100
BC15/2A/CPR	Allied Chemistry Practical	2	-	40	60	100
CN15/IN/ART	Part -IV 1a/b/c 1a- Basic Tamil 1b- Advanced Tamil 1c- Art of Interior Decoration (NME)	2	2	-	50	50
	Soft skill I	2	3	-	50	50
Total		30	20			
*practical examination (CN15/2C/PR1) – Food science and Physiology Practical will be conducted in the second semester.						

SEMESTER II

Course Code	Course Title	Hrs./ Week	Credits	CA	End Semester	Total
	Part – I Foundation Course Language	5	3	40	60	100
	Part - II English	5	3	40	60	100
CN15/2C/PHY	Part -III Core 2- Physiology	7	5	40	60	100
CN15/2C/PR1*	Core -3 Food Science and Physiology Practical	3	3	40	60	100
BC15/2A/CH2	Part -III Allied -2 Allied Chemistry II	4	4	40	60	100
BC15/2A/CPR	Allied Chemistry Practical	2	2	40	60	100
CN15/2N/BFP	Part -IV 1A/B/C 1a- Basic Tamil 1b- Advanced Tamil 1c-Basics of food preservation	2	2	-	50	50
	Soft skill 2	2	3			
	Total	30	25			

* Practical examination (CN15/2C/PR1) – Food science and Physiology practical will be conducted in the second semester

SEMESTER III

Course Code	Course Title	Hrs./ Week	Credits	CA	End Semester	Total
	Part – I Foundation Course Language	5	3	40	60	100
	Part – II English	5	3	40	60	100
CN15/3C/HNU	Part – III Core -4 Human Nutrition	7	5	40	60	100
CN15/4C/PR2*	Core- 6 Human Nutrition and Nutrition Through Life Cycle Practical *	3	-	40	60	100
CN15/3A/MIC	Part - III Allied- 3 Microbiology	4	4	40	60	100
CN15/4A/PR1**	Allied- Microbiology and Nutritional Biochemistry Practical	2	-	40	60	100
	Part -IV Environmental studies	2	2	-	50	50
	Soft skill 3	2	3			
Total		30	20			

*practical examination (CN15/4C/PR2) – Human Nutrition and Nutrition through Lifecycle Practical will be conducted in the fourth semester.

**practical examination (CN15/4A/PR1) – Microbiology and Nutritional Biochemistry Practical will be conducted in the fourth semester.

SEMESTER IV

Course Code	Course Title	Hrs./ Week	Credits	CA	End Semester	Total
	Part – I Foundation Course Language	5	3	40	60	100
	Part – II English	5	3	40	60	100
CN15/4C/NLC	Part – III Core 5- Nutrition Through Life cycle	7	5	40	60	100
CN15/4C/PR2*	Core- 6 Human Nutrition and Nutrition Through Life Cycle Practical	3	4	40	60	100
CN15/4A/NBC	Part- III Allied -4 Nutritional Biochemistry	4	4	40	60	100
CN15/4A/PR1**	Allied Microbiology and Nutritional Biochemistry practical	2	2	40	60	100
	Part -IV Value Education	2	2	-	50	50
	Soft skill 4	2	3			
Total		30	26			

***practical examination (CN15/4C/PR2) – Human Nutrition and Nutrition through Lifecycle Practical will be conducted in the fourth semester.**

****practical examination (CN15/4A/PR1) – Microbiology and Nutritional Biochemistry Practical will be conducted in the fourth semester.**

SEMESTER V

Course Code	Course Title	Hrs./ Week	Credits	CA	End Semester	Total
CN15/5C/FM1	Core -7 Food Service Management I	4	4	40	60	100
CN15/5C/HFS	Core- 8- Human Development and Family Studies	5	4	40	60	100
CN15/5C/CLN	Core -9 Techniques in Clinical Nutrition	5	4	40	60	100
CN15/5C/MTI	Core- 10 Medical Nutrition Therapy I	5	4	40	60	100
CN15/5E/IDH	Elective -1 Interior Decoration & Housekeeping	5	5	40	60	100
CN15/6C/PR3*	Core - 14 Food Service Management Practical	3	-	-	-	100
CN15/6C/PR4*	Core - 15 Medical Nutrition Therapy Practical	3	-	-	-	100
Total		30	21			

*practical examination (CN15/6C/PR3) – Food Service Management Practical will be conducted in the sixth semester.

*practical examination (CN15/6C/PR4) – Medical Nutrition Therapy Practical will be conducted in the sixth semester.

SEMESTER VI

Course Code	Course Title	Hrs./ Week	Credits	CA	End Semester	Total
CN15/6C/FM2	Core -11 Food Service Management II	4	3	40	60	100
CN15/6C/MT2	Core -12 Medical Nutrition Therapy II	5	4	40	60	100
CN15/6C/SPN	Core- 13 Sports Nutrition	5	4	40	60	100
CN15/6E/CMN	Elective -2 Community Nutrition	5	5	40	60	100
CN15/6E/FPR	Elective- 3 Food Preservation	5	5	40	60	100
CN15/6C/PR3*	Core -14 Food Service Management Practical	3	3	40	60	100
CN15/6C/PR4*	Core -15 Medical Nutrition Therapy Practical	3	3	40	60	100
Total		30	27			
Credits at the end of VI semesters			139			
Part V (Extension activities)			1			
Total credits			140			

*practical examination (CN15/6C/PR3) – Food Service Management will be conducted in the sixth semester.

*practical examination (CN15/6C/PR4) – Medical Nutrition Therapy Practical will be conducted in the sixth semester.

Department of Clinical Nutrition and Dietetics

Skill Based Paper

SEMESTER I

ART OF INTERIOR DECORATION

Teaching hrs: **2 hrs/wk**

Course code: **CN15/1N/ART**

Credits:2

LTP: 1 1 0

OBJECTIVE:

To help students understand principles of design, elements of decoration, and to learn to create beautiful surroundings and interiors.

To help learn skills in using basic principles of art in home and to select the right materials for decoration.

COURSE OUTLINE:

Unit-I: Introduction to interior decoration- Good taste in art, elements of design, types of design, characteristics of good design. Principles of design- harmony, balance, proportion, rhythm and emphasis. (10 hours)

Unit-II: Colour- qualities of colour, Prang colour chart, colour harmony, applying principles of design in colour and to create different effects and moods. (10 hours)

Unit-III: Furniture- Selection and arrangement. Window treatment- types of curtains and draperies. Accessories- Types. Flower arrangement- Types. Floor decorations- Types. (10 hours)

REFERENCES:

1. Goldstein H. and Goldstein V. Art in Everyday Life. Oxford and IBH pub co., ND, 1981
2. Geethika khanna, Art of interior design, Indica Publishers, Newdelhi,2004 (reprint)
3. Parvathy Seethraman and Parveen Pannu, Interior design and decoration, CBS publishers & distributors, New Delhi, 2014(reprint)

SEMESTER II
BASICS OF FOOD PRESERVATION

Teaching hrs: 2 hrs/wk

Credits:2

Course code: CN15/2N/BFP

LTP: 1 1 0

OBJECTIVE:

To enable the students to learn the basic principles of food preservation.

To help the students to perceive the simple methods of preparing fruit and vegetable based preserves.

COURSE OUTLINE:

Unit I: Importance and principles of food preservation, Methods of food preservation- traditional methods- salting, pickling, drying, jugging and potting.(10 hours)

Unit II – Preservation as sugar concentrate- basic principles, pectin test and setting tests. Jam, Jelly and Marmalade- ingredients, equipment, preparation (any2) and storage.

Fruit Juice beverage – fruit juice, syrups, squashes and cordials- ingredients, equipment, preparation (any 2) and storage (10 hours)

Unit-III: Vegetable preserves- pickles, chutneys, sauces and ketchup- preparation (any 2) and storage.

Packaging materials- types and functions.(10 hours)

REFERENCES:

1. Radha Puri, Jam Jelly ,Marmalade, Sahni Publications , New Delhi – 110 007, 2004
2. Shankunthala Manay and Shadaksharaswamy, Foods: Facts and Principles, New Age International (p)Limited, Chennai –20, 2005
3. Sudesh Jood and Khetarpaul N (2002), Food preservation, Agrotech publishing, Udaipur.

SEMESTER IV

NUTRITION THROUGH LIFE CYCLE

CORE – 5

COURSE CODE: ND15/4C/NLC// CN15/4C/NLC

Hours: 7 hrs/wk

Credits:5 Teaching

LTP: 4 3 0

OBJECTIVES:

To enable the students to

1. To gain knowledge on the nutritional needs of individuals at different age levels and stress conditions.
2. Develop the basic concepts and gain experience in planning, preparing and serving of meals for various age groups at different income levels and stress conditions based on nutritional status.

COURSE OUTLINE:

UNIT I: Introduction to meal planning: Balanced diet, RDA - Food Guide Pyramid; Food plate; Principles of meal planning – steps involved in planning a diet. Adult:- nutritional requirements, planning balanced diets for adult men and women, promoting healthy lifestyle through holistic approach - Diet, physical activity, stress management, yoga & mediation. (25 HOURS)

UNIT II: Pregnancy: Effect of nutrition on outcome of pregnancy, physiological demands of gestation, weight gain, nutrition needs, dietary plans and dietary problems, complication of pregnancy . Lactation: Physiology of lactation, nutritional requirements during lactation, concerns of breast feeding mother. Lactogogues. (20 HOURS)

UNIT III: Infancy: Breast feeding, complementary feeding, advantages and disadvantages, low cost complementary foods- Artificial feeding - Infant milk Substitutes. low birth weight infants Preschool: Growth and nutritional needs, problems in feeding patterns and food acceptance, PEM , Vitamin A. (20 HOURS)

UNIT IV: School Children: Physical development, factors affecting food needs, RDA, packed lunch. Childhood obesity. Adolescence: Growth and development, Food Habits, nutritional requirements, Eating disorders, Nutritional Anaemia, (20 HOURS)

UNIT V: Old Age: Biologic & Physiologic aspects of aging, nutritional disorders in the aged, factors affecting food selection, nutritional requirements. (20 HOURS)

REFERENCE BOOKS:

1. Wardlaw M Gordon 1999. Perspectives in nutrition 4th edition, McGraw Hill
2. Eleanor Noss Whitney and Sharon Rady Rolfes, 2002. Understanding Nutrition 9th edition, West Wordsworth.
3. Kathleen mahan and Marian Arlin 2009 Krause's Food Nutrition & Diet therapy 8th edition, W.B.Saunders company.
4. Guthrie H. Andrews – Introductory Nutrition C.V.Mosby Co., St. Lours.
5. M.Swaminathan Principles of Nutrition and Dietetics, 1993, Bappeo 88, Mysore Road, Bangalore – 560 018.
6. William, Sue Rodwell – Nutrition and Diet Therapy (1985) 5th edition, Mosby co., St. Louis.
7. Cataldo, DeBruyne and Whitney 1999. Nutrition and Diet therapy – Principles and Practice 5th edition, West/ Wadsworth, London.
8. Gopalan C., Ramanathan, P.V. Balasubramanian, S.C., 1989 – Nutritive value of Indian foods, NIN, Hyderabad.
9. Garrow JS, James WPT, Ralph A 2000. Human Nutrition and Dietetics 10th edition, Churchill Livingstone, NY.
10. Groff L James, Gropper S Sareen 2000. Advanced Nutrition and Human Metabolism 3rd edition, West / Wadsworth, UK.

WEBSITES AND e-LEARNING SOURCES:

www.nutrition.gov - Service of National agricultural library, USDA

www.nal.usda.gov/fnic - Food and Nutrition information centre.

SEMESTER III & IV

HUMAN NUTRITION AND NUTRITION THROUGH LIFE CYCLE PRACTICAL

CORE -6

COURSE CODE: ND15/4C/PR2// CN15/4C/PR2

Teaching hours: 3 hrs/wk

Credits: 4

LTP:0 0 3

HUMAN NUTRITION PRACTICAL:

1. Quantitative estimation of calcium.
2. Quantitative estimation of Vitamin C.
3. Quantitative estimation of phosphorous.
4. Quantitative estimation of iron.
5. Assessment of BMR and Calorie requirement by factorial approach
6. Determination of Chemical Score for protein rich recipes

REFERENCE BOOKS

1. Varley, Practical clinical biochemistry , William Heinemam Medical books – London Ltd., 1969.
2. West. E. S. Todd. W. R., Moses. R.S. & Van Bruggon. J. S. ,Text book of Biochemistry , The MacMillan Co., New York 1968,
3. William. P. J. An introduction to biochemistry, Nostrsand Co., Inc. London 1972.
4. Edusanjalbiochemist.blogspot.in

NUTRITION THROUGH LIFE CYCLE PRACTICAL:

1. Preparation of Complementary feed.
2. Planning and preparation of diets for different activity levels and income group.
 - i. pre-school child
 - ii. school going children
 - iii. adolescents
 - iv. adult
 - v. expectant mother
 - vi. Nursing mother.
 - vii. old age
3. Planning and preparation of diets (low and medium cost) for deficiency diseases-
 - A) PEM
 - a. Vitamin A deficiency
 - b. Nutritional anemia

SEMESTER V

FOOD SERVICE MANAGEMENT I

CORE -6

COURSECODE –ND15/5C/FM1// CN15/5C/FM1

Credits: 4

Teaching Hours: 4hrs/wk

LTP: 3 1 0

OBJECTIVE:

1. To help the students to understand the various sectors of food service units
2. Become skilled in planning and design of food service units
3. Develop skills in quantity food purchase production, preparation and service.
4. Understand the concept and principles of organization management.

COURSE OUTLINE:

UNIT I: Food Service Industry:

- a) **Sectors of Food Service Industry:** Commercial- hotels, restaurants, Popular catering- fast food, take away, franchising, leisure attractions, Transport catering, Outdoor catering. Non-Commercial-Industrial catering, welfare catering-old age homes, prisons, religious institutions and Institutional catering.
- b) **Food service systems:** Conventional, Cook chill/ Cook Freeze, Commissary and Assembly Service. (15 HOURS)

UNIT II: Organization management: Types of organization, Principles, Functions and Tools of management – Organization chart, Job description, Job specification, Job analysis, Work schedule, Budget and Leadership styles. (10 HOURS)

UNIT III: Planning and Layout of physical plant: Planning and organizing of spaces: Kitchen area, storage area, service area, receiving, pre-preparation, dishwashing and garbage disposal area. Concepts of work flow and work simplification technique (10 HOURS)

UNIT IV: Menu Planning and Standardization:

- a) **Menu:** Definition, Functions of menu, Types of menu, French classic menu sequence, writing menu, and menu display; Factors considered in menu planning.
- b) **Standardization of recipes:** definition, advantages, enlargement of recipes, portion control and effective use of leftovers.
- c) **Role of computer in Kitchen area-** Menu planning and standardization & enlargement of recipes, recipe file. (15 HOURS)

UNIT V: Food Purchase and Storage:

- a) **Food Purchase:** Buying and Receiving methods.
- b) **Food Storage:** Types of storage; Maintenance of store records- Requisition slips, Order form, Stock book, Invoice, Goods received book, Inventories
- c) **Role of computer in purchasing area-**Inventory management and storage area. (10 HOURS)

REFERENCE:

1. Mohini sethi and Surjeeth malhan ,”Catering management an integrated approach”, New age international publishers, III edition, 2015
2. Mohini sethi and Sujeeth malhan ,Institutional Food management”, New age international publishers, III edition, 2015
3. Casado,A.M, "House keeping Management", John Wiley and sons limited, 2000
4. R.Singaravelavan, ”Food and Beverage Service “,Oxford university press, I edition,2011
5. Kalsigsis, C and Thomas , C, "Design and equipment for food service -A management view", John Wiley and sons limited, 1999
6. Lillicrap, D, R and Cousins, J, A, "Food and beverage service", 1996
7. Jones, P, "Introduction to hospitality operations (An Indispensable guide to the industry.), Cassell publications, London, 1996
8. West,B,Wood, Food service in institutions, New York, 1995
9. Nathaniel, B.S, ", Catering management for hotels, restaurants, Institutions, sujeet publications, New Delhi, 1991
10. Jones,P, "Food service operations", Cassell publications, London, 1990

WEBSITES AND e-LEARNING SOURCES:

<http://housekeeping.about.com/>

<http://www.ccohs.ca/oshanswers/hsprograms/house.html>

<https://en.wikipedia.org/wiki/Foodservice>

<http://www.nfsmi.org/documentlibraryfiles/PDF/20080228031334.pdf>

SEMESTER V

MEDICAL NUTRITION THERAPY I

CORE - 9

COURSE CODE: CN15/5C/MT1

Teaching hours: 5 hrs/wk

Credits: 4

LTP: 3 2 0

OBJECTIVE:

To introduce the students:

To obtain knowledge regarding metabolic processes of normal and diseased organs and tissues in order to diagnose diseases and the tools for the same.

To be familiar with the dietary/ behavior modifications based on physiological changes occurring in diseased conditions.

COURSE OUTLINE:

- UNIT I:** **Basic Concepts:** Definition of terms – Health, Recommended Dietary Allowances (RDA) and Balanced Diet (Review)
Therapeutic Diet: Routine Hospital Diets: Clear fluid, Full fluid, Semisolids, Soft diet and Regular diet. Different methods of feeding: Oral Feeding, Tube feeding and Parenteral feeding
Nutrition Care Process (NCP): Nutritional Assessment of Patients, Psychology in feeding patient, Steps in diet counseling, Patient education and Follow up; NCP team, Classification of Dietitian and responsibility of Dietitian. (15 hours)
- UNIT II:** **Diet in Fevers and Infection:** Fever – Definition, Classification of fevers, Causes and Dietary management in Influenza, Typhoid, Malaria, Tuberculosis and Dengue
Diet in Food Allergy: Food Allergy- Definition, Classification, Common food allergies, tests and dietary treatment- Elimination Diets (15 hours) **UNIT III:** a)
Nutrition in Weight management: Etiology, symptoms, dietary management and complications in Obesity and Underweight.
b) Gout- Nature and occurrence of uric acid, causes, symptoms and dietary management. (10 hours)
- UNIT IV:** **Diseases of the gastrointestinal tract-** Etiology, Symptoms and dietary management in diarrhea, constipation, gastritis, peptic ulcers, colitis, mal absorption syndrome – tropical sprue, celiac disease and lactose intolerance. (20 hours)
- UNIT V:** **Diseases of the liver, gall bladder, and pancreas-** Etiology, symptoms, nutritional implication and dietary management of Hepatitis, Cirrhosis, Hepatic Coma, Cholecystitis, Cholelithiasis and Pancreatitis. (15 hours)

RECOMMENDED TEXT BOOK

Sue Rodwell Williams (2001). Nutrition & Diet Therapy. CV. Mosby St. Louis

REFERENCE BOOKS

1. Mahan et al.,(2011). Krause's Food Nutrition & Diet Therapy. WB Saunder's Co. Philadelphia.
2. Garrow et al. (2000). Human Nutrition & Dietetics, 10th Edition, Churchill Livingston.
3. Guthrie, Helen (2002). Introductory Nutrition. CV Mosby Co.St. Louis.
4. Gopalan, C. Balasubramaniam, SV Ramasastry & Visveswara Rao.(2004). Diet Atlas . ICMR, New Delhi. India
5. Sylvia Escott – Stump (2012), Nutrition and Diagnosis – related Care. 7th ed, Lipponcott Williams and Wilkins, Canada.
6. Mary Marian et al.,(2008) Clinical Nutrition for surgical patients (2008), Jones and Bartlett Publishers, Canada
7. Joshi Y.K (2008), Basics of Clinical Nutrition, 2^{ns} Ed, JP Mercial Publishers Pvt Lts, New Delhi.

Websites and e-learning resources

1. www.nal.usda.gov – Food & Nutrition Information Centre.
2. www.eatright.org – American Dietetic Organisation.
3. www.nin.org- National Institute of Nutrition, Hyderabad, India
4. www.icmr.org – Indian Council for medical Research.

SEMESTER V

INTERIOR DECORATION AND HOUSEKEEPING

ELECTIVE- 1

COURSE CODE: ND15/5E/IDH// CN15/5E/IDH

Teaching Hours: 5hrs/wk

Credits: 5

LTP: 4 1 0

OBJECTIVES:

To enable students to:

1. Gain understanding of the basic art principles and to develop aesthetic sense.
2. Learn to make good colour combinations in the interiors
3. To understand the basic principles in making effective flower arrangement.
4. To understand common housekeeping procedures and practices.

COURSE OUTLINE

- UNIT I:** **Art in daily living:** Importance of good taste, Objectives of Interior design,
a) Elements of design: line, direction, shape, size, colour, texture, pattern and light; Types and characteristics of design
b) Principles of design: harmony, balance, rhythm, proportion and emphasis
(15hrs)
- UNIT II:** **a) Colour:** Qualities of colour-hue, value, intensity; colour harmony.
b) Flower arrangement: Flowers for different arrangements, styles
c) Lighting: principles, types of lighting, lighting needs for various activities.
(15hrs)
- UNIT III:** **a) Furniture:** Selection and arrangement of furniture for different rooms
b) Furnishing materials: types; factors considered in their selection.
c) Floor coverings: Selection & types- hard and soft,
d) Window treatment: curtains and draperies.
e) Accessories: Selection, types, use and care. (15hrs)
- UNIT IV:** **Organization of the housekeeping department:** Importance of the housekeeping department, Layout and Organization of Housekeeping Department, qualification and personal qualities of a housekeeper;
Recruitment and training of staff, interdepartmental co-operation
(15hrs)
- UNIT V:** **Cleaning tools and equipment:** cleaning agents, cleaning methods, stain removal, types of cleaning- daily, weekly and annual. Bed making Procedure. Care of public, private and service areas in establishments; stain removal.
Linen room: plan, layout, linen control, receiving, issuing, storage of clean linen, Selection, purchase and linen hire. (15hrs)

REFERENCES

1. Dorothy S. and Darlene .M. Introduction to Interior Design Macmillan publishing company, New York, 1979.
2. Goldstein H. and Goldstein V. Art in Everyday Life, Oxford and IBH pub co., ND
3. New Decoration Book- Better Homes and Gardens, Marshall Cavendish Books Ltd, 1981
4. Enaksh Bhavani, Decorative Designs and Craftmanship of India, 1981
5. Premavathy Seetharaman, Interior design and decoration.
6. Joan Branson, Hotel, Hostel and Hospital Housekeeping.
7. Sudhir Andrews, Hotel Housekeeping.

SEMESTER VI

FOOD SERVICE MANAGEMENT II

CORE -10

COURSE CODE – ND15/6C/FM2//CN15/6C/FM2

Credits: 3

Teaching Hours: 4hrs/wk

LTP: 3 1 0

OBJECTIVE:

To understand the concept and principles of financial management and human resource management.

To be knowledgeable about service areas and equipments used in food service areas. To understand the basic principles of sanitation and safety.

COURSE OUTLINE:

UNIT I: Financial Management:

- a) Elements of cost, Food cost, Labor cost and overhead cost and Break even analysis.
- b) Basic concept of Book Keeping: Transactions, Types- Single entry and Double entry system of book keeping, Book of Accounts – Journal, Ledger, subsidiary books, difference between Journal and Ledger; trial balance and balance sheet
- c) Food cost pricing: Methods of pricing and factors affecting pricing.(10 HOURS)

UNIT II: Human Resource Management:

- a) Recruitment, Selection, Induction, Training, Supervision, Performance appraisal, Promotion, Demotion, Transfer, Retirement, Termination and Dismissal of employees.
- b) Laws Governing Food Service Establishment pertaining to employees –Labor laws and Welfare measures. (15 HOURS)

UNIT III: Food and Beverage Service:

- a) Styles of Service: Table service/ waiter service, self-service, specialized service, assisted service and single point service.
- b) Rules for laying a table, waiting at table, Attributes of food and beverage personnel, Inter-personal skills of food and beverage personnel. (10 HOURS)

UNIT IV: Equipments:

- a) Definition, classification- based on weight or size, order of use and mode of operation and factors considered in the selection of equipment
- b) Pre-preparation Equipment- Dough making machine & bread slicer, vegetable cutting machine. Cooking Equipment – Gas ranges with ovens, fryer, Rotisserie.
- c) Holding Equipment – Bain-marie and chafing dishes. Service equipment- Flatware, cutlery and hollow ware.
- d) Clearing & collection Equipment- Electric food trolleys & clearing trolleys. Washing Equipment – electric dishwasher and Glassware washing. (15 HOURS)

UNIT V: Hygiene and safety:

- a) Definition of hygiene, Personal hygiene, food hygiene, and environmental hygiene; Types of Pests and Pest control - Methods; Garbage disposal – Methods, HACCP.
- b) Accidents -Causes and Prevention (10 HOURS)

REFERENCE

1. Mohini sethi and Surjeeth malhan ,”Catering management an integrated approach”, New age international publishers, III edition, 2015
2. Mohini sethi and Surjeeth malhan ,Institutional Food management”, New age international publishers, III edition, 2015
3. Sudir Andrews,” Food and Beverage Service” Tata Mc Graw hill publishing company limited.II edition, 2009
4. Bobby George ,”Food and Beverage Service “,Jaico Publishing House, I edition,2005
5. Casado,A.M, "House keeping Management", John Wiley and sons limited, 2000
6. R.singaravelavan, ”Food and Beverage Service “,Oxford university press, I edition,2011
7. Kalsigsis, C and Thomas , C, "Design and equipment for food service -A management view", John Wiley and sons limited, 1999
8. Lillicrap, D, R and Cousins, J, A, "Food and beverage service", 1996
9. Jones, P, "Introduction to hospitality operations (An Indispensable guide to the industry.), Cassell publications, London, 1996
10. West,B,Wood, Food service in institutions, New York, 1995
11. Nathaniel, B.S, ", Catering management for hotels, restaurants, Institutions, sujet publications, New Delhi, 1991
12. Jones,P, "Food service operations", Cassell publications, London, 1990
13. Powers, J.M, "Food service planning and control"US, 1989
14. Spears,C.M and vaden.G,a, "Food Service organizations- a Managerial and systems approach", Macmillan publishing company New York, 1985
15. Kotschewar,L and Terral, M.E, "Food service planning layout and equipment., John Wiley and sons limited, 1961

WEBSITES AND e-LEARNING SOURCES:

[http//.wikipedia.org/wiki/Interior decoration.](http://.wikipedia.org/wiki/Interior_decoration)
[http//www.infoplease.com/ce6/society/a0825323.html](http://www.infoplease.com/ce6/society/a0825323.html)
[http//housekeeping.about.com/](http://housekeeping.about.com/)
[http//www.ccohs.ca/oshanswers/hsprograms/house.html.](http://www.ccohs.ca/oshanswers/hsprograms/house.html)

SEMESTER VI

MEDICAL NUTRITION THERAPY II

CORE-11

COURSE CODE – CN15/6C/MT2

Teaching Hours: 5

Credits: 4

LTP: 3 2 0

OBJECTIVE

To obtain knowledge on the role of diet in disease conditions.

To gain experience in planning, preparing and serving therapeutic diets.

COURSE OUTLINE:

UNIT I: Diet in Diabetes Mellitus:

Diabetes Mellitus- Incidence and predisposing factors, symptoms, types and tests for detection, insulin and its types, Hypoglycemic agent, Dietary management of Pre-diabetes, Type I DM and Type II DM and Complications of diabetes- Acute and Long term. Glycemic Index& Glycemic Load- Definition, Low Glycemic Foods in the treatment of Diabetes (15 hours)

UNIT II: Diet in Cardiovascular Disorders: Incidence, etiology, symptoms, role of specific nutrients, dietary management in hypertension and atherosclerosis.

Hyperlipidemia: Definition, Classification of lipoprotein, Types of hyperlipidemia and dietary management. (15 hours)

UNIT III: Diet in Renal diseases: Basic renal function - etiology, symptoms, nutritional implications and dietary treatment of Nephritis, Nephrosis and End stage Renal Disease. Dialysis: Types of dialysis, Dietary treatment for dialysis patient. Kidney transplantation: Screening of patient and donor, dietary treatment for kidney transplanted patient. Urolithiasis and Nephrolithiasis: types of stones and dietary management (20 hours)

UNIT IV: Nutrition in Stress management:

a. Diet in Burns – Definition, Classification of Burns, Metabolic alterations, Rule of nines and Dietary management in Burns

b. Diet in Surgery – Pre operative and Post-operative diets (10 hours)

UNIT V: Nutrition and Cancer: Etiology, Pathophysiology, Stages in carcinogenesis, Nutrients for Cancer Prevention, Medical Nutrition therapy and Nutritional impact of Cancer Treatment

Food & drug interactions: Effect of drugs on food and nutrition- nutrient absorption, nutrient metabolism and nutrient excretion, Modification of drug action by food and nutrients. (15 hours)

RECOMMENDED TEXT BOOK

Sue Rodwell Williams (2001). Nutrition & Diet Therapy. CV. Mosby St. Louis

REFERENCE BOOKS

8. Mahan et al.,(2011). Krause's Food Nutrition & Diet Therapy. WB Saunder's Co. Philadelphia.
9. Garrow et al. (2000). Human Nutrition & Dietetics, 10th Edition, Churchill Livingston.
10. Guthrie, Helen (2002). Introductory Nutrition. CV Mosby Co.St. Louis.
11. Gopalan, C. Balasubramaniam, SV Ramasastry & Visveswara Rao.(2004). Diet Atlas . ICMR, New Delhi. India
12. Sylvia Escott – Stump (2012), Nutrition and Diagnosis – related Care. 7th ed, Lipponcott Williams and Wilkins, Canada.
13. Mary Marian et al.,(2008) Clinical Nutrition for surgical patients (2008), Jones and Bartlett Publishers, Canada
14. Joshi Y.K (2008), Basics of Clinical Nutrition, 2^{ns} Ed, JP Mercial Publishers Pvt Lts, New Delhi.

Websites and e-learning resources

5. www.nal.usda.gov – Food & Nutrition Information Centre.
6. www.eatright.org – American Dietetic Organisation.
7. www.nin.org- National Institute of Nutrition, Hyderabad, India
8. www.icmr.org – Indian Council for medical Research.

SEMESTER VI

COMMUNITY NUTRITION

ELECTIVE 2

COURSE CODE: ND15/6 E/CMN//
CN15/6E/CMN

TEACHING HOURS: 5hrs/wk

CREDITS: 5

LTP: 4 1 0

OBJECTIVES:

1. To enable the students to understand the importance of nutrition in national progress and the significance of assessment of nutritional states.
2. To recognize the solutions to overcome problems of malnutrition in the community and the role of national and international agencies in this area.

COURSE OUTLINE:

- UNIT I: **Nutrition and Health in National Development:** Nutritional problems confronting our country, Sustainable Development Goals, Causes of malnutrition in India, Food and Nutrition Security, Sustainable diets, Balance between food and population growth. (15 hours)
- UNIT II: **Nutritional Assessment:** Sampling techniques, Identification of risk groups, Methods of Assessment of Nutritional Status: Direct assessment –Anthropometry, Biochemical estimations, Clinical and Dietary assessment; Indirect Assessment- Food balance sheets and Agricultural data, Ecological parameters and Vital Health Statistics (10 hours)
- UNIT III: a) **National Nutrition Programmes to combat malnutrition:** Prophylactic programs – Vitamin A, Iron & Folic acid, Iodine; Pulse Polio, Revised National Tuberculosis Control Programme- DOTS, National AIDS control Programme; ICDS, School feeding Programmes, Intervention during Emergencies; Immunization and its importance (15 hours)
b) **National and International agencies in Community Nutrition:** FAO, WHO, UNICEF, ICMR, ICAR, NIN, CFTRI, MSSRF, Food & Nutrition Board, Social Welfare Boards – Central & State. (15 hours)
- UNIT IV: a) **Importance of Breast feeding:** Promotion of successful breastfeeding, Government policies, Exclusive Breastfeeding, Wet nursing, Breast milk banks, IMS Act; **Weaning foods:** Planning, formulating and preparation; Importance of correct and timely weaning, low cost complementary foods
b) **Nutrition and Infection:** Relationship (10 hours)
- UNIT V: a) **Nutrition Education Program:** Objectives, Planning, Implementation and Evaluation; Communication Strategies – Role of Audio visual aids
b) **Recent advances in community Nutrition; Fortification and enrichment of foods** (10 hours)

Related Experiences: A) **Assessment of Nutritional status of vulnerable groups**

B) Nutrition Education Programme for vulnerable groups

References:

1. M.Swaminathan Principles of Nutrition and Dietetics, 1993, Bappeo 88, Mysore Road, Bangalore – 560 018.
2. Gopalan C., Ramanathan, P.V. Balasubramanian, S.C., 2010 – Nutritive value of Indian foods, NIN, Hyderabad.
3. Bamji, Textbook of Human nutrition, 2005
4. Park K, Park's Textbook of preventive medicine, 2005
5. Suraj Gupte(2006), Textbook of Pediatric Nutrition, Pawaninder P Vij Publishers, New Delhi
6. Jelliffe. D.B. 91996), "The assessment of Nutritional status on the community", - WHO monograph cd's – no.Geneva
7. Reh, Emma, (1976)", Manual On Household Food Consumption Surveys", FAO Nutritional studies, No.18, Rome.
8. Shanthi Gosh, (1977), "The feeding and care of infants and young children" Voluntary Health association of India – New Delhi.
9. Ebrahim. G.J. (1983), "Nutrition in mother and child health: London, macmillanRitchey. S.J. and J. Taper. (1983), Maternal and child Nutrition, Harper and row publishers, New York.
10. McLarea, D.S. (Ed.). (1983), Nutrition in the community, John Wiley and sons.
11. Shukla P.K.(1982), Nutritional Problems of India- Prentice Hall of India Pvt. Ltd., New Delhi.
12. Sheila Chander Vir (2011), Public Health Nutrition in developing countries , (Part I) Woodhead Publishing, New Delhi.
13. Sheila Chander Vir (2011), Public Health Nutrition in developing countries , (Part II) Woodhead Publishing, New Delhi.
14. WHO, The Management of Nutrition in Major Emergencies, AITBS Publishers, New Delhi.

Websites:

1. www.nin.org- National Institute of Nutrition, Hyderabad, India
2. www.icmr.org – Indian Council for medical Research.

SEMESTER –VI

FOOD PRESERVATION

Elective 3

COURSE CODE: ND15/6E/FPR

Teaching Hours: 5 hrs/wk

Credits: 5

LTP: 4 1 0

OBJECTIVES

Understand the need for food preservation

Obtain knowledge of various types of preservation techniques

Obtaining knowledge on packaging and food standards.

COURSE OUTLINE

UNIT I: Introduction -Importance and principles of preservation , food spoilage - causes of spoilage, spoilage of various foods and food products. (15 hrs)

UNIT II: Methods of food preservation: Traditional methods-salting, pickling and drying.

Preservation as sugar concentrates - Jams, Jelly, Marmalades and Preserves.

Fruit Juice Beverages - Preparation and preservation. Preparation of candied fruits. (15 hrs)

UNIT III: Methods of food preservation: Use of high temperatures- Drying and sterilization, canning, pasteurization, Blanching.

Use of Low temperatures - Refrigeration and freezing, Irradiation. (15 hrs)

UNIT IV: Food additives – definition, uses of additives, characteristics of chemical additives, intentional food additives, permitted amounts; Food standards –BIS,AGMARK, FSSAI 2006.

(15 hrs)

Food adulteration – types of adulterants, intentional adulterants, incidental adulterants.

UNIT V: Convenience foods – processing & preservation techniques - ready-to-cook, ready-to-use, ready-to serve and ready-to-eat .

Packaging: Functions of Packaging, packing materials and forms, special packaging - military and space foods and Intelligent packaging. (15 hrs)

REFERENCE BOOKS:

1. Subbulakshmi.G,Shoha A Udipi, Food Processing and Preservation, New Age International (P) Ltd, Publishers. 2001
2. Sivasankar.B, Food Processing and Preservation, Prentice Hall of India (P) Ltd, New Delhi.2008
3. Shakuntala Manay.N, M.Shadaksharaswamy, Food Facts and Principles, 3rd edition, New Age International (P) Ltd.2008
4. NIIR BOARD, Manual of Modern Technology on Food Preservation, Asia Pacific Business Press Inc, New Delhi.
5. Sudesh Jood and Neelam Khetarpaul, Food Preservation, Agro Tech Publishing Academy, Udaipur.2002
6. Neelam Khetarpaul, Food Processing and Preservation, Daya Publishing House, New Delhi.2005
7. Hausner.A, Preserved Foods and Sweetmeats, Biotech Books, New Delhi. 2005

SEMESTER V & VI

FOOD SERVICE MANAGEMENT PRACTICALS

CORE- 11

COURSE CODE – ND15/6C/PR3// CN15/6C/PR3

Practical Hours: 3hrs/wk

Credits: 3

LTP: 003

FOOD SERVICE MANAGEMENT I

1. Visit to sectors of food industry – any 2 commercial and non-commercial sectors.
2. Standardization of two portions of North Indian, South Indian and Chinese Cuisine.

FOOD SERVICE MANAGEMENT II

1. Quantity production of standardized North Indian, South Indian and Chinese Cuisine.

REFERENCE

1. Mohini sethi and Sujeeth malhan ,”Catering management an integrated approach”, New age international publishers, III edition, 2015
2. Mohini sethi and Sujeeth malhan, Institutional Food management”, New age international publishers, III edition, 2015
3. Sudir Andrews,” Food and Beverage Service” Tata Mc Graw hill publishing company limited.II edition, 2009
4. Bobby George ,”Food and Beverage Service “,Jaico Publishing House, I edition,2005
5. Casado,A.M, "House keeping Management", John Wiley and sons limited, 2000
6. R.singaravelavan, ”Food and Beverage Service “,Oxford university press, I edition,2011
7. Kalsigsis, C and Thomas , C, "Design and equipment for food service -A management view", John Wiley and sons limited, 1999
8. Lillicrap, D, R and Cousins, J, A, "Food and beverage service", 1996

WEBSITES AND e-LEARNING SOURCES:

[http//.wikipedia.org/wiki/Interior_decoration.](http://.wikipedia.org/wiki/Interior_decoration)
[http//www.infoplease.com/ce6/society/a0825323.html](http://www.infoplease.com/ce6/society/a0825323.html)
[http//housekeeping.about.com/](http://housekeeping.about.com/)
[http//www.ccohs.ca/oshanswers/hsprograms/house.html.](http://www.ccohs.ca/oshanswers/hsprograms/house.html)

SEMESTER V& VI

MEDICAL NUTRITION THERAPY PRACTICAL

CORE- 15

COURSE CODE: CN15/6C/PR4

Teaching hours: 3

Credits: 3

LTP: 003

MEDICAL NUTRITION THERAPY I

1. Planning and preparing clear fluid full fluid and soft diet.
2. Planning and preparing diet for fever patient- typhoid and tuberculosis.
3. Planning and preparing diet for obesity and underweight.
4. Planning and preparing diet for diarrhea, constipation and ulcer
5. Planning and preparing diet for hepatitis and cirrhosis of liver.
6. Report on the visit to the dietary department of hospital.

MEDICAL NUTRITION THERAPY II

1. Planning and preparing diet for Hypertension and Atherosclerosis.
2. Planning and preparing diet for Diabetes mellitus with insulin and without insulin
3. Planning and preparing diet for Gout
4. Planning and preparing diet for Nephritis, Nephrosis and ESRD with dialysis
5. Planning and preparing diet for Cancer
6. Planning and preparing diet in Burns
7. Presentation of two case study done in hospital internship (15 days Internship to be done before the completion of II year in a teaching hospital)