KURUKSHETRA UNIVERSITY KURUKSHETRA

Scheme of Examination and Syllabus for

Under-Graduate Programme

Multidisciplinary Scheme A

(Subject: Clinical Nutrition & Dietetics)

Under Multiple Entry-Exit, Internship and CBCS-LOCF in accordance to NEP-2020 w.e.f. 2023-24 (in phased manner)

DEPARTMENT OF HOME SCIENCE, KURUKSHETRA UNIVERSITY, KURUKSHETRA
Scheme of Examination for Under-Graduate Programme
Under Multiple Entry-Exit, Internship and CBCS-LOCF in accordance to NEP-2020
w.e.f. 2023-24 (in phased manner)

Subject: Clinical Nutrition & Dietetics

SEMESTER-1								
Course	**Paper(s)**	**Nomenclature of Paper**	**Credit**	**Hours/ Week**	**Internal marks**	**External Marks**	**Total Marks**	**Exam Duration**
CC-1 4 credit	**B23-CND-101**	**Basics of Food Science I**	3	3	20	50	70	3 hrs.
		Practicum	1	2	10	20	30	4 hrs.
CC-M1 2 credit	**B23-CND-102**	**Fundamentals of Nutrition I**	1	1	10	20	30	3 hrs.
		Practicum	1	2	5	15	20	4 hrs.

SEMESTER-2								
Course	**Paper(s)**	**Nomenclature of Paper**	**Credit**	**Hours/ Week**	**Internal marks**	**External Marks**	**Total Marks**	**Exam Duration**
CC-2 4 credit	**B23-CND-201**	**Basics of Food Science II**	3	3	20	50	70	3 hrs.
		Practicum	1	2	10	20	30	4 hrs.
CC-M2 2 credit	**B23-CND-202**	**Fundamentals of Nutrition II**	1	1	10	20	30	3 hrs.
		Practicum	1	2	5	15	20	4 hrs.

SEMESTER-3								
Course	**Paper(s)**	**Nomenclature of Paper**	**Credit**	**Hours/ Week**	**Internal marks**	**External Marks**	**Total Marks**	**Exam Duration**
CC-3 4 credit	**B23-CND-301**	**Human Nutrition I**	3	3	20	50	70	3 hrs.
		Practicum	1	2	10	20	30	4 hrs.
		Practicum	1	2	5	20	25	4 hrs.

SEMESTER-4								
Course	**Paper(s)**	**Nomenclature of Paper**	**Credit**	**Hours/ Week**	**Internal marks**	**External Marks**	**Total Marks**	**Exam Duration**
CC-4 4 credit	**B23-CND-401**	**Human Nutrition II**	3	3	20	50	70	3 hrs.
		Practicum	1	2	10	20	30	4 hrs.

SEMESTER-5								
Course	**Paper(s)**	**Nomenclature of Paper**	**Credit**	**Hours/ Week**	**Internal marks**	**External Marks**	**Total Marks**	**Exam Duration**
CC-5 4 credit	**B23-CND-501**	**Dietetics I**	3	3	20	50	70	3 hrs.
		Practicum	1	2	10	20	30	4 hrs.

SEMESTER-6								
Course	**Paper(s)**	**Nomenclature of Paper**	**Credit**	**Hours/ Week**	**Internal marks**	**External Marks**	**Total Marks**	**Exam Duration**
CC-6 4 credit	**B23-CND-601**	**Dietetics II**	3	3	20	50	70	3 hrs.
		Practicum	1	2	10	20	30	4 hrs.

Session: 2023-24			
Part A – Introduction			
Subject	Clinical Nutrition & Dietetics		
Semester	I		
Name of the Course	Basics of Food Science I		
Course Code	**B 23- CND-101**		
Course Type: (CC/MCC/MDC/CC-M /DSEC/VOC/DSE/PC/AEC/VAC)	CC-1		
Level of the course (As per Annexure-I	100 – 199		
Pre-requisite for the course (if any)	12^{th} pass		
Course Learning Outcomes(CLO):	After completing this course, the learner will be able to: 1. To acquire knowledge of various concepts of food science 2. To know the importance of various food groups 3. To understand the specific phenomenon related to all food groups 4. To impart knowledge about storage and processing of food group products 5*. To impart practical knowledge to students to prepare recipes using different cooking methods		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3	2	5
Max. Marks: 100 **Internal Assessment Marks: 20 (T) + 10 (P) =30** **End Term Exam Marks: 50 (T) + 20 (P) =70**		**Time: 3hrs (T)** **4hrs (P)**	

Part B- Contents of the Course

Instructions for Paper- Setter

Instructions for the examiner: The examiner will set nine questions in all, selecting two questions from each unit and one compulsory objective type question.

Instructions for the candidates: The candidate will attempt five questions in all, selecting one question from each unit and one compulsory question.

Unit	Topics	Contact Hours
I	Food: Definition, Classification on the basis of source, foods groups, nutrients, functions and perishability Functions of food: Physiological, Psychological and Social	10
II	Food Preparation: Selection of foods, preliminary preparation of food, Cooking: Definition, Objectives, Principles Methods of Cooking – Principle, Advantages and disadvantages of: Moist Heat, Dry Heat, Frying, Combination, Radiation.	10
III	Cereals and Millets - Composition and nutritive value, cereal products, Breakfast cereals, role of cereals, cereal products and millets in cookery. Pulses and Legumes - Nutritive value of pulses and legumes, storage of pulses, use of pulses, anti - nutritional factors, germination	12
IV	Vegetables and Fruits – Classification, Composition & Nutritive value, storage & use, browning, preservation. Milk & Milk Products – Composition and Nutritive value, types of milk products, storage of milk products and role of milk & milk products in cookery.	13
V*	To conduct sensory evaluation of food To find the percentage of edible portion of foods. To determine the moisture content in given sample of flour To determine the gluten content in given sample of flour To study the effect of temperature, time of heating, concentration, addition of sugar and acid on gelatinization of starch. To demonstrate the best method of cooking rice.	30

	To demonstrate the effect of soaking, hard water, sodium bi carbonate and papaya on cooking quality of pulses. To demonstrate the effect of acid, alkali and over cooking on vegetables containing different pigments. To demonstrate the effects of different amounts of water added to vegetables during cooking on flavor and appearance. To demonstrate enzymatic browning in vegetables and fruits and any four methods of preventing it. To determine the effect of varying proportions of acid, sugar, temperature, pectin and cooking time on formation of jelly To study the effect of heat on vegetables and fruits To demonstrate the factors affecting coagulation of milk protein.	

Suggested Evaluation Methods

Internal Assessment:	**End Term Examination:**
➢ **Theory** • Class Participation: **05** • Seminar/presentation/assignment/quiz/class test etc.: **05** • Mid-Term Exam: **10**	**50**
➢ **Practicum** • Class Participation: **00** • Seminar/Demonstration/Viva-voce/Lab records etc.:**10** • Mid-Term Exam: **NA**	**20**

Part C-Learning Resources

Recommended Books/e-resources/LMS:

1. Srilakshmi, B. (2017) Food Science (2nd edition). New Age International Pvt. Ltd. Publishers: New Delhi.
2. Maney S (2008). Foods, Facts and Principles, 3 rd Edition Published by Wiley Eastern, New Delhi.
3. Usha Chandrasekhar (2002) Food Science and Application in Indian Cookery, Phoenix Publishing House P. Ltd., New Delhi.
4. Mahtab, S. Bamji, Kamala Krishnasamy, Brahmam G.N.V (2012) Text Book of Human Nutrition, Third Edition, Oxford and IBH Publishing Co. P. Ltd., New Delhi.
5. Sunetra Roday (2017). Food Science and Nutrition, Oxford University Press, New Delhi.
6. Longvah, T, Ananthan, R., Bhaskarachary, K., Venkaiah, K (2017). Indian Food Composition Tables (IFCT), Indian Council of Medical Research, National Institute of Nutrition, Hyderab.
7. Raina U, Kashyap S, Narula V, Thomas S Suvira, Vir S, Chopra S (2010) Basic Food Preparation: A Complete Manual, 4th Edition, Orient Black Swan Ltd, Mumbai.
8. Rajalakshmi, R. (1990) Applied Nutrition (3rd ed.) Oxford and IBH Pub. Co. Pvt. Ltd.: New Delhi.
9. Swaminathan, M. (1988). Essentials of Food and Nutrition - An Advanced Text Book Vol. I and II. (2nd ed.) BAPPCO: Bangalore.
10. Swaminathan, M. Food Science. BAPPCO: Bangalore.
11. Mudambi, S.R. and Rao S. Fundamentals of Food & Nutrition. (2nd ed.) Wiley Eastern Ltd.: New Delhi.

Session: 2023-24			
Part A – Introduction			
Subject	Clinical Nutrition & Dietetics		
Semester	I		
Name of the Course	Fundamentals of Nutrition I		
Course Code	**B 23-CND-102**		
Course Type: (CC/MCC/MDC/CC-M /DSEC/VOC/DSE/PC/AEC/VAC)	CC-M1		
Level of the course (As per Annexure-I	100 – 199		
Pre-requisite for the course (if any)	12th pass		
Course Learning Outcomes(CLO):	After completing this course, the learner will be able to: 1. To understand basic concepts of nutrition and RDAs 2. To understand the functions, sources, requirements and effects of deficiency and excess of carbohydrates and fibre 3. To understand the functions, sources, requirements and effects of deficiency and excess of proteins 4. To understand the functions, sources, requirements and effects of deficiency and excess of fats and oils 5*. To impart practical knowledge about preparation of nutrient rich and some other recipes		
Credits	Theory	Practical	Total
	1	1	2
Contact Hours	1	2	3
Max. Marks: 50 **Internal Assessment Marks: 10(T) + 5(P)** **End Term Exam Marks: 20 (T) + 15(P)**		**Time: 3 hrs (T)** **4 hrs (P**	

Part B- Contents of the Course

Instructions for Paper- Setter

Instructions for the examiner: The examiner will set nine questions in all, selecting two questions from each unit and one compulsory objective type question.

Instructions for the candidates: The candidate will attempt five questions in all, selecting one question from each unit and one compulsory question.

Unit	Topics	Contact Hours
I	Understanding terminologies: Food, nutrition, health, nutrients, nutritional status, malnutrition-under nutrition, over-nutrition and optimum nutrition Food groups and Food Pyramid Functions of food – Physiological, Psychological and Social. Factors affecting food intake and food habits	03
II	Carbohydrates – Composition, classification, functions, RDA, food sources, deficiency and excess. Fiber – types, functions, sources, deficiency and excess.	04
III	Proteins – Composition, classification, functions RDA, food sources and deficiency.	04
IV	Fats & Oils – Composition, classification, functions, RDA, food sources, deficiency and excess.	04
V*	Planning and preparation of energy dense recipes Planning and preparation of low energy recipes Planning and preparation of high fiber recipes Planning and preparation of low fiber recipes Planning and preparation of protein dense recipes Planning and preparation of low fat and zero oil recipes	30

Suggested Evaluation Methods

Internal Assessment:	End Term Examination:
➢ **Theory** • Class Participation: **00** • Seminar/presentation/assignment/quiz/class test etc.: **05** • Mid-Term Exam: **05**	**20**
➢ **Practicum** • Class Participation: **00** • Seminar/Demonstration/Viva-voce/Lab records etc.: **05** • Mid-Term Exam: **NA**	**15**

Part C-Learning Resources

Recommended Books/e-resources/LMS:

1. Mudambi S R and Rajagopal M V, Fundamentals of Foods, nutrition & Diet therapy, New Age International Publishers, 6 th Edition. 2020
2. Bamji, M.S, Textbook of Human Nutrition, Oxford & IBH Publishing Co Pvt. Ltd,4th Edition. 2019
3. Srilakshmi B, Dietetics, New Age International Publishers, 8 th Edition. 2019
4. Swaminathan, M, Handbook of Food and Nutrition, The Bangalore Press, 5 th Edition. 2018
5. Srilakshmi B, Nutrition Science, New Age International Publishers, 6 th Edition. 2017
6. Longvah T Anathan R, Bhaskarachary K, and Venkaiah k, Indian food composition table, NIN.ICMR, 2 nd Edition. 2017
7. Gibney M.J, Nutrition and Metabolism, Wiley- Blackwell, 2003
8. Carolyn D. Berdanier, Advanced Nutrition, Macronutrients, CRC press, 2 nd Edition.2000
9. Emma. S. Weigley, Robinson's Basic Nutrition and Diet Therapy, Pearson publication, 1st Edition. 1996

Session: 2023-24			
Part A – Introduction			
Subject	Clinical Nutrition & Dietetics		
Semester	II		
Name of the Course	Basics of Food Science II		
Course Code	**B 23- CND-201**		
Course Type: (CC/MCC/MDC/CC-M/ DSEC/VOC/DSE/PC/AEC/VAC)	CC-2		
Level of the course (As per Annexure-I	100 – 199		
Pre-requisite for the course (if any)	12th pass		
Course Learning Outcomes(CLO):	After completing this course, the learner will be able to: 1. To acquire knowledge of nutritive value of various food groups 2. To know the importance of various food groups. 3. To equip with different cooking methods and techniques used while food preparation. 4. To impart knowledge about improving nutritional quality of various foods. 5*. To impart practical knowledge to students to understand and differentiate about physical and chemical properties various food groups.		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3	2	5
Max. Marks: 100 **Internal Assessment Marks: 20 (T) + 10 (P) =30** **End Term Exam Marks: 50 (T) + 20 (P) =70**		**Time: 3hrs (T)** **4hrs (P)**	

Part B- Contents of the Course		
Instructions for Paper- Setter **Instructions for the examiner:** The examiner will set nine questions in all, selecting two questions from each unit and one compulsory objective type question. **Instructions for the candidates:** The candidate will attempt five questions in all, selecting one question from each unit and one compulsory question.		
Unit	**Topics**	**Contact Hours**
I	Effect of cooking on nutritive value of food stuffs Methods of enhancing nutritive value: Fermentation, Germination, Supplementation, Enrichment and Fortification	10
II	Egg – Composition & nutritive value of egg, quality of egg and use of egg. Foam formation Flesh Food – Composition & nutritive value of meat, fish & poultry, storage and uses of flesh food.	12
III	Fats & Oils – Nutritional importance and composition, specific fats, role of fats / oils in cookery. Nuts & Oilseeds – Nutritional importance and composition, role of nuts and oilseeds in cookery	10
IV	Sugar & Sugar Products – Nutritive value of sugar and related products, storage & uses, caramelisation. Spices & Condiments – Nutritive, aesthetic and medicinal value of spices and condiments.	13
V*	To demonstrate the formation of ferrous sulphide in boiling egg and its preventive measures. To demonstrate the effect of addition of acid, fat, salt, water and sugar on the texture of omelettes. To study the effect of salt, acid, sugar and fat on the stability of egg white foam and other variables. To determine the smoking point of fats and oils. To study the effect of sugar on the boiling point of water. To demonstrate the process of sugar recrystallisation through the preparation of fondant, fudge and *shakarpara.* To detect metanil yellow in spices. Project presentation on market survey on ready to eat/ ready to cook food products	30

Suggested Evaluation Methods	
Internal Assessment: ➢ **Theory** • Class Participation: **05** • Seminar/presentation/assignment/quiz/class test etc.: **05** • Mid-Term Exam: **10** ➢ **Practicum** • Class Participation: **00** • Seminar/Demonstration/Viva-voce/Lab records etc.:**10** • Mid-Term Exam: **NA**	**End Term Examination:** **50** **20**

Part C-Learning Resources

Recommended Books/e-resources/LMS:

1. Srilakshmi, B. (2017) Food Science (2nd edition). New Age International Pvt. Ltd. Publishers: New Delhi.
2. Maney S (2008). Foods, Facts and Principles, 3 rd Edition Published by Wiley Eastern, New Delhi.
3. Usha Chandrasekhar (2002) Food Science and Application in Indian Cookery, Phoenix Publishing House P. Ltd., New Delhi.
4. Mahtab, S. Bamji, Kamala Krishnasamy, Brahmam G.N.V (2012) Text Book of Human Nutrition, Third Edition, Oxford and IBH Publishing Co. P. Ltd., New Delhi.
5. Sunetra Roday (2017). Food Science and Nutrition, Oxford University Press, New Delhi.
6. Longvah, T, Ananthan, R., Bhaskarachary, K., Venkaiah, K (2017). Indian Food Composition Tables (IFCT), Indian Council of Medical Research, National Institute of Nutrition, Hyderab.
7. Raina U, Kashyap S, Narula V, Thomas S Suvira, VirS, Chopra S (2010) Basic Food Preparation: A Complete Manual, 4th Edition, Orient Black Swan Ltd, Mumbai.
8. Rajalakshmi, R. (1990) Applied Nutrition (3rd ed.) Oxford and IBH Pub. Co. Pvt. Ltd.: New Delhi.
9. Swaminathan, M. (1988). Essentials of Food and Nutrition - An Advanced Text Book Vol. I and II. (2nd ed.) BAPPCO: Bangalore.
10. Swaminathan, M. Food Science. BAPPCO: Bangalore.
11. Mudambi, S.R. and Rao S. Fundamentals of Food & Nutrition. (2nd ed.) Wiley Eastern Ltd.: New Delhi.

Session: 2023-24			
Part A – Introduction			
Subject	Clinical Nutrition & Dietetics		
Semester	II		
Name of the Course	Fundamentals of Nutrition II		
Course Code	**B 23- CND-202**		
Course Type: (CC/MCC/MDC/CC-M /DSEC/VOC/DSE/PC/AEC/VAC)	CC – M2		
Level of the course (As per Annexure-I	100 – 199		
Pre-requisite for the course (if any)	12th pass		
Course Learning Outcomes(CLO):	After completing this course, the learner will be able to: 1. To understand the functions, sources, RDAs and effects of deficiency and excess of fat-soluble vitamins 2. To understand the functions, sources, RDAs and effects of deficiency of water- soluble vitamins 3. To understand the functions, sources, RDAs and effects of deficiency and excess of macro-minerals 4. To understand the functions, sources, RDAs and effects of deficiency and excess of micro-minerals 5*. To impart practical knowledge about preparation of nutrient rich and some other recipes		
Credits	Theory	Practical	Total
	1	1	2
Contact Hours	1	2	3
Max. Marks: 50 **Internal Assessment Marks: 10 (T) + 5 (P)** **End Term Exam Marks: 20 (T) + 15 (P)**		**Time: 3hrs (T)** **4 hrs (P)**	

Part B- Contents of the Course

Instructions for Paper- Setter

Instructions for the examiner: The examiner will set nine questions in all, selecting two questions from each unit and one compulsory objective type question.

Instructions for the candidates: The candidate will attempt five questions in all, selecting one question from each unit and one compulsory question.

Unit	Topics	Contact Hours
I	Fat-soluble Vitamins: Classification, sources, RDAs, functions and deficiency and excess of the following: A, D, E & K	04
II	Water-soluble Vitamins: Classification, sources, RDAs, functions and deficiency and excess of the following: B1, B2 , Niacin, B6, Folic acid and B12, C	04
III	Macro Minerals – functions, sources, RDA and deficiency of the following: Calcium, Phosphorus, Sodium & Potassium	04
IV	Micro Minerals – functions, sources, RDA and deficiency of the following: Iron, Iodine, Fluorine & Zinc	03
V*	Planning and preparation of Vitamin A rich recipes Planning and preparation of Vitamin C rich recipes Planning and preparation of Vitamin B complex rich recipes Planning and preparation of Calcium rich recipes Planning and preparation of Iron rich recipes Planning and preparation of Folate rich recipes	30

Suggested Evaluation Methods

Internal Assessment:	End Term Examination:
➢ **Theory** • Class Participation: **00** • Seminar/presentation/assignment/quiz/class test etc.: **05** • Mid-Term Exam: **05**	**20**
➢ **Practicum** • Class Participation: **00** • Seminar/Demonstration/Viva-voce/Lab records etc.: **05** • Mid-Term Exam: **NA**	**15**

Part C-Learning Resources

Recommended Books/e-resources/LMS:

1. Mudambi S R and Rajagopal M V, Fundamentals of Foods, nutrition & Diet therapy, New Age International Publishers, 6 th Edition. 2020
2. Bamji, M.S, Textbook of Human Nutrition, Oxford & IBH Publishing Co Pvt. Ltd,4th Edition. 2019
3. Srilakshmi B, Dietetics, New Age International Publishers, 8 th Edition. 2019
4. Swaminathan, M, Handbook of Food and Nutrition, The Bangalore Press, 5 th Edition. 2018
5. Srilakshmi B, Nutrition Science, New Age International Publishers, 6 th Edition. 2017
6. Longvah T Anathan R, Bhaskarachary K, and Venkaiah k, Indian food composition table, NIN.ICMR, 2 nd Edition. 2017
7. Gibney M.J, Nutrition and Metabolism, Wiley- Blackwell, 2003
8. Carolyn D. Berdanier, Advanced Nutrition, Macronutrients, CRC press, 2 nd Edition.2000
9. Emma. S. Weigley, Robinson's Basic Nutrition and Diet Therapy, Pearson publication, 1st Edition. 1996

Session: 2023-24			
Part A – Introduction			
Subject	Clinical Nutrition & Dietetics		
Semester	III		
Name of the Course	Human Nutrition I		
Course Code	**B 23- CND-301**		
Course Type: (CC/MCC/MDC/CC-M / DSEC/ VOC/DSE/PC/AEC/VAC)	CC-3		
Level of the course (As per Annexure-I	100 – 199		
Pre-requisite for the course (if any)	12th pass		
Course Learning Outcomes(CLO):	After completing this course, the learner will be able to: 1. To understand the concept and principles of meal planning 2. To know about nutritional requirements during infancy and breast feeding 3. To understand the nutritional requirements of toddlers and pre-schoolers 4. To know the nutritional needs of school going children 5*. To prepare nutritious meals for different age groups		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3	2	5
Max. Marks: 100 **Internal Assessment Marks: 20 (T) + 10 (P) =30** **End Term Exam Marks: 50 (T) + 20 (P) =70**		**Time: 3hrs (T)** **4hrs (P)**	

Part B- Contents of the Course

Instructions for Paper- Setter

Instructions for the examiner: The examiner will set nine questions in all, selecting two questions from each unit and one compulsory objective type question.

Instructions for the candidates: The candidate will attempt five questions in all, selecting one question from each unit and one compulsory question.

Unit	Topics	Contact Hours
I	Introduction to meal management – Balanced diet, Basic principles of meal planning, objectives and steps in meal planning.	10
II	Nutrition during infancy – Nutritional requirements, Breast feeding, Formula feeding, Introduction of supplementary food.	15
III	Nutrition during early childhood (Toddler / Pre School) growth and nutrient needs, nutrition related problems.	10
IV	Nutrition of school children – Nutritional requirements, School lunch programmes: ANP, SNP and MDM	10
V*	Planning, calculation and preparation of meals for all age groups mentioned in theory	30

Suggested Evaluation Methods

Internal Assessment:	End Term Examination:
➢ **Theory** • Class Participation: **05** • Seminar/presentation/assignment/quiz/class test etc.: **05** • Mid-Term Exam: **10**	**50**
➢ **Practicum** • Class Participation: **00** • Seminar/Demonstration/Viva-voce/Lab records etc.:**10** • Mid-Term Exam: **NA**	**20**

Part C-Learning Resources
Recommended Books/e-resources/LMS:

1. Modern Nutrition in Health and Disease – Goodhearth, R. S.
2. Recommended dietary allowance for Indians – I.C.M.R., 1980
3. Nutrition and Development- Winick 1973, Univ. of Calombia.
4. Biology of Nutrition – Eclames 1972, Palaniuma Press
5. Foods & Nutrition – Krause 1972, Saunders.
6. Proteins and Human Foods 1970, Lowrie, Avi. Pub. Co.
7. Nutrition & Physical fitness – BoGert L.J.
8. Principles of Nutrition – Wilson, L.D. and Fisher. K.H.
9. Standardised diets for Hospital – National Nut. Advisory Committee
10. Nutrition in Health & Disease – Cooper, L. Barher, L. Mitehell, Hand Rynheraen.
11. Nutrition A comprehensive – Beaton and McHanery, Treatise Vol-1, II, & III.
12. Human Nutrition & Dietetics – Davidson S., Passmore, R., Brook, J.E. and Truswell.
13. Foods and Nutrition – Rankin, W. Munn. Hildath E.N.
14. Iron deficiency – Holiberth, H.C. Harvorth, Vannotti, N.Y.
15. Trace Elements in Human and Animal Nut. – Underwood, N.Y.

Session: 2023-24			
Part A – Introduction			
Subject	Clinical Nutrition & Dietetics		
Semester	IV		
Name of the Course	Human Nutrition II		
Course Code	**B 23- CND-401**		
Course Type: (CC/MCC/MDC/CC-M /DSEC/VOC/DSE/PC/AEC/VAC)	CC-4		
Level of the course (As per Annexure-I	100 – 199		
Pre-requisite for the course (if any)	12th pass		
Course Learning Outcomes(CLO):	After completing this course, the learner will be able to: 1. To understand nutritional needs of adolescents 2. To know about nutritional requirements during pregnancy 3. To understand the nutritional requirements of lactating mothers 4. To know the nutritional needs of elderly people 5*. To prepare nutritious meals for different age groups		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3	2	5
Max. Marks: 100 **Internal Assessment Marks: 20 (T) + 10 (P) =30** **End Term Exam Marks: 50 (T) + 20 (P) =70**		**Time: 3hrs (T)** **4hrs (P)**	

Part B- Contents of the Course

Instructions for Paper- Setter

Instructions for the examiner: The examiner will set nine questions in all, selecting two questions from each unit and one compulsory objective type question.

Instructions for the candidates: The candidate will attempt five questions in all, selecting one question from each unit and one compulsory question.

Unit	Topics	Contact Hours
I	Nutrition during adolescence – Nutritional requirements, food choices and eating habits. Problems of eating by adolescents	10
II	Nutrition in pregnancy – Nutritional requirements, Physiological changes and complications of pregnancy.	13
III	Nutrition during lactation – Physiology of lactation, nutritional requirements.	12
IV	Geriatric nutrition – Nutritional requirements, nutrition related problems of elderly persons	10
V*	Planning, calculation and preparation of meals for all age groups mentioned in theory	30

Suggested Evaluation Methods

Internal Assessment:	End Term Examination:
➢ **Theory** • Class Participation: **05** • Seminar/presentation/assignment/quiz/class test etc.: **05** • Mid-Term Exam: **10**	**50**
➢ **Practicum** • Class Participation: **00** • Seminar/Demonstration/Viva-voce/Lab records etc.:**10** • Mid-Term Exam: **NA**	**20**

Part C-Learning Resources
Recommended Books/e-resources/LMS:

1. Modern Nutrition in Health and Disease – Goodhearth, R. S.
2. Recommended dietary allowance for Indians – I.C.M.R., 1980
3. Nutrition and Development- Winick 1973, Univ. of Calombia.
4. Biology of Nutrition – Eclames 1972, Palaniuma Press
5. Foods & Nutrition – Krause 1972, Saunders.
6. Proteins and Human Foods 1970, Lowrie, Avi. Pub. Co.
7. Nutrition & Physical fitness – BoGert L.J.
8. Principles of Nutrition – Wilson, L.D. and Fisher. K.H.
9. Standardised diets for Hospital – National Nut. Advisory Committee
10. Nutrition in Health & Disease – Cooper, L. Barher, L. Mitehell, Hand Rynheraen.
11. Nutrition A comprehensive – Beaton and McHanery, Treatise Vol-1, II, & III.
12. Human Nutrition & Dietetics – Davidson S., Passmore, R., Brook, J.E. and Truswell.
13. Foods and Nutrition – Rankin, W. Munn. Hildath E.N.
14. Iron deficiency – Holiberth, H.C. Harvorth, Vannotti, N.Y.
15. Trace Elements in Human and Animal Nut. – Underwood, N.Y.

Session: 2023-24			
Part A – Introduction			
Subject	Clinical Nutrition & Dietetics		
Semester	V		
Name of the Course	Dietetics I		
Course Code	**B 23- CND-501**		
Course Type: (CC/MCC/MDC/CC-M /DSEC/VOC/DSE/PC/AEC/VAC)	CC-5		
Level of the course (As per Annexure-I	100 – 199		
Pre-requisite for the course (if any)	12th pass		
Course Learning Outcomes(CLO):	After completing this course, the learner will be able to: 1. To understand the role of dietician and hospital diets 2. To learn dietetic management of fevers, infections and surgical conditions 3. To understand dietary management of GI disorders 4. To learn dietary management of diabetes mellitus 5*. To plan, calculate and prepare diets of various Diseases		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3	2	5
Max. Marks: 100 **Internal Assessment Marks: 30** **End Term Exam Marks: 70**		**Time: 3hrs (T)** **4 hrs (P)**	

Part B- Contents of the Course

Instructions for Paper- Setter

Instructions for the examiner: The examiner will set nine questions in all, selecting two questions from each unit and one compulsory objective type question.

Instructions for the candidates: The candidate will attempt five questions in all, selecting one question from each unit and one compulsory question.

Unit	Topics	Contact Hours
I	Role and Responsibilities of a Dietitian Diet Therapy: Routine hospital diet, Regular diet, Light diet, Soft Diet, Full Fluid Diet, Liquid diet.	06
II	Dietary Management of fevers and infections: Typhoid, Malaria and Tuberculosis. Diet in Pre & Post Surgical Conditions	15
III	Dietary Management of gastro intestinal disorders: Diarrhea, Constipation, Peptic ulcer	12
IV	Dietetic Management of Diabetes Mellitus – Classification, predisposing factors, Diagnosis, Dietary management.	12
V*	Planning, calculation and preparation of diets for all disease conditions mentioned in theory	30

Suggested Evaluation Methods

Internal Assessment:	End Term Examination:
➢ **Theory** • Class Participation: **05** • Seminar/presentation/assignment/quiz/class test etc.: **05** • Mid-Term Exam: **10**	**70**
➢ **Practicum** • Class Participation: **05** • Seminar/Demonstration/Viva-voce/Lab records etc.: **05** • Mid-Term Exam: **NA**	**30**

Part C-Learning Resources

Recommended Books/e-resources/LMS:

1. Mudambi S R and Rajagopal M V, Fundamentals of Foods, nutrition & Diet therapy, New Age International Publishers, 6 th Edition. 2020
2. Bamji, M.S, Textbook of Human Nutrition, Oxford & IBH Publishing Co Pvt. Ltd,4th Edition. 2019
3. Srilakshmi B, Dietetics, New Age International Publishers, 8 th Edition. 2019
4. Swaminathan, M, Handbook of Food and Nutrition, The Bangalore Press, 5 th Edition. 2018
5. Srilakshmi B, Nutrition Science, New Age International Publishers, 6 th Edition. 2017
6. Longvah T Anathan R, Bhaskarachary K, and Venkaiah k, Indian food composition table, NIN.ICMR, 2 nd Edition. 2017
7. Gibney M.J, Nutrition and Metabolism, Wiley- Blackwell, 2003
8. Carolyn D. Berdanier, Advanced Nutrition, Macronutrients, CRC press, 2 nd Edition.2000
9. Emma. S. Weigley, Robinson's Basic Nutrition and Diet Therapy, Pearson publication, 1 st Edition. 1996

Session: 2023-24			
Part A – Introduction			
Subject	Clinical Nutrition & Dietetics		
Semester	VI		
Name of the Course	Dietetics II		
Course Code	**B 23- CND-601**		
Course Type: (CC/MCC/MDC/CC-M /DSEC/VOC/DSE/PC/AEC/VAC)	CC-6		
Level of the course (As per Annexure-I	100 – 199		
Pre-requisite for the course (if any)	12th pass		
Course Learning Outcomes(CLO):	After completing this course, the learner will be able to: 1. To understand dietary management of renal and gall bladder diseases 2. To learn dietetic management of Cardio vascular diseases and auto-immune disorders 3. To understand dietary management of weight imbalance 4. To learn dietetic management of liver diseases and cancer 5*.To impart practical knowledge of how to plan, calculate and prepare diets of various diseases		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3	2	5
Max. Marks: 100 **Internal Assessment Marks: 30** **End Term Exam Marks: 70**		**Time: 3hrs (T)** **4 hrs (P)**	

Part B- Contents of the Course

Instructions for Paper- Setter

Instructions for the examiner: The examiner will set nine questions in all, selecting two questions from each unit and one compulsory objective type question.

Instructions for the candidates: The candidate will attempt five questions in all, selecting one question from each unit and one compulsory question.

Unit	Topics	Contact Hours
I	Dietary Management of Renal diseases: Dietary Management in Kidney Stones, Glomerulonephritis, Acute and chronic renal failure. Dietary management in diseases of gall bladder: Gall Stones	12
II	Dietetic Management of Cardiovascular diseases: Dietary management in Hypertension and Atherosclerosis. Diet in Auto-immune disorders	12
III	Dietary Management in Weight Imbalance: Dietary management of Under-weight, Over-weight and Obesity	09
IV	Dietetic Management of diseases of liver: Dietary Management of Infective hepatitis, Jaundice and Cirrhosis Dietetic Management in Cancer	12
V*	Planning, calculation and preparation of diets for all disease conditions mentioned in theory	30

Suggested Evaluation Methods

Internal Assessment:	End Term Examination:
➢ **Theory** • Class Participation: **05** • Seminar/presentation/assignment/quiz/class test etc.: **05** • Mid-Term Exam: **10**	**70**
➢ **Practicum** • Class Participation: **05** • Seminar/Demonstration/Viva-voce/Lab records etc.: **05** • Mid-Term Exam: **NA**	**30**

Part C-Learning Resources

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1. Mudambi S R and Rajagopal M V, Fundamentals of Foods, nutrition & Diet therapy, New Age International Publishers, 6 th Edition. 2020
2. Bamji, M.S, Textbook of Human Nutrition, Oxford & IBH Publishing Co Pvt. Ltd. ,4th Edition. 2019
3. Srilakshmi B, Dietetics, New Age International Publishers, 8 th Edition. 2019
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8. Carolyn D. Berdanier, Advanced Nutrition, Macronutrients, CRC press, 2 nd Edition.2000
9. Emma. S. Weigley, Robinson's Basic Nutrition and Diet Therapy, Pearson publication, 1st Edition. 1996