S. No.	Subject Code	Course Title	Course Category	Credit	Contact Hours Week		rs Per	s Per EoSE Durat (Hrs)	
					L	T	P	Thy	
1.	FHN 901	Clinical Nutrition and Dietetics- I	CCC	4	4	0	0	3	0
2.	FHN 902	Public Health Nutrition - I	CCC	4	4	0	0	3	0
3.	FHN 903	Institutional Food Administration – I	CCC	4	4	0	0	3	0
4.	FHN 911	Public Health Nutrition –I	CCC	6	0	0	9	0	4
5.	FHN C01	Food and Nutrition Security	ECC	4	4	0	0	3	0
6.	FHN C02	Skill Development in Clinical Nutrition	ECC	2	2	0	0	3	0
7.	FHN C11	Clinical Nutrition and Dietetics- I	ECC	4	0	0	6	0	4
3.	FHN C12	Institutional Food Administration	ECC	4	0	0	6	0	4
		Skill Development in Clinical Nutrition	ECC	4	0	0	6	0	4
				36					Name and the same

CCC = 18, ECC = 18

Total = 36 credits

Third Semester

CLINICAL NUTRITION AND DIETETICS - I (THEORY)

Paper code: FHN 901

Credits: 4

Max. Marks: 100

Teaching Hours :4 Hours/Week

Total Teaching Workload: 60 Hours/Semester

Objectives:

- To enable the students to understand about body composition and its application in nutrition and
- Identification of high risk patients, malnutrition in hospital patients.
- To enable the students to understand the special nutrition concerns and the dietary management of various diseases.
- To give practical insight for assessment, nutritional care and counseling to patients.

UNIT I

Body Composition

1

- Body composition and cellular basis of growth
- Significance and methods used for measurement of body composition in nutrition.
- Application of body composition in nutrition and health.
- Cellular Growth and development during life cycle

2.

Pathophysiology, aetiology, clinical features, prevention and dietary management of Obesity and Eating disorders

- Obesity
- Anorexia Nervosa
- Bulimia Nervosa

Geriatric Nutrition 3.

- Ageing process,
- Cellular basis of Ageing
- Nutritional and Medical problems of elderly
- Nutritional care and lifestyle modifications in elderly persons
- Management of Common ailments related to ageing

UNIT II

- Nutrition Care Process in Hospitalized Patients 4.
 - Nutrition care process
 - Interpretation of routine medical and laboratory data
- 5. Methods of Feeding:

Registrar sky of Rajasthan JAIPUR

32

6,

Enteral and Parenteral feeding

Nutritional care of hospitalized children

- Nutritional care of neonates
- Nutrient modifications and special feeding problems
- Nutritional care of Malnourished children

7.

Food Allergies

8. Clinical features, diagnosis and management of Food Allergy and food intolerance.

Immunity and Nutrition

9.

Effect of Stress on Health and Nutrition

UNIT III

Classification, Aetiology, Clinical features, diagnosis, prevention and dietary management of Gastrointestinal Diseases

- GERD.
- Peptic Ulcer,
- Constipation,
- Diarrhoea,
- Celiac Disease,
- Irritable Bowel Disease,
- Ulcerative Colitis

Classification, Aetiology, Clinical features, diagnosis, prevention and dietary management of Liver and Pancreatic Diseases

- Hepatitis,
- Liver Cirrhosis ALD & NALD
- Fatty liver
- Hepatic Coma
- Pancreatitis

References:

- 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 Second Edition. Oxford & IBH Publishing Co. Pvt. Ltd, 2003.
- 3. Wardlaw GM and Kessel MW. Perspectives in Nutrition. Fifth Edition. Mc Graw Hill Publications, Ohio, USA, 2007.
- 4. Joshi YK. Basics of Clinical Nutrition. II 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, 8thEdition,Lea and Febiger, Philadelphia, 1994.
- 6. Williams SR. 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

28

1

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

PUBLIC HEALTH NUTRITION - 1 (THEORY)

Paper Code: FHN 902

Credits: 4

Max. Marks:100

Teaching Hours :4 Hours / Week

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

Public Nutrition and Health Care System

- 1. Concept and scope of public health nutrition
- 2. Levels of Health care and Health care system in India
- 3. National Policy: Health, nutrition and population
- 4. Brief note on : Dual burden of malnutrition, National Health Mission, Millennium Development Goals Nutritional Epidemiology
- 5. Definition, aims, basic measurement and applications

Study designs - methods applied in conducting nutrition research

Measuring exposure (diet) outcome (diseases) relationship and their interpretation

UNIT-II

- 6. Assessing and Intervening the Community's Nutritional Needs
 - Community Need Assessment
 - Reaching out to High Risk population
- 7. Promoting the Public's Nutritional Health
 - Growing a Healthier Nation: Maternal, Infant, Child and Adolescent Nutrition
 - Importance of Public Health Nutrition Programs in Preventing Disease and Promoting Health
 - Providing Services in Public Health Primary care

UNIT-III

Public Health Aspects of under nutrition

- 8 Etiology, Public Health Implications, preventive/curative strategies for:
 - Chronic energy deficiency
 - Protein energy malnutrition
 - Micronutrient deficiency
- 9. Approaches/strategies for improving nutrition and health status of community:
 - Health based interventions including immunization, provision of safe drinking water, hygiene, prevention and management of diarrheal diseases.
 - Food based interventions including food fortification, dietary diversification, supplementary feeding and biotechnological approaches.
- 10. Education based interventions including growth monitoring and promotion, and nutrition health education

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, Philadelphea, 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, Krishi Anusandhan Bhavan, 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. Sari Edelstein (Editor). Nutrition in Public Health: A handbook for developing Programs and Services. Jones Bartlett Learning, 3rd Edition, 2011.
- 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. Mc Laren 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. Jeliffe DS. The Assessment of Nutritional status of the community, WHO Geneva, 1966.
- 11. Gopaldas T and Sheshadry 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.

INSTITUTIONAL FOOD ADMINISTRATION – I (THEORY)

Paper Code: FHN 903

Credits: 4

Max. Marks: 100

Teaching Hours: 4 Hours/Week

Total Teaching Workload: 60 Hours/ Semester

Objectives:

- 1. The various aspects of food service planning
- 2. The management of food service organisations.
- 3. Developing in students the skill of menu planning for quantity and quality food preparation.

Contents:

UNIT- I

1. Introduction to Foodservice systems

- Development of food services in Institutions.
- Consumer behaviour and eating trends- teenagers, family, business- corporate world.
- Food services facility planning introduction to foodservice facilities planning, the planning process, the planning team, planning the prospectus, functional planning, planning the atmosphere, workplace design, equipment requirements (writing equipment specifications, purchasing, factors affecting equipment selection, type of equipments), space requirements, layout of facilities.

UNIT-II

2. Organisation and Management

- Organization definitions, nature and characteristics of organisation, theories of organisation, steps in process of organisation, principles of organisation, departmentation, types of organisations.
- Systems approach to management
- Management definitions, management process, roles of a manager, level and skills of management, principles of management, tools of management, management of resources, functions of management.
- Financial Management Key accounting concepts, basic financial statements, tools for comparison and analysis, budgeting, book keeping- principles of double entry, records.
- Energy management-energy utilisation, energy conservation, energy management systems

• Time management.

3. Food Management

UNIT-III

- Food acceptability and sensory evaluation definition, application, difference between organoleptic and sensory evaluation, qualification and types of panelists, testing area, methods of sensory testing.
- Menu planning importance of menu planning in food service organisation, types of menu and their application, factors affecting menu planning, steps in menu planning, quality food standards, standardised recipes.
- Food Purchasing Market and the buyer, forecasting in foodservice, methods of purchasing, mode of purchasing (centralized and group purchasing), purchasing process and records, vendor selection and evaluation, Food selection.
- Food production Food production planning, production schedules, principles of food production, methods of food production, production controls, quantity and quality control.
- Receiving and store room management Elements of receiving, receiving process, dry storage, and low temperature storage.

Py Jay

Dy. Registrar

University of Rajasthas
JAIPUR



- Food cost control factors affecting food cost, records for control, pricing the products.
- Food Laws and standards

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 and 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 and Terrell ME. Food Service Planning, Layout and Equipment, John Wiley and Sons Inc., USA, 1961.
- 12. Kinton R, Ceserani V, Foskett D. The Theory of Catering, ELST, London, 1999.
- 13. Palacio JP, Theis M. Introduction to Food Service. Pearson Prentice Hall, New Jersey, 2009.

PUBLIC HEALTH NUTRITION - I (PRACTICAL)

Paper Code: FHN 911

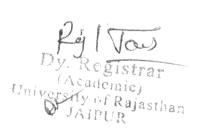
Credits: 6

Max. Marks:100

Teaching Hours: 3 Practicals/Week (3 Hours/Practical)
Total Teaching Workload: 45 Practicals/ semester

Objectives:

- 1. To enable students to assess needs of the community
- 2. To enable students to strategize programs on health and nutrition with available resources
- 3. To enable students to develop effective audio visual aids for community
- 4. To enable students to plan and develop low cost recipes with specific nutritional need.



- 1. Participatory Rapid Assessment (PRA) Techniques
- 2. Strategies for reaching community for public health and nutritional development.
 - 3. Communication: Channels, barriers
 - 4. Methods of communication
 - 5. Audio visual aids
 - 6. Planning and preparation of pre mixes for complementary feeding to children 6-9, 9-12 and 12-24 months.
 - 7. Planning and preparation of fresh complementary foods for children 6-9, 9-12 and 12-24 months.
 - 8. Planning and preparation of energy, protein, iron and calcium rich food for pregnant woman.
 - 9. Planning and preparation of energy, protein, vitamin A and calcium rich food preparations for lactating woman.
 - 10. Planning and preparation of food baskets for pregnant and lactating woman.
 - 11. Preparation of energy and protein rich snack for severely malnourished children
 - 12. Preparation of recipe based on pre-mix provided at AWC
 - 13. Community Analysis for identification of needs related to public health and nutrition issues of community using PRA techniques
 - 14. Assessment of causes of problems identified in above exercise and Prioritization of focus areas
 - 15. Collection, analysis and presentation of literature on contemporary Public Health and Nutrition
 - 16. Preparing messages which needs to be disseminated on contemporary issues of Public health and nutritional issues
 - 17. Preparation of audio visual aids on any one public health and nutrition issues

FOOD AND NUTRITION SECURITY (THEORY)

Paper Code: FHN C01

Credits: 4

Max. Marks: 100

Teaching Hours: 4 Hours / Week

Total Teaching Workload: 60 Hours/ Semester

Objectives:

- 1. To understand the concept of Food and Nutrition Security.
- 2. To gain knowledge regarding policies and programmes for improving Food Security.

Contents:

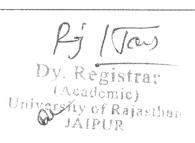
UNIT-I

Public Health Aspects of under nutrition

- 1. Food and Nutrition Security
 - Definitions of Food and Nutrition Security.
 - Basic concepts and conceptual frame work of Food and Nutrition Security.

2. Analysis of food security

Food availability Food access Food absorption Beneficiaries for National Programs 3. Infants School Children Adolescent Girls Pregnant and Lactating Women UNIT-II 4. Policies and Programmes for reducing insecurity (Social Protection Initiatives) The Public Distribution System (PDS) and the Targeted Public Distribution System (TPDS) Antyodaya Anna Yojana (AAY) National Food for Work Programme (NFFWP). Mahatma Gandhi National Rural Employment Guarantee Act (NREGA) The right to Food Act **UNIT-III** 5. Agriculture initiatives to improve food security The National Food Security Mission (NFSM) National Horticulture Mission Rashtriya Krishi Vikas Yojana Conditional cash transfer program Programs/Assistance targeted toward specific needy section of the population. 6. National Social Assistance Programme Annapurna Scheme Village Grain Bank Scheme National Programme for Adolescent Girls National programme of Nutritional support to Primary Education (Mid day meal 7 programme) Integrated child development services (Scheme) References: 1. Understanding the dynamics of Food Insecurity and Vulnerability in Himachal Pradesh, India. ESA Working Paper No 07-22. FAO, May 2007. 2. Food Security and Nutrition. Cambodian Food Security and Nutrition website. http://www.foodsecurity.gov.kh/CamSituation.aspx 3. Food Security, Policy Brief. Issue 2, FAO, June 2006. 4. The Food Insecurity Atlas of Rural India, Swaminathan Research Foundation (2001). 5. Understanding the Dynamics of Food Insecurity and Vulnerability in Orissa, India. ESA Working Paper No 07-28. FAO, October 2007 (22). 6. Climate Change, Water and Food Security. Technical Background Document From the Expert



7. Climate Change: Impact on Agriculture and Costs of Adaptation, International Food Policy

Consultation Held on 26 to 28 February 2008, FAO, Rome.

Research Institute (IFPRI), 2009 (26).

ftp://ftp.fao.org/docrep/fao/meeting/013/ai783e.pdf. Accessed on 24-7-08.

8. FS Atlas of Rural Rajasthan WFP/ Institute of HD, 2010.

79. Report on the state of FS in Rural Rajasthan WFP/MS Swamin athan Research Foundation, 2010.

10. Report on the state of FS in Urban India WFP/MS Swaminathan Research Foundation, 2010.

SKILL DEVELOPMENT IN CLINICAL NUTRITION (THEORY)

Paper Code: FHN C02

Credits: 2

Max. Marks: 100

Teaching Hours: 2 Practicals/ Week (3Hours/ Practical)
Total Teaching Workload: 30 Practicals / Semester

Objectives:

1. Identification of high risk patients, malnutrition in hospital patients.

- 2. To enable the students to understand the special nutrition concerns and the dietary management of various diseases.
- 3. To give practical insight for assessment, nutritional care and counselling to patients.

UNIT I

- 1 Nutrition Care Process in Hospitalized Patients
 - Nutrition care process
 - Nutritional Assessment of hospitalized patients
 - Methods of feeding (Enteral and Parenteral feeding)
 - Interpretation of routine medical and laboratory data
- 2. Behaviour Change Communication
 - Assessment of Problem in food behaviours
 - Stagesof Change

UNIT II

3. Factors affecting Food Choices

Social, cultural, religious, economic, emotional factors.

- 4. Food Drug Interactions
 - Effect of drugs on food and nutrition
 - Effect of food on drug therapy
- 5. Food Allergies

Clinical features, diagnosis and management of Food Allergy and food intolerance.

UNIT III

- 6. Alternative Therapies
 - Alternative Therapies
 - Ayurveda, Siddha, Yunani and Homeopathy systems

- NABH Regulations in context with Dietitians
- 8. Traditional Diets

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, 8thEdition,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

CLINICAL NUTRITION AND DIETETICS- I (PRACTICAL)

Paper Code: FHN C11

Credits: 4

Max. Marks: 100

Teaching Hours: 2 Practicals/Week (3 Hours/Practical)
Total Teaching Workload: 30 Practicals /Semester

Objectives:

- 1. To make students understand the nutritional assessment of elderly and hospitalized patients
- 2. To make students understand the nutritional management of obesity and eating disorders
- 3. To make students understand the nutritional management of patients suffering from gastrointestinal diseases, ulcers, liver, pancreatic diseases and food allergies

Contents:

- 1. Planning and preparation of diet for elderly persons
- 2. Plan, calculate diets for Obese and Overweight Persons
- 3. Plan, calculate diets for persons with eating disorders (Anorexia and Bulimia)
- 4. Visit to ICU to see various methods of feeding
- 5. Planning and preparation of diet for tube feeding
- 6. Nutritional Assessment of hospitalized patients
- 7. Visit to Pediatric Hospital to study the feeding of sick children

8.	Planning and preparation of diet for a sick child
19.	Plan, calculate diets for persons with constipation and diarrhea
10.	Plan, calculate diets for patients with GERD
11.	Plan, calculate diets for gastric and duodenal ulcers
12.	Planning and preparation of diet for Celiac Disease
13.	Planning and preparation of diet for Irritable Bowel Disease,
14.	Planning and preparation of diet for Malabsorption Syndrome
15.	Planning and preparation of diet for Ulcerative Colitis
16.	Planning and preparation of diet for Hepatitis
17.	Planning and preparation of diet for Hepatic Coma
18.	Planning and preparation of diet for Liver Cirrhosis
19.	Planning and preparation of diet for Pancreatitis
20	Planning nutrition support for fatty liver
21	Adaptation of traditional diets for healthy life style.
22	Plan, calculate diets for food intolers.
44	Plan, calculate diets for food intolerances and counsel them regarding management of food intolerance
	INSTITUTIONAL POOR

INSTITUTIONAL FOOD ADMINISTRATION -I (PRACTICAL)

Paper Code: FHN C12

Credits: 4

Max. Marks:100

Teaching Hours: 2 Practicals / week

CACALOSUÍ

Total teaching workload: 30 Practicals/Semester

Objectives:

- 1. To visit different food service institutions to gain an insight into the functioning of such units.
- 2. To plan menus for different occasions/institutions
- 3. To cook certain food items in large quantities ie., in 50-60 portions each.

Dy. Registrar University of Rajasthan

Contents:

- 1. Carrying out market survey of perishable, non-perishable and processed foods for meal planning.
 2. 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, for example:
 - Hostel mess
 - Railway canteen
 - Office canteen
 - College canteen
 - Mid day meal
 - Conference
- 3. Visit to different institutes for eg:
 - Girls' hostel
 - Railway canteen
 - Office
 - College
 - Akshaya patra

4. Quantity cookery classes for preparation of food items for eg: Coconut cookies, Samosas, Chole tikki, Masala idlies, Masoor dal pakories, Bhelpuri, Dahiwada, Chikki etc.

SKILL DEVELOPMENT IN CLINICAL NUTRITION (PRACTICAL)

Paper Code: FHN C13

Credits:4

Max. Marks: 100

Teaching Hours: 2 Practicals/ Week (3 Hours/Practicals)

Total Teaching Workload: 30 Practicals/ Semester

Objectives:

- 1. To make students familiar with hospital environment
- 2. To make students understand the importance and method of nutritional assessment of hospitalized patients
- 3. To enable students to understand and get trained in management of hospital kitchens
- 4. To enable students to make appropriate recipe formulations and modifications in a hospital based kitchen
- 5. To enable students to develop an understanding of working in various wards and counseling patients having difficulty in feeding and catering to their needs

UNIT I

- 1. Working of a Dietetics Department in a hospital.

 Job profile of a Dietician, liaison with doctors and nursing staff.
- 2 Assessment of Nutritional Status of Hospitalized patients- in 4 wards on rotation

3	To understand the working of a Kitchen in a hospital. Inventory and management of kitchen. Duties of a Dietician in menu planning.
4	Recipe modification and standardization in the lab
5	Conversion of requisitions and prescriptions to menus
6.	Case Study Case study in various wards like pediatric, critical care, surgery, gynecology, renal etc. 2 students will be posted in a ward for 5 days, and shall complete two case studies. Case study to be submitted shall include anthropometric, biochemical data, clinical examination and dietary data of the patients.
7.	Report writing and submission and presentation

Helpstidentipoint. Dy. Registrar (Academic) University of Rajasthan JAIPUR