


Fourth Semester

S. No.	Subject Code	Course Title	Course Category	Credit	Contact Hours Per Week			EoSE Duration (Hrs.)	
					L	T	P	Thy	P
1.	FHN X01	Clinical Nutrition and Dietetics-II	CCC	4	4	0	0	3	0
2.	FHN X02	Public Health Nutrition – II	CCC	4	4	0	0	3	0
3.	FHN X03	Institutional Food Administration - II	CCC	4	4	0	0	3	0
4	FHN X11	Clinical Nutrition and Dietetics-II	CCC	6	0	0	9	0	4
5	FHN D01	Nutrition Research Design	ECC	4	4	0	0	3	0
6	FHN D02	Skill Development in Public Health Nutrition	ECC	2	2	0	0	3	0
7	FHN D11	Public Health Nutrition – II	ECC	4	0	0	6	0	4
8	FHN D12	Institutional Food Administration - II	ECC	4	0	0	6	0	4
9	FHN D13	Skill Development in Public Health Nutrition	ECC	4	0	0	6	0	4
				36					

CCC = 18,

ECC = 18

Total = 36 credits


 Dy. Registrar
 (Academic)
 University of Rajasthan
 JAIPUR

Fourth Semester

CLINICAL NUTRITION AND DIETETICS- II (THEORY)

Paper Code : X01

Credits: 4

Max. Marks:100

Teaching Hours : 4 Hours/Week

Total Teaching Workload : 60 Hours /Semester

Objectives :

1. To impart knowledge about health, fitness and sports nutrition.
2. To impart advanced knowledge to students about path physiology of various diseases.
3. To enable the students to understand the special nutrition concerns and the dietary management of Cancer, AIDS, Surgery, Burns, Renal Disorders, Cardiovascular Diseases, Diabetes,
4. To give practical insight for assessment, nutritional care and counseling to patients.

Contents:

Unit I

- | | |
|----|--|
| 1. | Nutrition in health and fitness <ul style="list-style-type: none"> Interrelationship between health, nutrition, exercise and fitness Energy input and output Effect of specific nutrients on work performance and fitness |
| 2. | Sports nutrition <ul style="list-style-type: none"> Energy sources during different exercises Nutritional requirements of athletes Water and electrolyte balance. |

Unit II

- | | |
|----|---|
| 3. | Nutrition in Renal Disorders:- <ul style="list-style-type: none"> Glomerulonephritis Nephrotic Syndrome Acute Renal Failure Chronic Renal Failure |
| 4. | Nutrition in Surgery and Burns <ul style="list-style-type: none"> Pre and post operative nutritional care Nutrition support in burns |
| 5. | Nutrition related problems and Support in Human Immuno Deficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) |

Unit III

6. Pathophysiology, aetiology, clinical features prevention and dietary management of Cardiovascular Diseases:
- Hypertension
 - Coronary Heart Disease
7. Pathophysiology, aetiology, clinical features, prevention and dietary management of Diabetes mellitus
- Type 1 Diabetes
 - Type 2 Diabetes
8. Nutrition and Cancer
- Role of nutrition in etiology of cancer
 - Nutritional effects of cancer and it's therapies
 - Nutritional care of cancer patients

References :

1. Mahan LK and Escott-Stump S. Krause's Food, Nutrition & Diet Therapy .WB Saunders Company, Pennysylvania, USA, 2004.
2. Bamji MS, Rao NP, Reddy VE. Text Book of Human nutrition II Edition. Oxford& IBH Publishing Co. Pvt. Ltd., 2003
3. Wardlaw GM and Kessel Margaret W. Perspectives in Nutrition. Fifth Edition. McGraw Hill Publications, Ohio, USA , 2007
4. Joshi YK. Basics of Clinical Nutrition. IInd Edition. Jaypee Brothers medical Publishers (P) Ltd. New Delhi. 2008.
5. Shils ME, Olson JA, Shike N and Roos. Modern Nutrition in Health and Disease, 8th Edition, Lea and Febiger, Philadelphia , 1994.
6. Sue RW. Essentials of Nutrition and Diet Therapy. Times Mirror/Mosby College Publishing. 1990.
7. Carol WS and Merrily FC. Nutrition: Principles and Application in Health Promotion, Published by J. B. Lippincott, 1984.

Journals

1. Indian Journal of Nutrition and Dietetics
2. American Journal of Nutrition
3. World Review of Nutrition and Dietetics

PUBLIC HEALTH NUTRITION – II(THEORY)**Paper code :FHN X02****Credits: 4****Max. Marks :100****Teaching Hours :4 Hours/Weeks****Total Teaching Workload :60 Hours/Semester****Objectives :**

1. Gain insight into national nutritional problem, and national & international contribution towards

nutrition improvement in India. 2. Development of skills in organizing and evaluating nutrition projects in the community. 3. To be familiar with various approaches to public health nutrition programs and policies.	
Contents :	
UNIT I	
1.	Programme planning and management in public health nutrition Steps in programme planning / planning cycle Planning Models Program implementation Application of management methods and techniques in the health care delivery system
UNIT II	
2.	Programme Monitoring and Evaluation Definition, significance and purpose of monitoring nutrition programme Identification and selection of indicators for monitoring nutrition programmes Definition, significance and purpose of evaluation nutrition programmes Identification and selection of indicators for evaluation Management of Data
UNIT III	
3.	Nutrition Communication <ul style="list-style-type: none"> • Definition and need for nutrition - health education • Concept and objectives of communication for behavior change • Designing nutrition - health education plan • Characteristics of commonly used nutrition and health education materials, including social marketing
4.	Nutrition Surveillance Objectives, Purposes and indications used in nutrition surveillance Agencies for nutrition surveillance in India
5.	Marketing Nutrition Programs and Service <ul style="list-style-type: none"> • Marketing Research • Business and Social Marketing • Evaluation • Marketing Ethics
References :	
1. Vir SC. Public Health Nutrition in Developing Countries Pt 1 and 2 . Published by Wood head publishing India PVT LTD, New Delhi. Cambridge, Oxford, Philadelphia, 2010. 2. Sehgal S and Raghuvanshi Rita S. Textbook of Community Nutrition, Indian Council of Agricultural Research, Published by: Directorate of Information and Publication of Agriculture, Indian Council of Agriculture Research, KrishiAnusandhanBhavan, Pusa, New Delhi, 2011. 3. Bamji MS, Rao PN and Reddy V. Textbook of Human Nutrition, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi, 1996. 4. Robinson CH and Lawler MR. Normal and Therapeutic Nutrition, Macmillon, NewYork, 1986.	

5. Waterlow JC. Protein Energy Malnutrition, Edward Arnold, A division of Hodder and Stoughton, 1992.
6. Sachdeva HPS and Chaudhary P (Eds). Nutrition in Children: Developing country concerns, Department of Pediatrics, Maulana Azad Medical College, New Delhi, 1994.
7. McLaren DS. A colored Atlas and Textbook of Diet-Related Disorders, 1992.
8. Passmore R and Eastwood MR. Human Nutrition and Dietetics, ELBS, Churchill Livingstone, London, Baltimore, 1986.
9. De Maeyer EM. Preventing and Controlling iron deficiency anemia through Primary Health Care, WHO, 1989.
10. Jelliffe DS. The Assessment of Nutritional status of the community, WHO Geneva, 1966.
11. Gopaldas T and Sheshadri S. Nutritional Monitoring and Assessment, Oxford University Press, New Delhi, 1987.
12. Shukla PK. Nutritional problems of India, Prentice Hall of India Private Limited, New Delhi, 1982.
13. Beaton GH and Bengoa JM. Nutrition in preventive Medicine. The major deficiency syndrome Epidemiology and approaches to control, World Health Organization, Geneva, 1986.
14. Edelstein S (Editor). Nutrition in Public Health: A handbook for developing Programs and Services. Jones Bartlett Learning, 3rd Edition, 2011.

INSTITUTIONAL FOOD ADMINISTRATION – II (THEORY)

Paper Code: FHN X03

Credits: 4

Max. Marks: 100

Teaching Hours: 4 Hours / Week

Total Teaching Workload: 60 Hours/ Semester

Objectives :

1. The aspects of food service management.
2. The management of personnel in smooth running of an organisation.
3. How to maintain a food service facility as a sanitary, safe and secure place

Contents :

UNIT I

- | | |
|-----------|---|
| 1. | Food service Management <ul style="list-style-type: none"> • Food service systems- Conventional, Commissary, Ready Prepared and Assemble serve. • Delivery and service of food in different food service systems- Hospitals, Schools, Industries, Airlines. • Types of service- Self, Tray, Waiter, Portable Meals. • Dining room management- furnishings and equipment for dining rooms |
|-----------|---|

UNIT II

2.

Personnel Management

- Functions of personnel manager
- Leadership – qualities and responsibilities of a leader, styles and theories of leadership, motivation, theories of motivation, philosophies of human nature-theories
- Human resource planning-human resource inventory, human resource forecasting, human resource development plans.
- Employment process- recruitment, selection, orientation, training, development
- Performance appraisal and MBO
- Employee facilities and benefits
- Labour Cost Control- factors affecting labour control, records for control.
- Labour management relations- reasons why workers join unions, development of labour unions, structure of unions, union and contract negotiations
- Personnel functions- kitchen, dining room
- Labour Laws affecting foods service operations.

UNIT III

3.

Plant and equipment management

- Maintenance of equipments and facilities- manual and mechanical warewashing, sanitary facilities and equipment, preventive maintenance, pest control
- Sanitation – principles of food sanitation, sanitation of food, personnel, physical plant and equipment, controlling microbial quality of food, food service sanitation, development of quality assurance (sanitation) programme.
- Safety – Accident prevention, fire prevention, 3 Es of safety, safety and health programme, HACCP, Food Safety and Standards Act of India.
- Security- management of security system, main security risks.

References :

1. Massie JL. Essentials of Management, Prentice Hall of India Private Limited, New Delhi, 1992.
2. Phillip TE. Modern Cookery for Teaching and the Trade, Orient Longman Ltd, Bombay, 1965.
3. Negi J. Food and Beverage Management and Cost Control. Kanishka Publishers and Distributors, New Delhi, 1999.
4. Negi J and Manohar G. Food and Beverage Costing, Himalaya Publishing, Bombay, 2001.
5. Sudan AS. Foods and Beverage Management, Anmol Publications Pvt. Ltd., New Delhi, 2002.
6. Avery AC. A Modern Guide to Food Service Equipment, CBI Publishing Co. Boston, 1985.
7. Dewan JM. Catering and Food Service Management, Commonwealth Publishers, New Delhi, 1997.
8. Spears MC and Vaden AG. Food Service Organizations – A Managerial and Systems Approach, MacMillan Publishing Company, New York, 1985 .
9. West BB, Wood L, Shughart GS, Harger VF. Food Service Institutions, V ed., John Willy

- Sons, New York 1977.
10. Malhan S and Sethi M. Catering Management: An Integrated Approach, Wiley Eastern Limited, New Delhi, 1989.
 11. Kotshevar LN. & Terrell ME. Food Service Planning, Layout and Equipment, John Wiley and Sons Inc., USA, 1961.
 12. Kinton R, Ceserani V, David F. The Theory of Catering, ELST, London, 1999.
 13. Palacio JP, Theis M. Introduction to Food Service. Pearson Prentice Hall, New Jersey, 2009.

CLINICAL NUTRITION AND DIETETICS- II (PRACTICAL)

Paper Code : FHN X11

Credits: 6

Max. Marks : 100

Teaching Hours: 3 Practicals /Week (3 Hours/Practical)

Total Teaching Workload : 45 Practicals /Semester

Objectives :

1. To make students understand the nutritional assessment of hospitalized patients
2. To make students understand the nutritional management of patients suffering from gastrointestinal diseases, liver, pancreatic diseases and food allergies
3. To make students understand the nutritional management of sports persons.
4. To familiarize students with the actual working in the Dietetics department in hospitals.

Contents :

- | | |
|----|--|
| 1. | <ol style="list-style-type: none"> a. Make a list of Protein rich, calcium rich, iron rich, sodium rich and potassium rich foods, MUFA, PUFA, Omega-3 and Omega -6 b. Make a list of foods deficient in Protein, calcium, iron, sodium and potassium, MUFA, Saturated fats |
| 2. | <ol style="list-style-type: none"> c. Plan and Standardized recipes with the foods rich in Protein, calcium, iron, sodium and potassium, d. Plan and Standardized recipes with the foods deficient in Protein, calcium, iron, sodium and potassium e. Incorporate recipes rich in MUFA, PUFA, Omega-3 and Omega -6 |
| 3. | <p>Sports Nutrition</p> <ol style="list-style-type: none"> a. Planning and preparation of snacks and drink suitable for various sports activities. b. Planning and preparation of diets for endurance training c. Plan and calculate a pregame and a post game meal d. Market Survey of Sports drinks, powders, snacks and meals e. Evaluate the nutritional quality of the sport supplements |
| 4. | <p>Renal Diseases</p> <ol style="list-style-type: none"> f. Planning and preparation of diet for Glomerulonephritis g. Planning and preparation of diet for Nephrotic Syndrome h. Planning and preparation of diet for Chronic Renal Failure |
| 5. | <p>Cardiovascular and Hypertension</p> <ol style="list-style-type: none"> a. Planning and preparation of diet for Hypertension |

6.	b. Planning and preparation of diet for Coronary Heart Disease c. Planning preventive nutrition for Hyperlipidemias d. Planning preventive nutrition for hypertension (DASH diet) Diabetes mellitus a. Planning and preparation of diet for Type 1 Diabetes b. Planning and preparation of diet for Type 2 Diabetes c. Planning preventive nutrition for diabetes
7.	AIDS Dietary management for HIV AIDS patients.
8.	Cancer Plan for cancer patients. Diets and lifestyle for prevention of cancer

NUTRITION RESEARCH DESIGN (THEORY)

Paper code: FHN D01

Credits: 4

Max. marks: 100

Teaching hours: 4 Hours/Week

Total teaching workload: 60 Hours/ Semester

Objectives:

1. To impart knowledge on research methods and designs.
2. To provide an insight into writing research proposal and thesis/dissertation.
3. To develop projects and have an understanding of ethical guidelines, plagiarism and Copy Right Act.

Contents:

UNIT – I

1.	Research studies and methods i) Epidemiological methods- <ul style="list-style-type: none"> • Observational: correlation study, case reports and case series, cross-sectional study, case control study, cohort study, ecological study • Experimental: community trials, clinical trials (individual), controlled trials and uncontrolled trials ii) Qualitative research methods- <ul style="list-style-type: none"> • ethnography/anthropological methods • observation • interviewing • group discussion • archival (i.e. newspapers) • visual data (i.e. photos images) • linguistic/ conservation analysis
----	--

	<ul style="list-style-type: none"> • content analysis • biographies, oral history (normative). <p>iii) Quantitative research methods-</p> <ul style="list-style-type: none"> • experimental studies • non – experimental designs such as surveys, cross sectional and longitudinal studies. <p>iv) Mixed methods-</p> <ul style="list-style-type: none"> • Sequential • concurrent • transformative
2.	<p>Nutrition Research Designs in</p> <p>i) Observational studies</p> <ul style="list-style-type: none"> • Cohort studyProspective study Retrospective study • Case control study <p>ii) Experimental studies</p> <ul style="list-style-type: none"> • Interventional study • Clinical trials • Randomized control trials • Cluster randomized trails <p>iii) Survey research</p> <ul style="list-style-type: none"> • Cross sectional study • Longitudinal study <p>iv) Mixed methods study</p>
3.	<p>Design Process of Research</p> <p>i) Conceptualizing a study: hypothesis, objectives</p> <p>ii) Selecting research methods and design</p> <p>iii) Data management</p> <p>iv) Communication of research through presentations and writing</p>
UNIT – II	
3.	<p>Types of reports</p> <p>i) Thesis/ dissertation</p> <p>ii) Research papers/articles</p> <p>iii) Review papers: systematic review paper, meta-analysis review paper</p> <p>iv) Case studies</p> <p>v) Term papers</p> <p>vi) Synopsis/ research proposal</p> <p>vii) Project reports</p> <p>viii) Seminar reports</p>

	ix) Popular articles x) Research abstracts xi) Research progress reports
4.	Writing Research Proposal for Thesis/ Dissertation <ol style="list-style-type: none"> Title page, table of contents, abbreviations, certificate Introduction- introduction, rationale, objectives, hypothesis Review- structure, citation of references Methodology- structure, sample design, sample size and characteristics, sampling procedure, locale of the study, tools of data collection, methods and procedures, statistical analysis Bibliography- structure, methods of citation, different styles followed Appendices, footnotes, other accessories
5.	Writing thesis / dissertation (additional chapters) <ol style="list-style-type: none"> Abstract Results and discussion- structure, tables, figures and discussion Summary and conclusions- structure, conclusions Recommendations- relevant to research work
UNIT – III	
7.	Designing projects <ol style="list-style-type: none"> Project title Introduction: <ul style="list-style-type: none"> • origin of the research problem • interdisciplinary relevance • review of research and development in the subject – international status and national status • significance of the study • its potential contribution to knowledge in the field of social relevance or national importance Objectives Methodology Year wise plan of work and targets to be achieved Budget: recurring: salary, travel and field work, hiring services, contingency and non-recurring: equipments, building
8.	Funding for projects- National agencies <ol style="list-style-type: none"> University Grant Commission (UGC) Department of Biotechnology (DBT) Department of Science and Technology (DST) Indian Council of Medical Research (ICMR) Ministry of Food Processing Industry (MFPI) Indian National Science Academy (INSA) Indian Council of Agricultural Research (ICAR)

	viii) Council of Scientific and Industrial Research (CSIR) ix) Indian Council of Social Science Research (ICSSR) International Agencies i) UN Agencies: UNICEF, USAID, UNFPA ii) International Funding of Science iii) Third World Academy of Sciences iv) Third World Network of Scientific Organization
9.	National ethical guidelines for biomedical and health research involving human participants
10.	Plagiarism
11.	Copy Right Act
References:	
1) Richard AP. The little book of plagiarism. University of Sterling, UK. 2016. 2) Stern L. What every student should know about avoiding plagiarism. Pearson's WESSKA Series, 2007. 3) Creswell JW. Research design qualitative, quantitative and mixed methods approaches. 2 nd edition, Sage Publications, New Delhi. 4) National ethical guidelines for biomedical and health research involving human participants. Indian Council of Medical Research, New Delhi, 2016. 5) Indian Copyright Act, 1957. http://copyright.gov.in/documents/copyrightrules1957.pdf . 6) A hand book of copyright law. Government of India, Ministry of Human Resource Development and Department of Secondary Education and Higher Education. http://copyright.gov.in/documents/handbook.html 7) Rahim A. Thesis Writing: Manual for all researchers. New Age International Pvt. Ltd., New Delhi. 8) Singh T, Shah D, Gupta P. Principles of thesis writing. Indian Academy of Pediatrics, JPB Publishers, 1 st edition, 2008. 9) Gurumani N. Scientific Thesis Writing and Paper Presentation. MJP Publishers; 1 st edition, 2010. 10) Ingle PO. Scientific and technical report writing. Nikhil Graphics, Akola, 2012. 11) Vir SC. Editor. Public health nutrition in developing countries. Part I. Woodhead Publishing India Pvt Ltd, New Delhi. 12) PHFI. Post graduate diploma in public health nutrition by distance learning 2014-15. Vol 3. Module 7: Nutrition Epidemiology. Public Health Foundation of India, New Delhi.	
PUBLIC HEALTH NUTRITION - II (PRACTICAL)	
Paper code: FHN D11 Credits : 4 Max. Marks:100 Teaching Hours :2 Practicals /Week (3 Hours/Practical) Total Teaching Workload : 30 practicals/Semester	

Objectives: <ol style="list-style-type: none"> 1. To enable students to plan programs for nutritional problems of public health importance 2. To collect literature on aspects of public health and assess them for their content hence enabling students to develop IEC and material 3. To plan and evaluate ongoing programs of public health 	
Contents :	
<ol style="list-style-type: none"> 1. 2. 3. 4. 5. 6. 7. 	<p>Program planning on Public Health and nutritional problems identified as priority area during need assessment.</p> <p>Collection of literature related to problem</p> <p>Prepare messages to be disseminated on identified PHN issue</p> <p>Plan communication methods for execution of program</p> <p>Prepare suitable audio visual aids as well as collect audio visual aids already available at various Government departments or NGO</p> <p>Implementation and Evaluation of program in field(selected village or slum areas) (Execute five programs of five groups of students)</p> <p>Writing one article on any one contemporary public health and nutrition issues for print media</p>
<p align="center">INSTITUTIONAL FOOD ADMINISTRATION – II (PRACTICAL)</p> <p>Paper Code: FHN D12</p> <p>Credits:4</p> <p>Max. Marks: 100</p> <p>Teaching Hours: 2 Practicals / week (3 Hours/Practical)</p> <p>Total Teaching Workload: 30 Practicals/Semester</p>	
Objectives : <ul style="list-style-type: none"> • To visit different food service institutions to gain an insight into the functioning of such units. • To plan menus for different occasions/institutions • To cook certain food items in large quantities i.e., in 50-60 portions each. 	
Contents :Practicals	
<ol style="list-style-type: none"> 1. 2. 	<p>Carrying out market survey of perishable, non-perishable and processed foods for meal planning.</p> <p>Planning and preparation of meals for various occasions giving general consideration, assumptions, organization chart, budget breakup, menu, cost calculations, comparison of actual and estimated costs and evaluation:</p> <ul style="list-style-type: none"> • Theme party • Special cuisine • Cocktail party

<p>3.</p> <p>4.</p>	<ul style="list-style-type: none"> • Hospital meal • Tea party after a lecture • International airlines • Country of your choice <p>Visit to different institutes for eg.</p> <ul style="list-style-type: none"> • Hotel • School • Institute of Hotel Management • McDonalds • Industrial canteen • Philanthropic institution • Airport <p>Quantity cookery classes for preparation of food items for eg.: Chaula dal kipakori, Bread rolls, Mini pizzas, Burgers, Mexican tacos, Idlisambhar, Pavbhaji, Cholebhaturas, Bhelpuri</p>
<p align="center">SKILL DEVELOPMENT IN PUBLIC HEALTH NUTRITION (PRACTICAL)</p> <p>Paper code: FHN D13</p> <p>Credits : 4</p> <p>Max. Marks:100</p> <p>Teaching Hours : 2 Practicals/ Week (3 Hours/Practical)</p> <p>Total Teaching Workload : 30 Practicals /Semester</p>	
<p>Objectives:</p> <ol style="list-style-type: none"> 1. To enable students to carry out Community Programs at Urban, Rural and Slums 2. To develop skills and to translate skills into action at Community level 3. To strengthen skills of frontline workers in all programs 4. To create interest in Community and create awareness and motivation for lifestyle modification 	
<p>Content</p>	
<p>Skills through trainings</p> <ol style="list-style-type: none"> 1. Malnutrition treatment centre: <ul style="list-style-type: none"> • Placement at MTC in Hospital • Skill in calculating, preparation and feeding of therapeutic diets. 2. Infant and young child nutrition <ul style="list-style-type: none"> • Placement at AWCs- Strengthening skill of ASHAs and AWW • Techniques of initiation of breast feeding, and complementary feeding. • Techniques in calculation of frequency and adequacy of complementary food. (frequency, adequacy, density, utilisation) 3. Home Based Care of Neonates and Children <ul style="list-style-type: none"> • Counseling and Strengthening HBNC in frontline workers by Placement at AWC in rural set up • Counseling and Strengthening in Growth Monitoring and Promotion of Growth Monitoring in frontline workers by Placement at AWC in rural set up 4. Application of nutritional components of ICDS program 	

- Activities for MCHN day: Celebrating MCHN Day at Slum/ Village
- Nutritional care of pregnant woman in terms of weight gain during pregnancy, calcium & iron-folic acid supplementation and consumption of iodized salt.
- Infant and young child nutrition in terms of early initiation of breast feeding, exclusive breast feeding, timely introduction of complementary feeding and nutrition of children aged 6 months to 2 years.

5. Holding health Camp for all Population groups in Community/ Campus

Helpstudentpoint.com

Raj/Vas
 Dy. Registrar
 (Academic)
 University of Rajasthan
 JAIPUR