

ANWARUL ULOOM COLLEGE (Autonomous)

(An Autonomous Muslim Minority Institution)
New Malleshpally, Hyderabad – 500 001, T.S., India.
(Affiliated to Osmania University)



Faculty of Science

Department of Nutrition & Dietetics

Board of Studies in M.Sc. Nutrition & Dietetics

Academic Year 2023 – 24



Anwarul Uloom College (Autonomous)
New Mallepally, Hyderabad
Affiliated to Osmania University
(Re-Accredited with NAAC with A – Grade)



Faculty of Science
Department of Nutrition & Dietetics

A g e n d a

1. Approval of Syllabus for Post Graduate Nutrition and Dietetics.
2. Approval of allotment of Internal Marks
3. Approval of model Question Papers for Internal Assessment theory and Practical
4. Approval of Panel of External Examiners / Valuers (Theory and Practicals)

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Dr. B. BHIMA, M.Sc., Ph.D.
Professor
Department of Microbiology, U.C.S,
Osmania University, Hyd-07.

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HEAD
Dept. of food and Nutrition
Univ. College for Women
Koti Hyderabad-095

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Dept. of Nutrition & Dietetics
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M. S. Radhika
डॉ.एम.एस. राधिका, पीएचडी (पोषण)
Dr. M. S. RADHIKA, PhD (Nutrition)
वैद्यकीय विज्ञान विभाग, कोटि, हैदराबाद
Assistant Professor in the Department
आहार विज्ञान विभाग, आईसीएमएन-राष्ट्रीय पोषण संस्थान
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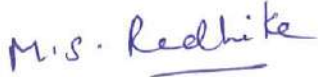


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Faculty of Science Department of Nutrition & Dietetics (2023– 24)

Minutes of the meeting of the Board of Studies of M.Sc. Nutrition & Dietetics held on _____ in the staff room of Department of Nutrition & Dietetics. The following faculty members from the Department of Nutrition & Dietetics were present and discuss the Agenda of the meeting.

S. No.	Faculty Name	Designation	Signature
1	Prof. B. Bhima	V C Nominee, Professor, Head Department of Microbiology, Osmania University, Hyderabad.	 Dr. B. BHIMA, M.Sc., Ph.D. Professor Department of Microbiology, U.C.S, Osmania University, Hyd-07.
2	Mrs. Nazia Mohammadi	Chairman Board of Studies and H O D, Nutrition & Dietetics, Anwarul Uloom College, Hyderabad,	 HEAD Dept. of Nutrition & Dietetics ANWARUL-ULOOM COLLEGE New Mallepally, Hyderabad. Telangana-500 001.

3	Dr. Ashlesha P	Subject Expert, Asst Prof & Head, Department of Food & Nutrition, Telangana Mahila Vishvidhyalaya, Koti, Hyderabad.	 HEAD Dept. of food and Nutrition Univ. College for Women Koti Hyderabad-095
4	Miss Heena Jahan	HOD, Consultant Dietician, Department of Clinical Nutrition & Dietetics, TX Hospital, Kachiguda, Hyderabad	 
5	Dr. M. Radhika	Scientist – E, Clinical Division, National Institute of Nutrition, Tarnaka, Hyderabad.	 डॉ.एम.एस. राधिका, पोस्चमी (पोषण) Dr. M.S. RADHIKA, PhD (Nutrition) वैज्ञानिक-ई (आयु विभाग) व विभागाध्यक्ष Science-E & Head of the Department आहार विज्ञान विभाग, आईसीएनआर-राष्ट्रीय पोषण संस्थान Department of Dietetics, ICMR-National Institute of Nutrition जमाल-उस्मानिया, पोस्ट, सिकंदराबाद-500 008, भारत Jamal-Osmania (PO), Secunderabad-500 007, INDIA
6	Ms. Mariya Fatima	Alumini, Anwarul Uloom College, Hyderabad, Member	
7	Ms. Zohra Fatima	Asst. Prof. Nutrition & Dietetics, Anwarul Uloom College, New Mallepally, Hyderabad, Member.	

8	Ms. Summaya Ahmed	Asst. Prof. Nutrition & Dietetics, Anwarul Uloom College, New Mallepally, Hyderabad, Member.(Alumni)	
9	Ms. Saba Parveen	Asst. Prof. Nutrition & Dietetics, Anwarul Uloom College, New Mallepally, Hyderabad, Member	
10.	Ms. Tabassum Unnisa	Asst. Prof. Nutrition & Dietetics, Anwarul Uloom College, New Mallepally, Hyderabad, Member	

MINUTES OF MEETING

Board of Studies began with the welcome address by Mrs. Nazia Mohammadi, Head of Department of Nutrition and Dietetics, Anwarul Uloom P G College, New Mallepally, Hyderabad.

The Syllabus to be approved was circulated to all the Board Members and the following resolutions were passed.

- Resolved to approve the Syllabus for Post Graduate Nutrition & Dietetics.
Resolved to include 1. Product Development as paper -II for semester III
2. Food service Management as paper -III in semester III
3. Techniques of Food analysis as paper -III Elective in semester IV
- Resolved to allot 40 Marks for Internal Assessment (Average of Internal Assessment I and II) and 10 Marks for Attendance (Total 50 Marks)
- Resolved to approve and accept the model Question Papers for Practical Examinations.
- Resolved to approve the Panel of Examiners as well as Paper Setters / Valuers / External Examiners (Theory and Practical)
- Resolved to conduct Practical Examinations at the end of Each Semester.
- Resolved to approve the syllabus with alterations and modification as required to cater to the curricular need of the Students and as per Autonomy Status.

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2023-2024

Dietetics)

M.Sc. (Nutrition and

Choice Based Credit system (CBCS) Syllabus
Effective from 2023-24 admitted batch

COURSE OUTLINE AND SCHEME OF EXAMINATION

FIRST SEMESTER

Paper No.	Title	Instruction Hrs/ Week	Duration of Examination (Hrs)	Credits	Maximum Marks
Theory					
ND 101 T (CORE)	Human Nutrition	3	2	3	100(50+50)
ND 102 T (CORE)	Nutritional Biochemistry I	3	2	3	100 (50+50)
ND 103 T (CORE)	Human Physiology	3	2	3	100(50+50)
ND 104 T (CORE)	Principles of Dietetics	3	2	3	100(50+50)
Practical					
ND 151 P	Human Nutrition	4	2	2	50(25+25)
ND 152 P	Nutritional Biochemistry I	4	2	2	50(25+25)
ND 153 P	Human Physiology	4	2	2	50(25+25)
ND 154 P	Principles of Dietetics	4	2	2	50(25+25)
	Total	28		20	600

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विज्ञानिक-ई (आर. मेडिसिन) व फूड साइंस
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2023-2024

SECOND SEMESTER					
Paper No.	Title	Instructions Hrs/ Week	Duration of Examination	Credits	Maximum Marks
Theory					
ND 201 T (CORE)	Principles of Foods	3	2	3	100(50+50)
ND 202 T (CORE)	Nutritional Biochemistry II	3	2	3	100(50+50)
ND 203 T (CORE)	Research Methodology	3	2	3	100(50+50)
ND 204 T (CORE)	Diet in Disease	3	2	3	100(50+50)
Practical					
ND 251 P	Principles of Foods	4	2	2	50(25+25)
ND 252 P	Nutritional Biochemistry II	4	2	2	50(25+25)
ND 253 P	Research Methodology	4	2	2	50(25+25)
ND 254 P	Diet in Disease	4	2	2	50(25+25)
Total		28		20	

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M.Sc (Nutrition and Dietetics)
Choice Based Credit System(CBCS) Syllabus
2023-24

COURSE OUTLINE AND SCHEME OF EXAMINATION

THIRD SEMESTER

Paper No.	Title	Instructions Hrs/ Week	Duration of Examination (Hrs)	Credits	Maximum Marks
Theory					
ND 301 T (CORE)	Community Nutrition	3	3	3	100 (70+30)
ND 302 T (CORE)	Product Development	3	3	3	100 (70+30)
ELECTIVE-I		3	3	3	100 (70+30)
ND 303(i) T	(i) Maternal and Child Nutrition				
ND 303(ii) T	(ii) Geriatric Nutrition				
ELECTIVE-II		3	3	3	100 (70+30)
ND 304 (i) T	(i) Food Service Management				
ND 304 (ii) T	(ii) Institutional Food Management				
Practicals					
ND 351 P (CORE)	Community Nutrition	4	3	2	50
ND 352 P (CORE)	Product Development	4	3	2	50
ELECTIVE-I		2	2	1	25
ND 353 (i) P	(i) Maternal and Child Nutrition				
ND 353 (ii) P	(ii) Geriatric Nutrition				
ELECTIVE-II		2	2	1	25
ND 354 (i) P	(i) Food Service Management				
ND 354 (ii) P	(ii) Institutional Food Management				
Seminar		4		2	50
Total		24		20	600

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FOURTH SEMESTER

Paper No.		Instructions Hrs/ Week	Duration of Examination (Hrs)	Credits	Maximum Marks
Theory					
ND 401 T (CORE)	Advanced Nutrition	3	3	3	100 (70+30)
ND 402 T (CORE)	Food Microbiology and Food Safety	3	3	3	100 (70+30)
ELECTIV E-III	(i)Diet Counselling and Psychological Skills	3	3	3	100 (70+30)
ND403(i) T ND403(ii)T	(ii) TECHNIQUES IN FOOD ANALYSIS				
Practicals					
ND 451 P (CORE)	Advanced Nutrition	4	3	2	50
ND 452 P(CORE)	Food Microbiology and Food Safety	4	3	2	50
ELECTIV E-III	(i)Diet Counselling and Psychological Skills	2	2	1	50
ND453(i) P ND453(ii)P	(ii) TECHNIQUES IN FOOD ANALYSIS				
ND 454 (i)P	Internship	2		2	50
ND 454(ii)P	Project	4		4	100
TOTAL		25		20	600
Grand Total				80	2400

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2023-2024

SEMESTER - I

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2023-2024

SEMESTER I

ND 101 T Human Nutrition (CORE)

(5credits: Theory credit= 3 + Practical credits =2) Objectives:

- To understand the role of adequate nutrition in stages of life cycle.
- To know the nutritional requirement and meal management of athletes.

UNIT I: PRINCIPLES OF NUTRITION (15 H)

Energy value of foods

- Estimation of energy value of foods by Bomb Calorimeter and
- Estimation of energy value of foods Benedict's oxyCalorimeter
- Measurement of Basal metabolism- Atwater and Benedicts Roth

Factors affecting energy requirements;

- Factors affecting BMR, SDA,
- Energy requirement during work, physical activity ratio and physical activity level
- RDA and derivation of RDA.

Basic food groups

- Four, Five Food groups, Nutritional contribution from each group,
- Balanced diet, My Food Pyramid, Food plate
- Food composition tables and Food Exchange list

Basic of meal planning

- Steps in meal planning
- Principles of meal planning
- Guidelines for planning a menu

Nutritional requirements of

- Dietary guidelines for Indians
- An adult man and
- An adult woman

UNIT II: NUTRITION DURING THE PHASES OF - PREGNANCY, LACTATION AND INFANCY (15H)

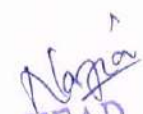
Changes during Pregnancy:

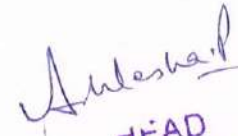
- Pre conceptual nutrition
- Physiology of pregnancy (stages of human fetal changes)
- Maternal Physiological changes and Maternal weight gain

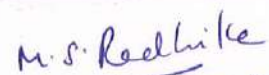
Nutritional requirement and complications

- Nutritional requirements during pregnancy
- Diet and eating pattern during pregnancy
- Complications of pregnancy

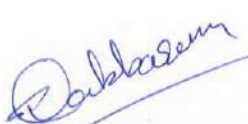

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2023-2024

Lactation:

- Development of breast, Physiology of lactation
- Nutritional requirements during lactation, Lactagogues
- Nutritional component of colostrum and mature milk

Breast Feeding

- Composition of different types of milk – cow, buffalo, goat and camel, formula milk
- Breast feeding Vs bottle feeding- advantages and disadvantages
- Feeding of Low birth weight and premature infants, Human Milk Banks Infancy:
- Growth and development during infancy
- Nutritional Requirement during infancy
- Weaning: Homemade foods Vs commercial foods

UNIT III: NUTRITION DURING THE PHASES OF GROWTH - PRE SCHOOLERS, SCHOOLGOING CHILDREN, ADOLESCENTS AND OLD AGE (15 H)

Growth and development

- Milestones
- Growth Chart
- Immunization Schedule Preschoolers:
- Nutritional requirements
- Food habits and dietary guidelines
- Children with feeding disorders School going children:
- Nutritional requirements
- Packed lunch and Factors to be considered while planning diet for school going children
- Influence of television on eating habits of school going children Adolescence:
- Nutritional requirements
- Eating behaviour
- Nutrition related health problems: weight control, eating disorders, alcohol and drug abuse, adolescent pregnancy Geriatric:
- Physiological changes in aging
- Nutritional requirements and Dietary modification
- Major nutrition related problems

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2023-2024

BOOKS RECOMMENDED

- Text Book of Human Nutrition- Suryatapa Das, 1st edition, February-2021
- Modern Nutrition in Health & Diseases – Eds – Maurice E. Shils, James A.Olson, Moshe Shike, 8th edition, Vol I and II, Williams& Wilkins Publication.
- Nutrition and Dietetics – Shubhangini A Joshi, 2nd edition, Tata Mc Graw Hill publication.
- Food, Nutrition and Diet Therapy – Kathleen Mahan & Krause, Sylvia Escott Stump.

SUGGESTED REFERENCES FOR ADDITIONAL READING

- Perspectives in Nutrition – Gordon M. Wardlaw, Margaret Kessel, 5th edition, Mc Graw Hill Publication.
- Nutrition and Metabolism – Nutrition Society Textbook, Eds – Michael J. Gibrey, Ian A Macdonald and Helen, Blackwell publishing.
- Decisions in Nutrition – Vincent Hegarty.
- Human Nutrition – Geissler& Powers, 11th edition, Elsevier Publications.
- Dietetics – B Srilakshmi, 5th edition, New Age International Publishers

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2023-2024

ND 151 P Human Nutrition PRACTICALS (30 hrs)

Objectives:

• To familiarize the students with newer concepts in standardisation of recipes and planning of balanced menus for different age groups

1. Cereal and Pulse- Rice, Upma , Phulka, Chapathi, Kichidi, Idli, Dosa, Dhal with Green Leafy Vegetable
2. Beverages and Desserts - Tea, Soup, Juices, Milk Shakes, Porridges, Plain Custard
3. Vegetable and fruits- Vegetable curries and salads
4. Plan a day's diet , Calculate Nutritive value & cost of the menu planned for Adult man/ woman
5. Preparation of the planned diet for Adult man/ woman
6. Plan a day's diet, Calculate Nutritive value & cost of the menu planned Pregnant woman/ Lactating woman
7. Preparation of the planned diet for Pregnant woman/ Lactating woman
8. Plan , calculate the nutritive value and cost of a weaning mix
9. Preparation of the planned weaning mix
10. Plan a day's diet , Calculate Nutritive value & cost of the menu planned Preschool/ School going
11. Preparation of the planned diet for School going
12. Plan a day's diet , Calculate Nutritive value & cost of the menu planned Adolescent Girl/ Boy
13. Preparation of the planned diet for Adolescent Girl/ Boy
14. Plan a day's diet, Calculate Nutritive value & cost of the menu planned Geriatric Woman / Man
15. Preparation of the planned diet for Geriatric Woman / Man

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ND 102 T NUTRITIONAL BIOCHEMISTRY- I (CORE)
(5credits: Theory credit= 3 + Practical credits =2)

Objectives:

- To enable students to understand the role of nutrients in the body.
- To know the classification, functions and metabolism of carbohydrates, amino acids, proteins and nucleic acids.

UNIT I: CARBOHYDRATES AND THEIR METABOLISM (15 H) Carbohydrates:

Classification and functions

- Nutritional Classification and sources
- Chemical classification and sources
- functions and requirements of carbohydrates

Utilization

- Digestion, absorption and maintenance of blood glucose levels
- factors affecting absorption
- Transport (GLUT's) and storage Metabolism of simple sugars:
- Glycolysis
- TCA cycle
- Electron transport chain

Metabolism other sugars

- Pentose phosphate pathway
- Glycogenesis and Glycogenolysis
- alcohol metabolism

Inborn errors of Carbohydrate Metabolism-

- Glycogen storage diseases
- Lactose intolerance and Galactosemia
- Fructose intolerance

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UNIT II: AMINO ACIDS AND THEIR METABOLISM (15h)

Classification and functions of Amino Acids

- Chemical composition- Based on solubility, Polarity, Chemical Nature
- Nutritional classification
- Specific nutritional functions

Oxidation of Amino acids (glycogenic and ketogenic)

- Transamination
- Oxidative deamination and non oxidative deamination and decarboxylation
- Urea cycle

Metabolism of Aromatic Amino Acids

- Phenylalanine
- Tyrosine
- Tryptophan

Metabolism of Branched chain amino acids

- Leucine
- Isoleucine
- Isoleucine

Inborn errors of amino acid metabolism

- PKU
- Tyrosinemia, Maple syrup urine disease
- Homocystinuria, Alkaptonuri

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UNIT III: PROTEINS AND THEIR METABOLISM (15H)

Classification and functions of Proteins:

- Chemical Classification
- Nutritional classification
- Sources and functions

Utilisation

- Digestion and absorption
- Transport and storage
- Factors affecting protein utilisation

Protein synthesis

- Genetic code
- Types and site of protein synthesis
- Components required

Steps in protein synthesis

- Initiation of peptide chain -
- Elongation of Peptide chain
- Termination of peptide Chain

Post translational changes

- Acetylation and Glycosylation
- Hydroxylation and Phosphorylation,
- Chaperones and Inhibitors of protein synthesis

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BOOKS RECOMMENDED

- Nutritional Science – B. Srilakshmi, New Age International Publishers, 2nd edition.
- Textbook of Medical Biochemistry – MN Chatterjee, RanaShinde, 7th edition, jaypee Brothers.
- A textbook of Biochemistry – A V S S Rama Rao, 9th edition, UBS Publisher's Distribution Pvt. Ltd.
- Textbook of biochemistry by K A Rambabu - 1stEdn 2007, AITBS publishers

SUGGESTED REFERENCES FOR ADDITIONAL READING

- Nutritional Biochemistry – Tom Brody, 2nd edition, Academic Press.
- Text Book of Human Nutrition – Mahtab S. Bamji, N Prahlad Rao, Vinodini Reddy, 2nd edition, Oxford & IBH Publishing Co. Pvt. Ltd.
- Textbook of Medical Biochemistry – S Ramakrishnan, K G Prasannan, R Rajan, 3rd edition, Orient Longman, Harper's Illustrated Biochemistry – Robert K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell, 26th edition, Mc Graw Hills.
- Experimental Biochemistry – A Student Companion – B Sashidhar Rao, Vijay Deshpande, IK International Pvt. Ltd.
- Biochemistry – U Satyanarayana, U Chakrapani, Books & Allied (P) Ltd.
- Clinical Biochemistry – Nagini
- Principles of Biochemistry – Lehninger A L, CBS Publishers and Distributors.
- Textbook of Biochemistry (for Medical students) – DM Vasudevan and S Sreekumari, 4th edition, Jaypee Brothers Medical Publishers (P) Ltd., New Delhi.

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**ND 152 P NUTRITIONAL BIOCHEMISTRY
PRACTICALS (30 hrs)**

Objectives:

- To acquaint the students with principles, techniques and application of different methods of food analysis

I Qualitative analysis of Carbohydrate

1. Glucose
2. Fructose
3. Xylose
4. Sucrose
5. Maltose
6. Lactose
7. Starch

II. Qualitative analysis of protein and Amino acids

8. Albumin
9. Aliphatic Amino acids – Alanine
10. Aromatic Amino acids – tyrosine
11. Sulphur containing - Cysteine
12. Guanido group- Arginine

III. Estimation of Sugar

13. Estimation of Reducing sugars by Lane and Eyon Method / DNase Method

IV. Quantitative analysis of Protein

14. Biurette method

V. Separation of Amino acids

15. Separation of amino acids by paper chromatography

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2023-2024

ND 103 T HUMAN PHYSIOLOGY (CORE)

(5credits: Theory credit= 3+ Practical credits =2) Objectives:

- To enable the students to understand the functions of various systems in the body.
- To acquaint the students with abnormalities of endocrine system.

UNIT I: DIGESTIVE AND EXCRETORY SYSTEM (15h)

Gastrointestinal tract

- Structure and functions
- Secretory function
- Hormones and their functions

Liver, gallbladder and Pancreas

- Structure
- functions
- composition and functions of bile and pancreatic juice

Kidney

- Structure
- functions
- Structure of Nephron

Urine

- Urine formation
- Organic and inorganic constituents of urine
- Water and electrolyte balance

Disorders of fluid imbalance

- Dehydration
- Odema
- Role of hormones in regulation of fluid balance

UNIT II: BLOOD, CIRCULATORY SYSTEM AND RESPIRATORY SYSTEM (15h) Heart

- Structure and functions
- Pulmonary, Systemic and Portal circulation
- Blood pressure, Heart rate, Factors affecting BP and heart rate, Regulation of Cardiac output
- Composition
- Structure of blood vessels
- Haemoglobin- structure and function

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Plasma

- Plasma proteins-Functions, role in fluid balance
- Organic and Inorganic compounds in plasma
- Blood Lipids – Chylomicrons, VLDL, LDL, HDL, Cholesterol, Triglycerides

Blood coagulation

- Hemostasis
- Clotting factors
- Mechanism

Respiratory System

- Structure and functions
- Mechanism of respiration, Respiratory rate
- Respiratory abnormalities- Hypoxia, Hypercapnia & Asphyxia

UNIT III: ENDOCRINE SYSTEM (15 h)

Endocrine glands

- Types and secretion of hormones
- Control of hormone secretion
- mechanism of hormone action

Pituitary gland:

- Structure, Anterior Pituitary : hormones secreted and functions
- Posterior Pituitary- Hormones secreted and their functions
- Abnormalities

Thyroid gland and Parathyroid gland:

- Structure and functions
- Abnormalities: hypothyroidism, hyperthyroidism,
- Hypo and hyper secretion of parathormone Adrenal gland:
- Structure
- secretions of adrenal cortex and their functions, hypoadrenalism, hyperadrenalism
- Secretions of adrenal medulla and their functions

Islets of Langerhans, Testes and Ovaries

- Structure
- Functions of Insulin and glucagon, deficiency of insulin,
- Functions of testosterone, estrogens and progesterone

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- Textbook of Medical Physiology – Guyton, 8th edition, HBJ International Edition, WB Sanders.
- Essentials of Medical Physiology – Anil BaranSinghaMahapatra, 2nd edition, Current Books International.

SUGGESTED REFERENCES FOR ADDITIONAL READING

- Human Physiology – An Integrated Approach – DU Silverthorne, Prentice Hall.
- Human Physiology – from cells to system – L Sherwood, 6th edition.
- Textbook of Biochemistry (for Medical Students) – DM Vasudevan and S SreeKumari, • 4th edition, Jaypee Brothers Medical Publishers (P) Ltd., New Delhi

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**ND 153P HUMAN PHYSIOLOGY
PRACTICALS (30 hrs)**

Objectives:

- To acquaint the students with principles, techniques and application of different methods of biological fluids analyses and to understand the disorders associated with the deviation.

I. Microscopic Examination of various tissues and blood vessels

1. Epithelial b. Muscular c. Connective d. Bone e. Artery f. Vein (Specimens)

II. Estimation of blood sample

2. Determination of blood group and Rh factor
3. For RBC
4. For WBC
5. For PCV
6. For Haemoglobin by Sahil's Method
7. Blood glucose by glucometer method

III. Estimation of Urine sample

8. Sugar (Benedicts test)
9. Albumin
10. Bile salts

IV. Measurement of VITALS

11. Measurement of blood pressure by Digital BP monitor
12. Measurement of pulse rate using pulse oxy meter.
13. Measurement of oxygen saturation using pulse oxy meter.

V. Demonstration -

14. Cholesterol estimation by kit method
15. Triglycerides Estimation by Kit Method

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2023-2024

ND 104 T Principles of Dietetics (CORE)

(5credits: Theory credit= 3 + Practical credits =2) Objectives:

- To impart in depth knowledge regarding prevalence, etiology, diagnosis, diet and life style management in different diseases.
- To gain knowledge on the methods of assessment of nutritional status among individuals and interaction of drugs and nutrients.

CREDIT I: Nutritional Assessment, Specialised feeding methods and Critical care (15h)

Nutritional Assessment of hospitalised patients

- SGA,
- MNA,
- MUST

Specialized feeding methods Enteral

Nutrition:

- Types – Short term feeding methods : Nasogastric, Nasoduodenal, Nasojejunal
- Long term feeding methods: Gastrostomy, Percutaneous Endoscopic Gastrostomy, Percutaneous Endoscopic Jejunostomy
- Formula feeds; Advantages, Disadvantages and complications of enteral nutrition

Parenteral Nutrition:

- Types – Total Parenteral Nutrition, Peripheral Parenteral Nutrition • Advantages, Disadvantages and Complications of parenteral nutrition.
- Composition of parenteral nutrition solutions

Surgery: Physiological response

- Endocrine response
- metabolic changes
- Nutritional care in pre and post operative conditions Burns:
- Assessment of severity of burns
- Metabolic changes in burns
- Nutritional support in burns

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CREDIT II: ENERGY IMBALANCE AND FEBRILE CONDITIONS (15 h)

Energy Imbalance:

Obesity:

- Definition, types
- Aetiology, Fat cell theory and Set point theory
- Assessment and complications

Management of obesity

- Diet – reducing, very Low calorie and energy deficit calculations.
- Exercise and behavior modification,
- Pharmacotherapy and surgery, Fad diets Leanness:
- Etiology,
- complications
- Dietary management

Febrile conditions:

- Host defence mechanism
- Metabolic changes during fever
- General dietary considerations

Short duration and Intermittent duration fevers

- Typhoid -Causes and clinical features, Dietary Management
- Influenza- Causes and clinical features, Dietary Management
- Malaria-Causes and clinical features, Dietary Management

Long duration – Tuberculosis

- Causes and clinical features
- Dietary Management of long duration fevers
- Treatment and Dietary guidelines

CREDIT III: Gastrointestinal Disorders (15 h)

Gastritis and Peptic ulcer

- Etiology, Mechanism of Ulcer Formation, symptoms,
- diagnosis, treatment,
- dietary management

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Diarrhea

- Etiology, symptoms,
- Types, treatment - ORS
- dietary management

Constipation

- Etiology, symptoms,
- Types
- dietary management

Ulcerative colitis, Crohn's disease, irritable bowel disease

- Etiology, symptoms,
- diagnosis, treatment
- dietary management

Lactose intolerance and celiac disease; Diverticular diseases

- Etiology, symptoms,
- diagnosis, treatment
- dietary management

BOOKS RECOMMENDED

- Clinical Nutrition – Ed Michael J Gibney, Marinos Elia, OlleLjungqvist and Julie Dowsett.
- Text Book of Human Nutrition – Mahtab S Bamji, N Prahlad Rao, Vinodini Reddy, 2nd edition, Oxford & IBH Publishing Co. Pvt. Ltd.
- Food, Nutrition and Diet Therapy – Kathleen Mahan & Krause, Sylvia Escott Stump.
- Normal and Therapeutic Nutrition - Robinson & Lawler, 17th edition, Mac Millan Publishers.

SUGGESTED REFERENCES FOR ADDITIONAL READING

- Foods – Nutrition and Health – Dr.VijayaKhader, Kalyani Publishers.
- Nutrition in Health and Diseases – Anderson, 17th edition.
- Modern Nutrition in Health & Disease – Eds – Maurice E. Shils, James A. Olson,
- Moshe Shike, 8th edition, Vol I and II, Williams & Wilkins Publication.
- Nutrition in clinical Practice – David L. Katz, Lippincott, Williams & Wilkins.
- Clinical Dietetics and Nutrition – F P Antia and Philip Abraham.
- Biochemistry – U Satyanarayana, U Chakrapani, Books & Allied (P) Ltd.
- Perspectives in Nutrition – Wardlaw Kessel, Mc Graw Hills.

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ND 154 P Principles of dietetics PRACTICALS (30 hrs)

Objectives:

- **To familiarize the students with newer concepts in dietary management of Various disorders and diseases.**

1. Plan a day's diet and Calculate Nutritive value & cost of the menu planned for Burns
2. Preparation of the planned diet for Burns
3. Plan a day's diet, Calculate Nutritive value & cost of the menu planned Peptic Ulcer
4. Preparation of the planned diet for Peptic Ulcer
5. Plan a day's diet , Calculate Nutritive value & cost of the menu planned Diarrhoea
6. Preparation of the planned diet for Diarrhoea
7. Plan a day's diet, Calculate Nutritive value & cost of the menu planned Constipation
8. Preparation of the planned diet for Constipation
9. Plan a day's diet , Calculate Nutritive value & cost of the menu planned Ulcerative colitis
10. Preparation of the planned diet for Ulcerative colitis
11. Plan a day's diet , Calculate Nutritive value & cost of the menu planned for Obesity
12. Preparation of the planned diet for Obesity
13. Plan a day's diet , Calculate Nutritive value & cost of the menu planned for Leanness
14. Preparation of the planned diet for Leanness
15. Plan a day's diet, Calculate Nutritive value & cost of the menu planned Typhoid/ tuberculosis
16. Preparation of the planned diet for Typhoid/ tuberculosis

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2023-2024

SEMESTER II

2023-2024

SEMESTER II

ND 201 PRINCIPLES OF FOODS (CORE)

(5credits: Theory credit= 3 + Practical credits =2)

3 hrs/week

Objectives:

- To provide an understanding of composition of various food stuffs.
- To familiarize students with changes occurring in various food stuffs as a result of processing and cooking.

UNIT I: PLANT FOODS

Cereals

- Starch: functions and properties;
- Protein- gluten, factors affecting gluten formation
- Gelatinization, factors affecting gelatinization, Retro gradation, syneresis

Millets

- Jowar- Nutritive value and processing
- Ragi - Nutritive value and processing.
- Bajra and Quinoa - Nutritive value

Legumes

- Decortication, Soaking and Germination – Advantages
- Fermentation, Parching and Puffing – Advantages
- Effect of cooking treatments on the nutrient composition- Anti nutritional factors.

Vegetables

- Classification and Nutritive value
- Water insoluble and Water soluble pigments
- Flavour compounds: terpenoids, flavonoids, Sulphur compounds and other volatile flavour compounds

Fruits

- Classification and Nutritive value
- Enzymatic Browning and its prevention
- Post harvest changes

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UNIT II: SUGARS, NUTS & OILSEEDS and ANIMAL FOODS

Sugars

- Types of sugar
- Sugar crystallization and caramalization (Non Enzymatic browning) , Factors affecting crystallization
- Stages of sugar cookery, preparation of candies – crystalline and non crystalline

Nuts and oils

- Composition, Properties of fats and oils- Homogenization, Winterization and Plasticity
- Rancidity – types, mechanism and prevention
- Fat Replacer - Carbohydrate-Derived with Examples , Fat-Derived with Examples, Protein-Derived with Examples

Milk

- Composition and Nutritive Value
- Types of Processed milk
- Properties of milk proteins – effect of heat, acid and phenolic compounds on milk

Egg, poultry and Meat

- Composition and Nutritive Value
- Advantages of white meat (Poultry), Meat Substitutes
- Changes during cooking of meat

Fish

- Composition and Nutritive Value
- Classification, Characteristics of fresh fish
- Spoilage of Fish

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UNIT III: FOOD ADDITIVES

Food Additives

- Definition. Functions and uses of food additives
- Additives- additive class, function , chemical substance, foods in which it is used
- Food preservatives - Chemical , Principle preservatives in current use

Food Colours

- Natural colourants
- Sources of natural colourants
- Synthetic colourants - Permitted and non permitted colours

Emulsions and Foams

- Emulsion Formation , Emulsifiers & stabilizers- Types , Factors affecting Emulsion stability
- Foam Formation and Stability
- Factors affecting Foam Stability and Anti-foaming Agents

Leavening agents

- Natural
- Chemical
- Microbial

Sweetners

- Artificial Sweeteners
- Sugar Alcohols (Polyols)
- Novel Sweeteners

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BOOK RECOMMENDED

- Food Science – Norman N Potter, Joseph H. Hotchkiss, 5th edition, CBS Publishers & Distributors, New Delhi.
- Food Facts and Principles – Shakuntala Manay, New Age International Publishers.
- Food Science – B Sri Lakshmi, New Age International Publishers.

SUGGESTED REFERENCES FOR ADDITIONAL READING

- Fruit and Vegetable Preservation – Principles & Practices – R P Srivastava, Sanjeev Kumar. 3rd edition, international Book Distributing Co., Lucknow.
- Food Science, Chemistry and Experimental Foods – Dr.M.Swaminathan, The Bangalore Printing & Publishing Co. Ltd., Mysore
- Essentials of Food Science by Vickie A. Vaclavik and Elizabeth W. Christian

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2023-2024

**ND 251 P PRINCIPLES OF FOODS
PRACTICALS**

4 hrs/week

Objectives:

□ **To familiarize students with changes occurring in various food stuffs as a result of processing and cooking.**

1. Gel formation
2. Estimation of gluten in wheat flour
3. Malting of millets
4. Effect of heat on vegetable pigments
5. Effect of acid on vegetable pigments
6. Effect of alkali on vegetable pigments
7. Methods to prevent enzymatic browning in vegetables
8. Methods to prevent enzymatic browning in fruits
9. Pectin strength in fruits
10. Stages of Sugar cookery
11. Test for checking Rancidity of oils- Acid value
12. Effect of heat on milk proteins
13. Effect of acid on milk proteins
14. Identification of food colours by paper chromatography
15. Market survey of food products/ Visit to a food industry

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ND 202 T NUTRITIONAL BIOCHEMISTRY – II (CORE)

(5credits: Theory credit= 3 + Practical credits =2)

Objectives:

3 hrs/ week

- **To enable students to understand the role of nutrients in the body.**
- **To know the classification, functions and metabolism of lipids, and minerals.**

UNIT I: LIPIDS AND THEIR METABOLISM AND INTERMEDIARY METABOLISM

Classification, sources and functions

- Classification based on their chemical composition
- Fatty acids- Types, sources and Role of essential fatty acids, Lipoproteins, Triglycerides and Cholesterol
- Role of Lipotropic factors

Utilisation

- Digestion and absorption
- Deposition , storage and mobilisation of lipids
- Role of adipose tissue in lipid metabolism

Metabolism

- Oxidation of fatty acids and Synthesis of fatty acids
- Biosynthesis of triglycerides and phosphatides
- Synthesis of cholesterol (Flow chart) , Breakdown and excretion -Bile pigments and

Bile salts

Inborn errors of Lipid Metabolism

- Gaucher's disease, Niemann's pick disease,
- Tay-sach's, Fabry's disease
- Hyperlipoproteinemia's

Intermediary Metabolism

- Interrelationship between carbohydrate, fat and protein metabolism • Ketosis and metabolism of ketone bodies
- Metabolic Changes during starvation.

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UNIT II: VITAMINS

Fat Soluble Vitamins- Metabolism, transport and storage of

- Vitamin A
- Vitamin D
- Vitamin E & K

Fat Soluble Vitamins Utilization, Sources, Functions and deficiency of:

- Vitamin A
- Vitamin D
- Vitamin E & K

Water Soluble Vitamins (B complex Vitamins) – Metabolism, transport, storage, utilization, sources, functions and deficiency of:

- Thiamin
- Riboflavin
- Niacin

Water Soluble Vitamins (B complex Vitamins) – Metabolism, transport, Storage, utilization, sources, functions and deficiency of:

- Pantothenic acid and Biotin
- Pyridoxine
- Folic Acid and Cyanacobalamin

Water Soluble Vitamins (Vitamin C)

- Metabolism, transport, and storage of Ascorbic Acid
- Utilization, sources, functions and deficiency of Ascorbic Acid
- Role of fat and water soluble vitamins as Anti oxidants

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UNIT III: MINERALS

Macro Minerals Calcium

- Metabolism, absorption, utilization, sources, functions and deficiency
- Factors affecting calcium absorption-Enhancing and Interfering
- Role of calcium in ossification and bone growth

Phosphorous

- Metabolism, absorption, utilization
- Sources, functions and deficiency
- Inter-relationship between parathormone and vitamin D in the regulation of calcium and phosphorous metabolism

Sodium and Potassium

- Metabolism, absorption, transport
- Utilization, storage, functions and sources.
- Deficiency and Excess

Micro Minerals

- Iron - Metabolism, Functions, Sources and Deficiency manifestations
- Iodine - Metabolism, Functions, Sources, and Deficiency Manifestations
- Flourine and Zinc - Functions, Sources, and Deficiency Manifestations

Trace elements

- Selenium - Functions, Sources and Deficiency manifestations
- Copper and cobalt - Functions, Sources, and Deficiency Manifestations
- Chromium and Manganese - Functions, Sources, and Deficiency Manifestations

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BOOKS RECOMMENDED

- A Textbook of Biochemistry – A V S S Rama Rao, 9th edition, UBS Publisher's Distribution Pvt. Ltd.
- Nutritional Biochemistry – Tom Brody, 2nd edition, Academic Press • Biochemistry – U Satyanarayana, U Chakrapani, Books & Allied (P) Ltd.
- Textbook of Biochemistry (for Medical Students) – DM Vasudevan and S SreeKumari, 4th edition, Jaypee Brothers Medical Publishers (P) Ltd., New Delhi.

SUGGESTED REFERENCES FOR ADDITIONAL READING

- Textbook of Medical Biochemistry – M N Chatterjee, RanaShinde, 7th edition, Jaypee Brothers.
- Textbook of Medical Biochemistry – S Ramakrishnan, K G Prasannan, R Rajan, 3rd edition, Orient Longman.
- Harper's Illustrated Biochemistry – Robert K Murray, Daryl K Granner, Peter A Mayes, Victor W Rodwell, 26th edition, McGraw Hills.
- Experimental Biochemistry – A Student Companion – B SashidharRao, Vijay Deshpande, I K International Pvt. Ltd.
- Clinical Biochemistry – Nagini.
- Principles of Biochemistry – Lehninger A L, CBS Publishers and Distributors.
- Nutritional Science – B. Sri Lakshmi, New Age International Publishers, 2nd edition.
- Text Book of Human Nutrition – Mahtab S Bamji, N PrahladRao, Vinodini Reddy, 2nd edition, Oxford & IBH Publishing Co. Pvt. Ltd

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**ND 252 P NUTRITIONAL BIOCHEMISTRY- II
PRACTICALS**

4 hrs/ wk

Objectives:

□ To familiarize students with changes occurring in various food stuffs as a result of processing and cooking.

1. Estimation of Moisture
2. Estimation of Ash content
3. Preparation of the sample using ash solution
4. Estimation of Iron by Drabkins method in Ash Solution
5. Estimation of Calcium by titrimetry in Ash solution
6. Estimation of Vitamin C by titrimetry in vitamin C rich sources
7. Estimation of Vitamin C in Synthetic Supplements
8. Qualitative test for lipids –solubility test, acrolyin test, bromine water test
9. Extraction and Estimation of Total Lipid content in the given food sample- oil seed
10. Qualitative test for cholesterol- Salkowski test
11. Estimation of Phosphorous by colorimetric method
12. Estimation of beta carotene in carrots
13. Estimation of sodium by Flame photometry
14. Estimation of Potassium by Flame photometry.
15. Estimation of calcium salts in water by EDTA method.

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ND 203 T RESEARCH METHODOLOGY (CORE)

(5credits: Theory credit= 3 + Practical credits =2)

Objectives:

3 hrs/week

□ **To enable the students to understand the importance of research design** □ **To impart in depth knowledge on collection, compilation and analysis of data.**

UNIT I: BASICS OF RESEARCH (15 hrs)

Research

- Definition, Characteristics, Criteria
- Classification of research – Application perspective, Objectives perspective, mode of enquiry perspective
- Merits and demerits of scientific Method of research

Research Strategies in the field of Nutrition

- Descriptive studies – (Correlation studies, Case studies, Cross-sectional surveys)
- Analytical studies (Observational, Case-control, Cohort studies – Prospective and Retrospective)
- Experimental studies (Clinical /Intervention trials including Randomized controlled trials)

Research Process – Steps of quantitative research

- Conceptual phase
- Design and Planning phase
- Empirical or analytic phase and Dissemination and communication phase

Research Design:

- Concepts, Problem Statement, Review of Literature, Objective of the study, Formulation of Hypothesis and its types.
- Methodology, Tools for collection of data, Plan of data analysis.
- Plan of time and financial budget

Report writing

- Types of Reports- Technical and Descriptive
- Research Abstract: Definition, guidelines for writing abstract
- Technical Thesis: Definition, parts, steps in writing thesis

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UNIT II: SAMPLING DESIGN AND METHODS OF DATA COLLECTION (15 Hrs)

Sampling

- Definition, Characteristics of good sample, Advantages and Limitations, Sample size and its determination
- Methods of sampling:
 - A) Probability Sampling - Simple random sampling, Stratified random sampling, Systematic sampling, Cluster sampling
 - B) Non random sampling (non – probability) methods-Judgment sampling, Convenience sampling, Quota sampling, Volunteer sampling and Snowball sampling
- Sampling and Non sampling errors

Data Collection

- Types of data based on source - Primary data and secondary data, Advantages and disadvantages
- Sources of secondary data, precautions in the use of secondary data. Difference between primary data and secondary data.
- Ethical responsibilities of the researcher- required qualities of a researcher in fulfilling ethics informed consent, confidentiality, protection from risk and injury, debriefing, Plagiarism.

Methods of collecting primary data:

- Questionnaire method - Drafting of questionnaire
- Interview- training of interviewer for collecting of data using schedule.
- Observation method – Types, Inventory method, Use of checklists

Processing of data

- Ranking and Rating Scales
- Criteria for evaluation of instruments – reliability and validity
- Compilation of the data collected: geographical, chronological, qualitative and Quantitative methods.

Data Presentation

- Tabulation of data: parts of a table, general rules of tabulation, types of tables
- Diagrammatic representation of data
- Graphic representation of data

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UNIT III: STATISTICAL METHODS (15 Hrs)

Measures of central tendency

- Mean
 - Median
 - Mode, their relative advantages and disadvantages
- Measures of dispersion:**
- Mean deviation
 - Standard deviation
 - Coefficient of variation, percentile - their relative advantages and disadvantages

Correlation and Regression

- Types – Positive and Negative; Linear and Non linear, Simple and Multiple; Partial and Total;
- Methods of studying correlation- Scatter diagram, Graphic method, Coefficient of correlation and its interpretation
- Karlpearson's coefficient of correlation and Spearman's Rank correlation
 - Regression analysis using regression lines and equations, Difference between correlation and Regression

Parametric Tests – Advantages and Disadvantages

- 't' test: types and interpretation
- Analysis of Variance (ANOVA) - One way and two way- interpretation
- F test and its interpretation

Non parametric tests – Advantages and Disadvantages

- Chi-square test: Contingency table
- Wilcoxon signed rank test and Kruskal- Wallis test
- Difference between parametric and non parametric tests

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BOOKS RECOMMENDED

- Statistical Methods – S P Gupta, Sultan Chand and Sons Publishers, New Delhi.
- Research Methodology – methods and techniques – C R Kothari, Wiley Eastern Limited, Madras.
- Methodology of research in Social science – O.R. Krishnaswami and M. Ranganatham, 2nd revised edition, , Himalaya Publishing house ltd, 2015.

SUGGESTED REFERENCES FOR ADDITIONAL READING

- Resesarch Methodology (Concepts, Methods, Techniques and SPSS)- Dr.Priri R. Majhi, Dr.Prafull K. Khatua, II Edition , Himalaya Publishing House, Pvt. Ltd. 2015.
- A Handbook of Methodology of Research – Dr.Rajammal P Devadas and Dr. K Kulandaveil, Sri Ramakrishna Mission, Coimbatore.
- Research Methods in Social Science – B H V Sharma, D Ravindra Prasad, P Satyanarayana, Sterling Publications.
- Biostatistics – SundaraRao., 7th edition, Jaypee Brothers medical Publishers
- Methods in Biostatistics- B.K. Mahajan, 2010
- Manual of Biostatistics- JP Baride, AP Kulkarni, RD Mazumdar, Jaypee Publishers • Research & Biostatistics for Nurses- R Sudha, Jaypee publications.

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**ND 253 P RESEARCH METHODOLOGY
PRACTICALS**

4 hrs/week

Objectives

- To familiarize the students with newer concepts in research.
- Enable the students to analyze the data for the project work with the Statistical techniques
- Application of statistical methods related to community nutrition and sensory evaluation techniques

1. Tabulation of Raw Data
2. Diagrammatic representation of Raw Data
3. Graphical representation of Raw Data
4. Calculation of mean
5. Calculation of Median
6. Calculation of Mode
7. Calculation of Mean deviation
8. Calculation of Standard Deviation
9. Calculation of Coefficient of Correlation and its interpretation using Karlpearsons coefficient method.
10. Calculation of Coefficient of Correlation and its interpretation using Spearmans Rank method
11. Calculation of one sample based t- test and its interpretation
12. Calculation of Paired t- test and its interpretation
13. Calculation of Chi square test and its interpretation
14. Calculation of ANOVA (one way)and its interpretation
15. Calculation of ANOVA (Two way)and its interpretation

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ND 204 T DIET IN DISEASE (CORE)

Objectives:

3 hrs/week

- **To impart in depth knowledge regarding prevalence, causes, diagnosis, diet and life style management in acute and chronic diseases.**
- **To gain knowledge to recommend and provide appropriate nutritional care for prevention or and treatment of various diseases.**

UNIT I: NUTRITIONAL MANAGEMENT FOR HEPATOBILIARY AND PANCREATIC DISORDERS

Hepatitis

- Types
- Causes, symptoms, diagnosis
- Dietary management

Cirrhosis and Alcoholic Liver Disease

- Causes and symptoms
- Diagnosis and complications
- Dietary Management

Cholelithiasis

- Types
- Causes, symptoms, diagnosis
- Dietary management

Cholecystitis

- Types- Acute and Chronic
- Causes, symptoms, diagnosis
- Dietary management

Pancreatitis

- Types- Acute and Chronic
- Causes, symptoms, diagnosis
- Dietary management

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UNIT II: NUTRITIONAL MANAGEMENT FOR RENAL DISORDERS, CANCER AND AIDS

Nephritis and Nephrosis

- Types- Acute and Chronic, Causes
- Symptoms, diagnosis,
- Dietary management

Renal Failure

- Acute and Chronic Renal Failure
- Dialysis – Types: Hemodialysis and Peritoneal dialysis - Advantages, disadvantages and Dietary management
- Kidney Transplant **Renal calculi**
- Types – Calcium, Oxalate, Uric acid, Cystine, and Struvite
- Causes and Composition
- Dietary Management

Cancer

- Types, mechanism
- Causes, metabolic changes,
- Dietary management

AIDS

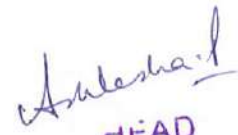
- Causes, symptoms & diagnosis
- Metabolic changes
- Dietary management


UNIT III: NUTRITIONAL MANAGEMENT FOR DEGENERATIVE METABOLIC DISORDERS

Diabetes Mellitus

- Types, Causes and symptoms, diagnosis
- Metabolic changes and Complications
- Dietary Management – Role of fibre, glycemic index, food exchange list


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2023-2024

Gout

- Causes, symptoms
- Risk factors and Diagnosis
- Dietary management

Polycystic ovarian Syndrome

- Causes, Symptoms and Diagnosis
- Nutritional Management
- Complications

Diseases of Thyroid Gland

- Causes, Symptoms and diagnosis of Hypothyroidism
- Causes, Symptoms and diagnosis of Hyperthyroidism
- Dietary management in Hypothyroidism and Hyperthyroidism

Cardio vascular disease

- Clinical Effects, hypertension
- Categories of Risk Factors
- Dietary Management

BOOKS RECOMMENDED

- Clinical Dietetics and Nutrition – F P Anita and Philip Abraham.
- Food, Nutrition and Diet Therapy – Kathleen Mahan & Krause, Sylvia EscottStump.
- Normal and Therapeutic Nutrition – Robinson & Lawler, 17th edition, Mac MillanPublishers.
- Clinical Nutrition – Ed Michael J Gibney, MarinosElia, OlleLjungqvist and JulieDowsett.
- Basics of Clinical Nutrtn, 2nd Edition, Joshi, Jaypee Publishers

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SUGGESTED REFERENCES FOR ADDITIONAL READING

- Foods – Nutrition and Health – Dr.VijayaKhader, Kalyani Publishers.
- Nutrition in Clinical Practice – David L. Katz, Lippincott, Williams & Wilkins.
- Text Book of Human Nutrition – Mahtab S Bamji, N PrahladRao, Vinodini Reddy, 2nd edition, Oxford & IBH Publishing Co. Pvt. Ltd.
- Nutrition in Health and Diseases – Anderson, 17th edition.
- Modern Nutrition in Health & Disease – Eds – Maurice E. Shils, James A. Olson, Moshe Shike, 8th edition, Vol I and II, Williams & Wilkins Publication.
- Biochemistry – U Satyanarayana, U Chakrapani, Books & Allied (P) Ltd.
- Principles and Applications in Health Promotion – Sintor & Crowley, 2nd edition.
- Perspectives in Nutrition – WardlawKessel, McGraw Hills.
- <https://mayoclinic.org>
- <https://my.clevelandclinic.org>

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**ND 254 P DIET IN DISEASE
PRACTICALS**

4 hrs/week

Objectives

- **To familiarize the students with newer concepts in dietary management of various disorders and diseases.**
1. Plan a day's diet and Calculate Nutritive value & cost of the menu planned for cirrhosis
 2. Preparation of the planned diet for cirrhosis
 3. Plan a day's diet, Calculate Nutritive value & cost of the menu planned for Gallstones.
 4. Preparation of the planned diet for Gall stones
 5. Plan a day's diet, Calculate Nutritive value & cost of the menu planned for pancreatitis
 6. Preparation of the planned diet for pancreatitis
 7. Plan a day's diet, Calculate Nutritive value & cost of the menu planned for nephritis/ nephrosis
 8. Preparation of the planned diet for nephritis/ nephrosis
 9. Plan a day's diet , Calculate Nutritive value & cost of the menu planned for ARF/CRF
 10. Preparation of the planned diet for ARF/CRF
 11. Plan a day's diet, Calculate Nutritive value & cost of the menu planned for cancer
 12. Preparation of the planned diet for cancer
 13. Plan a day's diet , Calculate Nutritive value & cost of the menu planned for diabetes mellitus
 14. Preparation of the planned diet for diabetes mellitus
 15. Plan a day's diet, Calculate Nutritive value & cost of the menu planned for Atherosclerosis
 16. Preparation of the planned diet for Atherosclerosis

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SEMESTER III
ND 301 T COMMUNITY NUTRITION (CORE)
(5 Credits: Theory Credits=3 + Practical Credits= 2)

3hrs/week

Objectives:

- To learn the techniques to assess the nutritional status.
- To understand the causes / determinants and consequences of nutritional problems in community and also to familiarize students with various approaches to nutrition and health interventions, programmes and policies.
- To understand the emergency situations in natural and manmade disasters

UNIT I: ASSESSMENT OF NUTRITIONAL STATUS (15 h)

- Direct methods: Anthropometry, Biochemical, Clinical assessment, Diet surveys
- Indirect assessment- Vital statistics

Anthropometry

- Weight, height, mid upper arm circumference, head and chest circumference
Skin fold thickness, BMI – uses and limitations
- Weight / Height, Weight / Age, Height / Age – ICMR, NCHS standards, Gomez and Waterloo's classification, WHO standard
- Interpretation and Application of Anthropometry-Z scores

Biochemical methods

- Introduction, Uses and Limitations
- Biochemical tests applicable to nutritional survey
- Biochemical tests for Nutritional deficiencies-PEM, Vitamin A, Anaemia, Iodine Status, Vitamin D, Riboflavin, Niacin, Folic Acid, Cyanocobalamine

Clinical assessment

- Introduction, Uses and Limitations
- WHO classification of clinical assessment
- Nutritional deficiency disorders and their signs and symptoms – Kwashiorkor, Marasmus, Vitamin A, Iron deficiency anaemia, Iodine, Niacin, Riboflavin, Vitamin C, Vitamin D and Essential fatty acids

Diet Surveys

- Introduction, Uses and Limitations
- Individual
- Institutional and National

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Vital statistics:

- Definition, sources, advantages, limitations
- Infant Mortality and morbidity Rate-Causes and formula
- Maternal Mortality Rate- causes and formula

UNIT II: NUTRITION EDUCATION AND NUTRITIONAL PROBLEMS AND AGENCIES COMBATING MALNUTRITION (15 h)

Tools and techniques of Nutrition and Health education

- Importance of Nutrition and Health Education Audio aids, Visual aids & Audiovisual aids, advantages and disadvantages
- Types of approaches: personal, group and mass
- advantages and disadvantages

Major nutritional problems in India

- Magnitude of malnutrition in India
- Protein Energy Malnutrition, Anaemia
- Iodine and Vitamin A Deficiency Disorder

Measures to combat Malnutrition

- ICDS, Mid-day meal program
- IDDCP, Vitamin A prophylaxis program
- Anaemia Prophylaxis Programs

National organizations in combating malnutrition

- Objectives and functions of ICMR,
- Objectives and functions NIN
- Objectives and functions CFTRI

International organizations in combating malnutrition

- Objectives and functions CARE, UNICEF
- Objectives and functions Objectives and functions WHO
- Food based interventions including food fortification, dietary diversification, supplementary feeding, bio technological approaches

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UNIT III: OCCUPATIONAL HAZARDS AND NUTRITION IN EMERGENCIES AND DISASTERS(15 h)

Occupational hazards:

- Physical: Heat and cold, light, noise, vibration, UV Radiation, Ionizing radiation
- Chemical : local action, inhalation, ingestion
- Biological , mechanical and psychosocial

Measures to prevent occupational Hazards

- Medical
- Engineering
- Legislative

Emergencies and Disasters

- Definition, Classification- Natural and manmade- famine, drought, floods, earth quake cyclone, war, civil and political emergencies; factors giving rise to emergency situations in disasters
- Major Nutritional deficiency diseases/problems in emergencies and disasters -PEM, Specific micronutrient deficiencies - iron, iodine, Vitamin A
- Control (Prevention and treatment) of communicable diseases/ Infections during emergencies and disasters-Viral hepatitis, malaria, acute respiratory infections, measles,

Nutritional relief during Emergencies and Disasters

- Assessment of food needs in emergency situations
- Food distribution strategy- identifying and reaching the vulnerable group- Targeting food Aid
 - a) Mass – Dry ration and cooked meals
 - b) supplementary feeding– total, therapeutic, blanket
- Evaluation of feeding programs and household food security and nutrition in emergencies and Disasters

Emergency preparedness and response programs

- Community and National Preparedness, coordination, operations
- Disaster cycle
- Administration of water, food and basic sanitation - distribution centers and camps

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ND 351 P COMMUNITY NUTRITION PRACTICALS (30 hrs)

4 hrs/week

Objectives:

- To prepare the students to apply the nutritional assessment methods in community.
 - To develop teaching aids for Nutrition and Health Education
 - To give an insight into the planning of few nutrient rich recipes for vulnerable segments of the community
 - To create an awareness regarding various programmes
- I. Assessment of nutritional status using
1. Anthropometry- weight, height, BMI in young adults
 2. Anthropometry- weight, height, MUAC in children
 3. Clinical assessment of children using standard format/ Table given by WHO
 4. Assessment of Body composition using Bio Impedance analyser
 5. Diet survey- Food frequency questionnaire
 6. Diet survey - 24 hrs dietary recall
- II. Development of visual Teaching aid for Nutrition and Health Education
- III. Development of Audio visual Teaching aid for Nutrition and Health Education
- IV. Plan a recipe and calculate the nutritive value and cost of
9. Protein and energy rich recipe
 10. Calcium rich recipe
 11. Iron rich recipe
 12. Vitamin A/ Beta carotene recipe
- V. A Visit to -
13. Anganwadi centre to observe the functioning of ICDS and report
 14. Government school serving midday meal and report
 15. A report on recent statistics on IMR / MMR from National authenticated sources

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BOOKS RECOMMENDED/ SUGGESTED REFERENCES FOR ADDITIONAL READING

- Gibson R. s. Principles of Nutritional Assessment-3rd Edition, Oxford University Press, 2021
- Goyet, Fish. V. Seaman, J. and Geijer, U. (1978) The Management of Nutritional emergencies in Large Populations, World Health Organization, Geneva
- Goyet, Fish.V.Seaman,J and Geijer.U.(1978) The management of Nutrition Emergencies in Large Population, WHO, Geneva.
- Mahtab S Bamji, N Prahlad Rao, Vinodini Reddy, Text Book of Human Nutrition-4th edition, Oxford & IBH Publishing Co. Pvt . Ltd, 2019.
- Michale J. Gibney, Barrie M. Margetts, John M. Kearney and Lenore Arab (Eds.): Public Health Nutrition-Nutrition Society Textbook Series, 1st edition Blackwell Publishing, 2004.
- Owen. A. Y. and Frankle, R. T. (1986) Nutrition in the Community. The Art of delivering Services, 2nded. Times Mirror/ Mosby. □
- Part K, Textbook of Preventive and Social Medicine-26th edition, 2021.
- Sri Lakshmi B, Nutritional Science-7th edition, New Age International Publishers, 2021.
- Suryatapa Das, Text Book of Community Nutrition- 5th edition, Academic Publishers,2022
- The Management of Nutrition in Major emergencies, WHO in collaboration with UNHCR, International Federation of Red Cross and Red Crescent societies and WFP.
- WFP/ UNHCR (1998) WEP/ UNHCR Guidelines for Selective Feeding Programmes in Emergency Situations. Rome and Geneva: WEP & UNHCR.
- WHO-2000, The management of Nutrition in major emergencies, Geneva.

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ND 302 T FOOD PRODUCT DEVELOPMENT AND PACKAGING (CORE)

(5 Credits: Theory credits=3 + Practical Credits= 2)

3 hrs/week

Objectives:

- To familiarize students with the basic concepts in food product development and the relevance of entrepreneurship and to develop
- To provide in depth knowledge on sensory evaluation of food products
- To get students acquainted with different packaging materials

UNIT I: FOOD PRODUCT DEVELOPMENT AND ENTREPRENEURSHIP

New Product Development

- Definition and Types of food product development
- Line extension- additions, improvements, repositioning and cost reductions; me too (a copy of existing successful product);New to the world
- Reasons for food product development: technological, health, environmental concerns, convenience and cost, company profit, specialized application

Steps in food product development

- Steps in food product development: Idea generation, Screening, feasibility, regulation
- technology, formulation, ingredients, processing,
- facilities, Packaging, distribution, shelf life, safety and finances

Intellectual property rights

- Definition, legislations covering IPR in India
- IPR- Trademark, copyrights, trade secrets and patent
- Conditions to be satisfied by an invention to be patentable, Inventions which are not patentable in India

Patent application

- Filing a patent application,
- Documents to be submitted by a patentee,
- Criteria for naming inventors

Entrepreneurship

- Definition , Types, Classification,
- Qualities of an entrepreneur
- Challenges of women entrepreneur, Institutional support to Entrepreneur- SIDCO, SSIB, SIDO, IDBI

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- **Business requirements for food products:**
 - What an entrepreneur needs to consider
 - Government requirements
 - Marketing
 - Developing the Business Plan
 - Determine the Resources needed
 - Managing the business

UNIT II EVALUATION OF FOOD QUALITY

Sensory Techniques

- Objectives of sensory evaluation
- Development of sensory testing
- Human subjects as instruments: Definition of the problem, Test design, Instrumentation, Interpretation of results., The chain of sensory perception
- Conducting a sensory study: Determine the project objective, determine the test objective, screen the sample, design the test, conduct the test, Analyze the data, interpret and report results

Sensory Evaluation of foods

- Definition, Sensory characteristics of food: Appearance (colour), Flavor, texture, psychological factors
- sensory Tests: Importance of testing food quality, trained panel members, testing laboratory preparation of samples
- Techniques of smelling , tasting and testing time, design of experiment, Score card

Subjective evaluation techniques/ Types of tests

- Difference tests: paired comparison test, duo-trio test, triangle test
- Rating tests – Ranking, Single sample, Two sample and Multiple sample difference tests, Hedonic scaling, Numerical scoring, Composite scoring
- Sensitivity tests : threshold test , dilution test

Objective tests to assess sensory properties of foods

- Physical methods: Test volume, moisture, texture Viscosity , appearance
- Chemical methods : Nutrient analysis, sugar concentration, saltiness and flavour, PH
- Proximate composition and analysis of food constituents

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Measurement of specific attributes in foods

- Measurement of colour: Colour dictionaries, colorimeter, coloured chips, spectrophotometer
- Measurement of Texture ; Liquid foods
- Measurement of texture for solid foods

Descriptive tests

UNIT III FOOD PRODUCT LABELING AND FOOD PACKAGING

Food product labelling

- Product labelling: Definition, Characteristics of effective labels , purpose,
- Types- Brand label, grade label, descriptive label, informative label,
- Functions of labelling- Identification, grading, consumer protection, compliance with law, promotion, tracking, authenticity

Nutrition Labelling

- Nutrition labelling : Definition, Types/categories of nutrition labelling: nutrition claims, nutrient content claims, comparative claim, nutrient function claim ; Guiding principles of nutrition labelling : Codex Guidelines
- Labelling provisions in existing food laws in FSSAI 2020; Marketing the animal origin foods, labelling nutraceuticals
- Reading Nutrition Labels: serving sizes, calories, % daily value, What to avoid, Nutrition facts, Sugar, Daily values

Food packaging

- Food packaging: Importance, Definition, Principles of packaging
- **Food packaging designing**
- **Types of food packaging : primary, secondary and tertiary packaging.**
- Types of packaging material: Metal, glass
- Paper, plastic, edible packaging material, miscellaneous packaging materials

Packages with special features

- Boil-in-bag package, plastic-shrink package
- Cryovac film, microwave oven packaging, high barrier plastic bottles
- Aseptic packaging in composite cartons, military food packaging, ovenable paper boards, distribution packaging

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Packaging Laws

- Packaging Laws and Regulations as per SWMA
- Packaging Laws and Regulations as given under FSSAI
- Tests for identification of packaging material

Food authenticity

BOOKS SUGGESTED/ SUGGESTED REFERENCES FOR ADDITIONAL READING

- Gail Vance Civile , B. Thomas Carr, Sensory Evaluation Techniques, 5th edition, CRC Press,2016.
- Khanaka, S.S., IPR, Patent & Entrepreneurship, Entrepreneurial Development, S. Chand and Company Ltd, New Delhi, 2006.
- Morten Meilgaard, Gail Vance Civile and Thomas Carr., Sensory Evaluation Techniques. rd edition,CRC Press,1999., Pg no-1-4
- Parulekar A, Saritha D'Souza Indian Patents Law – Legal and Business Implications, Laxmi Publications ,2006
- Ranganna S,Handbook of Analysis of Quality Control for Fruit and Vegetable Products, 2nd edition., McGraw Hill Education,2017
- Roday S, Food Science and Nutrition, 2nd edition, Oxford University Press, 2013. Pg 194-209
- Singh S.S. , The Law of Intellectual Property Rights, University book house Pvt Ltd ,2019
- Sri lakshmi, B, Food Science, 7th edition, New Science Publications, 2018 pg 309-323- evaluation of food quality; labelling provision – 426- 427
- Sudhir Gupta (2007) Handbook of Packaging Technology, Engineers India Research Institute, New Delhi
- Suja, R. Nair(2004) Consumer Behaviour and Marketing Research, 1st Edition, HimalayaPublishers
- Suryaprakash Rao P.V., Orientation for Food Professionals a handbook, 1st edition, Panganamamula foundation, 2005.

https://www.fssai.gov.in/upload/uploadfiles/files/Compendium_Food_Infant_04_10_2022.pdf

- https://www.fssai.gov.in/upload/uploadfiles/files/Comp_Labelling.pdf
- KumarAnil_FSSAI_Food_Labelling_Regulations.pptx
- [https:// egyankosh.ac.in pg no35-37](https://egyankosh.ac.in/pg_no35-37)
- https://www.fssai.gov.in/upload/uploadfiles/files/Compendium_Packaging_Regulations_09_09_2022.pdf
- <https://economictimes.indiatimes.com/news/how-to/challenges-faced-by-women-entrepreneurs-and-how-they-can-seek-guidance/articleshow/95608282.cms?from=mdr>
- <https://www.entrepreneur.com/en-in/leadership/7-challenges-that-women-entrepreneurs-face-in-2021/367121>
- [https:// noteslearning.com](https://noteslearning.com)
- Reading Nutrition Labels;Slideserve.com

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ND 352 P FOOD PRODUCT DEVELOPMENT AND PACKAGING PRACTICALS (30 Hrs)

(4 Hrs / week)

I. Sensory Evaluation Techniques – Subjective

1. Threshold test for salt.
2. Threshold test for sugars.
3. Triangle test.
4. Paired Comparison test.
5. Duo – trio test
6. Hedonic Rating test.

II. Food Product Development

7. Standardization of Basic Recipe and
8. Formulation of value added Variation I and II
9. Calculation of Nutritive Value and Cost of the recipes.
10. Sensory Evaluation of Basic recipe and variations, Analysis of results of sensory evaluation.
11. A report on financing banks and Institutions for Women Entrepreneurs
12. A report on successful women entrepreneurs in food industry
13. A report on Patented Food Products in India
14. Market survey on Food Products – collection of information on food products (different brands)
15. Market survey on Packaging Materials

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**ND 303 (i) T MATERNAL AND CHILD NUTRITION[Elective-I (i)]
(5 Credits: Theory credits=3 + Practical Credits=2)**

3 hrs/week

Objectives:

- To enable the students to understand the effect of maternal nutrition on foetus and Pregnancy outcome and complications of pregnancy.
- To know the importance of nutrition during the first 1000 days of intra uterine and post natal life.
- To get acquainted with the impact of over and under nutrition on the diseases, disorders and on the overall health of children
- To get an insight knowledge on inborn errors of metabolism and nutrition in special conditions of the child

**UNIT I: EFFECT OF MATERNAL NUTRITION ON FETUS AND PREGNANCY
OUTCOME**

Maternal lifestyle and Prenatal development

- Impact of lifestyle on nutritional status- maternal smoking, alcohol consumption Radiation, Mercury
- Prenatal Environmental influence-Teratogens
- Nutritional requirement in first 1000 days (intrauterine and post natal) of mother and child

Nutrition in Pregnancy

- Importance of nutrition prior to and during pregnancy.
- Role of Hormones in pregnancy (Progesterone , Estrogen, Human Chorionic Gonadotrophin Hormone, Relaxin, Thyroxine)
- Role of placenta on foetal growth and development

Gestational Diabetes

- Gestational Diabetes – causes
- Management of GDM
- Impact on the foetus and the neonate

Other complications

- Toxemia/ HTN - impact on the foetus and the neonate
- Pregnancy & AIDS
- Foetal alcohol syndrome

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Pregnancy outcome

- Effect of under nutrition on pregnancy outcome on Maternal and Child Health – Short term consequences
- Long term consequences
- Consequences of maternal malnutrition on physical, psychological and cognitive development of child

UNIT II: IMPACT OF OVER AND UNDER NUTRITION ON THE DISEASES, DISORDERS AND OVERALL HEALTH OF THE CHILD

Nutritional Support of a sick child

- Determination of nutritional requirements in hospitalized children – calories, proteins, fats, carbohydrates, vitamins, minerals, water & electrolytes
- Nutritional support in critically ill children – metabolic changes during critical illness.
- TPN, EN and dietary management.

Obesity in children

- Classification : Exogenous and endogenous , Causes
- Methods used to measure of body fat ,Role of hormones in obesity : Leptin, adeno pectin
- Consequences (comorbidities) : metabolic, cardiovascular, hepatic and management

Under nutrition in children

- PEM and SAM
- Causes, treatment, and rehabilitation
- RTE therapeutic foods

GI disorders

- Diarrhea- causes, consequences, management
- Constipation - causes, consequences, management
- Hepatitis, Indian Childhood cirrhosis

IBS, Crohn's, Ulcerative colitis

- Irritable Bowel Syndrome – causes, symptoms, dietary management.
- Crohn's disease – causes, symptoms, dietary management.
- Ulcerative colitis – causes, symptoms, dietary management.

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UNIT III: DIETARY MANAGEMENT DURING RENAL ABNORMALITIES, CARBOHYDRATE IMBALANCE AND OTHER SPECIAL CONDITIONS

Renal diseases

- Glomerulonephritis – causes, symptoms and dietary management
- Nephrotic syndrome – causes, symptoms and dietary management
- CKD – causes, symptoms and dietary management

Diabetes

- Causes, criteria for diagnosis
- CHO counting and Insulin regimen
- Complications of Diabetes – hypoglycemia, diabetic ketoacidosis, smogy & dawn effect.

AIDS

- Causes, Diagnosis, Effect of HIV and malnutrition , immune system
- Role of nutrition and nutritional requirements for HIV infected child.
- Effect of Anti-Retroviral Therapy (ART), feeding of HIV exposed child, breast feeding, replacement feeding.

Dietary management in special conditions

- Allergy - Pathogenesis and types of allergic reactions – Type I hyper sensitivity, Type II hyper sensitivity, Type III immune complex reaction, Cell mediated reaction.
- Common manifestations – skin, respiratory tract, GI
- Common food allergens – peanut, soy, milk, fish, shellfish

Other conditions

- Inborn errors of carbohydrate and protein metabolism – glycogen storage disease, PKU, MSUD,
- Ketogenic diet in epilepsy
- Diet in nutritional challenges –Autism spectrum disorders, Attention deficit hyperactive disorder, learning disorders

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ND 353 (i) P MATERNAL AND CHILD NUTRITION PRACTICALS (15HRS)

2hrs/week

Objectives:

- To acquaint the students about various schemes run by state and central government for mother and children
 - To familiarize students with the newer concepts in dietary management of various conditions during childhood
1. Market survey of paediatric Parenteral and Enteral formula feeds
 2. Report on the nutrition kits supplied by state government (Mother and Child)
 3. Report on the nutrition kits supplied by central government (Mother and Child)
 4. Planning of RUT foods for SAM and PEM child.
 5. Plan a diet for a child suffering from diarrhoea
 6. Plan a diet for a child suffering from constipation
 7. Plan a diet for a child suffering from Hepatitis
 8. Plan a diet for a child suffering from Glomerulonephritis

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- Anjana Agarwal, Shobha Udipi, Text book of Human Nutrition, 1st edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2014
- Elizabeth K.E., Fundamentals of Pediatrics, 2nd Edition, Paras Publishers, Hyderabad, 2002
- Indian Dietetic Association - Clinical Dietetics Manual 2011.
- Gunasekaran Dhandapany, Growth and Nutrition in Children, 2021, PARAS Medical Books
- Kiran Kumar et al., effect of maternal undernutrition on fetal outcome., Int.Jr of Health Sci and Res., Vol 8(5) May 2018., 122-128.
- Laura E. Berk., Child Development .,7th edition, dorliong Kindersley (India) Pvt. Ltd, 2007 Pg-91-98.
- Madhu Sharma, Pediatric Nutrition in Health and Disease, 1st edition, Jaypee Brothers Medical Publishers (P) Ltd., New Delhi, 2013
- Meenakshi N. Mehta, Nitin J. Mehta, Nutrition and Diet for Children Simplified, 1st edition, Jaypee Brothers Medical Publishers (P) Ltd., New Delhi, 2014
- Suraj Gupta (Ed), Recent advances in Pediatrics – Nutrition, Growth and Development, Special Volume 20, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2010.
- [https:// www. ncbi.nlm.nih.gov>pmc](https://www.ncbi.nlm.nih.gov/pmc)
- [https://www.mayoclinic.org >pregnancy>art-20046098](https://www.mayoclinic.org/pregnancy/art-20046098)
Children's Hospital of Philadelphia
- [https://www.chop.edu > conditions-diseases > gestational-...](https://www.chop.edu/conditions-diseases/gestational-diabetes)
<https://www.cdc.gov/diabetes/basics/gestational.html#:~:text=If%20you%20have%20Ogestational%20diabetes,Having%20low%20blood%20sugar>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4458502/#:~:text=SHORT%20TERM%20OUTCOMES-,Macrosomia,more%2C%20depending%20on%20the%20authors.>
- [https://www.unicef.org > nutrition > maternal](https://www.unicef.org/nutrition/maternal)
- https://www.researchgate.net/publication/304068380_Long-Term_Effects_of_Maternal_Nutrition_and_Childhood_Growth_on_Later_Health
- [https://www.un.org > pdf > Tuesday > Session4PDF](https://www.un.org/pdf/Tuesday/Session4PDF)
- [The Lancet's Series on Maternal and Child Undernutrition ... europa.eu](http://TheLancet.com/series/maternal-child-undernutrition)
- [https://europa.eu > file > downloadPDF](https://europa.eu/file/downloadPDF)
- [International Atomic Energy Agency https://humanhealth.iaea.org > 4.1.Norris.pdf](https://humanhealth.iaea.org/4.1.Norris.pdf)

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**ND 303(ii) T GERIATRIC NUTRITION [ELECTIVE –I (ii)]
(5 Credits: Theory credits=3 + Practical Credits= 2)**

Objectives:

3 hrs/week

- To make the students aware of the issues (process and theories) faced by the elderly in India.
- To know the challenges and health concerns in the study of ageing
- To impart necessary skills for making effective interventions for care of elderly

UNIT I: AGEING AND DIETARY CONSIDERATIONS

Introduction to ageing

- Introduction to geriatric care-
- Concept of gerontology
- Ageing - Biology of ageing

Theories on Ageing

- Theories of ageing – disengagement theory, activity theory,
- Theories of Ageing -selective theory and continuity
- Microscopic theories, changes in ageing scenario

Interaction between different processes of ageing

- Interaction between biological and psychological processes in ageing
- Interaction between physiological and social processes in ageing
- Changes in organ function with ageing

Drug nutrient interactions, nutritional requirements

- Drug, food, and nutrient reaction
- Dietetics of Geriatric care-Nutritional requirement
- Food requirement, dietary modification

Implication of ageing population for rehabilitation

- Demography
- Morbidity
- Mortality

UNIT II: CHALLENGES OF AGEING

Problems of ageing

- Issues and challenges of ageing – economic dependence/ poverty, elderly in rural/ urban area.
- Abuse, neglect, abandonment, physical, health and sensory problems.
- Crime against elderly, retirement and related issues.

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Health concerns of ageing

- Ageing sensory system and issues with falling
- Common complaints during ageing
- Geriatric guidance and counselling, Depression in old age.

Nutrition and degenerative problems of ageing

- Nutritional related problems of old age-osteoporosis ,
- Obesity, Anaemia, Malnutrition and constipation
- Degenerative disorders in elderly-Dementia, Alzheimer, Parkinson's disease

Infection and immunity

- Infection and Immunity
- Infection of Respiratory system
- Coronary heart disease

Disorders of digestive system

- Disorders of upper and lower GIT
- Disorders of Liver
- Disorders of Biliary system and pancreas

UNIT III: PHYSICAL, SOCIAL, FINANCIAL CONCERNS AND WELFARE SCHEMES OF GERIATRIC

Physical activity in elderly

- Exercise- yoga, meditation
- Behaviour Therapy: Rational, Emotional Behaviour Therapy (REBT)
- Horticultural therapy, Music therapy, Art therapy, Bibliotherapy

Social and financial concerns of elderly

- Types of family – Joint family System, Role of Elders and Younger generation.
- Isolation, Loneliness and Dependency – Dependency Ratio – Generational equality.
- Financial aspects – Sources of income, Old age pension.

Services for geriatrics/ Senior citizens

- Geriatric service for the elderly in western countries and India.
- Structure of geriatric service, family as basic unit- models of geriatric service.
- Day hospital, day care centre, long stay care institution.

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Health care of elderly

- Home for the aged, function of the day hospital staff and patients of day hospital.
- Ethical issues in geriatric medicine- age limits on health care.
- Life sustaining measures.

Welfare schemes and role of NGOs of elderly

- Central government welfare schemes of elderly
- State government welfare schemes of elderly
- Role of NGOs in Socio – economic status of the elderly

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ND 353(ii) P –GERIATRIC NUTRITION PRACTICALS [ELECTIVE –I (ii)] (15Hrs)

Objectives:

2hrs/wk

- To acquaint the students about various schemes run by state and central government for elderly
- To get the knowledge on planning of diets with nutrients of importance for elderly

Practicals

1. Report on the visit to old age home
2. Calculation of nutritive value of the cyclic menu at old age home
3. Report on the welfare schemes by state government for the elderly
4. Report on the welfare schemes by central government for the elderly
5. Planning of calcium rich soft diet
6. Planning of iron rich soft diet
7. Planning of fibre rich soft diet
8. Planning of full fluid soft diet

BOOKS RECOMMENDED/ SUGGESTED REFERENCES FOR ADDITIONAL READING

- Bali ,P.A care of the Elderly in India. Changing configurations, Indian Institute of Advanced study, Shimla, (2001).
- Bhai, L.T, Ageing on Indian perspective, Decent Books Pubs, New Delhi, (2002).
- Jacobs, M ,Psychodynamic Counselling in Action (4th edition) Sage publications, New Delhi, (2010).
- Maerns and Thorne Person-Centered Counselling in Action (3rd edition), Sage publications, New Delhi, (2007)
- Rao, S.N.(1991) Counselling and Guidance, Tata McGraw Hill Pub, New Delhi
- Singh. R. Educational and Vocational Guidance, Common Wealth pub, New Delhi, (1994).
- Sri Lakshmi B, Dietetics-8th edition, New Age International Publishers, 2019.
- Trower, P, Jones, J, Dryden, W and Casey, A, Cognitive Behavioural Counselling in Action, Sage pub, (2nd edition) New Delhi, (2011).
- www.Gerontologyindia.com

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ND 404 (i) T FOOD SERVICE MANAGEMENT (ELECTIVE III (i))

(5 Credits: Theory credits=3 + Practical Credits= 2)

3 hrs/week

Unit 1: MANAGEMENT OF FOOD SERVICE ESTABLISHMENTS

Catering Management

- Principles Catering Management
- Functions of management – Managing, planning, organising
- Functions of management (contd) – directing, coordinating, controlling and evaluating

Tools of management:

- Introduction
- Tangible
- Intangible

Management of resources

- Natural environment,
- Work environment
- Importance

Types of food service establishment:

- Commercial,
- Non-Commercial,
- Temporary food service establishment

Other food service establishment:

- Street–mobile food unit
- Vending machine, food court,
- High risk food (Street food)

UNIT II ORGANISATION OF SPACE AND EQUIPMENT IN FOOD SERVICE ESTABLISHMENT

Kitchen Space

- Size and types, Developing kitchen plan,
- Work simplification
- Features to be considered in kitchen designing

Storage Space

- Types of storage
- Factors to be considered while planning storage spaces
- General guidelines for storing perishable and non perishable foods

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Service Area

- Location
- Structural designing
- Planning storage spaces

Equipment

- Classification of equipment
- Selection of equipment, Designing, installation and operation
- Purchasing equipment and Care and maintenance of equipment

Food purchasing

- Importance
- Types—open market, formal, negotiated and wholesale
- Receiving and Food storage—Delivery methods

UNIT III RECIPE CONSTRUCTION, MENU PLANNING AND FINANCIAL MANAGEMENT

Recipe Construction

- Construction and selection of recipes for quantity cooking
- Standardization of recipes, Recipe conversion factor
- Calculation of food costs,

Menu Planning

- Importance / Functions of menu planning
- Types of menus – A la carte, table d'hote and combination
- Food service: Style of service and Waiter service, Self service and vending

Construction of menu

- Menu format ,balancing, and design
- Menu Pricing
- Menu display

Outdoor catering

- Problems faced in outdoor catering
- Transport catering- airline, sea and railways
- Hospital food service and take away meals, home deliveries

Financial management:

- Component of cost, Behaviour of cost
- Concept of contribution and breakeven
- Cost control: Methods of controlling food cost and labour cost

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ND 354 (i) P FOOD SERVICE MANAGEMENT PRACTICALS (ELECTIVE III (i))

15hrs/wk

2hrs/week

1. Menu planning for quantity food production:
 - a. Packed meals in School canteens, Airline catering.
 - b. Restaurant
2. Principles of Menu planning and planning of meals for
 - a. Banquet s- 7 course meal
 - b. Outdoor Catering events like Weddings, Birthday parties etc.
3. Standardization of any 3 Recipes, Determination of standard serving size. Calculation of Food cost.
4. Calculate the Recipe conversion factor and Yield for the above standardized recipes. Calculation of nutritive value.
5. Preparation and Sale of a special meal for 50 people using the principles of yield and recipe conversion factor.
6. Evaluation of food service Units - Conventional, Commissary
7. A report on Visit to a food service unit.
8. Develop a HACCP Plan for an Indian Recipe. Identify Critical control points and corrective measures.

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BOOKS SUGGESTED/ SUGGESTED REFERENCES FOR ADDITIONAL READING

- Andrews S, Food and Beverage Service: Training Manual, 2nd edition, New Delhi, Tata McGraw Hill,2017.
- Bessie Brooks West and Levelle Wood MS, Food Service in Institutions ,6th edition, John MacMillan Publishing Co,1988.
- Fuller J and Thomas S, Modern Restaurant Service, 4th edition, Copp Clark Pitman ,1983
- Harris N, Meal management ,6th edition, New York,Mac Millan,1984.
- Kotas R, Accounting in hotel and catering industry, 4th edition Cengage Learning EMEA,1981.
- Kotler P and Keller K, Marketing Management ,16th edition, Pearson Education,2022.
- Roday S, Food Hygiene and Sanitation –Tata McGraw Hill Publishing Co. Ltd., 3rd reprint
- Sethi M and Mahan S, Catering Management, An Integrated Approach. Revised 2nd edition, New Age International (P) Ltd 2007,
- Sethi M, Institutional Food Management , Revised 2nd edition, New Age International (P) Ltd 2016,
- Walley B H, Production management handbook. 2nd editionMetropolitan Book Co. (P) Ltd, 1995.

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ND 304 (ii) T INSTITUTIONAL FOOD MANAGEMENT (ELECTIVE III (ii))

(4 Credits: Theory credits=3 + Practical Credits= 1)

3 hrs/week

UNIT I MENU PLANNING AND FOOD SERVICE

Menu Planning

- Factors affecting menu planning
- Advantages of menu planning
- Types of menus

Construction of menu

- Menu format ,balancing, and design
- Menu Pricing
- Menu display

Delivery and Service of Foods:

- Food service systems - Conventional, Commissary, Ready prepared, Assembly service
- Types of service - Self-service, tray service, portable meals
- Waiter-waitress service

Types of food services

- Campus food service, Food service in commercial restaurants,
- Hotel food service, Hospital food service,
- Industrial food service, School food service

Clearing and winding up after service

- Clearing / Bussing the table
- Safety and hygiene precautions
- Customer relations

UNIT II FOOD PURCHASING, SELECTION AND STORAGE

Food Purchase:

- Food purchasing procedure
- Purchasing methods
- Selection of foods

Equipment

- Classification of equipment
- Selection of equipment, Designing, installation and operation
- Purchasing equipment and Care and maintenance of equipment

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Food Storage:

- General Guidelines for Storage of food
- Dry Storage, Refrigerated Storage, Freezer Storage
- Storage of specific foods

Sanitary procedures- Procedures to minimise microbial load

- Preparing food
- Cooking food
- Hot holding of food

Pest control

- Spoilage of food by rodents, cockroaches, flies, ants
- Importance of pest control
- Waste Management – catering waste

UNIT III QUANTITY FOOD PRODUCTION

Recipe Construction

- Construction and selection of recipes for quantity cooking
- Standardization of recipes, Recipe conversion factor
- Storage and use of leftover foods

Quality control of food production, hygiene and safety procedures -

- for prevention of contamination of raw and cooked foods,
- for different areas of food service,
- for personnel working in food service

Costing, portion control, kitchen management

- Calculation of food costs,
- Portion control, loss and profit made
- Kitchen Management - Cost control, optimal utilization of space, material, manpower

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Financial management

- Financial Management
- Component of cost, Behavior of cost
- Concept of contribution and breakeven

Cost control

- Importance of cost control, Factors affecting losses, Methods of controlling food cost and labour cost
- Cost concept Food cost control
- Book keeping, Books of account

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ND 354 (ii) P - INSTITUTIONAL FOOD MANAGEMENT PRACTICALS [Elective III (ii)]

(15hrs)

Objectives:

2hrs/week

➤ Gain knowledge on quantity food production

1. Principles of Menu planning and planning of meals for
 - o Banquet s- 7 course meal
 - o Outdoor Catering events like Weddings, Birthday parties etc.
2. Standardization of any 3 Recipes
3. Determination of standard serving size.
4. Calculation of Food cost.
5. Calculate the Recipe conversion factor and Yield for the above standardized recipes. Calculation of nutritive value.
6. Preparation of inventory list to check personal hygiene of food handlers
7. Develop a HACCP Plan for an Indian Recipe. Identify Critical control points and corrective measures.
8. Visit to a food service unit

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- Andrews S, Food and Beverage Service: Training Manual, 2nd edition, New Delhi, Tata McGraw Hill, 2017.
- Bessie Brooks West and Levelle Wood MS, Food Service in Institutions ,6th edition, John MacMillan Publishing Co, 1988.
- Fuller J and Thomas S, Modern Restaurant Service, 4th edition, Copp Clark Pitman , 1983
- Harris N, Meal management ,6th edition, New York, Mac Millan, 1984.
- Kotas R, Accounting in hotel and catering industry, 4th edition Cengage Learning EMEA, 1981.
- Kotler P and Keller K, Marketing Management , 16th edition, Pearson Education, 2022.
- Roday S, Food Hygiene and Sanitation –Tata McGraw Hill Publishing Co. Ltd., 3rd reprint
- Sethi M and Mahan S, Catering Management, An Integrated Approach. Revised 2nd edition, New Age International (P) Ltd 2007,
- Sethi M, Institutional Food Management , Revised 2nd edition, New Age International (P) Ltd 2016,
- Walley B H, Production management handbook. 2nd edition Metropolitan Book Co. (P) Ltd, 1995.

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ND 401 T ADVANCED NUTRITION (CORE)

(5 Credits: Theory credits=3 + Practical Credits= 2)

3 hrs / week

Objectives:

- To acquaint the students with current trends in Nutrition
- To familiarize students with the basic concepts in Immunology and Nutrition associated with immunity
- To provide in depth knowledge on food and Drug interaction, Nutraceuticals, functional foods and antioxidants

UNIT I: EMERGING FOOD TRENDS

Biotechnology in Food

- Genetically Modified foods – techniques, examples
- Bio Fortification- pathway, methods- Agronomic approach, conventional breeding and molecular breeding, genetic modification
- Novel proteins- mycoprotein, leaf protein extracts ,Single cell protein, insects

Processed and Convenience Foods:

- Extruded Foods- Types, Advantages and Disadvantages, Textured vegetable proteins (meat substitutes/ analogs)
- Space foods- types, challenges
- Organic foods – organic farming- advantages and limitations, organic manures and biopesticides , organic livestock and polutry

Functional foods

- Definition, History, Classification of Functional Foods: Probiotics, Prebiotics and Synbiotics
- Perspective for Food Applications: Non-Digestible Carbohydrates / Oligosaccharides : Dietary Fibre, Resistant starch
- Perspective for Food Applications : Omega -3 Fatty acids, Conjugated Linoleic acid

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Prebiotics and probiotics

- Definition, Sources
- Effect of Prebiotics on Human Health, Effect of Probiotics upon Incidence and Severity of Diarrhoea, Possible Effects of Probiotics upon Risk of Developing Bowel Cancer, Probiotics and the Prevention of Childhood Eczema
- Food Applications of Prebiotics, Benefits of Probiotics

Antioxidants

- Formation of free radicals, Reactive oxygen species, Oxidative stress, Antioxidant-definition and mechanism of action
- Classification of antioxidants-Endogenous, Exogenous
- Retinol, Beta Carotene, Ascorbic acid and tocopherol in prevention of cancer, CVD, ageing and Inflammation

UNIT II: NUTRACEUTICALS

Nutraceuticals as Science

- Definition, Historical Perspective of Nutraceuticals
- Classification of Nutraceuticals- food source, mechanism of action, chemical nature
- Scope and Future Prospects

Applied Aspects of the Nutraceutical Science:

- Sources of Nutraceuticals- Terpenoids (Terpenes), Phenolic Constituents:, Alkaloids and other Nitrogen-Containing Metabolites,
- Relation of Nutraceutical Science with Other Sciences: Medicine, Human Physiology, Genetics, Food Technology, Chemistry and Nutrition
- Latest Trends in Nutraceutical Formulations in India- capsules, Advantages of Novel Liquid-Filled Capsules

Nutraceutical Supplements

- Nutraceutical Supplements from Plant Sources
- Nutraceutical Supplements from Animal Source
- Nutraceutical Rich Supplements - Bee Pollen, Caffeine, Green Tea, Grape Tea, Wheat Grass, Lecithin, Mushroom Extract, Chlorophyll, Kelp and Spirulina, Garcinia Cambogia, Aloe Vera and Blue Tea

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Nutraceuticals Foods as Remedy for

- Food as Remedies: Nutraceuticals Bridging the Gap between Food and Drug,
- Nutraceuticals in Treatment for Cognitive Disorders.
- Medicinal Plant Derived Nutraceuticals: Anti Aging, Anti- Inflammatory Compounds

Nutraceuticals Foods as Remedy for

- Arthritis, Bronchitis, Hypoglycemia.
- Circulatory Problems
- Nephrological Disorders, Liver Disorders, Osteoporosis, Psoriasis and Ulcers.

UNIT III: NUTRIGENOMICS, METABOLIC STUDIES, BIOAVAILABILITY OF NUTRIENTS

Nanotechnology

- Definition, scope
- Potential uses of nanotechnology
- Nanoemulsions, nano coatings, nanosensors, microcapsulation

Nutrigenomics

- Principles and Basis of Nutrigenomics
- Tools of Nutrigenomics- Genomics, Proteiomics, metabolomics, Transcriptomics
- Interaction between nutrient and Gene

Role of nutrigenomics on metabolic disorders

- CVD, Lipid metabolism and Hypertension
- Inflammatory disorders, Cancer and Diabetes
- Genetic determinants of Obesity, Potential role of different nutrients and hormones (leptin and Ghrelin) in modulating obesity

Metabolic studies – uses, ethics and methods for evaluating protein quality

- Animal and human metabolic studies-use in assessment of nutrient bioavailability
- Ethics in conducting human and animal metabolic studies
- Methods for evaluating protein quality – Need, Protein Digestibility Corrected Amino Acid Score, Protein Efficiency Ratio, Biological Value, Digestibility coefficient, Net Protein Utilization, Net Protein Ratio

Methods of determining bioavailability of vitamins and minerals:

- Radio-isotopes, Balance studies, Growth and specific tissue response
- Repletion-depletion techniques, Plasma appearance
- Microbial assays, Invitro studies and Factors affecting bioavailability of calcium and iron

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ND 451 P ADVANCED NUTRITION PRACTICALS (30 hrs) 4hrs/week

Objectives:

- To get the knowledge on the development of recipes using the foods developed through novel methods; fortification and extrusion
- To develop the recipes using nutraceuticals, functional and antioxidant foods
- To acquaint the students with practical approach towards Drug and Nutrient interaction

1. Plan and a recipe using fortified foods
2. Prepare a recipe using fortified foods
3. Develop a recipe using Extrusion method
4. Report on market survey on GM foods
5. Food allergies and Hypersensitivity- a survey report
6. Plan a recipe using nutraceuticals
7. Prepare the planned nutraceutical recipe

Report the Collected information on commonly prescribed drugs and their interaction with nutrients-

8. Antibiotics
9. Antipyretics
10. Anti histamines
11. Anti inflammatory; Steroids and NSAID's
12. HCQ's
13. Plan and a recipe using functional foods
14. Prepare a recipe using functional foods
15. Plan and a recipe using antioxidant foods
16. Prepare a recipe using antioxidant foods

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BOOKS SUGGESTED/ SUGGESTED REFERENCES FOR ADDITIONAL READING

- Catharine Ross A , Benjamin Caballero Professor , Robert J. Cousins, Modern Nutrition in Health and Disease, 11th edition, Lippincott Williams and Wilkins; 2013
- Deshpande S.S. Handbook of Food Toxicology, 1st edition, CRC Press, 2002
- Duffus, J.H., and Worth, H.G. J, Fundamental Toxicology, 2nd edition ,The Royal Society of Chemistry, 2006
- Gerald Rimbach, Jürgen Fuchs, Nutrigenomics, 1st edition ,CRC Press, (2005).
- Helferich, W., and Winter, C.K, Food Toxicology, 1st edition CRC Press, 2000
- Joshi, V. K, and Pandey, A Biotechnology: Food Fermentation, Vol 1&2, Education Publishers 2002
- Klaassen, Curtis; Watkins III, John B., Casarett& Doull's, Essentials of Toxicology, 4th Edition, McGraw-Hill Medical, 2021.
- Lynnette R. Ferguson, Nutrigenomics and Nutrigenetics in Functional Foods and Personalized Nutrition, 1st edition, CRC Press, 2013.
- Mahan, LK and Escott Stump. S, Krause's food nutrition and diet therapy, 10th edition, Saunders Ltd, 2000.
- Mary K. Schmidl, Theodore P. Labuza, Essentials of Functional Foods, SPRINGER 2008.
- Maurice E. Shils, James A. Olson, Moshe Shike, Modern Nutrition in Health & Disease, 8th edition, Lea& Febiger, 1993
- Shibamoto, T., and Bjeldanes, L, Introduction to Food Toxicology, 2nd edition, Academic Press, 2012.
- Srilakshmi B, Dietetics, 8th edition New Age International Publishers, New Delhi, 2019.
- Stine, K.E., and Brown, T.M, Principles of Toxicology, 3rd edition CRC Press; 2015.
- Tönu, P, Principles of Food Toxicology, 2nd edition, CRC Press Inc, 2013.
- Watson, D.H, Natural Toxicants in Food, 1st edition, Blackwell; 1998.
- [https:// www.nin.res.in](https://www.nin.res.in) (Publication)
- <https://www.biologyonline.com> hypersensitivity
- <https://www.worldallergy.org>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8997880/#:~:text=Novel%20sources%20of%20protein%20are,quality%20in%20terms%20of%20texture>

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ND 402 T- FOOD MICROBIOLOGY AND FOOD SAFETY

(5 Credits: Theory credits=3 + Practical Credits= 1)

3hrs/week

Objectives:

- To learn about and also to familiarize students with the basics of Food Microbiology, the structure, growth and multiplication of microorganisms.
- To Understand the importance of food safety and quality management in food spoilage
- To Understand the current food safety standards rules and regulations.

UNIT 1: INTRODUCTION TO MICROBIOLOGY (15 H)

Structure, growth and multiplication of microorganisms

- Definition , Importance of microbiology in applied areas – medical, soil, milk, air, food
- Microscopy, general morphology and types of microorganisms-Bacteria, fungi, Algae, Virus
- Growth curve, and Factors affecting growth
Intrinsic: nutrient content, P^H, Redox potential, antimicrobial barrier and water supply
Extrinsic: Gaseous atmosphere, relative humidity, temperature and gaseous atmosphere

Spoilage of foods

- Classification of foods on the basis of shelf life.
- Food spoilage: characteristic features, dynamics and significance of spoilage of food
- Reasons for food spoilage-Microbiological action, presence of contaminants, action of insects, natural enzymes physical changes and chemical reactions

Food processing and preservation

- Processing and preservation by heat, drying, low temperature, food irradiation and
- Processing and preservation by non thermal method, Food preservatives and permissible limits
- Application of enzymes and microbes in food processing and preservation

Food Hazards of microbial origin

- Food borne diseases- Types: communicable and non-communicable
- food borne intoxications- Staphylococcus poisoning, Bacillus cereus poisoning, Botulism
- food borne infections- Salmonellosis, Shigellosis, gastroenteritis, E Coli

Food borne and naturally occurring toxicants

- Food borne toxic infections : Clostridium perfringens, cholera, Listeriosis
- Mycotoxins: Aflatoxins, ergotoxins
- Naturally occurring toxicants: Lathyrism, epidemic dropsy and veno occlusive disease

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UNIT -II MICROBIAL FOOD SPOILAGE AND FOOD SAFETY (15 H)

Microbial spoilage of cereals, milk fruits and vegetables

- Spoilage of cereals and cereal products- molding and ropiness
- Spoilage of milk and milk products – gas production, proteolysis, ropiness
- Spoilage of fresh fruits and vegetables

Spoilage of different food groups

- Spoilage of meat and meat products – aerobic and anaerobic
- Spoilage of fish and eggs
- Spoilage of canned products – spoilage by spore forming and non spore forming bacteria

Fermented foods

- Definition of fermentation, Benefits of fermentation Types of fermentation
- Acid fermented foods, Yeast fermented foods
- Solid state fermentation

Fermented dairy and vegetable products

- Fermented dairy products – yoghurt, cheese fermented milks and Vegetable fermentation – Sauerkraut, cucumber, olives, and pickles
- Vinegar, Fermented beverages
- Oriented Foods – soy sauce, tempeh, miso, natto and Indigenous products – idli, dosa, dhokla

Basics of food safety, sanitation and personal hygiene

- Definition of food safety and food sanitation and necessity of personal hygiene
- Procedures to minimize microbial load on foods
- Food Adulteration – Definition, Types, common adulterants in foods: Control and Prevention.

UNIT-III FOOD LAWS AND REGULATIONS (15 H)

Food Laws

- FSSAI – Principles, duties and functions of food authority
- Voluntary standards and certification system –Bureau of Indian Standards
- AGMARK Standard

National food standards

- Food standardization and regulation agencies in India
- Central committee for food Standards (CCFS)
- Central food Laboratories

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International food standards

- International organization for standardization
- Codex Alimentarius
- HACCP

Control of food quality

- General provisions as to articles of foods
- Special responsibilities for food safety
- Control of irradiation of food 1996

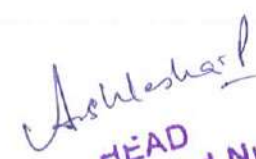
Role and responsibility of local Health authorities

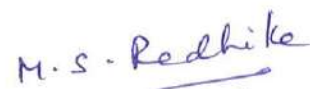
- Local health authority –
 - application for a license
 - Conditions for licence
- Food Inspectors - Powers and duties
- Food Inspection report


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ND 452 P FOOD MICROBIOLOGY AND FOOD SAFETY PRACTICALS (30 h)

4hrs/week

Objectives:

- To familiarize students with the sterilization techniques and to demonstrate the culture of micro organisms
- To define the microbial food spoilage, factors affecting the growth and control of microorganisms
- To create awareness about the role of beneficial microorganisms for potential health benefits
- To understand the importance of food safety and to identify the adulterants in foods

Sterilization techniques:

1. Dry Heat
2. Moist Heat

Methods of media preparation and solution

3. Nutrient agar
4. Potato Dextrose Agar
5. Nutrient Broth
6. Preparation of staining solution
7. Inoculation techniques
8. Preparation of bacterial staining – simple, gram
9. Motility of microorganisms by hanging drop technique
10. Methylene Blue Reduction Test for viable bacterial count in milk.
11. Preparation of inventory list to check personal hygiene of food handlers

Common quick tests for detection of food adulterants at house hold level

12. Sago with sand and talcum powder
13. Milk for water and starch; Ghee, butter and Khoa for starch
14. Detection of chalk powder in sugar, salt and jaggery; Honey for sugar solution
15. Adulterants in Chilli powder - brick powder, water soluble synthetic colour, salt powder or Talcum Powder; Sugar with urea.

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BOOKS RECOMMENDED/ SUGGESTED REFERENCES FOR ADDITIONAL READING

- Hobbs B C and R J Gillbert, Food Poisoning and Food Hygiene –7th edition, English Language Book Society and Edward Arnold Publishers Ltd,2007
- Mahtab S Bamji, N Prahlad Rao, Vinodini Reddy, Text Book of Human Nutrition –2nd edition, Oxford & IBH Publishing Co. Pvt Ltd,
- Martin R. Adams, Maurice .O Moss & Peter McClure, Food Microbiology- 4th Edition, Royal Society of Chemistry,2015
- Roday S, Food Hygiene and Sanitation -2nd edition, Tata McGraw Hill Publishing Co. Ltd.,6th reprint.2017
- Sri Lakshmi B, Food Science -7th edition, New Age International Publishers,2018.
- Sumati R. Mudambi, Shalini M. Rao, M V Rajagopal, Food Science –Revised 2nd edition, New Age International Ltd. Publishers.
- Vickie A. Vaclavik, Elizibeth W. Christian, Essentials of Food Science–5th edition, Springer nature publishers., 2021
- William C. Frazier and Dennis C. Westhoff, Food Microbiology by- 5th edition, 2017. McGraw Hill Education Publishers,2017

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ND 403 T- (i) DIET AND PSYCHOLOGY COUNSELLING SKILLS [ELECTIVE-II (i)]

(4 Credits: Theory credits=3 + Practical Credits= 1)

3 hrs/week

Objectives:

- To familiarise students with diet counselling skills and ethical considerations involved in basic principles of dietetics
- To train students in various psychological assessment techniques

UNIT- I: BASICS OF DIET COUNSELING

Introduction, process and types of diet counselling

- Diet Counselling-Definition, significance
- Diet counselling Process-Identification, preparation, conducting and follow up
- Types, methods adopted, advantages and disadvantages-individual, family, group counselling

Basic sequence, Material required and goals of counselling

- Basic sequence in counselling- Objectives, steps involved
- Materials required for counselling- models, charts, posters, AV aids, Handouts
- Goals of counselling, individuals, group and family counselling

Role and responsibilities of counsellor in diet counselling communication process

- Characteristics of a good counsellor
- Ethics and values in counselling
- Communication process in counselling- Attending , listening, probing or questioning, summarizing and integrating communication skills

Linguistics and problems in counselling communication / Barriers in Communication

- Linguistics in clinical dietary practices
- **Problems in communication- use of jargon, emotional barriers and taboos, too much information, lack of attention, interest, distraction or irrelevant to the receiver, differences in perception and view point, physical disabilities, language difference, expectation and prejudice and cultural differences**
- Techniques of obtaining relevant information-Role of counselling in hospital

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Role of counsellor and counselee

- Role of Counsellor – Definition , Types of counsellors – personal or Social, Educational family and marriage, addiction and rehabilitation counsellor
- Role of counselee
- Role of counselling in community - 24 Hour Dietary recall, List of food likes and dislikes, Lifestyle

Hospital case studies

- **Medical Terminology, The Medical record, reading and understanding the medical case sheet, Medical history and patient profile. Case study assessment and evaluation Impact of counselling on health of individuals.**

UNIT II DIET COUNSELLING AT HOASPIITAL AND COMMUNITY LEVEL

Role and responsibilities of dietician

- Role and responsibilities of Dietician
- Fundamental skills of counselling –Listening, responding, questioning and communication tools
- Dietician as a part of medical team and research team- Organizing health camps and patient

Feedback – at hospital level, at community level

Diet counselling for obese people

Theories and Facts About Nutrition Obesity

Inappropriate Eating Behaviours, Assessment of Eating Behaviours

Adherence with Weight-Loss Programs, Treatment Strategies.

Diet counselling for Diabetics

Theories and Facts about Nutrition and Type 1 Diabetes & Type 2 Diabetes

Inappropriate Eating Behaviours, Assessment of Eating Behaviours.

Dietary Intervention Research on Adherence to Eating Patterns, Treatment Strategies.

Diet counselling for CVD

Theories and Facts About Nutrition and Coronary Heart Disease Inappropriate Eating Behaviours, Assessment of Eating Behaviors

Treatment Strategies.

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Diet counselling for mother and child care

- Counselling for pregnant women
- Counselling for infant and young feeding practices
- Diet counselling for adolescent

Evaluation and Follow-Up

- Evaluation of Counsellor Progress and client progress
- Strategies to Maintain Dietary Adherence
- Reinstitution of Intervention or Treatment, The Termination Process

UNIT III: INTRODUCTION TO PSYCHOLOGY AND COUNSELLING

Introduction to Psychology

- Definition, Nature, Goals and Scope
- Attention: Definition, Types of Attention and factors affecting Attention.
- Perception: Definition, Principles of perceptual organization, Constancies and abnormalities in perception.

Learning, Memory and Motivation

- Definition of learning, Types of learning
- Definition of Memory, Types of memory, Forgetting and causes of forgetting.
- Definition of Motivation, Types of motives

Emotion and Personality

- Definition of emotions, Types of emotions, physiology of emotion and emotional expression.
- Definition, nature of personality, Factors influencing personality
- Psychoanalytic theory of personality.

Introduction to Counselling

- Nature and goals of Counselling, Principles of counselling,
- Principles of test construction and standardization- item analysis, reliability, Validity
- Psychological tests – Types: individual, group, performance, verbal and non verbal

Approaches to Counselling

- Psycho analytic approach
- Behavioristic approach
- Humanistic approach

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ND 453 (i) P DIET COUNSELLING AND PSYCHOLOGICAL SKILLS PRACTICALS

(15Hrs)

2hrs/week

Objectives:

- To familiarize the students with diet counselling skills for normal and therapeutic diets
- To acquaint the students with practical approach towards nutrition education and follow up of cases
- To learn the stages of psychological counselling

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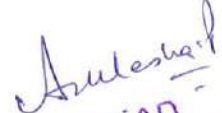
Diet counselling, nutrition education and follow up of

- 1) Pregnant women and Lactating mother
- 2) Children and Adolescents
- 3) Type II Diabetes mellitus and CVD
- 4) Renal diseases and Cancer
- 5) Liver diseases and GI Tract diseases

Stages of counseling (role plays and sessions to build skills)


- 6) Pre-Helping Phase: Rapport building skills, Attending and listening skills
- 7) Stage I skills: Empathy, respect, Genuineness and concreteness
- 8) Stage II skills: Advanced empathy, Self-disclosure, Immediacy and Confrontation
- 9) Stage III skills: Goal setting, Action plan program and Brainstorming


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- Beena and Parameshwaran, Invitation to Psychology, Neel Kamal Publication
- Bhaskarachary K, Sudarshan Rao V, Subba Rao, G. M. A Handbook for Tomorrows Dietitians, Indian Dietetic Association, A.P. Chapter, Dec – 2008
- Gelso,C.J.,Fretz,B.R(1995) Counselling Psychology, Bangalore, Prism Books Pvt Ltd.
- Gerard Egan(1975) The Skilled Helper, Pacific grove, CA (7th Ed)
- Gibson R,L and Mitchell,M.H (2005) Introduction to Counselling and Guidance (7th Ed).
- Mishra, H.C.and Varadwaj. 2009; Couselling Psychology; Theories, Issues and applications; Divya prakasini samantharapur, Bhubaneswar, Odissha.
- Mishra, G.C.et al 2018, Psychologiactal assessment ; Kalyani Publishers; New Delhi.
- Mohanty.G.B.2018, couselling psychology; Kalyani Publisher ; New Delhi.
- Sharma, T.C(2002) Modern Methods of Guidance and Counselling, New Delhi, Sarup & Sons
- The Dietetic Technician: Effective Nutrition Counselling, Virginia Aronson, AVI Publishing Company, 1986

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ND 403 (ii) TECHNIQUES IN FOOD ANALYSIS (ELECTIVE III (ii))

(5 Credits: Theory credits=3 + Practical Credits= 2)

3 hrs/week

Unit I: Basics of Instrumentation

Measurement of PH

- Theory of indicators and principles of measurement of pH.
- Acid and Alkalis: Preparation of dilute solutions of common acids and alkalis and determining their exact normalities.
- Buffers: Preparation of phosphate, carbonate, bicarbonate, buffers and determination of their pH by the use of indicators and pH meters.

Physicochemical principles and methodology

- Fluorimetry
- Flame photometry
- Atomic absorptiometry- Atomic Absorption Spectrophotometry, Atomic Emission Spectroscopy

Polarimeter

- Total soluble solids in fruit juice and honey,
- Specific rotation of sugars,
- Estimation of simple sugars and disaccharides by polarimeter;

Electrophoresis

- Principle and applications in paper electrophoresis
- Gel electrophoresis
- Application of electrophoresis in food analysis, NMR

Immunoassay

- Immunological Methods – Radio Imuuno Assay,
- Enzyme Linked Immuno Sorbent Assay
- Immunoassay techniques and its applications in foods.

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UNIT II SPECTROSCOPIC TECHNIQUES AND CHROMATOGRAPHIC TECHNIQUES

SPECTROSCOPIC TECHNIQUES

- Basic Principles- Beer Lambert law, absorption maximum
- Spectrophotometric analysis of food additives and food Components -IR
- Spectroscopy in online determination of components in foods;

Mineral elements and toxic metals analysis

- Atomic Absorption Spectrophotometry and Inductively Coupled Plasma,
- Atomic Emission Spectroscopy in mineral elements and toxic metals analysis

Vitamin Analysis

- Microbial assays of Vitamins
- Use of fluorimeter in vitamin assay
- Specific use of Tintometer in vanaspathi analysis.

Chromatography

- Basic principles
- Types of detectors
- Uses and applications of chromatographic techniques.

Types of Chromatography- Principles and application in chromatographic techniques

- Paper chromatography,
- Thin layer chromatography,
- Column chromatography,

Types of Chromatography- Principles and application in chromatographic techniques

- Ion exchange chromatography,
- High Performance Thin Layer Chromatography, High Performance Liquid Chromatography,
- Ultra High Performance Liquid Chromatography, Gas Chromatography, Gas Chromatography-Mass Spectrometry

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Unit III: Nutrient Analysis Techniques

Introduction

- Introduction to food analysis, Food Regulations and Standards
- Sampling methods
- Sample preparation for analysis

Official Methods of Food Analysis. Ash Analysis

- Moisture in foods determination by different methods

Determination of Total ash

- Ash content of foods, wet, dry ashing, microwave ashing methods
- Significance of Sulphated Ash, water soluble ash and acid insoluble ash in foods

Carbohydrate Analysis

- Titratable Acidity in foods,
- Determination of dietary fiber and crude fiber
- Determination of total carbohydrates, starch, disaccharides and simple sugars in foods

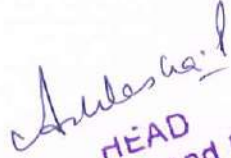
Fat analysis

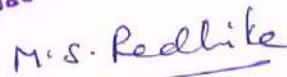
- Determination of Total fat in foods by different methods; Analysis of solid and liquid fats, Rancidity.
- Analysis of oils and fats for physical and chemical parameters
- Quality standards, and adulterants;

Protein Analysis

- Different methods of determination of protein and amino acids in foods
- Electrophoresis
- Micro-Kjel dahl method.


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ND 453 (ii) P TECHNIQUES IN FOOD ANALYSIS (ELECTIVE III (ii))

2hrs/wk

PRACTICALS

1. Volumetric analysis of Acids and Bases
2. Determination of Energy Value of Food by Bomb Calorimeter
3. Estimation of proteins :Micro-Kjel dahl method
4. Determination of fat in solid and liquid foods.
5. Estimation of β - Carotene in carrots
6. Quantitative determination of thiamin in foods
7. Microbial assay for estimation of niacin in foods
8. Estimation of Aflatoxins in Agricultural commodities by Spectrophotometry

Books recommended

- Raghuramulu N.; Madhavan Nair and K. Kalyanasundaram, S. (1983). A Manual of Laboratory Technique. NIN. ICMR.
- Sharma, B.K. (1999). 8thEd. Instrumental Methods of Chemical Analysis. Gel Publishing House.
- Srivastava, A.K and Jain, P.C. (1986). 2ndEd. Chemical Analysis: An Instrumental Approach. S Chand and Company Ltd.
- Fung, D.Y.C. and Matthews, R. (1991): Instrumental Methods for Quality Assurance in Foods, Marcel Dekker, Inc. New York.
- Skoog, D.A., Holler, F.H. and Nieman (1998): Principles of Instrumental Analysis Saunders College Publishing, Philadelphia. 3.
- Gruenwedel, D.W.; Whitaker J.R. (editors) (1984): Food Analysis Principles and techniques, Volumes 1 to 8, Marcel Dekker, Inc., New York.
- Herschdoerfer, S.M. (ed) (1968 –1987): Quality Control in the Food Industry, Vols. 1 to 4, Academic Press, London. 5.
- Pomeranz, Y. and McLoan, C.E. (1996): Food Analysis: Theory and Practice; 3rd Edition, CBS Publishers and Distributors, New Delhi.6.
- Wilson and John Walker ,Principles and Techniques of Biochemistry and Molecular Biology (2010), Keith Wilson and John Walker, Cambridge University Press.
- Sawhney S.K, Randhir Singh, Introductory Practical Biochemistry (2000), Narosa Publishing House, New Delhi

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Callan

HOSPITAL INTERNSHIP IN NUTRITION AND DIETETICS

(Between 2nd and 3rd semester)

AIM : Internship is a phase of training where in a graduate is expected to conduct actual practice of diet management and healthcare and acquire skills under supervision of a practicing dietician physically or online or in hybrid mode, so that the student may become capable of functioning independently.

OBJECTIVES:

1. To familiarize the students with the hospital Organization.
2. To train the students in the dietetics Department of Hospital .
3. To have hands on experience in the various OPD of a hospital.
4. The students will have to prepare a report and submit to the department.
5. A presentation has to be made in seminar on their work experience.

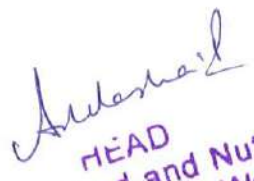
Duration of Internship – 30 days in Hospital, Dietician Clinic, or virtual in a multispecialty hospital with dietary department.

Case studies – Three case studies (1 major and 2 minor) of different diseased conditions have to be taken up during the internship.

Report to be submitted in the hospital and in the Department- Submit a bound copy of the word-processed, printed internship report to the dietician and concerned department faculty for evaluation at the end of the internship.

Evaluation – Students will gain additional 2 credits based on the evaluation by the dietician



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TX HOSPITALS
TX
Department for Best Fitness
J. K. Hospital, Hyderabad


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Objectives :

- 1) To familiarize the students with the process of research with focus on Nutrition and Dietetics.
- 2) To train the students on all steps of Research process from problem identification to Data Dissemination.
- 3) To train the students on writing a Project proposal .
- 4) To continue the project work initiated and to submit dissertation at the end of semester IV

The students will be guided and supervised by a member of the teaching faculty of the concerned department. The dissertation in which the research culminates should reflect the students own work.

An independent research project work undertaken by student under the guidance of an advisor, can either e a survey or laboratory oriented research. The research should be submitted at the end of semester in the form of a thesis. The project work can be undertaken at university departments, affiliated research institutions, quality control laboratories, food industries, food industries or other institutions with prior approval.

Contents:

- Identification of problem of Research in Food and Nutrition
- Collecting Relevant Review of Literature and developing the Experimental Design.
- Proposal Development, it's approval by respective guides
- Tool development for Research and Pilot testing / standardization of techniques.
- Data collection/ Mid course corrections.
- Data entry; Statistical Analysis
- Scientific Writing

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Anwarul Uloom College (Autonomous)

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Panel of Paper Setters & Valuers

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6	Mrs.Hannah Jessie Francis.T	St.Ann's college for women	9000544325	Hannahjessie_22@yahoo.co.in

Note: Email ID, Phone number and Minimum 4 Years teaching experience is mandatory.

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