



श्री **Davara University**

Established under Chhattisgarh Private Universities (Establishment and Operation) Act, 2005

SHRI DAVARA UNIVERSITY

NAYA RAIPUR (C.G.)



PROGRAMME CURRICULUM

FOR

MASTERS OF SCIENCE

(NUTRITION AND DEITETICS)

SEMESTER-I

TWO YEAR POSTGRADUATE PROGRAMME 25-27



INTRODUCTION OF THE DEPARTMENT: -

NUTRITION AND DIETETICS

INTRODUCTION

The Department of Diet and Nutrition is an academic and research department that focuses on the study of nutrition and dietetics. The department aims to provide students with a comprehensive understanding of the principles of nutrition and dietetics, as well as the skills and knowledge necessary to apply this knowledge in a variety of settings.

MISSION

The mission of the Department of Nutrition and Dietetics is to:

1. Provide quality education: Offer postgraduate and graduate programs in diet and nutrition that prepare students for careers in healthcare, education, and industry.
2. Conduct innovative research: Conduct research that advances the field of nutrition and dietetics, and improves human health and well-being.
3. Serve the community: Provide service to the community through outreach programs, consulting, and other activities that promote healthy eating and lifestyle habits.

OBJECTIVES

The objectives of the Department of Nutrition and Dietetics are to:

1. Develop competent professionals: Students will have the knowledge, skills, and attitudes necessary to practice as competent dietitians and nutritionists.
2. Advance knowledge: Conduct research that advances the field of nutrition and dietetics, and improves human health and well-being.
3. Promote healthy lifestyles: Provide education and service to the community that promotes healthy eating and lifestyle habits.



PROGRAMS OFFERED

The Department of Diet and Nutrition offers the following programs:

1. Bachelor of Science in Nutrition: A four-year undergraduate program that prepares students for careers in nutrition and dietetics.
2. Master of Science in Nutrition: A two-year graduate program that prepares students for advanced careers in nutrition and dietetics.
3. Dietetic Internship Program: A post-graduate program that provides students with practical experience in dietetics.

RESEARCH AREAS

The Department of Nutrition and Dietetics has research expertise in the following areas:

1. Nutrition and chronic disease: The relationship between diet and chronic diseases such as heart disease, diabetes, and cancer.
2. Nutrition and exercise: The relationship between diet, exercise, and physical performance.
3. Nutrition and behavior: The psychological and social factors that influence food choice and eating behavior.

FACILITIES

The Department of Diet and Nutrition has state-of-the-art facilities, including:

1. Nutrition laboratory: A well-equipped laboratory for conducting nutrition research.
2. Dietetics clinic: A clinic where students can gain practical experience in dietetics.
3. Food science laboratory: A laboratory for conducting food science research.



VISION

"To be a leading academic and research department in the field of diet and nutrition, fostering a community of scholars, practitioners, and leaders who advance the science and practice of nutrition to promote health, well-being, and quality of life for individuals, communities, and society."

KEY COMPONENTS OF THE VISION

1. **Leadership:** The department aims to be a leader in the field of diet and nutrition, recognized for its academic and research excellence.
2. **Interdisciplinary collaboration:** The department fosters collaboration among scholars, practitioners, and leaders from diverse disciplines to advance the field of nutrition.
3. **Innovative research:** The department conducts innovative research that advances the science and practice of nutrition, addressing pressing health and nutrition challenges.
4. **Excellence in education:** The department provides high-quality education and training programs that prepare students for successful careers in dietetics, nutrition, and related fields.
5. **Community engagement:** The department engages with local, national, and global communities to promote health, well-being, and quality of life through nutrition education, research, and service.
6. **Diversity, equity, and inclusion:** The department values diversity, equity, and inclusion, fostering a culture that promotes respect, empathy, and social justice.

STRATEGIC GOALS

1. **Enhance academic programs:** Develop and refine undergraduate and graduate programs to meet the evolving needs of students and the profession.
2. **Advance research and scholarship:** Foster a culture of research excellence, securing external funding and publishing high-impact research.
3. **Foster community engagement:** Develop partnerships with local, national, and global communities to promote nutrition education, research, and service.
4. **Promote diversity, equity, and inclusion:** Develop and implement strategies to promote diversity, equity, and inclusion within the department and the profession.
5. **Enhance departmental infrastructure:** Develop and maintain state-of-the-art facilities, equipment, and



technology to support academic and research programs.

SCOPES

1. Undergraduate programs: Offer undergraduate degrees in nutrition, dietetics, and related fields.
2. Post graduate programs: Offer master's and doctoral degrees in nutrition, dietetics, and related fields.
3. Certificate programs: Offer certificate programs in specialized areas of nutrition and dietetics.
4. Continuing education: Provide continuing education opportunities for professionals in the field of nutrition and dietetics.

RESEARCH SCOPES

1. Clinical nutrition research: Conduct research on the role of nutrition in preventing and managing diseases.
2. Community nutrition research: Conduct research on the nutritional needs and behaviors of diverse populations.
3. Food science research: Conduct research on the nutritional and sensory properties of foods.
4. Nutrition policy research: Conduct research on the development and implementation of nutrition policies.

PROFESSIONAL SCOPES

1. Clinical dietetics: Provide medical nutrition therapy to patients in hospitals, clinics, and private practice.
2. Community nutrition: Work with communities to develop and implement nutrition programs and policies.
3. Food industry: Work in the food industry to develop and market nutritious food products.
4. Public health: Work in public health to develop and implement nutrition, programs, and policies.



ENTREPRENEURIAL SCOPES

1. Nutrition consulting: Start a consulting business to provide nutrition expertise to individuals, companies, and organizations.
2. Food product development: Develop and market nutritious food products.
3. Health and wellness services: Offer health and wellness services, such as nutrition counseling, meal planning, and cooking classes.
3. Digital health: Develop digital health products and services, such as nutrition apps and online nutrition counseling.

GLOBAL SCOPES

1. International nutrition research: Collaborate with international researchers to conduct studies on nutrition and health.
2. Global health nutrition: Work with international organizations to develop and implement nutrition programs and policies.
3. Food security: Work on food security initiatives to ensure access to nutritious food for all.
4. Cultural competency: Develop cultural competency in nutrition practice to work effectively with diverse populations.

PROGRAMME OUTCOMES

1. Knowledge: Demonstrate a thorough understanding of the principles of nutrition, dietetics, and food science.
2. Critical thinking: Apply critical thinking skills to evaluate the nutritional needs of individuals and groups.
3. Communication: Communicate effectively with clients, patients, and healthcare professionals about nutrition and dietetics.
4. Practical skills: Demonstrate practical skills in food preparation, meal planning, and nutrition assessment.
5. Professionalism: Demonstrate professionalism and ethics in the practice of dietetics.



ATTRIBUTES

1. Nutrition knowledge: Apply knowledge of nutrition and dietetics to promote health and well-being.
2. Critical thinking: Use critical thinking skills to evaluate the nutritional needs of individuals and groups.
3. Communication: Communicate effectively with clients, patients, and healthcare professionals about nutrition and dietetics.
4. Problem-solving: Use problem-solving skills to develop and implement nutrition plans.
5. Teamwork: Work effectively as part of a healthcare team to promote health and well-being.

CAREER OPPORTUNITIES

1. Dietitian: Work as a dietitian in hospitals, clinics, or private practice.
2. Nutritionist: Work as a nutritionist in industry, government, or non-profit organizations.
3. Food service manager: Manage food service operations in hospitals, schools, or other institutions.
4. Health educator: Teach people about healthy eating and lifestyle habits.

COURSE OUTCOMES

1. Nutrition principles: Understand the principles of nutrition, including the functions of macronutrients and micronutrients.
2. Dietetics principles: Understand the principles of dietetics, including meal planning, food preparation, and nutrition assessment.
3. Food science principles: Understand the principles of food science, including food chemistry, food microbiology, and food technology.
3. Nutrition and health: Understand the relationship between nutrition and health, including the role of nutrition in preventing and managing diseases.

UNIT OUTCOME-

Unit 1: Introduction to Nutrition



1. Define the scope of nutrition: Explain the importance of nutrition in maintaining health and preventing disease.
2. Describe the six classes of nutrients: Identify the six classes of nutrients and their functions in the body.
3. Explain the concept of nutritional balance: Discuss the importance of balance in the diet and how it relates to health.

Unit 2: Macronutrients

1. Describe the structure and function of carbohydrates: Explain the different types of carbohydrates and their roles in the body.
2. Explain the importance of protein in the diet: Discuss the functions of protein in the body and the consequences of protein deficiency.
3. Describe the different types of fats and their functions: Explain the roles of saturated, monounsaturated, and polyunsaturated fats in the body.

Unit 3: Micronutrients

1. Describe the functions of vitamins in the body: Explain the roles of fat-soluble and water-soluble vitamins in maintaining health.
2. Explain the importance of minerals in the diet: Discuss the functions of major and trace minerals in the body.
3. Describe the consequences of micronutrient deficiencies: Discuss the health consequences of deficiencies in vitamins and minerals.

Unit 4: Nutrition and Health

1. Explain the relationship between diet and chronic disease: Discuss the role of diet in the development of chronic diseases such as heart disease, diabetes, and cancer.
2. Describe the importance of nutrition in maintaining healthy weight: Discuss the role of diet and physical activity in maintaining healthy weight.



3. Explain the consequences of malnutrition: Discuss the health consequences of malnutrition, including undernutrition and overnutrition.



SEMESTER I			M								
S.NO	COURSE CODE	COURSE TITLE	TEACHING HOURS PER WEEK				EXAMINATION SCHEME				
DISCIPLINE SPECIFIC COURSE (DSC)			L	T	P	C	THEORY		PRACTICAL		TOTAL MARKS
							EX	IN	EX	IN	
1.	MSND101T	Nutritional Biochemistry	4	1		5	70	30	-	-	100
2.	MSND102T	Macronutrients	4	1		5	70	30	-	-	100
3.	MSND103T	Medical Nutrition Therapy -I	4	1		5	70	30	-	-	100
4.	MSND104T	Pathophysiology and Metabolism in Disease	4	1		5	70	30	-	-	100
PRACTICAL(LAB)											
5.	MSND105P	Medical Nutrition Therapy -I Practical			4	2			35	15	50
6.	MSND106P	Advanced Nutrition Practical			4	2			35	15	50
Total Contact hours Per Week:30		Total credit:				24	TOTAL MARKS			500	



TWO YEAR POSTGRADUATE PROGRAMME (2025-27)

**DEPARTMENT OF NUTRITION AND DIETETICS
COURSE CURRICULUM**

PART-A: Introduction		
Programme: Masters in Sciences	Semester-1	Session: 2025-2027
Course Code	MSND101T	
Course Title	NUTRITIONAL BIOCHEMISTRY	
Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to:- ➤ Augment the knowledge of biochemistry acquired at the undergraduate level ➤ Understand the mechanisms adopted by the human body for regulation of metabolic pathways ➤ Develop an insight into interrelationships between various metabolic pathways ➤ Understand integration of cellular level metabolic events to nutritional disorders and imbalances.	
Credit Value	4 Credits	1Credit =15 Hours-learning & Observation
Total Marks	Max. Marks: =100	Min Passing Marks: 40
PART -B: Content of the Course		
Total No. of Teaching-learning Periods (01 Hr. per period) -60 Periods (60 Hours)		
Unit	Topics (Course contents)	
I	Membrane structure, composition and Transport of metabolites across membranes, Acid base balance and its regulation. Enzymes - Kinetics of monosubstrate and bisubstrate catalysed reactions (including inhibition) - Enzyme specificity, regulation of enzyme activity and synthesis - Enzymes in clinical diagnosis Detoxification in the body-metabolism of xenobiotics (Phase I and Phase II enzymes) Cell Signaling : Overview of extracellular cell signaling, G protein couple receptors and their effectors, enzyme linked receptors and their effectors, second messengers, map kinase pathways Free radicals, ROS and oxidative damage	15



II	Review of: Carbohydrate Metabolism : Intestinal transport of carbohydrates, Transport of glucose across various cells, Cellular metabolism of carbohydrates Glycogen metabolism Regulation of carbohydrate metabolism at substrate level, enzyme level, hormonal level and organ level, Disorders of carbohydrate metabolism. Definition, classification, structure and properties of glycoproteins and proteoglycans Metabolism of Lipids : Metabolism is to be discussed with reference to: Intestinal transport of lipids, Cellular uptake and metabolism of lipids (beta-oxidation, de novo synthesis of fatty acids, synthesis and breakdown of unsaturated fatty acids, cholesterol, phospholipids and triacylglycerol) Lipoprotein metabolism, VLDL and LDL ('Forward' Cholesterol transport) VLDL and LDL (Endogenous TAG transport), HDL ('Reverse' Cholesterol transport), Regulation of lipid metabolism at substrate level, enzyme level, hormonal level and organ level, Disorders of lipid metabolism, Dyslipidemias, Lipid storage diseases Intermediary Metabolism: Review of regulation of intermediary metabolism- equilibrium and non-equilibrium reactions, committed steps, allosteric modifications, covalent modulation, hormonal induction and repression, cross-over theorem, starve-feed cycle, caloric homeostasis and futile cycles, Tricarboxylic acid cycle Biological Oxidation : Electron transport chain and oxidative phosphorylation	15
III	Protein Biosynthesis a. Gene expression and its regulation, transcription, translation, post-translational modification b. Inhibitors of protein biosynthesis c. Gene expression in mitochondria d. Systems Biology including Metabolomics and Proteomics	15
IV	Biochemical aspects of purine and pyrimidines a. Metabolism of purines b. Metabolism of pyrimidines c. Role of purine and pyrimidine nucleotides in metabolism. Biochemistry of Nucleic Acids a. Metabolism of DNA b. Metabolism of RNAs d. Disorders of nucleic acid metabolism	15
Keywords		
Signature of Convener & Members (CBoS)		



TWO YEAR POSTGRADUATE PROGRAMME (2025-27)

DEPARTMENT OF NUTRITION AND DIETETICS

COURSE CURRICULUM

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended-

1. Murray, R.K., Granner, D.K., Mayes, P.A. and Rodwell, V.W. (2000): 25th Ed. Harpers Biochemistry. Macmillan Worth Publishers.
2. Nelson, D.L. and Cox, M.M. (2000): 3rd Ed. Lehninger's Principles of Biochemistry, Macmillan Worth Publishers.
3. Nutritional Science – B. Srilakshmi, New Age International Publishers, 2nd edition.
4. Textbook of Medical Biochemistry – MN Chatterjee, Rana Shinde, 7th edition, Jaypee Brothers.
5. A textbook of Biochemistry – A V S S Rama Rao, 9th edition, UBS Publisher's Distribution Pvt. Ltd.

Online Resources-

- e-books and e-learning portals
- <https://bit.ly/3AvV3mZ>
- <https://bit.ly/30V85z>
- <https://bit.ly/3C9PXPS>
- <https://bit.ly/301p9rZ>
- <https://bit.ly/BPnwqe>

Online Resources-

e-sources/e-books and e-learning portals

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Marks Continuous Internal Assessment

(CIA): 30 Marks

End Semester Exam (ESE): 70

Marks

Continuous Internal Assessment
(CIA): 30 (By Course Teacher)

Internal
Test/Quiz:20+20
Assignment/
Seminar-10 Total
Marks-30

Better marks out of the two Tot
Quiz + obtained marks in
Assignment shall be considered
against 15 Marks

End
Semest
er

Two section A&B

Section A :Q1 Objective 10*1=10 Marks Q2 Short answer
type-5*4=20 Section B : Descriptive answer type qts 1 out of



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Exam
(ESE):
70

2frm each- $4 \times 10 = 40$ Marks

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TWO YEAR POSTGRADUATE PROGRAMME (2025-27)

DEPARTMENT OF NUTRITION AND DIETETICS

COURSE CURRICULUM

PART- A: Introduction		
Programme: Masters in Sciences Degree	Semester-1	Session: 2025-2027
Course Code	MSND102T	
Course Title	MACRONUTRIENTS	
Pre-requisite (if any)	As per Programme	
Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to ➤ Gain in-depth knowledge of the physiological and metabolic role of macronutrients, fat soluble vitamins and electrolytes and their importance in human nutrition. ➤ Enable the understanding of basis of human nutritional requirements and recommendations through the life cycle and translate the knowledge into practical guidelines for dietary needs. ➤ Familiarize with the recent advances in nutrition and apply this knowledge in planning for public health programmes.	
Credits Value	4 Credits	1 Credit =15 Hours Laboratory or Field learning/Training
Total Marks	Max. Marks: 100	Min Passing Marks: 40
PART-B: Content of the Course		
Total No. of learning-Training/performance Periods: 60 Periods (60 Hours)		
Module	Topics (Course contents)	No. of Period
I	Human Nutritional Requirements – Development and Recent Concepts. a.Methods of determining human nutrient needs b.Description of basic terms and concepts in relation to human nutritional requirements. c.Guidelines and Recommendations - Development of International and National Nutritional Requirements - Translation of nutritional requirements into Dietary Guidelines Body Composition a. Significance of body composition and changes through the life cycle b. Methods for assessing body composition (both classical and recent) and their applications. Nutrition in Special Conditions: Space Travel, High Altitudes, Low Temperature, Submarines. Energy a.Components of energy requirements: BMR, RMR, thermic effect of feeding, physical activity. Factors affecting energy requirements, methods of measuring energy expenditure. 1b.Estimating energy requirements of individuals and groups.	15



	c.Regulation of energy metabolism and body weight: Control of food intake – role of leptin and other hormones.	
II	Carbohydrates a.Review of nutritional significance of carbohydrates and changing trends in dietary intake of different types of carbohydrates and their implications b.Dietary fibre: Types, sources, role and mechanism of action c.Resistant starch, fructo-oligosaccharides, other oligosaccharides: Chemical composition and physiological significance d.Glycemic Index and glycemic load e.Carbohydrates and gene expression	15
III	Proteins a.Overview of role of muscle, liver and G.I. tract in protein metabolism b.Amino acid and peptide transporters c.Therapeutic applications of specific amino acids d.Peptides of physiological significance e.Proteins, amino acids and gene expression	15
1V	Lipids a.Nutritional significance of fatty acids – SFA, MUFA, PUFA: functions and deficiency b.Role of n-3 and n-6 fatty acids c.Prostaglandins d.Trans Fatty Acids e.Conjugated linoleic acid f.Nutritional Requirements and dietary guidelines (International & National) for visible and invisible fats in diets. g.Lipids and gene expression	15
Keywords		
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TWO YEAR POSTGRADUATE PROGRAMME (2025-27)

DEPARTMENT OF NUTRITION AND DIETETICS

COURSE CURRICULUM

PART-C: Learning Resources		
Text Books, Reference Books and Others		
Text Books Recommended-		
1. Annual Reviews of Nutrition. Annual Review Inc, California, USA.		
2. Shils, M.E.; Olson, J.; Shike, M. and Roos, C. (1998): Modern Nutrition in Health and Disease. 9 th edition. Williams and Williams. A Beverly Co. London.		
3. Bodwell, C.E. and Erdman, J.W. (1988) Nutrient Interactions. Marcel Dekker Inc. New York		
4. World Reviews of Nutrition and Dietetics.		
5. WHO Technical Report Series.		
Reference Books Recommended-		
Online Resources-		
➤ E-resources/e-books and e-learning portals ➤ http://www.swayam.ac.in ➤ http://www.ignou.ac.in ➤ www.egyankosh.ac.in ➤ www.litm.ac.in ➤ www.eskillindia.org ➤ www.eshiksha.mp.gov.in ➤ www.vlab.co.in		
Online Resources-		
e-sources/e-books and e-learning portals		
➤ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5871155/ ➤ https://cms.botany.org/home/careers-jobs/careers-in-botany/arcas-of-specialization-in-botany.html		
PART -D: Assessment and Evaluation		
Suggested Continuous Evaluation		
Methods: Maximum Marks: 50		
Marks Continuous Internal Assessment		
(CIA): 15 Marks End Semester Exam		
(ESE): 35		
Marks		
Continuous Internal Assessment (CIA): 15 (By Course Teacher)	Internal Test/Quiz:10+10 Assignment/ Semenar-05 Total Marks-15	Better marks out of the two Tot Quiz + obtained marks in Assignment shall be considered against 15 Marks
End Semester Exam (ESE):35	Laboratory/Field Skill Performance: On spot Assessment	
	Section A : Performed the Task based on lab, work 20*1=20 Marks B: Performed the Task based on lab, work (written) 10*1=10Marks	
	Section B : Viva-voce (based on principle/technology) - 5*1=05 Marks	
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TWO YEAR POSTGRADUATE PROGRAMME (2025-27)

DEPARTMENT OF NUTRITION AND DIETETICS

COURSE CURRICULUM

PART-A: Introduction		
Programme: Bachelor in Sciences (Certificate/Diploma/Degree Honors)	Semester-1	Session: 2025-2027
Course Code	MSND103T	
Course Title	MEDICAL NUTRITION THERAPY I	
Course Type	Discipline Specific course (DSC)	
Pre-requisite (if any)	As per Programme	
Course Learning Outcomes (CLO)	At the end of this course, the students will be able to ➤ Understand the promotive and therapeutic role of diet and nutritional care with reference to weight management, fevers & infections and diseases of the gastrointestinal tract and hepatobiliary system ➤ Understand the etiology, physiologic and metabolic anomalies of acute and chronic diseases and patient needs ➤ Know the effect of the various diseases on nutritional status and nutritional and dietary requirements. ➤ Able to recommend and provide appropriate nutritional care based on pathophysiology, prevention/ and treatment of the various diet-related disorders/ diseases. ➤ Be able to use different nutritional support systems to nourish the patient	
Credit Value	4 Credits	1 Credit =15 Hours-learning & Observation
Total Marks	Max. Marks: =100	Min Passing Marks: 40
PART -B: Content of the Course		
Total No. of Teaching-learning Periods (01 Hr. per period) -60 Periods (60 Hours)		
Unit	Topics (Course contents)	
I	Nutritional (and dietary) Care Process A) in health - Depending on the state of growth & development of the individual - at various activity levels and socioeconomic status. B) in disease - Nutritional screening/ assessment and identification of nutritional problem - Nutritional Intervention and Diet Modification based on interpretation of - Patient data- clinical, biochemical and other relevant data - Nutrition Education and Counseling -Evaluation of Nutritional care 1 Delivery of Nutritional Support – Meeting nutritional needs A. Enteral tube feeding Different Enteral feeding access routes Practical Aspects	15



	B. Parenteral nutrition Exchange lists as a tool in planning diets	
II	Nutrition for weight management: Disorders of energy balance A. Obesity Components of body weight Adipose tissue- structure, regional distribution and storage, Regulation of body weight, Types of obesity Assessment of obesity Health risks, Causes of obesity: neural, hormonal, and psychological Management of obesity - Dietary Modification : past and present approach - Psychology of weight reduction : psychotherapy and behaviour modification Physical activity and exercise - Pharmacological treatment - Surgical treatment effect on satiety and other factors - Maintenance of Reduced weight B. Underweight/Excessive Leanness/ Undernutrition - Pathophysiology, Causes and assessment including fever and infectious diseases (Tuberculosis, AIDS) - Health risks and effect on nutritional status - Dietary Management - Psychotherapy C. Eating disorders: Anorexia Nervosa and Bulimia Nervosa	15
III	Medical Nutrition therapy for Upper Gastrointestinal tract Diseases /Disorders a) Diagnostic Tests for the G.I. diseases b) Pathophysiology and Nutritional care and diet therapy in i) Diseases of oesophagus; oesophagitis, Hiatus hernia ii) Disorders of stomach: Indigestion, Gastritis, Gastric and duodenal ulcers Management: associated with H. pylori infection, NSAIDS Dietary management: traditional approach and liberal approach c) Gastric Surgery: Nutritional care, dumping syndrome Medical Nutrition therapy for Lower gastrointestinal tract Diseases/Disorders Common Symptoms of Intestinal dysfunction - Flatulence, constipation, haemorrhoids, diarrhoea, steatorrhoea, typhoid b) Diseases of the large intestine: - Diverticular disease, Irritable bowel syndrome, inflammatory bowel disease c) Malabsorption Syndrome/Diseases of Small intestine - Celiac (Gluten –induced) sprue, tropical sprue, intestinal brush border enzyme deficiencies, Lactose intolerance, protein- losing enteropathy d) Principles of dietary Care: Fibre, residue Modified fibre diets e) Intestinal surgery: Short bowel syndrome, Ileostomy, Colostomy, Rectal surgery	15
IV	Medical Nutrition therapy for Diseases of the Hepato - Biliary Tract a. Nutritional care in liver disease in context with results of specific liver function tests - Dietary care and management in viral hepatitis(different types) , cirrhosis of liver, hepatic encephalopathy, Wilson's disease	15



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	b. Dietary care and management in diseases of the gall bladder and pancreas i.e. biliary dyskinesia, cholelithiasis, cholecystitis, cholecystectomy, pancreatitis, Zollinger-Ellison syndrome	
Keywords		
Signature of Convener & Members (CBoS)		



**FOUR YEAR UNDERGRADUATE PROGRAMME (2024-28)
DEPARTMENT OF NUTRITION AND DIETS
COURSE CURRICULUM**

PART-C: Learning Resources		
Text Books, Reference Books and Others		
Text Books Recommended-		
1. Mahan, L.K. and Escott-Stump, S. (2000): Krause’s Food Nutrition and Diet Therapy, 10 th Edition, W.B. Saunders Ltd.		
2. Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9 th Edition, Williams and Wilkins.		
3. Escott-Stump, S. (1998): Nutrition and Diagnosis Related Care, 4 th Edition, Williams and Wilkins.		
4. Garrow, J.S., James, W.P.T. and Ralph, A. (2000): Human Nutrition and Dietetics, 10 th Edition, Churchill Livingstone.		
Online Resources-		
➤ e-books and e-learning portals ➤ http://www.swayam.ac.in ➤ http://www.ignou.ac.in ➤ http://www.egvankosh.ac.in ➤ http://www.itm.sc.in ➤ http://www.eskillindia.org ➤ http://www.eshiksha.mp.gov.in ➤ http://www.viah.co.in ➤ http://www.internshala.com		
Online Resources-		
e-sources/e-books and e-learning portals		
➤ https://www.pbs.org/video/botany-basics-iuu2bl/ ➤ https://efaidohmannibpcapcalcdefindorkaj/https://www2.ca.uky.edu/apcom/pubs/ho/ho96/ho96.pdf ➤ https://www.botanytoday.com/branches-of-botany		
PART -D: Assessment and Evaluation		
Suggested Continuous Evaluation		
Methods: Maximum Marks:100		
Marks Continuous Internal		
Assessment (CIA): 30 Marks End		
Semester Exam (ESE): 70		
Marks		
Continuous Internal Assessment (CIA): 30 (By Course Teacher)	Internal Test/Quiz:20+2 0 Assignment/ Semenar-10 Total Marks-30	Better marks out of the two Tot Quiz + obtained marks in Assignment shall be considered against 15 Marks
End Semester Exam (ESE):70	Two section A&B Section A :Q1 Objective 10*1=10 Marks, Q2 Short answer type-5*4=20 Section B : Descriptive answer type qts 1 out of 2frm each- 4*10=40 Marks	
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TWO YEAR POSTGRADUATE PROGRAMME (2025-27)
DEPARTMENT OF NUTRITION AND DIETETICS
COURSE CURRICULUM

PART- A: Introduction			
Programme: Masters in Sciences (Degree)		Semester-1	Session: 2025-2027
Course Code	MSND105P		
Course Title	MEDICAL NUTRITION THERAPY-1 PRACTICALS		
Course Type	Laboratory course		
Pre-requisite(if any)	As per Programme		
Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to ➤ Apply nutrition assessment techniques (anthropometric, biochemical, clinical, and dietary) to evaluate patients’ nutritional status. ➤ Plan and prepare therapeutic diets based on specific disease conditions and individual patient requirements. ➤ Demonstrate skills in diet counselling, case study presentation, and documentation of medical nutrition therapy interventions.		
Credits Value	1 Credits	Credit =30 Hours Laboratory or Field learning/Training	
Total Marks	Max. Marks:50	Min Passing Marks: 20	
PART-B: Content of the Course			
Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)			
Module	Topics (Course contents)		No. of Period
Lab/ field Training/ Experiment Content of Course	1. Market survey of commercial nutritional supplements and nutritional support substrates. 2. Exchange list as a tool in planning diets 3. Delivery of Nutritional Support – Meeting nutritional needs and practical aspects a) Enteral tube feeding b) Parenteral Nutrition 4. Dietary Modification: weight management,Tuberculosis AIDS, Gastrointestinal tract Diseases /Disorders, Diseases of the Hepato - Biliary Tract,		30
Keywords			
Signature of Convener & Members (CBoS)			



FOUR YEAR UNDERGRADUATE PROGRAMME (2024-28)

DEPARTMENT OF NUTRITION AND DIETETICS

COURSE CURRICULUM

PART-C: Learning Resources		
Text Books, Reference Books and Others		
Text Books Recommended-		
1. Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10 th Edition, W.B. Saunders Ltd. 2. Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9 th Edition, Williams and Wilkins. 3. Escott-Stump, S. (1998): Nutrition and Diagnosis Related Care, 4 th Edition, Williams and Wilkins. 4. Garrow, J.S., James, W.P.T. and Ralph, A. (2000): Human Nutrition and Dietetics, 10 th Edition, Churchill Livingstone. 5. Williams, S.R. (1993): Nutrition and Diet Therapy, 7 th Edition, Times Mirror/Mosby College Publishing		
Online Resources-		
➤ E-resources/e-books and e-learning portals ➤ http://www.swayam.ac.in ➤ http://www.ignou.ac.in ➤ www.egyankosh.ac.in ➤ www.litm.ac.in ➤ www.eskillindia.org ➤ www.eshiksha.mp.gov.in ➤ www.vlab.co.in		
Online Resources-		
e-sources/e-books and e-learning portals ➤ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5871155/ ➤ https://cms.botany.org/home/careers-jobs/careers-in-botany/arcas-of-specialization-in-botany.html		
RT -D: Assessment and Evaluation		
Suggested Continuous Evaluation		
Methods: Maximum Marks: 50		
Marks Continuous Internal Assessment (CIA): 15		
Marks End Semester Exam (ESE): 35		
Marks		
Continuous Internal Assessment (CIA): 15 (By Course Teacher)	Internal Test/Quiz:10+10 Assignment/ Seminar-05 Total Marks-15	Better marks out of the two Tot Quiz + obtained marks in Assignment shall be considered against 15 Marks
End Semes ter Exam	Laboratory/Field Skill Performance: On spot Assessment Section A : Performed the Task based on lab, work 20*1=20 Marks B: Sporting based on lab, work (written) 10*1=10Marks	



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(ESE):
35

Section B : Viva-voce (based on principle/technology) - 5*1=05 Marks

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TWO YEAR POSTGRADUATE PROGRAMME (2025-27)

DEPARTMENT OF NUTRITION AND DIETETICS

COURSE CURRICULUM

PART-A: Introduction		
Programme: Masters in Sciences (Degree)	Semester-1	Session: 2025-2027
Course Code	MSND104T	
Course Title	PATHOPHYSIOLOGY AND METABOLISM IN DISEASE	
Course Type	Discipline Specific course (DSC)	
Pre-requisite (if any)	As per Programme	
Course Learning Outcomes (CLO)	After completing this course, the students will be able to - ➤ To understand the pathophysiological changes in different organs, tissues and systems in different disease conditions across the lifespan to understand the metabolic changes occurring in disease conditions ➤ Comprehend the implications of functional interrelationships in a diseased body ➤ To know and interpret the various diagnostic indicators/parameters ➤ To apply this knowledge for planning nutritional care of individuals	
Credit Value	4 Credits	1 Credit =15 Hours-learning & Observation
Total Marks	Max. Marks: =100	Min Passing Marks: 40
PART -B: Content of the Course		
Total No. of Teaching-learning Periods (01 Hr. per period) -60 Periods (60 Hours)		
Unit	Topics (Course contents)	
I	Basic concepts of pathophysiology and metabolism of adaptation a. Altered cellular and tissue biology b. Fluid and electrolyte, acids and bases c. Immunity d. Inflammation e. Hypersensitivity, infection and Immunodeficiency f. Stress and Disease g. Musculoskeletal system-Biochemistry and Pathophysiology, Osteoporosis, Osteomalacia, Osteoarthritis Cellular Proliferation and Cancer a. Biology of Cancer b. Tumor spread and treatment c. Clinical manifestations of cancer	15
II	Endocrine System a. Mechanisms of hormone regulation b. Alteration of hormonal regulation c. Hypo and Hyperfunctions of Pituitary, Adrenal cortex and medulla, Hypo and Hyperthyroidism d. Type I, Type II and other types of Diabetes Digestive system: Biochemistry and Pathophysiology a. Manifestations of gastrointestinal dysfunction,	15



	b. Acute and chronic gastritis, Ulcers c. Malabsorption syndrome d. Pancreatic insufficiency and Pancreatitis e. Liver dysfunction, Hepatitis, Cirrhosis, Cholelithiasis f. Ulcerative colitis, Crohn's disease	
III	Renal and Urological Biochemistry and Pathophysiology a. Alteration of renal and urinary tract function b. Urinary tract obstruction, kidney stones, c. Cystic pyelonephritis, glomerulonephritis, 20ephritic syndrome, renal failure 4 Alterations of Haematologic functions: a. Anemias and clinical manifestations b. Thalasemia, sickle cell anemia	15
IV	Cardiovascular, lymphatic and pulmonary system a. Alteration of cardiovascular functions, atherosclerosis, arteriosclerosis, Thrombus, embolus, dysrhythmias Myocardial ischemia, Myocardial infarction, Heart failure stroke b. Hypertension c. Dyslipidemias d. Alterations of pulmonary function- sings and symptoms of pulmonary disease Respiratory distress syndrome in adults and newborn Obstructive pulmonary diseases Asthma and cystic fibrosis	15
Keywords		



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DEPARTMENT OF NUTRITION AND DIETETICS

COURSE CURRICULUM

PART-C: Learning Resources		
Text Books, Reference Books and Others		
Text Books Recommended-		
1. "Krause's Food & the Nutrition Care Process" (L. Kathleen Mahan		
2. "Nutrient Metabolism: Structures, Functions, and Genetics" (Martin Kohlmeier)		
Online Resources- https://onlinecourses.nptel.ac.in/noc22_cy06/preview https://nptel.ac.in/courses/104105076		
Online Resources- e-sources/e-books and e-learning portals https://onlinecourses.nptel.ac.in/noc22_cy06/preview https://nptel.ac.in/courses/104105076		
RT -D: Assessment and Evaluation		
Suggested Continuous Evaluation Methods: Maximum Marks: 100 Marks Continuous Internal Assessment (CIA): 30 Marks End Semester Exam (ESE): 70 Marks		
Continuous Internal Assessment (CIA): 30 (By Course Teacher)	Internal Test/Quiz:20+20 Assignment/ Semenar-10 Total Marks-30	Better marks out of the two Tot Quiz + obtained marks in Assignment shall be considered against 15 Marks
End Semester Exam (ESE):70	Two section A&B Section A :Q1 Objective 10*1=10 Marks Q2 Short answer typ -5*4=20 Section B : Descriptive answer type qts 1 out of 2frm each- 4*10=40 Marks	
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TWO YEAR POSTGRADUATE PROGRAMME (2025-27)

DEPARTMENT OF NUTRITION AND DIETETICS

COURSE CURRICULUM

PART- A: Introduction		
Programme: Masters in Sciences(Degree)	Semester-1	Session: 2025-2027
Course Code	MSND106P	
Course Title	ADVANCED NUTRITION PRACTICAL	
Course Type	LAB COURSE	
Pre-requisite(if any)	as per the program	
Course Learning. Outcomes (CLO)	After completing this practical course, the students will be able to- This course will enable students to use, apply and interpret various methods for assessment of nutritional status, assessment of dietary/nutrient intakes, physical activity and energy expenditure, and interpret tests used for lipid profile and glycemic control.	
Credits Value	1 Credits	Credit =30 Hours Laboratory or Field learning/Training
Total Marks	Max. Marks:50	Min Passing Marks: 20
PART-B: Content of the Course		
Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)		
Module	Topics (Course contents)	No. of Period
Lab/ field Training/ Experiment Content of Course	A. Assessment of Nutritional Status- reliability, validity accuracy, precision Measurement of weight and height – assessment of nutritional status for adults, young and older children Calculation of BMI, interpretation Use of WHO reference standards Wasting, stunting, underweight, severe and moderate malnutrition Calculation of z-scores and use of software Circumference Measurements – chest, head, mid arm. Waist, hip and ratios wherever applicable Applications to children and adults B. Body Composition: Use of skinfold, bioelectric impedance, DEXA Calculation of body fat C. Dietary Protein Evaluation and Assessment of Protein Status: - Assessment of protein quality - Chemical Score, PDCAAS - In vitro protein digestibility - Estimation of serum albumin, globulin and albumin:globulin ratio Dietary assessment and Assessment of Energy Expenditure - Food frequency questionnaire - 24-diet recall, 24-hour diet record - Weighment method Assessment of energy expenditure – - Indirect calorimetry : use of ergometer, treadmill, heart	30



	rate monitoring - Recording physical activities - Factorial estimation of energy expenditure: MET, PAL - Study of food labels- calculation of DV - In vitro starch digestibility Biomarkers of Carbohydrate and Protein Metabolism - Fasting and Postprandial Blood Glucose estimation, OGTT, Glycosylated Hemoglobin, - Glycemic index and glycemic load - Insulin index - Measurement of lipid levels in serum Interpretation	
Keywords		
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