Three-Year Undergraduate Programme

Bachelor of Science
Nutrition and Dietetics

Faculty of Applied Sciences

Parul University

Vadodara, Gujarat, India

Faculty of Applied Sciences

Bachelor of Nutrition and Dietetics

1. Vision of the Department

To evolve a right blend of traditional and modern sciences which are essential for the present day innovations in science.

2. Mission of the Department

M1	To develop programmes for training the students in a combination of traditional subjects and the developing specializations focusing on skill development through rigorous laboratory work and environmental protection.
M2	The key aspect of the department's mission is to advance scientific knowledge in nutrition and dietetics through research and innovation. Faculty and students engage in cutting-edge research projects that contribute to the understanding of nutrition-related issues, such as chronic disease prevention, nutritional epidemiology, food science, and public health nutrition.
M3	The department fosters interdisciplinary collaboration to leverage diverse expertise and perspectives in tackling issues such as malnutrition, obesity, food insecurity, and sustainable food systems.
M4	The department is committed to fostering the professional development of its faculty, staff, and students.

3. Program Educational Objectives

The statements below indicate the career and professional achievements that the B.Sc. Nutrition and Dietetics curriculum enables graduates to attain.

PEO 1	To apply a comprehensive understanding of nutritional principles, including macro and micronutrients, to assess, analyze, and address diverse dietary needs in variouspopulations.
PEO 2	To contribute to public health by applying nutrition knowledge to develop, implement, and evaluate interventions and policies aimed at improving health outcomes in communities.
PEO 3	To employ evidence-based practices and critical thinking skills to interpret scientific research and incorporate the latest advancements in nutrition science into theirdecision-making processes.

4. Program Learning Outcomes

Program Learning outcomes are statements conveying the intent of a program of study.

PLO 1	**Knowledge**	Utilize foundational scientific principles to address intricate challenges through diverse solutions.

PLO 2	**Problem Analysis**	Evaluate and interpret experimental results, drawing conclusions based on acquired data, while also identifying, formulating, and analyzing scientific problems to arrive at solutions using diverse scientific principles.
PLO 3	**Designing Solutions**	Develop solutions and execute experiments that showcase their comprehension of the methods and processes involved.
PLO 4	**Modern tool usage**	Create, select, and apply appropriate techniques, resources and IT tools in the analysis and synthesis of data within limitations.
PLO 5	**Communication Development**	Skilled at clear communication through both written and oral formats, capable of explaining complex concepts inunderstandable terms, learners will effectively engage with the scientific community and society on scientific matters.
PLO 6	**Employability**	Considering our learners' diverse career goals, including scientific, technical, and quantitative roles, the institution informs them about relevant job opportunities through the Placement cell, offering skill enhancement and value-added courses in addition to science subjects to give them a competitive advantage in the job market.
PLO 7	**Ethics**	Cultivate a sense of healthy competition among students while also nurturing a strong ethical foundation, including an appreciation for scientific principles and their impact on societal, economic, and environmental issues, understand and practice ethical values in both professional and personal spheres, contributing to a responsible society.
PLO 8	**Environment and Sustainability**	Understand the impact of scientific solutions in societal and environmental contexts and demonstrate the knowledge of, and need for sustainable development.
PLO 9	**Soft-Skill Development**	Develop soft skills like leadership, teamwork, and effective communication to excel in various roles and contribute to societal progress, enhancing academic, professional, and personal growth for self-improvement and collective advancement.
PLO 10	**Science and Society**	Apply logical thinking, knowledge, and skills in designing solutions for societal issues, including health, safety, and scientific responsibilities.
PLO 11	**Life-long learning**	Encouraging learners to seek knowledge for personal or professional growth includes promoting volunteering, self-motivation, societal values, and lifelong learning for enhanced competitiveness and employability amidst technological advancements.

PLO 12	**Data Analysis and Interpretation**	Analyzing and interpreting scientific data, drawing meaningful conclusions, and communicating results effectively.

5. Program Specific Learning Outcomes

PSO 1	**Nutritional Consultant**	Lifestyle management as per the recent medical problems regarding quality of life.
PSO 2	**Nutrition Programme management**	Nutrition program planning and coordination, organization,and strategic oversight of activities to ensure the effectivedelivery of nutrition services and the achievement of program goals.

6. Credit Framework

Semester Wise Credit Distribution of the Programme	
Semester-1	22
Semester-2	22
Semester-3	22
Semester-4	22
Semester-5	22
Semester-6	22
Total Credits:	**132**

Category Wise Credit Distribution of the Programme	
Category	**Credit**
Major Core	92
Minor Stream	0
Multidisciplinary	12
Ability Enhancement Course	10
Skill Enhancement Courses	10
Value added Courses	8
Total Credits:	**132**

7. Program Curriculum

Semester 1						
Sr. No.	**Subject Code**	**Subject Name**	**Credit**	**Lect**	**Lab**	**Tut**
1	11010901DS01	Introduction to Food Science	4	4	0	0
2	11010901DS02	Introduction to Public Health Nutrition	4	4	0	0
3	11010901DS03	Introduction to Nutrition	3	3	0	0
4	11010901DS04	Lab- Introduction to Nutrition	1	0	2	0

5	11010901SE01	Diet Counselling Techniques	2	2	0	0
6	11011401VA01	Climate Change & Sustainable Environment	2	2	0	0
	03010901UE01/	Introduction to MATLAB Programming/				
7	05010101UE01/ 09010101UE01/	Office Automation/ First Aid and Life Support/	4	4	0	0
	18010201UE01	Basic Photography				
	00019301AE01/	Basic English-I /				
8	00019301AE02/	Basic Hindi-I/	2	2	0	0
	00019301AE03	Basic Gujarati-I				
Total			**22**	**21**	**02**	**00**
Semester 2						
Sr. No.	**Subject Code**	**Subject Name**	**Credit**	**Lect**	**Lab**	**Tut**
9	11010902DS01	Food Chemistry	4	4	0	0
10	11010902DS02	Meal Planning in Lifecycle	2	2	0	0
11	11010902DS03	Lab- Meal Planning in Lifecycle	2	0	4	0
12	11010902DS04	Nutrition Status Assessment	3	3	0	0
13	11010902DS05	Lab-Nutrition Status Assessment	1	0	2	0
14	00019302VA01	IPDC including history and culture of India and IKS-I	2	2	0	0
15	00019101SE01	Mathematical Aptitude	2	2	0	0
	00019302AE04/	Basic English-II /				
16	00019302AE05/	Basic Hindi-II/	2	2	0	0
	00019302AE06	Basic Gujarati-II				
	03010602UE01/	Maintenance of Household Apparatus/				
17	15010402UE01/ 19010002UE01/	Human Psychology/ Digital Health/	4	4	0	0
	19010202UE01	Public Health Nutrition				
Total			**22**	**19**	**6**	**0**
Semester 3						

Sr. No.	Subject Code	Subject Name	Credit	Lect	Lab	Tut
18	11010903DS01	Nutrition Epidemiology and Anthropology	3	3	0	0
19	11010903DS02	Lab-Nutrition Epidemiology and Anthropology	1	0	2	0
20	11010903DS03	Nutrition Physiology 1	4	4	0	0
21	11010903DS04	Human Nutrition-I	4	4	0	0
22	03010503SE01	AI / Web development and Designing	2	2	0	0
23	00019303VA01	VAC-3 (IPDC including history and culture of India and IKS - 2)	2	2	0	0
24	00019303AE01	MEL-1	2	2	0	0
25	05010103UE01	AI Application in People Management	4	4	0	0
Total			**22**	**21**	**2**	**0**
Semester 4						
Sr. No.	**Subject Code**	**Subject Name**	**Credit**	**Lect**	**Lab**	**Tut**
26	11010904DS01	Nutrition Physiology 2	4	4	0	0
27	11010904DS02	Human Nutrition – II	4	4	0	0
28	11010904DS03	Maternal and Child Health Nutrition	4	4	0	0
29	11010904DS04	Food Labelling and Consumer Awareness	3	3	0	0
30	11010904DS05	Lab- Food Labelling and Consumer Awareness	1	0	2	0
31	19010204VA01 00019404VA01 00019404VA02 00019404VA03	Psychology of Stress, Health and Well-Being / Physical education: Yoga/ Physical education: Sports/ Physical education: NCC	2	2	0	0
32	11010904SE01	Entrepreneurship in Nutrition / Infant Young Child Practices	2	2	0	0
33	00019304AE01 00019304AE02 00019304AE03	Advanced English-II Basic German-II Basic French-II	2	2	0	0

Total			22	21	2	0
Semester 5						
Sr. No.	**Subject Code**	**Subject Name**	**Credit**	**Lect**	**Lab**	**Tut**
34	11010905DS01	Nutrition Health Communication	3	3	0	0
35	11010905DS02	Lab-Nutrition Health Communication	1	0	2	0
36	11010905DS03	Diet Therapy-I	2	2	0	0
37	11010905DS04	Lab-Diet Therapy-I	2	0	4	0
38	11010905DS05	Nutrition Policies and Programs	4	4	0	0
39	11010905DS06	Nutritional Biochemistry I	4	4	0	0
40	11010905DS07	Institutional Food Management and quantity cookery	1	1	0	0
41	11010905DS08	Lab-Institutional Food Management and quantity cookery	3	0	6	0
42	06010105SE01	Digital Literacy / Finance for everyone	2	2	0	0
Total			**22**	**16**	**12**	**00**
Semester 6						
Sr. No.	**Subject Code**	**Subject Name**	**Credit**	**Lect**	**Lab**	**Tut**
42	11010906DS01	Diet Therapy – II	2	2	0	0
43	11010906DS02	Lab-Diet Therapy – II	2	0	4	0
44	11010906DS03	Emerging public health problems and its management	4	4	0	0
45	11010906DS04	Food Design	4	4	0	0
46	11010906DS05	Nutritional Biochemistry II	4	4	0	0
47	00019306AE01	Professional ethics and communication	2	2	0	0
47	11010906IN01	Internship/Mini Project	4	0	0	0
Total			**22**	**16**	**4**	**0**

1. Detailed Syllabus

Semester 1

[01]

a. Course Name: Introduction to Food Science

b. Course Code: 11010901DS01

c. Prerequisite: Should be familiar with basic of Food Science

d. Rationale: Acquire knowledge about Food Science.

e. Course Learning Objective:

CLOBJ 1	Relate the basics of food science and terminologies associated with the various cooking methods.
CLOBJ 2	Examine the chemical composition and Functions of Plant and Animal origin foods.
CLOBJ 3	Evaluate changes of various foods during processing & cooking.

f. Course Learning Outcomes:

CLO 1	Remember the basics of food science and terminologies associated with the various cooking methods.
CLO 2	Analyze the chemical composition and Functions of Plant and Animal origin foods.
CLO 3	Interpret changes of various foods during processing & cooking.

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
4	**0**	**0**	**4**	**20**	**20**	**-**	**60**	**-**	**100**

L- Lectures; **T-** Tutorial; **P-** Practical; **C-** Credit; **MSE-** Mid-Semester Evaluation, **CE-** Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	**Content**	**Weightage (%)**	**Teaching Hours**
1	**Introduction to Food Science -** Functions of food, Food groups (Types of classification), Terminologies: Moist heat method Boiling, Simmering, Poaching, Stewing, Steaming,	**25**	**15**

	Pressure cooking. Dry heat methods: Air as medium of cooking: Grilling, Pan broiling or roasting, Baking, Fat as medium of cooking: Sauteing, Shallow fat frying, Deep fat, frying. Other cooking methods: Fermentation, Braising, Microwave cooking, Solar cooking.		
2	**Basic Food Science - Plant origin -** Cereals, Cereals Grain: Structure and Composition Wheat: Composition, Milling of Wheat, Products of Wheat Rice: Composition Milling, Parboiling, products, Types of rice (white, parboiled, black, red) Millets: Nutritive value, Processing, products, Cereal Cookery Gelatinisation, Gelation, Retrogradation, Fermentation, Dextrinisation, Cereal Protein (Gluten) Pulses - Composition And Nutritive Value, Digestibility of Pulses, Processing: Milling, Soaking, Germination, Fermentation, Parching and Puffing, Toxic Constituents Fruits and Vegetable - Classification, Composition and Nutritive Value, Plant Pigments Water soluble and water insoluble pigments	**25**	**15**
3	**Basic Food Science - Animal origin -** Milk and Milk products, Composition and Nutritive Value, Processing: Clarification, Pasteurization, Homogenisation, Milk Products Fermented and Non – Fermented, Role of Milk and Milk Products in Cookery, Physical Properties and Milk Spoilage Eggs - Structure and Nutritive Composition of egg, Quality of Egg, Role of Egg in Cookery Meat - Definitions and Classes of meat and related products, Composition and Nutritive Value, Postmortem changes – Rigor Mortis	**25**	**15**
4	**Basic Food Science - Other Foods -** Nuts and Oil Seeds , Nutritive Value, Specific Nuts and Oilseeds: Almonds, Flaxseeds, Garden cress seeds, Pumkin seeds, Sunflower seeds, Walnut, oilseed cakes, Toxins Fats and Oils - Specific Fats and Oils: Animal source and plant source, Rancidity and Prevention of Rancidity, Homogenisation, Nutritive value Sugar - Sugar and related products, Artificial Sweeteners, Sugar Cookery: Crystallization Spices and Aromatics - General function of Spices, Specific spices and its medicinal value, Herbs Miscellaneous and beverages	**25**	**15**
Total		**100%**	**60**

i. Text Book and Reference Book:

- SethiMohini, Rao E. S. (2011). Food Science Experiments and Applications. Second edition. CBS Publishers, New Delhi
- Rathore NS et.al. (2009), Post Harvest and Processing Technology, Agrotech Publishing
- Sri Lakshmi B (2017). Food Science. 5th Edition, Published by Newage International, New Delhi

Semester 1
[02]

a. Course Name: Introduction to Public Health Nutrition
b. Course Code: 11010901DS02
c. Prerequisite: Should be familiar with basic of Public Health Nutrition
d. Rationale: Acquire knowledge about Public Health Nutrition

e. Course Learning Objective:

CLOBJ 1	Interpret the concept of Public Health Nutrition and its importance.
CLOBJ 2	Relate the role of public health at global scale and role in improvement of health.
CLOBJ 3	Examine the Demographic aspects of Public Health & Nutrition

f. Course Learning Outcomes:

CLO 1	Understand the concept of Public Health Nutrition and its importance.
CLO 2	Understand the role of public health at global scale and role in improvement of health.
CLO 3	Analyse and understand the Demographic aspects of Public Health & Nutrition

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
4	**0**	**0**	**4**	**20**	**20**	**-**	**60**	**-**	**100**

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	Content	Weightage (%)	Teaching Hours
1	**An Overview on Public Health Nutrition -** Introduction to Public Health and Public Nutrition, Terminologies used in Public health approaches; Community, Malnutrition (Double and Triple burden of malnutrition), hidden hunger, Epidemiology, Health Promotion, Advocacy, Food and nutrition security- introduce nutrition sensitivity and specificity (to be detailed in programmes and policies course), Vulnerable groups, Human Development Index, Poverty and others, Sustainable Development Goals Various organizations associated with Public Health Nutrition - WHO, FSSAI, FAO, UN- UNICEF, UNDP, UNHRC, UNESCO, WFP, African Development Bank, Asian Development Bank), Development partners/NGOs/CSOs- IFPRI, GAIN, Piramal Swasthya, TATA trust, CFNS, APPI, IPEGlobal, IEG, WVI, Population council, PHFI, PHRN, FFHIT, CINI, CHETNA, MAMTA, and more) and CSRs Government stakeholders- NITI Aayog, Ministries, line departments mainly Health, Education, WCD, SRLM, Agriculture, PDS, NIFTEM, etc) Determinants of Health and Nutrition status in children -UNICEF conceptual framework-WHO-Health systems strengthening – (shift in policies & programmes subject)	**25**	**15**
2	**Global targets in improving nutrition -** The first 1000 days of life: Sustainable development goals- how they are directly/indirectly linked with nutrition, WHO Global Targets 2025, Non Communicable Diseases (NCDs) target 2025, Programmes addressing micronutrient deficiency (prevention and control (overview))- mention names of existing programmes- GoI	**25**	**15**
3	**Demographic aspects of Public Health & Nutrition -** Concept of Demography, Growth rate, Census enumeration and its objectives, Census factsheets, their interpretation & implications, Target population calculations- vulnerable age groups, projected population in life cycle, Key indicators used in public health to monitor impact of health/ nutrition/development programs globally, including indicators used to measure Quality of Life (QOL), Nutrition status related indicators (MIYCN- Maternal, Infant and Young Child nutrition related indicators, Education, water and sanitation related indicators	**25**	**15**

4	**POSHAN ABHIYAAN 2.0 -** The features of POSHAN Abhiyaan (introducing guidelines-salient features, objectives, etc), A high impact package of interventions with a focus on (but not limited to) the first 1000 days of a child's life, ICDS program and the role of frontline workers 3As (ASHA, Anganwadi ANM)- poshan tracker, Role of NITI Aayog in POSHAN Abhiyaan	**25**	**15**
Total		**100%**	**60**

i. Text Book and Reference Book:

- K. Park (2011).TextBook of Preventive and Social Medicine, 21edition.Banarsidas Bhanot Publishers. Jabalpur. ISBN 13: 9788190607995. 868 pages.
- Lal S. (2009) Textbook of Community Medicine , CBS Publication
- Tracking progress on child and maternal Nutrition UNICEF (2009)
- International Institute for Population Sciences (IIPS) and Macro International. 2007.National Family Health Survey (NFHS-3), 2005-06: India: Volume I. Mumbai: IIPS.
- Vir Sheila (2011). Public Health Nutrition in Developing Countries published by Woodhead Publishing India. ISBN-13: 9780857090041, ISBN-10: 0857090046
- Census India, www.censusindia.gov.in
- Socio economic & caste census, www.secc.gov.in
- United Nations Millennium Development Goals, www.un.org millennium goals
- Millennium Development Report, India country report, 2014. http://www.in.undp.org/content/dam/india/docs/MDG%20-20India%20Report%202014.pdf
- WHOGlobalTargets2025,www.who.int/nutrition/topics/nutrition_globaltargets2025/en/
- Role of health systems in improving child nutrition in India, India Health Beat, Vol5 (7) June 2011
- Repositioning Nutrition as central to development- A study for large scale development. The World Bank Report (2006)

Semester 1

[03]

a. Course Name: Introduction to Nutrition

b. Course Code: 11010901DS03

c. Prerequisite: Should be familiar with basic of Nutrition

d. Rationale: Acquire knowledge about Nutrition

e. Course Learning Objective:

CLOBJ 1	Interpret food groups, nutritive value and importance in daily diet.
CLOBJ 2	Explain the basics of various macronutrients and micronutrients
CLOBJ 3	Examine the basics of various macronutrients and micronutrients deficiency disorders

f. Course Learning Outcomes:

CLO 1	Evaluate food groups, nutritive value and importance in daily diet
CLO 2	Describe basics of various macronutrients and micronutrients
CLO 3	Analyse the basics of various macronutrients and micronutrients deficiency disorders

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
3	**0**	**0**	**3**	**20**	**20**	**-**	**60**	**-**	**100**

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No	**Content**	**Weightage (%)**	**Teaching Hours**
1	**Introduction to Nutrition -** Terminologies: Food, Nutrition, Nutrients, Nutritional Status, Nutritional Care, Good nutrition, Malnutrition, Health, Diet Therapy, Body Mass Index, Diet diversity ,Food and nutrition security, Eating disorders, Functional foods, nutraceuticals, dietary supplements and nutrient supplements, Understanding relationship between Food, Nutrition and Health, Functions of Food: Physiological, Socio-cultural and Psychological functions	**22**	**10**
2	**Food and Nutrient requirements -** Guidelines and recommendations (Dietary Guidelines for Indians, 2010, ICMR NIN My plate etc.), Food groups system, Recommended Dietary Allowance (RDA), EAR (Estimated average requirements), TUL (Tolerable Upper limits), General principles of deriving RDAs, uses and limitations of RDA, Concept of reference man and reference woman	**22**	**10**

3	**Energy -** Definitions, units of energy, determining energy value of food, Components of energy requirement, Factors affecting energy requirement, Sources, energy imbalance and RDA, Methods of measuring energy expenditure, RMR, B.M.R, determination of B.M.R by calculation and factors affecting B.M.R, Physical Activity level, Calculating Total energy Expenditure/ Requirements using BMR, TEF and PAL, Body composition assessment by using various instruments	**22**	**10**
4	**Macro and Micronutrients -** Composition, classification, requirements and sources of macronutrients- Carbohydrates, Proteins, Fat, Functions, symptoms, deficiency, toxicity and sources of Micronutrients- All vitamins (A,D,E,K,C,B1,B2,B3,B6,B9 & B12) and minerals (Iron, Calcium , Phosphorus, Iodine, Zinc), Assessment methods by using biochemical parameters	**33**	**15**
Total		**100%**	**45**

i. Text Book and Reference Book:

1. Tejmeet Rekhi and Heena Yadav.(2014). Fundamentals of Food and Nutrition. Elite Publishing House Pvt Ltd. Delhi\
2. Srilakshmi B.(2019). Dietetics. New Age International Publishers. Delhi
3. Sheel Sharma (2000) Human Nutrition and Meal Planning, Published by Mrs. S Chowdhary for Jnanada Prakashan (P&D) (JNANADA), 24, Daryaganj, N.Delhi.
4. Human Nutrition by Mahtab Bamji
5. Nutrition: A lifecycle approach by Pulkit Mathur and Ravinder Chaddha

Semester 1

[04]

a. Course Name: LAB- Introduction to Nutrition

b. Course Code: 11010901DS04

c. Prerequisite: Should be familiar with Science of Nutrition

d. Rationale: Acquire knowledge about Nutrition

e. Course Learning Objective:

CLOBJ 1	Relate to the Basic Nutrition concepts
CLOBJ 2	Examine and Plan Food Composition Tables for Planning of Diets
CLOBJ 3	Interpret Dietary Reference Intakes (DRIs) and use of it in nutritional practices

f. Course Learning Outcomes:

CLO 1	Understand the Basic Nutrition concepts
CLO 2	Analyze and Apply Food Composition Tables for Planning of Diets
CLO 3	Understand Dietary Reference Intakes (DRIs) and use of it in nutritional practices

g. Teaching & Examination Scheme:

Teaching Scheme				Evaluation Scheme					
L	T	P	C	Internal Evaluation			ESE		Total
				MSE	CE	P	Theory	P	
0	0	2	1	-	-	20	-	30	50

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. List of Experiment:

Sr. No.	Content
1	Introduction to different culinary terms
2	Locals name of commonly consumed foods
3	Identification of Foods under food groups
4	Calculation of Glycemic Index in foods
5	Standard cups & spoons; demonstration for weight and volume measurement.
6	Market surveys: Making food price list for different food groups
7	Food exchange list of all food groups- how to use Lady Irwin Manual
8	Listing of foods based on nutrient content/cost: High protein High Calcium High Iron in major food groups Use of softwares and applications for dietary calculations’

i. Textbook and Reference Book:

- Srilakshmi B.(2019). Food Science. New Age International Publishers. Delhi
- Srilakshmi B.(2019). Dietetics. New Age International Publishers. Delhi
- Sheel Sharma (2000) Human Nutrition and Meal Planning, Published by Mrs. S Chowdhary for Jnanada Prakashan (P&D) (JNANADA), 24, Daryaganj, N.Delhi.

Semester 1

[05]

a. **Course Name:** Diet Counseling Techniques
b. **Course Code:** 11010902SE01
c. **Prerequisite:** Should be familiar with basic of Diet Counseling Techniques
d. **Rationale:** Acquire knowledge about Diet Counseling Techniques

e. Course Learning Objective:

CLOBJ 1	Apply effective verbal and non-verbal communication skills to establish rapport with clients and create a positive counseling environment.
CLOBJ 2	Plan personalized dietary plans based on individual health goals, dietary requirements, and cultural considerations.
CLOBJ 3	Interpret behavioral change theories and strategies to facilitate positive dietary changes in clients.
CLOBJ 4	Plan and deliver clear and understandable nutrition education materials for clients to enhance their understanding of healthy eating.

f. Course Learning Outcomes:

CLO 1	Develop effective verbal and non-verbal communication skills to establish rapport with clients and create a positive counseling environment.
CLO 2	Create personalized dietary plans based on individual health goals, dietary requirements, and cultural considerations.
CLO 3	Understand behavioral change theories and strategies to facilitate positive dietary changes in clients.
CLO 4	Develop and deliver clear and understandable nutrition education materials for clients to enhance their understanding of healthy eating.

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
2	**0**	**0**	**2**	**20**	**20**	**-**	**60**	**-**	**100**

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	**Content**	**Weightage (%)**	**Teaching Hours**
1	**Basics of Diet Counselling -** Diet counselling: (Definition, types, Dieticians), Diet counselling for healthy lifestyle, Diet counselling for underweight, Diet counselling for Overweight	**20**	**6**

2	**Effective Communication in Diet Counseling -** Active listening during counselling, Empathy and rapport Building, Non- verbal cues in counseling, Goal setting and Follow ups, Transtheoretical model	**27**	**8**
3	**Challenges in Diet Counselling -** Myths regarding Diets , Influencing Counselling, Barriers in Diet Counselling (Physical, Social, Mental), Resistant Behavior And Modification, Solving the problems faced during Diet Counselling	**27**	**8**
4	**Nutrition care process -** Nutrition assessment and Reassessment; Anthropometric Data, Patients history (Medical, Laboratory), Diet history, Nutrition focused examinations, Nutrition Diagnosis - Nutritional problem, Etiology of factor, Signs and symptoms supporting diagnosis. Nutrition Intervention, SMART (Specific,Measurable, Attainable, Relevant, Time-based), Nutrition Monitoring - Follow up, Reassessment	**27**	**8**
		100%	**30**

i. Textbook and Reference Book:

- Krause and Mahan's Food & the Nutrition Care Process, 16th Edition
- Curry KA & Jaffe A (1998) Nutrition Counseling Skills & Communication Skills.WB Saunders & Co. Snetselaar LG (2009)
- Nutrition Counseling Skills for the Nutrition Care Process. James & Bartlett Pub. Hickson JH (2000) Nutrition for Exercise & Sport. CRC Press. 2nd Edition
- NUTRITION COUNSELING SKILLS FOR THE NUTRITION CARE PROCESS, Linda G Snetselaar (fourth edition) 2009
- Nutrition Counseling and Education Skills: A Guide for ProfessionalsSeventh, North American Edition by Judith Beto, Betsy Holli (2018).

Semester 1
[06]

a. Course Name: Climate change & Sustainable Environment
b. Course Code: 11011401VA01
c. Prerequisite: Shall have the basic knowledge about environmental studies.
d. Rationale: Will understand the basic interface between climate change and sustainability.
e. Course Learning Objective:

CLOBJ 1	Understanding Climate change
CLOBJ 2	Climate Change Mitigation and Adaptation
CLOBJ 3	Global Climate Agreements
CLOBJ 4	Carbon Footprint Reduction

CLOBJ 5	Sustainable Development Principles
CLOBJ 6	Renewable Energy Technologies

f. Course Learning Outcomes:

CLO 1	Identify the complexity and operations of governance systems and processes on international, national, and local levels.
CLO 2	Explain the differences between government and governance and the various ideas and meanings attached to the goal of sustainable development.
CLO 3	Critically analyze policy-making processes in regard to sustainability issues.
CLO 4	Apply high-quality written and verbal communication skill.
CLO 5	Work effectively in a team and in tutorial or workshop situations.
CLO 6	Understand the scientific principles behind climate change, including the greenhouse effect, and its implications for global ecosystems.

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
-	**2**	**-**	**2**	**20**	**20**	**-**	**60**	**-**	**100**

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	**Content**	**Weightage (%)**	**Teaching Hours**
1	Introduction to Climate Change, Global Climate System Climate Change, Causes and Consequences; Global warming, ozone layer depletion, acid rain, and greenhouse effect case studies; nuclear accidents, chemical disasters, and climatic episodes	**33**	**10**
2	Sustainable Development, Sustainable Development Goals, An overview Climate Change and Sustainable Development, National and State Policies Achieving Sustainable Development Goals, Role of Various Stakeholders Building Partnership for Climate Change and Sustainable Development	**33**	**10**

3	Sustainable Approach to Climate Change: Energy Conservation, Use of Renewable energies: Water, Solar, Wind, Tidal, Geothermal Water conservation techniques: Rain Water Harvesting. Environmental Ethics & Public Awareness: Role of various religions and cultural practices in environmental conservation Sustainable Human Development.	**33**	**10**
Total		**100%**	**30**

i. Textbook and Reference Book:

- Climate Change and Sustainable Development: Prospects for Developing Countries, By Anil Markandya, Kirsten Halsnæs
- Climate Change and Sustainable Development Global Prospective, By R.K.Mishra, P.s.Janki Krishna & CH. Laskhmi Kuma
- This Changes Everything: Capitalism vs The Climate, By Naomi Klein
- The Uninhabitable Earth: Life After Warming (TextBook), By David Wallace-Wells

Semester 1
[07]

a. Course Name: First Aid & Life Support
b. Course Code: 09010101UE01
c. Prerequisite: Basic computer literacy. Shall have the basic knowledge about anatomy and physiology of the human body.
d. Rationale: Will gain basic knowledge about first aid & life sciences.
e. Course Learning Objective:

CLOBJ 1	Emergency scene assessment
CLOBJ 2	Basic life support skills
CLOBJ 3	Breathing techniques
CLOBJ 4	Recognition of Circulatory Emergencies
CLOBJ 5	Wound Care and Bleeding Control
CLOBJ 6	Shock management

f. Course Learning Outcomes:

CLO 1	Understand the importance of first aid in emergency situations.
CLO 2	Demonstrate the ability to assess the scene of an emergency.
CLO 3	Identify and prioritize different types of injuries and illnesses.
CLO 4	Learn and practice CPR techniques for adults, children, and infants and use of automated external defibrillators (AEDs) and how to use them.
CLO 5	Understand the importance of infection control in wound care.

CLO 6	Identify signs and symptoms of shock and how to provide first aid for different types of burns and how to assess and provide first.

g. Teaching & Examination Scheme:

Teaching Scheme				Evaluation Scheme					
				Internal Evaluation			ESE		
L	**T**	**P**	**C**	**MSE**	**CE**	**P**	**Theory**	**P**	**Total**
4	**-**	**-**	**4**	**20**	**20**	**-**	**60**	**-**	**100**

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	Content	Weightage (%)	Teaching Hours
1	**Introduction to first aid:** Aims of first aid, The first aider, First aid and the law, Indian good Samaritan protection guidelines, Duty of giving care, Consent of the person in need Privacy, Negligence, Dealing with an emergency, Top-to-toe assessment, Hygiene and hand washing, First aid overview flow chart	7	4
2	**Assessment of patients with fractures, wounds, and bleeding:** Brief Anatomy of the skeletal system, Fractures (injuries to bones), Injuries and fractures to the head, neck and spine, Injuries and fractures to the cheekbone, nose and lower jaw, Fracture of the cheekbone or nose, Fractures of the lower jaw, Injuries to the shoulder, ribs or breastbone, Injuries or fractures of the shoulder, Injuries and fractures of the collarbone, Rib injuries and fractures, Fractures of the breastbone, Injuries to the arm, elbow, wrist, hand or, Injuries and fractures of the arm(upper arm, forearm, wrist) Injuries and fractures of hand or fingers, Injuries to the pelvis, lower limbs, knee, ankle or feet, Injuries and fractures of the pelvis Injuries and fractures of the leg (thigh or lower leg) or ankle, Fracture of the knee cap (patella) Injuries and fractures of foot or toes Dislocations (injuries to joints) Strains and sprains (injuries to ligaments, muscles and tendons)	10	6

3	**Respiratory emergencies:** Respiration, The respiratory system, No breathing or difficult breathing, When to refer the casualty to a healthcare facility, Drowning: Remove the victim out of the water, Strangulation and hanging, Choking, Swelling within the throat, Suffocation by smoke or gases, Asthma	10	6
4	**Care of burns:** The skin Burn wounds First, second and third degree burns, Type of burns by origin, Danger of burn, Dry burns and scalds (burns from flames, hot surfaces, steam, Care of minor burns (small first and second degree burns), Specific burn locations, Electrical burns and electrocution by electricity or lightning, Chemical burns, Sunburns, snow/welders eyes, heat exhaustion and heat stroke, Heat exhaustion, Heatstroke, Frostbites, Prevention of burns, Fever, Hypothermia	8	5
5	**Lifesaving procedures in emergency & shock:** The heart and the blood circulation, Heart and blood circulation, Blood pressure, Pulse, The blood, Chest discomfort, Bleeding, First aid for bleeding (in general), Resuscitation (basic CPR), Resuscitation of a person who is not breathing or not breathing normally, Resuscitation of baby/child (less than one year old)	8	5
6	**Head trauma & stroke:**The nervous system, The central nervous system, The peripheral nervous system (PNS), Unconsciousness, Head injuries, Concussion, Cerebral compression, Skull fractures, Stroke, Fits – convulsions - seizures	10	6
7	**Gastrointestinal tract, diarrhea, food poisoning and diabetes:** Review of anatomy and physiology of gastrointestinal tract, Diarrhoea, Prevent dehydration, Food poisoning, Diabetes, Type 1 diabetes, Type 2 diabetes, Gestational diabetes (diabetes during pregnancy), Diagnosis, Hyperglycaemia, Symptoms of hyperglycaemic coma or diabetic coma, Hypoglycaemia	10	6

8	**Senses, foreign bodies in eye, ear, nose or skin and swallowed foreign Objects:** Review of anatomy and physiology of the special senses, Foreign body in the eye, Foreign body in the ear, Foreign body in the nose, Foreign body in the skin, Swallowed foreign objects	10	6
9	**Urinary system, reproductive system and emergency childbirth:** Review of anatomy and physiology of Urinary & Reproductive system, Male reproductive system, Female reproductive system, Pregnancy, Stages of labour and giving birth, Aftercare of the mother, Medical conditions and pregnancy, Diabetes, High blood pressure, Infections, Prevention of sexually transmitted diseases (STD), Sexually transmitted infections, Reducing the risk of STDS/STIS, Emergency childbirth	10	6
10	**Psychological first aid:** Definition of psychological first aid, Traumatic crisis, (psychological) shock phase, Reaction phase, Processing phase, Reorientation phase, Behave calmly, Listening to the affected person, Physical contact, Providing psychological first aid to all	7	4
11	**Specific emergency situations and disaster management:** Emergencies at school, Emergencies at work, Road and traffic accidents, Emergencies in rural area, Disasters and multiple casualty accidents Emergency triage	10	6
Total		**100%**	**60**

i. Textbook and Reference Book:

- First aid handbook: Fast and effective emergency care (TextBook), By Dr. Pipa Keech | 3rd
- Until Medical Help Arrives: First aid Book (TextBook), By Dr. H. V. Sardesai | 1 st Edition, Pub. Year 2022
- First aid manual, (TextBook), By UK's Leading First aid providers | 11th edition:, Pub. Year 2021.

Semester 1
[8]

a. **Course Name:** Basic English-I
b. **Course Code:** 00019301AE01
c. **Prerequisite:** Basic Knowledge of LSRW. To provide students with soft skills that complement their skills, making them more marketable when entering the workforce.
d. **Rationale:** Knowledge of LSRW is essential for students.

e. **Course Learning Objective:**

CLOBJ 1	Remember basic English language terms and concepts.
CLOBJ 2	Understand the main ideas and key details of simple English language materials.
CLOBJ 3	Apply grammar and vocabulary knowledge to construct simple sentences and paragraphs.
CLOBJ 4	Analyse the structure and organization of basic English texts.
CLOBJ 5	Evaluate the use of language in different contexts and for different purposes.
CLOBJ 6	Create original written and spoken English language content.

f. **Course Learning Outcomes:**

CLO 1	Define and recognize simple grammatical structures and rules in English sentences.
CLO 2	Understanding of basic English grammar concepts through application in context.
CLO 3	Apply listening skills to follow and respond appropriately to basic instructions and directions given in English.
CLO 4	Analyse language usage and areas for improvement in pronunciation, grammar, and vocabulary.
CLO 5	Evaluate new vocabulary and grammatical structures learned in class into their communication to demonstrate language fluency and creativity.
CLO 6	Develop the cultural relevance and appropriateness of language use in various contexts, demonstrating an understanding of cultural sensitivity and communication norms.

g. Teaching & Examination Scheme:

Teaching Scheme				Evaluation Scheme					
L	T	P	C	Internal Evaluation			ESE		Total
				MSE	CE	P	Theory	P	
2	-		2	20	20		60		100

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	Content	Weightage (%)	Teaching Hours
1	**Listening Skills and Hearing**: Listening Vs Hearing Types of listening, Traits of good listener, Barriers of listening	7	2
2	**Listening Practice:** Listening Practice(Audio & Video)	10	3
3	**Presentation Skills:** Defining the purpose of presentation Presentation strategies, How to make an effective presentation? Knowing /Analysing audience, Organizing content and preparing an outline Traits of a good speaker	3	1
4	**Activity:** Crazy Scientist.	7	2
5	**Speaking Practice:** Speaking practice (Elocution)	24	7
6	**Reading Skills:** Define reading, Reading Strategies, Techniques of reading, Techniques to read faster	3	1
7	**Reading Practice:** Reading Practice (Reading Comprehension)	13	4
8	**Writing Skills:** Develop Writing Skills, 7cs of communication, Techniques of writing better, Identifying common errors in writing	10	3
9	**Paragraph Writing :** Introduction of Paragraph Writing, Central components of paragraph development, Techniques for paragraph development	3	1
10	**Writing Practice:** Note making, Picture Description, Dialogue Writing, Paragraph Writing Completion of story from given points	20	6
Total		**100%**	**30**

i. Text Book and Reference Book:

- Understanding and Using English Grammar, By Betty Azar & Stacy Hagen | Pearson Education
- Business Correspondence and Report Writing, By SHARMA, R. AND MOHAN, K.
- Communication Skills, By Kumar S And Lata P | New Delhi Oxford University Press
- Technical Communication : Principles And Practice, By Sangeetha Sharma, Meenakshi

Raman | Oxford University Press
- Practical English Usage, By MICHAEL SWAN
- A Remedial English Grammar for Foreign Student, By F.T. WOOD
- On Writing Well, By William Zinsser | Harper Paperbacks,2006 | 30th anniversary edition

Semester 2
[01]

a. Course Name: Food Chemistry
b. Course Code: 11010902DS01
c. Prerequisite: Should be familiar with food and their components
d. Rationale: To understand the chemistry of food components and their interactions

e. Course Learning Objective:

CLOBJ 1	Apply a foundational understanding of key principles in food chemistry, including the composition of major macronutrients, micronutrients, and other bioactive compounds present in food.
CLOBJ 2	Interpret and discover pH, temperature, and additives influence the chemical properties of food, including texture, stability, and shelf life.
CLOBJ 3	Relate and utilize the function of food additives, preservatives, and flavor enhancers, considering both their chemical properties and regulatory aspects.

f. Course Learning Outcomes:

CLO 1	Develop a foundational understanding of key principles in food chemistry, including the composition of major macronutrients, micronutrients, and other bioactive compounds present in food.
CLO 2	Understand and analyse pH, temperature, and additives influence the chemical properties of food, including texture, stability, and shelf life.
CLO 3	Understand and apply the function of food additives, preservatives, and flavor enhancers, considering both their chemical properties and regulatory aspects.

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
4	**0**	**0**	**4**	**20**	**20**	**-**	**60**	**-**	**100**

L- Lectures; **T-** Tutorial; **P-** Practical; **C-** Credit; **MSE-** Mid-Semester Evaluation, **CE-**

Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	Content	Weightage (%)	Teaching Hours
1	**Basic aspects in Chemistry –** Classification of matter and Chemical Shorthand, Matter, Classification of matter, elements, compounds and mixtures, Chemical Shorthand – symbols, formulae and equations. Atomic Structure, Valency and Classification of Elements - Concept of atom and atomic structure, Atomic weight, molecular weight and equivalent weight, Theory of Valency, Various types of chemical bonds, Periodic classification of elements. Inorganic and Organic Compounds - Acids, bases and salts, Electrolytes, Nature and characteristic of organic compounds, Classification and nomenclature of organic compounds, General reactions of aliphatic and aromatic organic compounds	25	**15**
2	**Carbohydrates –** Introduction and classification, structure and properties of monosaccharides – Acetylation, Gylcoside and salt formation, Oxidation and Reduction, Osazone formation, Dehydration, structure and properties of disaccharides, structure and properties of polysaccharides – Starch, Cellulose, Pectic substance, browning reaction – Enzymatic Browning, Maillard Browning, Caramelization	25	**15**
3	**Proteins –** Introduction and classification of proteins and amino acids, Physical properties of proteins; Molecular weight, Solubility, Electrophoresis, Chemical properties of proteins; Amphoterism, Binding of ions, Hydration of proteins, Precipitation with antibodies, Denaturation	25	**15**
4	**Lipids –** Introduction and classification, Chemical structure of fats and fatty acids, Physical properties of fats - Melting point, Polymorphism, Plasticity, Softening and slipping points, Smoke, flash and fire points, Chemical properties of fats; Saponification value, Reichert Meissl value and Polenske value, Halogenation- iodine value, Hydrogenation, Oxidation, Rancidity – acid value	25	**15**
Total		**100%**	**60**

i. Text Book and Reference Book:

- Bahl BS (2016). Textbook of Organic Chemistry (22nd edn.). Published by Chand

& Sons, New Delhi
- Soni PL (2012). Fundamental Organic Chemistry (29th edn.). Published by Chand & Sons, New Delhi
- Meyer LJ (2004). Food Chemistry . Published by CBS Publisher, New Delhi
- Swaminathan M (2018). Food Science and Experimental Foods. Published by Ganesh & Co, Madras
- Manay S (2008). Foods, Facts and Principles. Published by Wiley Eastern, New Delhi
- Fennema OR (2007). Food Chemistry (4th edn). Published by Marcell Dekka Publication
- Srilakshmi B (2017). Nutrition Science. Published by New Age International Pvt Ltd., New Delhi.
- Bamji MS, Prahlad Rao N and Reddy V (2010). A Textbook on Human Nutrition (3rd Edition). Published by Oxford and IBH Publishing Co., New Delhi.

Semester 2
[02]

a. **Course Name:** Meal Planning in Lifecycle
b. **Course Code:** 11010902DS02
c. **Prerequisite:** Foundational understanding of nutrition principles and dietary requirements across different life stages
d. **Rationale:** To equip students with knowledge and skills to create nutritionally balanced and age-appropriate meal plans that support optimal health at various stage of life

e. Course Learning Objective:

CLOBJ 1	Illustrate the attributes of natural resource use and management
CLOBJ 2	Understand the concept of an adequate diet and the importance of meal planning.
CLOBJ 3	Examine nutrient needs and RDA during infancy, preschool and school years and adolescence.
CLOBJ 4	Develop the practical aspects of meal planning for the different age groups.

f. Course Learning Outcomes:

CLO 1	Understand the attributes of natural resource use and management
CLO 2	Explain the concept of an adequate diet and the importance of meal planning.
CLO 3	Analyse nutrient needs and RDA during infancy, preschool and school years and adolescence.
CLO 4	Identify the practical aspects of meal planning for the different age groups.

g. Teaching & Examination Scheme:

Teaching Scheme				Evaluation Scheme					
				Internal Evaluation			ESE		
L	T	P	C	MSE	CE	P	Theory	P	Total
2	-	0	2	20	20	-	60	-	100

L- Lectures; **T**- Tutorial; **P**- Practical; **C**- Credit; **MSE**- Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE**- End Semester Examination

h. Course Content:

Sr. No.	Content	Weightage (%)	Teaching Hours
1	**Introduction to meal planning and factors influencing food intake** 1.1 Meal planning: definition, Importance-ensuring nutrition and acceptability 1.2 Balanced diet, Food Pyramid, My plate 1.3 Food Exchange: Introduction, uses, limitations 1.4 Use of standard Measurements (Cups, spoons, weight machines) 1.5 Factors affecting meal planning: Individual medical condition, Geographical condition, personal factors 1.6 Table setting	17	**5**

2	**Nutritional requirements of infancy, preschool years and school going children** 2.1 Requirements during infancy, pre-school years and school going age. 2.2 Nutrient requirements in different age groups 2.3 Overview - breastfeeding and complementary feeding in first year of life 2.4 Nutritional needs and problems in preschool years (2-6 years) 2.5 Growth and development in school-age children 2.6 Importance of breakfast for school children 2.7 Planning nutritious meals and snacks, beverages for school children 2.8 Special challenges and food likes-dislikes among school children	33	**10**
3	**Nutritional requirements of adolescents** 3.1 Requirement During 10-18 years 3.2 Planning nutritious meals and snacks, beverages for teens 3.3 Food likes-dislikes and challenges among adolescents 3.4 Eating disorders and its effect on out comes in later stages of life	17	**5**
4	**Nutritional requirements of Adult** 4.1 Nutrient requirements for Sedentary, Moderate and Heavy workers, athletes. 4.2 Nutrient requirements for Pregnant and Lactating mothers 4.3 Dietary guidelines for healthy living	17	**5**
5	**Nutritional requirement of Elderly** 5.1 Nutritional requirements of elderly people 5.2 Ageing and Physiological changes occurring during old age 5.3 Diet and feeding pattern for the elderly 5.4 Factors affecting longevity and health	17	**5**
Total		**100%**	**30**

i. Text Book and Reference Book:

- Srilakshmi B.(2019). Food Science. New Age International Publishers. Delhi
- Srilakshmi B.(2019). Dietetics. New Age International Publishers. Delhi
- Sheel Sharma (2000) Human Nutrition and Meal Planning, Published by Mrs. S Chowdhary for Jnanada Prakashan (P&D) (JNANADA), 24, Daryaganj, N.Delhi.

Semester 2

[03]

a. Course Name: LAB- Meal Planning in Lifecycle

b. Course Code: 11010902DS03

c. Prerequisite: Should be familiar with basic of Nutrition

d. Rationale: Acquire knowledge about Nutrition

e. Course Learning Objective:

CLOBJ 1	Plan Balanced and Nutrient-Dense Meal Plans
CLOBJ 2	Experiment with Cultural and Dietary Diversity in Meal Planning
CLOBJ 3	Develop Budgeting Strategies in Meal Preparation

f. Course Learning Outcomes:

CLO 1	Create Balanced and Nutrient-Dense Meal Plans
CLO 2	Apply Cultural and Dietary Diversity in Meal Planning
CLO 3	Apply Budgeting Strategies in Meal Preparation

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
				Internal Evaluation			**ESE**		**Total**
L	**T**	**P**	**C**	**MSE**	**CE**	**P**	**Theory**	**P**	
0	**0**	**3**	**2**	**-**	**-**	**20**	**-**	**30**	**50**

L- Lectures; **T-** Tutorial; **P-** Practical; **C-** Credit; **MSE-** Mid-Semester Evaluation, **CE-** Continuous Evaluation, **ESE-** End Semester Examination

h. Experiment List:

1	Food Exchange system and its application to plan healthy diets; Standardization of recipes of various food groups for meal planning.
2	Meal planning and preparation of complementary feeds for infants (7-9 months, 9-12 months, above 12 months)
3	Meal planning and preparation of healthy tiffin recipes for school going children
4	Meal planning and preparation of one day diet for Adolescent
5	Meal planning and preparation of diets for Adult (Sedentary, Moderate, Heavy)
6	Meal planning and preparation of diet for Pregnant mothers
7	Meal planning and preparation of diet for Lactating mothers
8	Meal planning and preparation of diet for old age group
9	Table setting

i. Textbook and Reference Book:

- Sheel Sharma (2000) Human Nutrition and Meal Planning, Published by Mrs. S Chowdhary for Jnanada Prakashan (P&D) (JNANADA), 24, Daryaganj, N.Delhi.
- Srilakshmi B.(2019). Dietetics. New Age International Publishers. Delhi

Semester 2
[04]

a. Course Name: Nutrition Status Assessment
b. Course Code: 11010902DS04
c. Prerequisite: Should be familiar with the Equipment and Instruments used to assess Nutritional Status
d. Rationale: Acquire knowledge about Nutrition

e. Course Learning Objective:

CLOBJ 1	Remember methods for assessing dietary intake.
CLOBJ 2	Understand and apply anthropometric measurements, clinical assessment techniques and biochemical markers.
CLOBJ 3	Apply nutritional screening tools and assessment instruments commonly used in healthcare settings.

f. Course Learning Outcomes:

CLO 1	Memorize methods for assessing dietary intake.
CLO 2	Demonstrate and utilize anthropometric measurements, clinical assessment techniques and biochemical markers.
CLO 3	Utilize nutritional screening tools and assessment instruments commonly used in healthcare settings.

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
3	**0**	**0**	**3**	**20**	**20**	**-**	**60**	**-**	**100**

L- Lectures; **T-** Tutorial; **P-** Practical; **C-** Credit; **MSE-** Mid-Semester Evaluation, **CE-** Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	**Content**	**Weightage (%)**	**Teaching Hours**

1	**Introduction of Nutritional Status Assessment -** Overview of Nutritional status assessment, Overview of nutritional status assessment methods: Direct parameters- (anthropometry, clinical signs and symptoms,dietary assessment and biochemical parameters), Indirect parameters - morbidity, mortality, socio-demographic indicators. Anthropometry measurements - Weight and height: Measuring weights and height/length for infants, children, adolescents, adults, Head- chest circumference, mid upper arm circumference, Skinfold thickness, Stunting, Wasting and Underweight - concepts and indicators, Body composition -fat and muscle distribution	**11**	**5**
2	**Biochemical parameters and Clinical assessment -** Use of biochemical measurements for NSA - Protein status, Iron status, Calcium status, Vitamin status, Blood Chemistry Clinical assessment methods - signs and symptoms of: PEM, Vitamin deficiencies, Mineral deficiencies	**22**	**10**
3	**Assessment of dietary intake, calculation of % RDA and interpretation -** Overview of dietary assessment methods , 24-hour dietary recall method, Food frequency questionnaire , Food composite analysis method, Food diary and other methods for dietary assessment. Concept of RDA and percent RDA met from daily food and beverage intake. Concept of dietary diversity and minimum dietary diversity score	**22**	**10**
4	**Nutritional surveillance -** Definition and concepts of nutritional surveillance and nutrition monitoring, Purpose of nutritional surveillance and nutrition monitoring, Timely warning and intervention systems, Various types of surveillance systems; ICDS surveillance system, computer-aided monitoring, National Nutrition Monitoring Bureau (NNMB), Surveillance through NFHS, AHS, DLHS- interpretation of data	**22**	**10**

5.	**Multiple methods for assessing nutritional status-assessment and correlation and its tools -** Anthropometry and dietary surveys- data tools and objectives, Biochemical and clinical methods-data tools and objectives, Market surveys, Brief overview of Qualitative methods for assessment of knowledge attitudes and practices (KAP) - focus group discussions, open ended interviews, observation method	**22**	**10**
Total		**100%**	**45**

i. Text Book and Reference Book:

- Nutritional assessment and classification-user's guide. 2016. By FANTA/USAID/FHI360
- Bruce Cogill, 2001. Anthropometric Indicators Measurement Guide. Published by FANTA: Food and Nutrition Technical Assistance; AED-USAID, USA
- Sharma K, Iyer U and Dhruv S (2008). Assessment of Nutritional Status. A Monograph published by the Department of Foods and Nutrition, Scientific Report Series No. 11, UGC DSA Program, The M S University Press, The M S University of Baroda, Vadodara
- Khadilkar et.al. Revised IAP Growth Charts for Height, Weight and Body Mass Index for 5- to 18-year-old Indian Children. Indian Pediatrics; Volume 52 January 15, 2015
- Park K (2007). Park's textbook of preventive and social medicine (19thed.). M/s BanarsidasBhanot, Jabalpur

Semester 2
[05]

a. **Course Name:** LAB- Nutrition Status Assessment
b. **Course Code:** 11010902DS05
c. **Prerequisite:** Should be familiar with the Equipment and Instruments used to assess Nutritional Status
d. **Rationale:** Acquire knowledge about Nutrition Status Assessment

e. Course Learning Objective:

CLOBJ 1	Evaluate proficiency in conducting comprehensive nutrition assessments, incorporating anthropometric measurements, dietary analysis.
CLOBJ 2	Compare and classify nutrition-related data, considering the limitations and strengths of various assessment method
CLOBJ 3	Interpret the impotence of effective Communication of Nutrition Findings

f. Course Learning Outcomes:

CLO 1	To assess proficiency in conducting comprehensive nutrition assessments, incorporating anthropometric measurements, dietary analysis.
CLO 2	To analyze and interpret nutrition-related data, considering the limitations and strengths of various assessment method
CLO 3	To understand the importance of effective Communication of Nutrition Findings

g. Teaching & Examination Scheme:

Teaching Scheme				Evaluation Scheme					
L	T	P	C	Internal Evaluation			ESE		Total
				MSE	CE	P	Theory	P	
0	0	2	1	-	-	20	-	30	50

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. List of Experiment:

Sr. No.	Content
1	Practical use of various anthropometry equipment- different weighing scales, MUAC tapes and others
2	Slide show - clinical symptoms of nutritional deficiencies
3	Conduct 24 hour dietary recall method and food frequency method in small groups (women, children, adolescents) ; calculate percent RDA met from the diet.
4	Use of karada scale and interpretation of the parameters in the scale
5	Skin fold thickness-Demonstration and practice
6	Head, Chest, Hip, WHR, Waist circumference
7	Learning the use of WHO growth standard
8	Assessing SES of different income groups

i. Text Book and Reference Book:

- Nutritional assessment and classification-user's guide. 2016. By FANTA/USAID/FHI360
- Bruce Cogill, 2001. Anthropometric Indicators Measurement Guide. Published by FANTA: Food and Nutrition Technical Assistance; AED-USAID, USA

Semester 2
[06]

a. Course Name: IPDC including history and culture of India and IKS-I

b. Course Code: 00019302VA01

c. Prerequisite: IPDC aims to prepare students for the modern challenges they face in their daily lives. Promoting fortitude in the face of failures, Unity amongst family discord, Self-discipline amidst Distractions and many more priceless lessons.

d. Rationale: The course focuses on morality and character development at the core of student growth, to enable students to become self-aware, sincere, and successful in their many roles - as

an ambitious student, reliable employee, caring family member, and considerate citizen.

e. Course Learning Objective:

CLOBJ 1	Remember key event, figures and date in history of India
CLOBJ 2	Understand diversity of Indian culture, including language, religions and customs.
CLOBJ 3	Apply principles of Indian philosophy to analyse complementary issues.
CLOBJ 4	Analyze the influence of Indian philosophy on various aspects of life such as ethics, politics and art.
CLOBJ 5	Evaluate impact of globalization on Indian culture and philosophy.
CLOBJ 6	Create innovative solutions on cultural diversity based on principles of India

f. Course Learning Outcomes:

CLO 1	Remember key events, figures and periods in history of India
CLO 2	Describe basic tenets and principles of prominent Indian philosophy schools
CLO 3	Apply concepts of Indian philosophy and culture to analyse contemporary issues and phenomenon
CLO 4	Compare and Contrast different philosophical schools within Indian traditions
CLO 5	Evalute relevance of Indian knowledge system in modern world.
CLO 6	Develop strategy for integrating Indian knowledge system into contemporary educational framework.

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
-	**2**	**-**	**2**	**20**	**20**		**60**		**100**

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	**Content**	**Weightage (%)**	**Teaching Hours**
1	Introduction and Remaking Yourself: Restructuring Yourself: Students learn how self-improvement enables them to secure a bright future for themselves. They will learn 6 powerful thought-processes that can develop their intellectual, physical, emotional, and spiritual quotients	**7**	**2**

2	Remaking Yourself: Power of Habit: Students will undergo a study of how habits work, the habits of successful professionals, and the practical techniques that can be used to develop good habits in their life.	**7**	**2**
3	Learning from Legends: Tendulkar & Tata: Students will learn from the inspirational lives of India's two legends, Sachin Tendulkar and Ratan Tata. They will implement these lessons through relatable case studies.	**7**	**2**
4	From House to Home: Listening & Understanding: Active listening is an essential part of academic progress and communications. Students will learn to listen with their eyes, ears, mind, and heart	**7**	**2**
5	Facing Failures: Welcoming Challenges: This lecture enables students to revisit the way in which they approach challenges. Through the study of successful figures such as Disney, Lincoln and Bachchan, students will learn to face difficulties through a positive perspective.	**7**	**2**
6	Facing Failures: Significance of Failures: Failure is a student's daily source of fear, negativity, and depression. Students will be given the constructive skills to understand failure as formative learning experiences.	**7**	**2**
7	My India My Pride: Glorious Past - Part 1: India's ancient Rishis, scholars, and intellectuals have made tremendous contributions to the world, they developed an advanced, sophisticated culture and civilization which began thousands of years ago. Students will learn the importance of studying India's glorious past so that they could develop a strong passion and pride for our nation.	**7**	**2**
8	My India My Pride: Glorious Past - Part 2: Our ancient concepts can be used to seek revolutionary ideas and to generate inspiration. Students will develop a deeper interest in India's Glorious Past – by appreciating the need to read about it, research it, write about it, and share it.	**7**	**2**
9	Learning from Legends: A.P.J. Abdul Kalam: Dr Kalam's inspirational life displayed legendary qualities which apply to students (1) Dare to Dream (2) Work Hard (3) Get Good Guidance (4) Humility (5) Use Your Talents for the Benefit of Others	**7**	**2**
10	Soft Skills Networking & Leadership: Students are taught the means of building a professional network and developing a leadership attitude.	**7**	**2**
11	Soft Skills Project Management: Students will learn the secrets of project management through the Akshardham case study. They will then practice these skills through an activity relevant to student life	**6**	**2**

12	Remaking Yourself: Handling Social Media: Students will learn how social media can become addictive and they will imbibe simple methods to take back control.	**6**	**2**
13	Facing Failures Power of Faith: Students will learn about the : power and necessity of faith in our daily lives.	**6**	**2**
14	From House to Home Bonding the Family: Students will understand the importance of strong family relationships. They will learn how to overcome the generation gap and connect with their family more.	**6**	**2**
15	Selfless Service Seva: Students will learn that performing seva is beneficial to one's health, wellbeing, and happiness. It also benefits and inspires others.	**6**	**2**
Total		**100%**	**30**

i. Textbook and Reference Books:

- Integrated Personality Development Course (TextBook) - By Bochasanwasi Akshar Purushottam Swaminarayan Sansth

Semester 2

[07]

a. Course Name: Mathematical Aptitude

b. Course Code: 00019101SE01

c. Prerequisite: F Basic numeracy skill

d. Rationale: Mathematical aptitude refers to the ability to reason, think critically, and apply mathematical principles to solve problems and make sense of the world around us.

e. Course Learning Objective:

CLOBJ 1	Understand and apply fundamental concepts of arithmetic, including numbers, highest common factor (HCF), lowest common multiple (LCM), square roots, and cube roots, to solve numerical problems efficiently and accurately.
CLOBJ 2	Develop proficiency in solving problems involving ratio and proportion, including applications in comparison, scaling, mixing, and distribution scenarios, to analyze and solve real-world quantitative problems effectively.
CLOBJ 3	Practise solving problems related to permutations and combinations, including applications in counting arrangements, selections, and probability calculations, to analyze and solve combinatorial problems across various domains.
CLOBJ 4	analyse concepts of percentage, average, and partnership, including shortcut techniques for calculating averages and distributing profits or expenses among partners, to analyse financial data and make informed decisions.
CLOBJ 5	Evaluate proficiency in solving problems related to time, work, distance, boats, streams, mixtures, logarithms, progressions (arithmetic mean, geometric mean, harmonic mean), and series, to solve practical problems involving time management, resource allocation, and sequence analysis.
CLOBJ 6	Develop the ability to solve problems related to interest (simple interest and compound interest), depreciation rates, profit-loss calculations, discounts, equations (linear and quadratic), and probability, to analyze financial transactions, investment decisions, and risk assessment scenarios effectively

f. Course Learning Outcomes:

CLO 1	Remember and differentiate between numbers, including integers, fractions, decimals, and real numbers.
CLO 2	Understand & analyse data presented in various forms, including tables, charts, and graphs, to extract meaningful information related to percentages, averages, and proportions.
CLO 3	Apply knowledge of logarithms, exponential functions, and interest rates to solve problems related to financial calculations, including compound interest, depreciation, and annuity investments.
CLO 4	Analyse and interpret data sets, including grouped and ungrouped data, to calculate measures of central tendency (mean) and dispersion (standard deviation) and draw meaningful conclusions about data distributions.
CLO 5	Evaluate and critique data interpretation methods, including the accuracy and effectiveness of tabulation, bar graphs, pie charts, and line charts in conveying information and making comparisons.

CLO 6	Synthesize information from multiple sources to solve problems related to mensuration, including calculating areas, perimeters, volumes, and surface areas of geometric shapes and solids.

g. Teaching & Examination Scheme:

Teaching Scheme				Evaluation Scheme					
L	T	P	C	Internal Evaluation			ESE		Total
				MSE	CE	P	Theory	P	
2	-	-	2	20	20		60		100

L- Lectures; **T**- Tutorial; **P**- Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE**- End Semester Examination

h. Course Content:

Sr. No.	Content	Weightage (%)	Teaching Hours
1	Numbers, HCF & LCM, Square Root & Cube Root, Ratio & Proportion, Permutations & Combinations, Percentage, Average-Shortcut averages, Partnership, Time -work & distance, Boats & streams, Mixtures, Logarithm	40	12
2	Progression (AM, GM, HM), Series, Interest (S.I. & C.I.) and depreciation rate, Profit-Loss & Discount, Equations (Linear & Quadratic), Probability	40	12
3	Mensuration I (Area & Perimeter), Mensuration II(Volume & Surface area), Grouped Data, Ungrouped Data (Mean and Standard Deviation) Data interpretation: (Tabulation, Bar Graph, Pie Chart, Line Chart).	20	6
Total		**100%**	**30**

Semester 2

[08]

a. **Course Name:** Basic English-II
b. **Course Code:** 00019302AE04
c. **Prerequisite:** Basic Knowledge of Communication
d. **Rationale:** Knowledge of Communication is essential for students

e. Course Learning Objective:

CLOBJ 1	Understand the definition of communication and recognize its significance in various contexts.
CLOBJ 2	Explain the process of communication and its components.

CLOBJ 3	Identify the levels and flow of communication within different organizational structures.
CLOBJ 4	Recognize common barriers to effective communication and develop strategies to overcome them.
CLOBJ 5	Define non-verbal communication and distinguish between its various forms, including kinesics, proxemics, paralinguistic, and chronemics.
CLOBJ 6	Perform error analysis in written and spoken communication, focusing on tense usage, voice variations, and reported speech.

f. Course Learning Outcomes:

CLO 1	Define communication and articulate its importance in various personal, professional, and societal contexts.
CLO 2	Understanding of the process of communication, including its different levels and the flow of information within different communication structures.
CLO 3	Solve barriers to effective communication and apply strategies to overcome these barriers in real-life scenarios.
CLO 4	Analyse error analysis in written and spoken communication, focusing on tense usage, voice variations, and reported speech to identify areas for improvement.
CLO 5	Evaluate own communication skills through activities such as reading comprehension, vocabulary building, idioms, phrases, synonyms, antonyms, theatrics (role-play), extempore speaking, application writing, and letter writing, focusing on elements, layouts, inquiries, complaints, and adjustments.
CLO6	Develop and apply effective communication skills, including non-verbal communication techniques such as kinesics, proxemics, paralinguistic, and chronemics, to convey messages accurately and appropriately in various situations.

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
2	**-**	**-**	**2**	**-**	**100**	**-**	**-**	**-**	**100**

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No	Topic	Weightage (%)	Teaching Hrs.
1	Definition of Communication & Importance of Communication, Definition and process of communication	7	2
2	Levels of Communication, Flow of Communication	7	2
3	Barriers to effective Communication, Features of effective Communication	7	2
4	Define non-verbal communication, Kinesics	3	1
5	Proxemics, Paralinguistic, Chronemics	3	1
6	Error Analysis (Tenses, voices & reported speech)	7	2
7	Reading Comprehension	3	1
8	Vocabulary Building, Idioms, Phrases, Synonyms, Antonyms	7	2
9	Theatrics (Role Play)	16	5
10	Extempore	16	5
11	Application writing	10	3
12	Letter writing (Elements, Layouts, Inquiry, Complain, & Adjustment,)	14	4
Total		**100%**	**30**

Semester 2

[09]

a. **Course Name:** Maintenance of Household Apparatus
b. **Course Code:** 03010602UE01
c. **Prerequisite:** Knowledge of Physics and Mathematics up to 12th science level.
d. **Rationale:** This course provides maintenance details of household appliances essential to prolong their lifespan, ensure their function efficiently, and prevent costly repairs or replacements.

e. **Course Learning Objective:**

CLOBJ1	Remember common household apparatus and their functions.
CLOBJ2	Explain Principles behind the operation of household apparatus
CLOBJ3	Demonstrate proper maintenance techniques for different household apparatus.
CLOBJ4	Evaluate performance of household apparatus to identify area for improvement.
CLOBJ 5	Assess effectiveness of maintenance procedures on the performance of household apparatus.

CLOBJ6	Develop comprehensive maintenance plans for specific household apparatus.

f. Course Learning Outcomes:

CLO 1	Remember concepts, perform calculations, and identify practical applications and assess electrical loads and power ratings of household appliances.
CLO 2	Understanding of electrical circuits including the ability to apply concepts, perform calculations, and identify practical applications and assess electrical loads and power ratings of household appliances.
CLO 3	Apply multi-meter to measure various electrical quantities accurately, and apply measurement techniques to assess power consumption and energy efficiency of electrical appliances.
CLO 4	Analyse a comprehensive understanding of earthing and grounding systems in residential buildings, recognizing the significance of grounding for electrical safety, and showcasing practical skills.
CLO 5	Interpret various electrical wiring systems employed in households, encompassing staircase and Godown wiring, and competence in hands-on wiring connections while prioritizing safety measures.
CLO 6	Create thorough knowledge and design for using household appliances

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
3	**-**	**2**	**4**	**20**	**20**		**60**		**100**

L- Lectures; **T-** Tutorial; **P-** Practical; **C-** Credit; **MSE-** Mid-Semester Evaluation, **CE-** Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	**Content**	**Weightage (%)**	**Teaching Hours**
1	**Understanding Electrical Circuits Series and parallel circuits**: concepts, calculations, and applications. Electrical loads and power ratings of household appliances. Safety considerations and working with electrical circuits and appliances.	**17**	**10**

2	**Electrical Measurements:** Measurement of voltage, current, and resistance using multimeters. Measurement of power consumption and energy efficiency of electrical appliances. Understanding power factor and its significance in household appliances. Comparison between AC and DC circuit. Understand the difference between various measuring instruments between AC and DC circuit.	**17**	**10**
3	**Earthing and Grounding:** Detailed study of earthing and grounding systems in residential buildings. Pipe earthing and plate earthing of the electrical system. Importance of grounding for electrical safety and protection of appliances. Practical demonstration and installation of earthing systems	**17**	**10**
4	**Types of Wiring:** Study of different types of electrical wiring systems used in households. Staircase wiring, Godown wiring. Wiring for lighting circuits, power outlets, and specialized appliances. Hands-on practice on wiring connections and safety measures.	**17**	**10**
5	**Maintenance of Household Appliances:** Understanding the common components of household appliances. Techniques for cleaning and maintaining refrigerators, ovens, microwaves, and dishwashers. Practice- preventive maintenance, regular cleaning, oiling, greasing of household gadgets like fans, coolers, water pump motors etc. Practice- Replacement of damaged switches, MCB, fan- capacitor, regulator, and lighting points i.e. holder, choke, starters, water coolers, and their pump & motor. Practice- Maintenance of electrical equipment's like- iron, toaster, induction-plate & cooker,ups ,gyser and inverter. Practice: Basic maintenance of AC. Practice: Basic maintenance of Refrigerator. Troubleshooting common problems in appliances and basic repairs. Concept of smart technology.	**17**	**10**
6	**Safety and Precautions:** Fire safety and prevention measures for electrical appliances. Identifying potential electrical hazards and safety measures. Safe handling of electrical shocks and emergency response procedures	**17**	**10**
Total		**100%**	**60**

i. Textbook and Reference Books:

- Electricity and Basic Electronics By Stephen R. Matt | Goodheart-Willcox Co Inc.,U.S | Revised edition, Pub. Year 1982
- Home Maintenance For Dummies By J Carey | John Wiley & Sons Inc | 2nd, Pub. Year 2009
- Electrical Wiring Residential (TextBook) By Ray C. Mullin and Phil Simmons | Delmar Cengage Learning | 17th edition, Pub. Year 2011

Semester 3

[01]

a. **Course Name:** Nutrition Epidemiology and Anthropology
b. **Course Code:** 11010903DS01
c. **Prerequisite:** Foundational knowledge in biology, statistics, and epidemiology
d. **Rationale:** Acquire knowledge about the relationship of nutrition in Epidemiology and Anthropology

e. Course Learning Objective:

CLOBJ 1	Examine the relationship between nutrition and health outcomes at the population level using epidemiological methods.
CLOBJ 2	Evaluate the influence of diet, nutrition, and lifestyle factors on the risk of disease and health status using both observational and experimental research.
CLOBJ 3	Explore cultural, social, and behavioral factors that influence dietary habits and nutritional health across different populations.
CLOBJ 4	Gain proficiency in the design and analysis of epidemiological studies related to diet and nutrition, including data collection methods and nutritional assessments.
CLOBJ 5	Understand and critique the effectiveness of nutrition-related public health programs, policies, and interventions based on epidemiological evidence.

f. Course Learning Outcomes:

CLO 1	Understand the relationship between diet, nutrition, and health outcomes in diverse populations.
CLO 2	Apply epidemiological methods to investigate nutritional determinants of disease.
CLO 3	Analyze cultural and social factors influencing dietary practices and nutritional status.
CLO 4	Develop a comprehensive research proposal, including hypothesis formulation, methodology, and data analysis plans.
CLO 5	Assess the impact of cultural and social factors on nutrition-related health outcomes.

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
3	**0**	**0**	**3**	**20**	**20**	**-**	**60**	**-**	**100**

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	Content	Weightage (%)	Teaching Hours
1.	**Concepts of Epidemiology** 1.1 Definition, Scope and Applications of a) Epidemiology, b) Nutritional Epidemiology (purpose and limitations) 1.2. Measuring disease and frequency – population at risk, incidence, prevalence (interrelation and differences) 1.3 Epidemiology and Public health – Causation of disease, natural history of disease, health status of population, evaluating interventions 1.4. Current Health and Nutrition Status of population- NFHS 4 and other survey data in brief 1.5. Measuring Mortality, Morbidity, IMR, MMR, CMR, life expectancy	**11**	**5**
2.	**Types of studies** 2.1 Observations and Experiments: Observational Studies and Experimental Studies 2.2 Observational Epidemiology 2.3 Experimental epidemiology 2.4 Errors in epidemiological studies	**27**	**12**
3.	**Epidemiology and Public Health Nutrition** 3.1 Health/Nutrition status of maternal & child according to the latest surveys. 3.2 Prevalence and utilization rates of key indicators/interventions for women, children, adolescence: globally and in India; 3.3 Contribution of Nutritional Epidemiology to understand Nutrition disorders e.g. PEM , Anemia, Vit. A deficiency, Diabetes, Hypertension and others 3.4 Data and Causes of IMR, NMR, MMR, Under 5 Mortality rates & its linkages with nutrition	**22**	**10**
4.	**Concepts and Anthropology and its significance to Nutrition** 4.1 Definition and Application of Anthropology as applied to: a. Health and Disease, b. Nutrition and Nutritional status 4.2 Historical development of Nutritional Anthropology: Evolution from a biomedical to a socio cultural view of nutrition. 4.3 Emic v/s Etic Perspective, Ethnography, ethanophysiology and other concepts 4.4 Factors Affecting Food choices and household level practices a. Ecological and Geographical, b. Poverty, economic status c. Socio cultural; education, ethnic and religious factors d. Girl child and women, e. Intra Household Distribution of Food	**22**	**10**
5.	**QL and QN approaches** 5.1 Survey methods and Structured tools (e.g Anthropometry, HB tests, Diet survey and others) a. Focus group Discussion, b. Observation Methods, c. Ranking methods, free listing and pile sorting d. Mix methods approach, triangulation 5.2 Concepts and applications of PR, PRA, PLA for nutrition intervention.	**18**	**8**

	5.3 Research tools used in these methods - a. Community mapping b. Body mapping c. Timelines d. Venn diagrams e. Seasonality diagrams and others 5.4 Anthropological Approaches for Behaviour Change Communication programs and its evaluation with examples**.**		
Total		**100%**	**45**

i. Text Book and Reference Book:

- R. Bonita , Basics of Epidemiology, 2nd edition , WHO, Geneva
- Kanani S , Nutritional epidemiology and intersectoral linkages.Dept of Foods and Nutrition, MS University, Vadodara
- Kanani S. Advances in Nutrition Anthropology, Dept of Foods and Nutrition, MS University, Vadodara
- Lillian Langseth, Nutritional Anthropology and applications
- Scrimshaw NS and Gleason RG. Rapid Assessment Procedures: Qualitative Methodologies for Planning and Evaluation of Health-Related Programmes. Ed. International Nutrition Foundation For Developing Countries (INFDC), 1992
- UGC-DSA-Scientific reports - Integration of QL and QN research for program design implementation and evaluation for nutrition health promotion : Examples from India by Shubhada Kanani , Dept of Foods and Nutrition, MS University, Vadodara 2008
- Chambers R. Rural appraisal - rapid, relaxed, participatory, IDS discussion paper 1992.

Semester 3
[02]

a. Course Name: Lab-Nutrition Epidemiology and Anthropology

b. Course Code: 11010903DS02

c. Prerequisite: Basic Concept of biology, statistics and epidemiology

d. Rationale: Acquire practical knowledge about combining nutritional epidemiology and anthropology. Provide insights into influence of cultural and biological factors on dietary patterns and health outcomes.

e. Course Learning Objective:

CLOBJ 1	To develop practical skills in assessing nutritional status through anthropometric methods.
CLOBJ 2	To apply epidemiological principles in identifying dietary patterns, nutrition-related diseases, and health outcomes.
CLOBJ 3	To analyze and interpret data on food consumption, nutrition surveys, and population health.
CLOBJ 4	To gain hands-on experience in the use of tools and techniques for measuring human body composition, dietary intake, and nutritional epidemiological indicators.
CLOBJ 5	To evaluate the influence of cultural, social, and environmental factors on nutrition and health behaviors within different populations.

f. Course Learning Outcomes:

CLO 1	Understand the regional variation and dietary diversity.

CLO 2	Understand the relationship between dietary diversity and health outcomes across the globe
CLO 3	Apply epidemiological methods to identify nutritional determinants of disease
CLO 4	Analyze cultural and social factors influencing dietary practices and nutritional status

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
	0	**1**	**1**	**-**	**-**	**20**	**-**	**30**	**50**

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. List of Experiment:

Sr. No.	**Content**
1	Class project in small groups - each group will Study - objectives, methods, tools , results and conclusion of various Nutritional Epidemiological studies and present in class
2	Uses and interpretation - NFHS 4 Data (Prevalence)
3	Class project in small groups - each group to study, review and present an Anthropological study using QL or PR data eg - NHE; process evaluation of programs
4	Field work - prepare a programme with intervention using different epidemiological and anthropological methods to make change in the current situation of particular disease or deficiency prevailing in the society with ethical considerations in nutritional research.
5	Discussion on the importance of studying diet in human health and evolution.
6	Conducting dietary assessments and recording dietary intake data.
7	Group project: Presentation on the evolutionary implications of diet on human health and physiology.

i. Text Book and Reference Book:

- Willett, W. (2013). Nutritional Epidemiology (3rd ed.). Oxford University Press.
- Rothman, K. J., Greenland, S., & Lash, T. L. (2008). Modern Epidemiology (3rd ed.). Lippincott Williams & Wilkins.
- Hu, F. B. (2010). Obesity Epidemiology. Oxford University Press.Bernard, H. R. (2018). Research Methods in Anthropology: Qualitative and Quantitative Approaches (6th ed.). Rowman & Littlefield.
- Hruschka, D. J., & Hadley, C. (2016). Developmental and Biocultural Perspectives on Marriage and Family Life (2nd ed.). Springer.
- Bernard, H. R. (2017). Research Methods in Anthropology: Qualitative and Quantitative Approaches (5th ed.). Rowman & Littlefield. World

Health Organization. (2016). Ethical Issues in Patient Safety Research: Interpretations and Implications of the WHO Guidelines. World Health Organization.
- Minkler, M., & Wallerstein, N. (2011). Community-Based Participatory Research for Health: From Process to Outcomes (2nd ed.). John Wiley & Sons.
- Baillie, L., & Matiti, M. (2014). Improving Healthcare through Built Environment Infrastructure. IGI Global. Aiello, L. C., & Wheeler, P. (1995). The Expensive-Tissue Hypothesis: The Brain and the Digestive System in Human and Primate Evolution. Current Anthropology, 36(2), 199–221.
- Cordain, L., Eaton, S. B., Sebastian, A., Mann, N., Lindeberg, S., Watkins, B. A., O'Keefe, J. H., & Brand-Miller, J. (2005). Origins and Evolution of the Western Diet: Health Implications for the 21st Century. American Journal of Clinical Nutrition, 81(2), 341–354.
- Eaton, S. B., Konner, M., & Shostak, M. (1988). Stone Agers in the Fast Lane: Chronic Degenerative Diseases in Evolutionary Perspective. American Journal of Medicine, 84(4), 739–749.

Semester 3
[03]

a. Course Name: Nutrition Physiology 1

b. Course Code: 11010903DS03

c. Prerequisite: Basic knowledge about biology and human body systems.

d. Rationale: Acquire knowledge about the anatomy and physiology of the human body system.

e. Course Learning Objective:

CLOBJ 1	Explain the role and functions of macronutrients and micronutrients in the human body.
CLOBJ 2	Describe the metabolic pathways and physiological processes involved in the digestion, absorption, and utilization of nutrients.
CLOBJ 3	Apply principles of nutrition physiology to assess dietary needs, design balanced diets, and address nutritional deficiencies and imbalances.
CLOBJ 4	Evaluate how nutrition influences health, disease prevention, and management.
CLOBJ 5	Integrate knowledge of nutrition physiology with practical applications in health promotion and disease management.

f. Course Learning Outcomes:

CLO 1	Understand the physiological processes of digestion, absorption, and metabolism of nutrients.
CLO 2	Remember the major nutrients essential and physiological processes involved in digestion and absorption of nutrients for human health.
CLO 3	Analyze the impact of nutrition on human health and disease prevention.
CLO 4	Apply principles of nutrition to develop dietary plans that enhance health and performance.
CLO 5	Develop innovative solutions to address nutritional deficiencies in different populations.

g. Teaching & Examination Scheme:

Teaching Scheme				Evaluation Scheme					
L	T	P	C	Internal Evaluation			ESE		Total
				MSE	CE	P	Theory	P	
4	0	0	4	20	20	-	60	-	100

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	Content	Weightage	Teaching Hours
1.	**Basic Aspects of Anatomy and Physiology -** 1.1 Introduction to basic Anatomy a) Anatomical terms b) Surface anatomy 1.2 Cells: Basic Unit of the body a) Structure, function b) Cell Division 1.3 Tissue a) Types, structure, Function	17%	10
2.	**Digestive System** 2.1 The Gastrointestinal Tract 2.2 Functions of the organs of the digestive system. 2.3 Physiology of digestion and Absorption 2.4 Diseases of GI system	25%	15
3.	**Circulatory and Respiratory System** 3.1 Circulatory System 3.1.1.Blood a) Blood and its composition b) Blood groups c) Coagulation of blood 3.2 Structure of heart a) Physiology of heart b) Functions of heart c) Heart Dysfunction 3.3 Respiratory system a) Major organs of the respiratory system. b) Functions of the organs of the respiratory system. c) Physiology of exchange of gases.	33%	20
4.	**Endocrine system** 4.1 Endocrine glands –Pathophysiology, functions a) Pituitary b) Thyroid c) Parathyroid d) Pancreas e) Adrenal f) Sex glands (male and female) 4.2 Metabolic disorder of the endocrine system: e.g: Diabetes, hyperthyroidism,etc.	25%	15
Total		**100%**	**60**

i. Text Book and Reference Book:

- Krause and Mahan's Food & the Nutrition Care Process, 16th Edition
- Evelyn C. Pearce (1993), 16th Edition- Anatomy & physiology for Nurses, Jaypee Brothers.
- A.P.Krishna- 2nd edition (2018) Textbook of MEDICAL PHYSIOLOGY Medtech Publisher
- Guyton, A.C Hall, J.E (1996) Textbook of Medical Physiology, 9th Ed. Prism Books (Pvt.)Ltd. Bangalore

Semester 3
[04]

a. Course Name: Human Nutrition-I

b. Course Code: 11010903DS04

c. Prerequisite: The study of human nutrition is interdisciplinary, drawing from fields such as biology, biochemistry, physiology, psychology, and sociology to understand the complex interactions between diet, health, and disease.

d. Rationale: It provides individuals with the knowledge and skills to make informed decisions about their own dietary choices, as well as to contribute to promoting health and preventing nutrition-related diseases in individuals and communities.

e. Course Learning Objective:

CLOBJ 1	Understands the fundamentals of nutrition, including the role of various nutrients in maintaining health.
CLOBJ 2	Apply nutritional knowledge to make informed dietary choices and develop balanced meal plans.
CLOBJ 3	Analyze the impact of dietary patterns on overall health and wellness.
CLOBJ 4	Evaluate different dietary guidelines and their effectiveness in promoting health.

f. Course Learning Outcomes:

CLO 1	Understand the fundamental principles of human nutrition and their impact on health.
CLO 2	Develop and implement a nutrition education program targeting a specific population group.
CLO 3	Analyze dietary information and evaluate the nutritional needs of individuals and populations.
CLO 4	Apply nutritional knowledge to create balanced meal plans and interventions that promote health and prevent disease.
CLO 5	Evaluate nutritional research and dietary recommendations.

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
4	**0**	**0**	**4**	**20**	**20**	**-**	**60**	**-**	**100**

L- Lectures; **T-** Tutorial; **P-** Practical; **C-** Credit; **MSE-** Mid-Semester Evaluation, **CE-** Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	**Content**	**Weightage**	**Teaching Hours**
1.	**Energy Metabolism -** 1) Components of energy expenditure – A review 2) Current methodology for determining energy requirements 3) Current recommendations for energy intake of different age, sex groups etc.	**17%**	**10**

2.	**Carbohydrates and Dietary Fibre -** 1) Functions of Carbohydrates 2) Digestion and Absorption 3) Transport and Metabolism 4) Polyols, Glycemic Index, Glycemic load and Satiety index: Clinical implications 5) Maintenance of Blood Glucose Levels 6) RDA and Sources of Carbohydrates 7) Newer functional role of carbohydrates in human nutrition 8) Disorders related to carbohydrate metabolism 9) Classification and Components of Dietary Fibre 10) Role of Fibre in Prevention of Diseases 11) RDA and Sources of Dietary Fibre	**33%**	**20**
3.	**Proteins** 1) Classification of protein, Nutritional Classification of Amino acids, Specific Functions of Amino Acids – Review 2) Digestion, Absorption, Transport and Metabolism of Protein 3) Non protein compounds and their biological functions 4) Metabolism of proteins – Role of liver and muscles 5) The concept of nitrogen balance, the concept of obligatory nitrogen losses and their relevance to protein requirement 6) Human requirements for proteins (RDA and Sources of Proteins) 7) Current methodology for determining protein requirements and essential amino acid requirements 8) The concept of quality of protein 9) Biological Value 10) Net Protein Utilization 11) Protein Efficiency Ratio 12) Net Protein Ratio 13) Digestibility Coefficient 14) Protein Digestibility and Corrected Amino Acid Score	**33%**	**20**
4.	**Lipids -** 1) Classification, digestion, absorption, transport 2) Functions of essential fatty acids, and Long chain PUFA in human metabolism 3) Fats in Body and Fats in Food 4) Role of n3 and n6 fatty acids in health and disease 5) Hyperlipidemia and nutritional aspect of altherosclerosis 6) Phytochemicals & Plant sterols in human nutrition 7) Diet heart hypothesis: Quality of fat on lipid status 8) Visible and invisible fats in diets 9) Human requirements of essential fatty acids. 10) Assessment of Lipid status 11) Recommendations for heart friendly diets	**17%**	**10**
Total		**100%**	**60**

i. Text Book and Reference Book:

- Textbook of human nutrition (By Mahtab S. Bamji; Kamala Krishnaswamy; G.N.V. Brahman)
- Textbook of Nutrition and Dietetics (By Kumud Khanna, Sharad Gupta, Santosh Jain Passi, Rama Seth, Ranjana Mahna and Seema Puri, Pub. Year 2016)
- Shils, ME, Olson, JA, Shike, M. 1994 Modern Nutrition in Health and Disease. Eighth edition. Lea and Febiger
- Handbook of food and nutrition (By DR. M. SWAMINATHAN)

Semester 3

[05]

a. Course Name: Artificial Intelligence

b. Course Code: 03010503SE01

c. Prerequisite: Should be familiar with Data structure, Probability and Statistics, Linear Algebra, Mathematics

d. Rationale: This course provides a broad introduction to Artificial Intelligence. AI techniques for search and knowledge representation also apply knowledge of AI planning and machine learning techniques to real-world problems.

e. Course Learning Objective:

CLOBJ 1	Define and explain core concepts of AI, including machine learning, neural networks, and natural language processing.
CLOBJ 2	Design, implement, and evaluate AI models using various algorithms and techniques.
CLOBJ 3	Apply AI techniques to solve real-world problems, including data analysis and pattern recognition.
CLOBJ 4	Identify and address ethical issues and societal impacts associated with the deployment of AI technologies.
CLOBJ 5	Gain proficiency in programming languages and tools commonly used in AI development, such as Python and TensorFlow.
CLOBJ 6	Demonstrate the ability to collect, preprocess, and analyze data for AI applications.

f. Course Learning Outcomes:

CLO 1	Gain foundational knowledge of AI and ML, applicable to various fields.
CLO 2	Develop practical programming and data analysis skills.
CLO 3	Enhance critical thinking and problem-solving abilities.
CLO 4	Understand the potential and limitations of AI and ML technologies.
CLO 5	Prepare for a future where AI and ML are increasingly integrated across disciplines

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
2	**-**	**-**	**2**	**20**	**20**	**-**	**60**	**-**	**100**

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	Content	Weightage	Teaching Hours
1.	**Introduction to AI and ML concepts –** Machine Learning algorithms **Supervised -** Linear Regression, Logistic Regression, Decision Trees, Random Forest, Support Vector Machines (SVM), Naïve Bayes, k-Nearest Neighbors (k-NN) **Unsupervised -** K-Means Clustering, Hierarchical Clustering, Density Based Clustering, Anomaly Detection Techniques, Reinforcement Learning	**23%**	**7**
2.	**Programming fundamentals in Python-** Syntax, Variables and Data Types, Operators, Control Structures, Functions, Data Structures, Input and Output, Modules and Packages	**20%**	**6**
3.	Data preprocessing and Data analysis Using Python Library (Pandas, Numpy). Data exploration and Visualization Using Python Library (Matplotlib, Seaborn)	**23%**	**7**
4.	**Model Evaluation-** Classification Metrics, Regression Metrics **Model Selection-** Train-Test Split, Cross-Validation Methods (K-Fold, Random Sampling, Leave-one out ,Hold-Out) Ethical considerations in AI and ML	**17%**	**5**
5.	Training and evaluating models on real-world datasets (e.g., image classification, text analysis)	**17%**	**5**
Total		**100%**	**30**

i. Text Book and Reference Book:

- Artificial Intelligence: A Modern Approach" Author: Stuart Russell and Peter Norvig |Publisher: Pearson (TextBook)
- "Python Machine Learning" Author: Sebastian Raschka and Vahid Mirjalili | Publisher: Packt
- "Machine Learning Yearning" Author: Andrew Ng | Publisher: Deeplearning.ai
- "Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow" Author: Aurélien Géron | Publisher: O'Reilly
- Media
- "Machine Learning: A Probabilistic Perspective" Author: Kevin P. Murphy | Publisher: The MIT Press

Semester 3
[06]

a. **Course Name:** VAC-3 (IPDC including history and Culture of India and IKS - 2)
b. **Course Code:** 00019303VA01
c. **Prerequisite:** IPDC Including History and Culture of India and IKS-I
d. **Rationale:** IPDC aims to prepare students for the modern challenges they face in their daily lives. Promoting fortitude in the face of failures, Unity amongst family discord, Self-discipline amidst

Distractions... and many more priceless lessons. The course focuses on morality and character development at the core of student growth, to enable students to become self-aware, sincere, and successful in their many roles - as an ambitious student, reliable employee, caring family member, and considerate citizen.

e. Course Learning Objective:

CLOBJ 1	Develop a comprehensive understanding of the historical evolution of India, including major events, movements, and figures that have shaped its socio-political landscape.
CLOBJ 2	Analyze the rich and diverse cultural heritage of India, including traditions, art forms, languages, and practices, and their impact on contemporary society.
CLOBJ 3	Explore and evaluate traditional Indian knowledge systems, including philosophies, sciences, and practices, and their relevance to modern development issues.
CLOBJ 4	Synthesize historical and cultural perspectives with IKS to understand their interconnectedness and implications for current and future societal development.
CLOBJ 5	Engage in critical reflection on how historical and cultural contexts influence contemporary issues and development practices in India.
CLOBJ 6	Apply insights from history, culture, and IKS to address real-world challenges and contribute to sustainable development initiatives in an Indian context.

f. Course Learning Outcomes:

CLO 1	To provide students with a holistic value-based education that will enable them to be successful in their academic, professional, and social lives.
CLO 2	To give the students the tools to develop effective habits, promote personal growth, and improve their well-being, stability, and productivity.
CLO 3	To allow students to establish a stronger connection with their family through critical thinking and development of qualities such as unity, forgiveness, empathy, and effective communication.
CLO 4	To provide students with soft skills that complement their hard skills, making them more marketable when entering the workforce.
CLO 5	To enhance awareness of India's glory and global values, and to create considerate citizens who strive for the betterment of their family, college, workforce, and nation.
CLO 6	To inspire students to strive for a higher sense of character by learning from role models who have lived principled, disciplined, and value-based lives.

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
2	**-**	**-**	**2**	**100**	**100**	**-**	**-**	**-**	**100**

L- Lectures; **T-** Tutorial; **P-** Practical; **C-** Credit; **MSE-** Mid-Semester Evaluation, **CE-** Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	Content	Weightage	Teaching Hours
1.	Remaking Yourself : Begin with the End in mind - Students will learn to visualize their future goals and will structure their lives through smart goals to give themselves direction and ultimately take them to where they want to go.	**7**	**2**
2.	Remaking Yourself: Being Addiction-Free - Students will explore the detrimental effects of addictions on one's health, personal life, and family life. They will learn how to take control of their life by becoming addiction free.	**7**	**2**
3.	Selfless Service: Case Study: Disaster Relief - Students will apply previous lessons of seva, to analyse the case study of the Bhuj earthquake relief work.	**7**	**2**
4.	Soft Skills: Teamwork & Harmony - Students will learn the six steps of teamwork and harmony that are essential for students' professional and daily life.	**7**	**2**
5.	My India My Pride: Present Scenario - To implement the transformation of India from a developing country into a developed country it is necessary to have a value-based citizen. Students will see how the transformation to a greater India relies on the vision and efforts of themselves as a youth.	**7**	**2**
6.	Learning from Legends: Leading Without Leading - Students will explore a new approach to leadership, through humility.	**7**	**2**
7.	My India My Pride: An Ideal Citizen – 1 Students will learn that to become value-based citizens, they must first develop good values in their lives. They start by exploring the values of responsibility and integrity.	**7**	**2**
8.	My India My Pride: An Ideal Citizen – 2 Students will learn that by developing the values of loyalty, sincerity, and punctuality; they become indispensable and can leave a strong impression. They will start developing these values by trying to keep perfection in every small task and by looking at the bigger picture.	**7**	**2**
9.	Facing Failures: Timeless Wisdom for Daily Life - Students will learn the role wisdom plays in finding long-term stability. They will use ancient wisdom to solve their modern-day challenges.	**7**	**2**
10.	From House to Home: Forgive & Forget - Students will understand the importance and benefits that forgiveness plays in their personal and professional life. They will learn to apply this knowledge in realistic situations.	**7**	**2**
11.	Remaking Yourself: Stress Management - Students will learn to cope with current and future causes of stress.	**7**	**2**
12.	Remaking Yourself: Better Health Better Future - A healthy body prevents disease and stress; increases positivity, productivity, and brainpower. Students will learn to maintain good health through regular exercise, healthy eating habits, and regular and sufficient sleep.	**7**	**2**

13.	Learning from Legends: Words of Wisdom - A panel of learned and experienced mentors will personally answer practical questions that students face in their daily life.	**7**	**2**
14.	Soft Skills: Financial Planning - Students will develop a variety of practical financial skills that prepare them to become financially stable throughout their future careers.	**7**	**2**
15.	Remaking Yourself: Impact of Company and Life After IPDC - Students will understand that the type of company that we keep, has a crucial role in determining who we are and who we will become. They will develop the ability to create a positive environment around them. This concluding lecture encourages students to keep practising these priceless lessons and prepares them for the next steps in their lives	**7**	**2**
Total		**100%**	**30**

Semester 3
[07]

a. **Course Name:** MEL-1
b. **Course Code:** 00019303AE01
c. **Prerequisite:** Basic Knowledge of Commercial Communication and provide students with soft skills that complement their hard skills, making them more marketable when entering the workforce. To inspire students to strive for a higher sense of character by learning from role models who have lived principled, disciplined, and value-based lives.
d. **Rationale:** Advanced Communication Skills of English Language

e. Course Learning Objective:

CLOBJ 1	Understand Contemporary Usage: Recognize and apply modern English usage in various contexts, including colloquial and formal settings.
CLOBJ 2	Enhance Communication Skills: Improve both spoken and written communication skills through contemporary language practice.
CLOBJ 3	Analyze Modern Texts: Interpret and critique modern English texts, including literature, media, and digital content.
CLOBJ 4	Develop Critical Thinking: Utilize modern English to analyze and evaluate arguments and ideas effectively.
CLOBJ 5	Adapt Language for Different Audiences: Tailor language use for diverse audiences and purposes, including academic, professional, and casual communication.

f. Course Learning Outcomes:

CLO 1	Develop advanced communication skills.
CLO 2	Become more proficient in formal writing.
CLO 3	Apply interpersonal communication skills to be more productive at the workplace.

CLO 4	Identify, set and achieve the goals with the help of public speaking.
CLO 5	Use wide range of vocabulary to communicate effectively.

g. Teaching & Examination Scheme:

Teaching Scheme				Evaluation Scheme					
L	T	P	C	Internal Evaluation			ESE		Total
				MSE	CE	P	Theory	P	
2	-	-	2	100	100	-	-	-	100

L- Lectures; **T-** Tutorial; **P-** Practical; **C-** Credit; **MSE-** Mid-Semester Evaluation, **CE-** Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	Content	Weightage	Teaching Hours
1	Public Speaking - Define Public Speaking, Importance of Public speaking, Types of Public speaking, Techniques to master public speaking	7	2
2	Activity – Speaking World's best public speakers (activity based)	17	5
3	Debate Vs Group Discussion - Define Debate vs GD, Importance of debate, Techniques to master debate	3	1
4	Activity – Debate, Debate activity	17	5
5	Vocabulary Building - Advanced vocabulary building, Homophones, Homonyms, Analogies	7	2
6	Reading Comprehension - Reading Comprehension	7	2
7	Grammar - Error Analysis, Para- jumble sentence completion, confusable sentences, Incorrectly spelt words, One word substitute Cloze Passages	7	2
8	Report Writing - Report Writing	17	5
9	Memo Writing - Memo Writing	7	2
10	Narrative Story WritingNarrative Story Writing	7	2

11	Activity - Tourism PitchActivity - Tourism Pitch	**7**	**2**
Total		**100%**	**30**

i. Text Book and Reference Book:

- Business Correspondence and Report Writing - By SHARMA, R. AND MOHAN, K.
- Communication Skills - By Kumar S and Lata P | New Delhi Oxford University Press
- Practical English Usage - By MICHAEL SWAN
- A Remedial English Grammar for Foreign Student - By F.T. WOOD
- On Writing Well - By William Zinsser | Harper Paperbacks,2006 | 30th anniversary edition
- Oxford Practice Grammar - By John Eastwood | Oxford University Press
- Quantitative Aptitude for Competitive Examinations - By Dr. R.S. Aggarwal

Semester 3
[08]

a. Course Name: Artificial Intelligence Application in People Management

b. Course Code: 05010103UE01

c. Prerequisite: Should be familiar with AI applications in people management includes foundational knowledge in human resources management, familiarity with basic concepts of artificial intelligence, and an understanding

d. Rationale: AI applications in people management is to optimize HR processes, enhance employee experiences, and drive organizational effectiveness through automation, data-driven decision-making, and personalized interventions.

e. Course Learning Objective:

CLOBJ 1	Understand a foundational understanding of artificial intelligence technologies and their relevance to people management.
CLOBJ 2	Evaluate various AI tools and platforms used in human resource management, including their functionalities and applications.
CLOBJ 3	Learn to integrate AI solutions for enhancing recruitment, performance management, and employee engagement.
CLOBJ 4	Examine ethical issues and biases associated with AI in people management and develop strategies to address them.
CLOBJ 5	Assess the effectiveness and impact of AI applications on organizational efficiency and employee satisfaction.
CLOBJ 6	Create actionable strategies for leveraging AI to solve people management challenges and improve HR processes.

f. Course Learning Outcomes:

CLO 1	Understand AI Fundamentals
CLO 2	Analyze HR Processes
CLO 3	Apply AI Tools and Techniques

CLO 4	Evaluate AI Solutions
CLO 5	Address Ethical and Legal Issues
CLO 6	Develop Strategic Insights
CLO 7	Implement AI Projects

g. Teaching & Examination Scheme:

Teaching Scheme				Evaluation Scheme					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
2	**-**	**-**	**2**	**20**	**20**	**-**	**60**	**-**	**100**

L- Lectures; **T**- Tutorial; **P-** Practical; **C**- Credit; **MSE-** Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content:

Sr. No.	Content	Weightage	Teaching Hours
1.	**Introduction to AI in People Management -** Overview of artificial intelligence and its applications in HR and people management Historical perspective and current trends in AI adoption in HR Ethical considerations and challenges in AI-driven HR practices	**17**	**5**
2.	**Recruitment and Talent Acquisition -** AI-powered talent sourcing and candidate screening Applicant tracking systems (ATS) and resume parsing using AI algorithms Bias mitigation and fairness in AI-driven recruitment processes	**17**	**5**
3.	**Employee Engagement and Retention -** AI applications for measuring and analyzing employee engagement and satisfaction Predictive analytics for identifying flight risks and retention strategies Personalized career development and learning pathways using AI-driven recommendations	**17**	**5**
4.	**Performance Management -** AI-based performance evaluation and feedback systems Continuous performance monitoring and feedback loops Data-driven insights for goal setting and performance improvement	**17**	**5**
5.	**Learning and Development**Adaptive learning platforms and personalized training recommendations AI-driven content curation and course recommendations Gamification and microlearning applications in employee development	**17**	**5**
6.	**Employee Well-being and Workforce Analytics -** AI-enabled well-being assessments and interventions Predictive analytics for identifying burnout and mental health risks Workforce planning and optimization using predictive workforce analytics	**17**	**5**

Total	**100%**	**30**

i. Text Book and Reference Book:

- AI for HR: A Book of Ideas for HR Professionals - By Nigel Guenole | Jonathan Ferrar | and Sheri Feinzig)
- Artificial Intelligence in Human Resources Management: Theory and Practice - By Raghavendra Kumar and Kamal Kant (Springer, 2020)
- AI for HR: Artificial Intelligence, Human Resources, and the Future of Work - By Ben Eubanks (Independently published, 2019)
- Artificial Intelligence for HR: Use AI to Support HR Strategy, Engagement, and Decision Making- By Leila Zayed (Kogan Page, 2020)

Semester 4
(1)

a. Course: Nutrition Physiology- 2

b. Course Code: 11010904DS01

c. Prerequisite: Basic knowledge about the body anatomy and physiology.

d. Rationale: Acquired knowledge about anatomy and physiology of the human body in details.

e. Course Learning Objectives:

CLOBJ 1	Explore the structure, functions, and interconnections of the musculoskeletal, immune, nervous, and reproductive systems to understand their roles in maintaining overall health.
CLOBJ 2	Examine how nutrition supports, enhances, and regulates the functioning of these physiological systems, with a focus on preventing and managing related disorders.
CLOBJ 3	Develop practical, science-based dietary interventions tailored to optimize the health of each system across different life stages and conditions.

f. Course Learning Outcomes:

CLO 1	To give overview of muscle and bone structure, their functions, and pathophysiology; the role of essential nutrients in maintaining musculoskeletal health; and nutritional strategies for preventing and managing disorders like osteoporosis and muscle atrophy.
CLO 2	To study the types of immunity (humoral and cellular), immunoglobulins, and the malnutrition-infection cycle; analyze how specific nutrients (e.g., vitamins A, C, and zinc) influence immune function and resilience to infections.
CLO 3	To examine nerve cell structure, nervous system types, and neurological disorders; explore the role of key nutrients in brain health, neuronal development, and disease prevention.
CLO 4	To explore male and female reproductive physiology, processes like spermatogenesis and oogenesis, and the impact of nutrition on fertility, pregnancy, lactation, and hormonal health; address nutritional management of reproductive disorders.

g. Teaching & Examination Scheme:

Teaching Scheme	Examination Scheme	Total

Lecture Hrs / week	Tutorial Hrs / week	Lab Hrs / Week	Credit	Internal Marks			External Marks		
				T	P	CE	T	P	
4	-	0	4	20	-	20	60	-	100

Lect - Lecture, Tut - Tutorial, Lab - Lab, T - Theory, P - Practical, CE - CE, T - Theory, P - Practical

h. Course Content:

Sr. No.	Topics	Weightage	Teaching Hours
1	**Musculoskeletal system** 1.1 Muscular system a) Types of muscles b) Pathophysiology of muscles c) Role of nutrition in muscle health d) Disorders of muscles 1.2 Skeletal system a) Type of bones b) Formation of bones c) Role of nutrition in bone health d) Disorders of skeletal systems	25	15
2	**Unit 2: Immune system** 2.1 Types of immunity- humoral and cellular, Acquired and passive 2.2 Humoral immunity -types of immunoglobulin (Ig) general structure and functions 2.3 Cellular immunity 2.4 Infections effects on malnutrition 2.5 The malnutrition-infection cycle in children 2.6 Nutrition and Immunity	25	15
3	**Unit 3:. Nervous system** 3.1 Nerve cell structure and functions 3.2 Types of nervous system 3.3 Disorders of Nervous system 3.4 Role of vitamins in neuronal development	25	15

4	**Unit 4 : Reproductive system** 4.1 Female reproductive system a) Organs, pathophysiology and functions b) oogenesis c) preconception, pregnancy, lactation d) Menstruation e) Disorders of Female reproductive system 4.2 Male reproductive system a) Organs, pathophysiology and functions b) spermatogenesis	25	15
	Total	**100%**	**60**

i. Text Book and Reference Book:

- Krause and Mahan's Food & the Nutrition Care Process, 16th Edition
- Evelyn C. Pearce (1993), 16th Edition- Anatomy & physiology for Nurses, Jaypee Brothers.
- A.P.Krishna- 2nd edition (2018) Textbook of MEDICAL PHYSIOLOGY Medtech Publisher
- Guyton, A.C Hall, J.E (1996) Textbook of Medical Physiology, 9th Ed. Prism Books (Pvt.)Ltd. Bangalore.

Semester 4
(2)

a. Course: Human Nutrition II

b. Course Code: 11010904DS02

c. Prerequisite: The study of human nutrition is interdisciplinary, drawing from fields such as biology, biochemistry, physiology, psychology, and sociology to understand the complex interactions between diet, health, and disease.

d. Rationale: It provides individuals with the knowledge and skills to make informed decisions about their own dietary choices, as well as to contribute to promoting health and preventing nutrition-related diseases in individuals and communities.

e. Course Learning Objectives:

CLOBJ 1	Explore the roles, metabolism, and physiological functions of fat-soluble vitamins (A, D, E, K), water-soluble vitamins (B-complex, C), minerals, and antioxidants in maintaining health and preventing deficiencies.
CLOBJ 2	Examine the interrelationships among vitamins, minerals, and antioxidants, and their impact on biochemical processes, immunity, growth, and disease prevention.
CLOBJ 3	Develop strategies for dietary planning to meet nutrient requirements, address deficiencies, and promote optimal health across different life stages.

f. Course Learning Outcomes:

CLO 1	To demonstrate understanding of the functions, dietary sources, and recommended intakes of fat-soluble and water-soluble vitamins, minerals, and antioxidants.
CLO 2	To analyse the role of these nutrients in supporting metabolic processes, immunity, and overall health, and their implications in preventing or managing deficiencies and toxicities.
CLO 3	To Explore the interactions between vitamins, minerals, and antioxidants, and their combined effects on physiological and biochemical pathways.
CLO 4	To develop dietary recommendations and interventions to optimize nutrient intake for various populations and health conditions, focusing on prevention and wellness.

g. Teaching & Examination Scheme:

Teaching Scheme				**Examination Scheme**					**Total**
Lecture Hrs / week	**Tutorial Hrs / week**	**Lab Hrs / Week**	**Credit**	**Internal Marks**			**External Marks**		
				T	**P**	**CE**	**T**	**P**	
4	0	0	4	20	-	20	60	-	100

Lect - Lecture, Tut - Tutorial, Lab - Lab, T - Theory, P - Practical, CE - CE, T - Theory, P – Practical

h. Course Content:

Sr. No.	**Topics**	**Weightage**	**Teaching Hours**
1	**Fat Soluble Vitamins** – (Vitamin A and Beta carotene, D, E and K) 1. Historical background 2. Structure and chemistry 3. Food sources 4. Metabolism (Digestion, Absorption, Transport, Storage and elimination) 5. Bioavailability and factors affecting bioavailability 6. Biochemical and Physiological Functions 7. Assessment of status 8. Interaction with other nutrients, regulation of gene expression 9. Pharmacological and therapeutic effects 10. Requirements, Methods for estimating requirements and recommended daily allowance 11. Deficiency, Overload and toxicity.	30	18
2	**Water Soluble Vitamins** – (Thiamine, Riboflavin, Niacin, Pyridoxine, Folic Acid and Cyanocobalamin, Biotin and Ascorbic Acid) 1. Historical background 2. Structure and chemistry	33	20

	3. Food sources 4. Metabolism (Digestion, Absorption, Transport, Storage and elimination) 5. Bioavailability and factors affecting bioavailability 6. Biochemical and Physiological Functions 7. Assessment of status 8. Interaction with other nutrients, regulation of gene expression 9. Pharmacological and therapeutic effects 10. Requirements, Methods for estimating requirements and recommended daily allowance 11. Deficiency, Overload and toxicity.		
3	**Macro-Minerals (Calcium, Phosphorus, Magnesium, Sodium, Potassium, chloride)** 1. Historical background 2. Structure and chemistry 3. Food sources20 4. Metabolism (Digestion, Absorption, Transport, Storage and elimination) 5. Bioavailability and factors affecting bioavailability 6. Biochemical and Physiological Functions 7. Assessment of status 8. Interaction with other nutrients, regulation of gene expression 9. Pharmacological and therapeutic effects 10. Requirements, Methods for estimating requirements and recommended daily allowance 11. Deficiency, Overload and toxicity.	30	18
4	**Micro – Minerals (Iron, copper, Manganese, Iodine, Fluoride, Zinc, Selenium, Cobalt, Chromium, Molybdenum)** 1. Historical background 2. Structure and chemistry 3. Food sources 4. Metabolism (Digestion, Absorption, Transport, Storage and elimination) 5. Bioavailability and factors affecting bioavailability 6. Biochemical and Physiological Functions 7. Assessment of status 8. Interaction with other nutrients, regulation of gene expression 9. Pharmacological and therapeutic effects 10. Requirements, Methods for estimating requirements and recommended daily allowance 11. Deficiency, Overload and toxicity.	27	16
5.	**Antioxidants** 1. Oxidative stress and factors increasing Oxidative stress 2. Sources of Free radicals and Reactive Oxygen Species 3. Definition, role and functions of antioxidants 4. Antioxidant Defence System 5. Food sources of antioxidant nutrients 6. Practical steps to increase antioxidant content of diet	10	6

	Total	**100%**	**60**

i. Text Book and Reference Book:

1. Textbook of Human Nutrition by Mahtab S. Bamji – Oxford and IBH Publishing Company
2. Nutrition Science by B. Srilakshmi – New Age International Publishers (Latest edition)
3. Modern Nutrition in Health and Disease by Shils ME, Olson and Shike

Semester 4
(3)

a. Course: Maternal and Child Health Nutrition
b. Course Code: 11010904DS03
c. Prerequisite: Should be familiar with basic of Nutrition
d. Rationale:

1. The students will learn about the mother, child and concept of continuum of care
2. The students will learn about the importance of maternal and child health and nutrition
3. The students will learn about various aspects of maternal and child health and nutrition

e. Course Learning Objectives:

CLOBJ 1	Explore the nutritional needs and physiological changes during pregnancy, lactation, infancy, and childhood to ensure optimal health outcomes.
CLOBJ 2	Analyze the causes and consequences of malnutrition, stunting, and other maternal and child health issues, and their impact on long-term well-being.
CLOBJ 3	Learn to design and implement nutrition programs and interventions to promote maternal and child health in diverse populations and settings.

f. Course Learning Outcomes:

CLO 1	To demonstrate knowledge of the unique nutritional requirements during pregnancy, lactation, infancy, and childhood to support optimal growth and development.
CLO 2	To analyze Health Implications: Evaluate the impact of maternal and child nutrition on health outcomes, including the prevention of malnutrition, stunting, and related health disorders.
CLO 3	To develop Nutrition Interventions: Design evidence-based dietary strategies and public health interventions to improve maternal and child nutrition in various settings.

CLO 4	To promote Lifelong Health: Understand the role of maternal and child nutrition in laying the foundation for long-term health and preventing non-communicable diseases later in life.

g. Teaching & Examination Scheme:

Teaching Scheme				Examination Scheme					Total
Lecture Hrs / week	Tutorial Hrs / week	Lab Hrs / Week	Credit	Internal Marks			External Marks		
				T	P	CE	T	P	
4	0	0	4	20	-	20	60	-	100

Lect - Lecture, Tut - Tutorial, Lab - Lab, T - Theory, P - Practical, CE - CE, T - Theory, P – Practical

h. Course Content:

Sr. No.	Topics	Weightage	Teaching Hours
1	**UNIT:1 Introduction to Maternal and Child Health** 1.1 Nutrition Health Concerns Of Mother and Child 1.2 Concept of Continuum of Care 1.3 Maternal Health and Nutrition Indicators 1.4 Child Health and Nutrition Indicators 1.5 Organizational Setup for Maternal Child Health Care	17	10
2	**UNIT:2 Maternal Health and Nutrition** 2.1 Care during Pregnancy 2.2 Diagnosis of pregnancy and Antenatal Care 2.3 Strategies for preventing anemia before, during and after pregnancy 2.4 Abnormal Pregnancy – Complications in Early and Late pregnancy 2.5 Concept of Safe Delivery 2.6 Family Planning for Child Spacing	17	10
3	**UNIT:3 New-born Health and Nutrition** 3.1 Care of New-born and Young Infant 3.2 Danger signs and common morbidities in new-born 3.3 IMNCI and NICU 3.4 Management of LBW babies 3.5 Introduction to Immunization and newer vaccines in public health	17	10

4	**UNIT:4 Child Health and Nutrition** 4.1 Growth and Development in Childhood 4.2 Importance of first 1000 days of life 4.3 Essential nutrition and health interventions to prevent malnutrition 4.4 Importance of regular growth monitoring 4.5 Evidence based nutrition and health interventions to prevent malnutrition	17	10
5	**UNIT:5 Maternal and Child Health and Global targets** 5.1 Optimal Infant and Young Child Feeding: Significance of the first 1000 days of life 5.2 Improving maternal, infant and young child nutrition – 5.3 WHO Global Targets 2025	17	10
6	**UNIT:6 Adolescent Nutrition & Health** 6.1 Adolescence : an age of opportunity 6.2 Adolescent Growth & Development and Last window of opportunity to improve health & Nutrition status 6.3 Health Implications of nutritional deficiency disorders mainly under nutrition &anemia 6.4 School health programs in India its strengths & weaknesses 6.5 SABLA Program, its implementation & operational guidelines & pilot districts in Gujarat. 6.7 Adolescent Sexual Health/ AIDS prevention : Key Issues 6.8 Adolescent Pregnancy, Adverse consequences for the child & mother 6.9 Medical Termination of Pregnancy & its consequences 6.10 Legislations Relevant to MCH and Social Security 6.11 RMNCH+A	17	10
	Total	**100%**	**60**

i. Text Book and Reference Book:

- Food and Agriculture Organization of the United Nations. United Nations Decade of Action on Nutrition 2016 – 2025 http://www.fao.org/3/a-i6129e.pdf
- WHO. United Nations Decade of Action on Nutrition. http://www.who.int/nutrition/decade-of-action/en/
- Mother, Infant and Young Child Nutrition and Malnutrition. http://motherchildnutrition.org/india/overview-india.html

- Double burden of malnutrition. http://www.who.int/nutrition/double-burden-
- malnutrition/en/
- United Nations Development Programme. Sustainable Development Goals. http://www.undp.org/content/undp/en/home/sustainable-development-goals.html
- UNICEF. https://www.unicef.org/
- WHO. http://www.who.int/
- Global targets 2025 http://www.who.int/nutrition/global-target-2025
- World Food Programme. http://www.wfp.org/content/about-wfp-objectives
- Improving breastfeeding, complementary foods and feeding practices. www.unicef.org/nutrition/index_breastfeeding.html
- National Guidelines on Infant and Young Child Feeding. wcd.nic.in
- WHO Health Statistics and Information Systems. Global Health Estimates. http://www.who.int/healthinfo/global_burden_disease/en/
- K. Park (2011).Text Book of Preventive and Social Medicine, 21 EDITION.
- BanarsidasBhanot Publishers. Jabalpur. ISBN13: 9788190607995. 868 pages.

Semester 4
(4)

a. Course: Food Labelling and Consumer Awareness

b. Course Code: 11010904DS04

c. Prerequisite: A foundational understanding of food science and consumer behavior.

d. Rationale:

1. The students will understand the law, science and public policy in the use of labelling regulation for food safety and public health.
2. The students will understand different components of food and beverage labels and how to read labels.
3. The students will learn about the major laws and policy issues in current food labelling and food processing industry.

e. Course Learning Objectives:

CLOBJ 1	Explore the principles, regulations, and requirements of food labelling, including nutritional information, health claims, and ingredient lists.
CLOBJ 2	Examine how food labelling influences consumer choices, purchasing decisions, and perceptions of health and safety.
CLOBJ 3	Equip students with the knowledge to educate consumers about interpreting food labels and making healthier, informed dietary choices.

f. Course Learning Outcomes:

CLO 1	To demonstrate knowledge of national and international food labelling standards, including nutritional panels, health claims, and ingredient declarations.
CLO 2	To analyse and interpret food labels to assess product quality, safety, and nutritional value for consumers.
CLO 3	To understand how food labelling affects consumer awareness, dietary choices, and public health outcomes.
CLO 4	To develop strategies to enhance consumer literacy regarding food labels, empowering individuals to make healthier and informed food choices.

g.Teaching & Examination Scheme:

Teaching Scheme				**Examination Scheme**					**Total**
Lecture Hrs / week	**Tutorial Hrs / week**	**Lab Hrs / Week**	**Credit**	**Internal Marks**			**External Marks**		
				T	**P**	**CE**	**T**	**P**	
3	0	0	3	20	-	20	60	-	100

Lect - Lecture, Tut - Tutorial, Lab - Lab, T - Theory, P - Practical, CE - CE, T - Theory, P – Practical

h. Course Content:

Sr.	**Topics**	**Weightage**	**Teaching Hours**
1	**Importance of Food labeling in processed foods** 1.1 Importance of food labeling 1.2 Types of food label a. Listing of ingredients b. Nutritional information- Nutrition panel format c. Traffic light system in labeling 1.3 Examples of different types of food labels for process foods and cold drinks.	**33%**	**15**
2	**Labeling requirements for foods and drinks in India** 2.1 Introduction to Fssai and Agmark 2.2 Mandatory food labeling requirements according to Fssai and Agmark - examples. Prominence and place requirements Ingredient statement 2.4 Listing of ingredients 2.5 Nutrition Panel and Daily values. 2.6 Health Claims on labels	**22%**	**10**

	2.6 Shelf life 2.7 Notifications for permitted additives		
3	**Food labeling Techniques for proprietary foods** 3.1 Definition of proprietary foods d. Notifications for graphics, warning statements- the question of effectiveness on labels. 3.2 Processing information-Genetically engineered Foods, Irradiation 3.3 Exemptions of foods from nutrition labeling	**22%**	**10**
4	**The consumer** 4.1 Key definitions 'consumer 'and 'consumer contract ' 4.2 Identify a range of personal consumer activities 4.3 Give an outline of consumer rights and responsibilities. 4.4 Various goods and services act relevant to Food Labeling 4.5 Consumer grievances and redressal mechanism 4.6 Complaining about misleading advertisement	**22%**	**10**
	Total	**100%**	**45**

i. Text Book and Reference Book:

- Walker E Quattrucci (1980), Nutritional and toxicological aspects of food processing. Taylors and Francis, New york.
- World Health Organization (1990) Strategies for assessing the safety of foods produced by biotechnology. Report of joint FAO / WHO Consultation, Geneve.
- OECD Document (1996) Food safety evaluation. Organization for Economic Cooperation and Development, Paris.
- Shubhangini A Joshi (2010) Nutrition and dietetics with Indian case studies, (3rd ed) Tata McGraw Hill, Delhi

Semester 4
(5)

a. **Course:** Lab- Food Labelling and Consumer Awareness

b. **Course Code:** 11010904DS05

c. **Prerequisite:** A foundational understanding of food science and consumer behavior.

d. Rationale:

1. The students will understand the law, science and public policy in the use of labelling regulation for food safety and public health.
2. The students will understand different components of food and beverage labels and how to read labels.
3. The students will learn about the major laws and policy issues in current food labelling and food processing industry.

e. Course Learning Objectives:

CLOBJ 1	Provide hands-on experience with food labelling standards and regulations, ensuring comprehension of legal requirements for nutritional information and claims.
CLOBJ 2	Equip students with practical skills to evaluate and critique food labels for accuracy, transparency, and consumer relevance.
CLOBJ 3	Train students to create compliant and consumer-friendly food labels, integrating nutritional, ingredient, and branding considerations.
CLOBJ 4	Foster the ability to design and implement strategies for educating consumers about food labels to encourage healthier and informed food choices.

f. Course Learning Outcomes:

CLO 1	To develop skills to critically analyze food product labels for regulatory compliance, nutritional accuracy, and clarity.
CLO 2	To gain hands-on experience in creating food labels that meet legal and industry standards, including nutritional facts and ingredient listings.
CLO 3	To conduct practical experiments and surveys to study consumer understanding, preferences, and decision-making related to food labelling.
CLO 4	To create and test educational tools or campaigns to improve consumer awareness and interpretation of food labelling for informed dietary choices.

g. Teaching & Examination Scheme:

Teaching Scheme				**Examination Scheme**					**Total**
Lecture Hrs / week	**Tutorial Hrs / week**	**Lab Hrs / Week**	**Credit**	**Internal Marks**			**External Marks**		
				T	**P**	**CE**	**T**	**P**	
-	-	2	1	-	20	20	60	-	100

Lect - Lecture, Tut - Tutorial, Lab - Lab, T - Theory, P - Practical, CE - CE, T - Theory, P – Practical

h. Course Content:

Topics
1. Market survey for identification of different packaged food products available in the market. 2. Analyses of food labels for Cereals and pulses products available in the market. 3. Analyses of food labels for Fats and Oils available in the market. 4. Analyses of food labels for beverages (fruit juices, energy drinks, flavoured drinks) products available in the market. 5. Analyses of food labels for milk and milk products available in the market. 6. Analyses of food labels for frozen and canned products available in the market. 7. Preparation of a food label for any selected food product of choice.

i. Text Book and Reference Book:

1.	Walker E Quattrucci (1980), Nutritional and toxicological aspects of food processing. Taylors and Francis, New york.
2.	World Health Organization (1990) Strategies for assessing the safety of foods produced by biotechnology. Report of joint FAO / WHO Consultation, Geneve.
3.	OECD Document (1996) Food safety evaluation. Organization for Economic Cooperation and Development, Paris.
4.	Shubhangini A Joshi (2010) Nutrition and dietetics with Indian case studies, (3rd ed) Tata McGraw Hill, Delhi

Semester 4
(6)

a. **Course:** Psychology of Stress, Health and Well-being

b. **Course Code:** 19010204VA01

c. **Prerequisite:** A foundational understanding of Psychology of Stress.

d. **Rationale:**

e. Course Learning Objectives:

CLOBJ 1	Explore the nature, sources, and physiological, psychological, and social consequences of stress, along with the mechanisms through which it affects health and well-being.

CLOBJ 2	Examine evidence-based coping mechanisms and resilience-building strategies to manage stress and promote psychological and physical well-being.
CLOBJ 3	Integrate psychological theories and practices to foster holistic health, emphasizing the interplay between mental health, physical health, and social support systems.

f. Course Learning Outcomes:

CLO 1	To demonstrate an understanding of the psychological, physiological, and social dimensions of stress, health, and well-being, including their interconnections
CLO 2	To critically evaluate the impact of stressors on individual and collective health outcomes and apply relevant psychological theories to real-world scenarios.
CLO 3	To design and implement strategies for stress management and well-being enhancement using evidence-based psychological approaches and practices.

g. Teaching & Examination Scheme:

Teaching Scheme				**Examination Scheme**					**Total**
Lecture Hrs / week	**Tutorial Hrs / week**	**Lab Hrs / Week**	**Credit**	**Internal Marks**			**External Marks**		
				T	**P**	**CE**	**T**	**P**	
1	1	-	2	20		20	60	-	100

Lect - Lecture, Tut - Tutorial, Lab - Lab, T - Theory, P - Practical, CE - CE, T - Theory, P – Practical

h. Course Content:

Sr.	**Topics**	**Weightage**	**Teaching Hours**
1	**Week 1:Stress, health and well-being** Overview; Nature and physiology of stress	3	**1**
2	**Week 2:Stress, trauma and health**Mind-body connections; Stress and non-infectious diseases; Stress and infectious diseases; Stress and psychological disorder	3	**1**
3	**Week 3: Positive aspects of stress and trauma**Stress, trauma and posttraumatic growth; Factors influencing stress tolerance	3	**1**
4	**Week 4:Coping processes and strategies 1**Types of coping strategies; Coping strategies of limited value; Unconscious mind and defensive coping; Characteristics of constructive coping; physical ways of coping	3	**1**

5	**Week 5:Coping processes and strategies 2** Mind-body strategies; Mental ways of coping; Coping with social support and meaning in life; Mindfulness and acceptance	33	**10**
6	**Week 6:Beyond stress and recovery**Positive mental health and well-being	7	**2**
7	**Week 7: Psychology of happiness**What is happiness? What makes us happy? Socio-economic factors and happiness; Positive emotions	7	**2**
8	**Week 8:Can we become happier?** Genetic set-point and hedonic adaptation; Sustainable happiness model and intentional activities	7	**2**
9	**Week 9:Happiness Activities 1**Expressing gratitude and positive thinking; Love and kindness; Avoiding overthinking and social comparison	7	**2**
10	**Week 10:Happiness Activities 2**Identifying signature strengths; achieving happiness with "flow.".	7	**2**
11	**Week 11: Is happiness sufficient?**The concept of eudaimonic well-being; Self-determination and motivation	7	**2**
12	**Week 12:Meaning and purpose in life** The concept of meaning in life and logo-therapy; Life goals	13	**4**
	Total	**100%**	**45**

Semester 4
(7)

a. **Course:** Entrepreneurship in Nutrition

b. **Course Code:** 11010904SE01

c. **Prerequisite:** A foundational understanding of Entrepreneurship.

d. **Rationale:**

e. Course Learning Objectives:

CLOBJ 1	Understand the principles of entrepreneurship and its relevance in the nutrition sector.
CLOBJ 2	Develop skills for creating innovative nutrition-focused business models.
CLOBJ 3	Learn about market research, financial planning, and marketing for nutrition ventures.
CLOBJ 4	Explore legal, ethical, and sustainability aspects of nutrition entrepreneurship.

f. Course Learning Outcomes:

CLO 1	Identify opportunities for entrepreneurship in the nutrition and wellness industry.
CLO 2	To develop and present a comprehensive business plan for a nutrition venture.
CLO 3	To apply marketing and financial strategies to establish a sustainable business.
CLO 4	To address legal, ethical, and social challenges in nutrition entrepreneurship.

g. Teaching & Examination Scheme:

Teaching Scheme				**Examination Scheme**					**Total**
Lecture Hrs / week	**Tutorial Hrs / week**	**Lab Hrs / Week**	**Credit**	**Internal Marks**			**External Marks**		
				T	**P**	**CE**	**T**	**P**	
2	0	0	2	20	-	20	60	-	100

Lect - Lecture, Tut - Tutorial, Lab - Lab, T - Theory, P - Practical, CE - CE, T - Theory, P – Practical

h. Course Content:

Sr.	**Topics**	**Weightage**	**Teaching Hours**
1	**Unit 1: Fundamentals of Nutrition Entrepreneurship** 1.1 Definition, scope, and importance of entrepreneurship 1.2 Overview of the nutrition industry and emerging trend 1.3 Characteristics of successful entrepreneurs in the health and wellness sector 1.4 Identifying gaps and opportunities in the nutrition market. 1.5 Overview of current trends and innovations in nutrition and wellness.	**17**	**5**

2	**Unit 2: Business Planning and Market Research** 2.1 Components of a nutrition business plan (vision, mission, goals, and strategy). 2.2 Conducting market research: identifying target audiences and analyzing competition. 2.3 Developing value propositions for nutrition services and products. 2.4 Case studies of successful nutrition ventures. 2.5 Technology and Innovation in Nutrition Entrepreneurship	**17**	**5**
3	**Unit 3: Marketing and Financial Management** 3.1 Branding and marketing strategies for nutrition businesses. 3.2 Leveraging social media and digital platforms for promotion. 3.3 Basics of budgeting, pricing, and financial planning for small businesses. 3.4 Funding options: loans, grants, and investments in the nutrition sector.	**33**	**10**
4	**Unit 4: Ethics, Legal Requirements, and Practical Application** 4.1 Legal regulations for nutrition businesses, including certifications and food safety standards. 4.2 Ethical practices in nutrition entrepreneurship and consumer protection. 4.3 Sustainability and social responsibility in nutrition ventures. 4.4 Practical project: developing and presenting a business plan for a nutrition-focused start-up.	**33**	**10**
	Total	**100%**	**30**

i. Text Book and Reference Book:

The Entrepreneurial Nutritionist (Point (Lippincott Williams & Wilkins) RD. Kathy King RD. Kathy King. Jones and Bartlett Publishers, Inc; 4th edition. 2009.

The Nutrition Entrepreneur: How to Start and Grow a Great Business (Third Edition). co-author Kendra Tolbert, MS, RDN.2021.

Small Business and Entrepreneurship. S. Anil Kumar. I. K. International Pvt Ltd, 2013.

Semester 4
(8)

a. **Course Name: Advance English-II**
b. **Course Code: 00019304AE04**
c. **Prerequisite:** Interpersonal skills along with aptitude skills.
d. **Rationale:** The development of soft skills, professional etiquette, effective communication, reading comprehension, and assertiveness is essential for personal and professional growth, as these competencies foster successful interpersonal relationships, enhance workplace dynamics, and empower individuals to navigate complex environments with confidence and clarity**.**

e. **Course Learning Objective:**

CLOBJ 1	Identity and develop soft skills required for personal and professional growth.
CLOBJ 2	Develop professional etiquette & desired behaviour at the workplace
CLOBJ 3	Speak and participate effectively in oral organizational communication
CLOBJ 4	Improve comprehensive skills for reading
CLOBJ 5	Know how to be assertive in professional environment.

f. **Course Learning Outcomes:**

CLO 1	Recognise the soft skills and demonstrate to achieve professional growth.
CLO 2	Exemplify and analyze the professional etiquette and work place behaviour
CLO 3	Engage in discussions and presentations applying communication strategies.
CLO 4	Employ reading strategies to understand and evaluate the complex texts.
CLO 5	Practice assertiveness in various communication scenarios.

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
L	**T**	**P**	**C**	**Internal Evaluation**			**ESE**		**Total**
				MSE	**CE**	**P**	**Theory**	**P**	
2	-	-	-	-	100	-	-	-	100

L- Lectures; **T-** Tutorial; **P-** Practical; **C-** Credit; **MSE-** Mid-Semester Evaluation, **CE-** Continuous Evaluation, **ESE-** End Semester Examination

h. **Course Content:**

Sr.	Topic	Weightage	Teaching Hrs.
1	Corporate Etiquette: Tips and guide to develop personality and gain various etiquettes manners, case studies and activities. 1) Telephone etiquette	3	1
2	1) Etiquette for foreign business trips	3	1
3	1) Etiquette for small talks	3	1
4	1) Respecting privacy 2) Learning to say 'No'	3	1
5	1) Presentation	30	10
6	Email etiquettes & writing	7	2
7	1) Article writing	7	2
8	1) Poster making	7	2
9	Advertisement design	7	2
10	1) Convincing skills	7	2
11	1) Insane inventor	7	2
12	Picture perception	4	1
13	Book review	4	1
14	Movie review	4	1
15	Critical thinking	4	1
	Total	**100%**	**30**

i. Text Book and Reference Book:

- Business Correspondence and Report Writing
  SHARMA, R. AND MOHAN, K.
- Communication Skills
  - Kumar S and Lata P; New Delhi Oxford University Press
- Practical English Usage
  MICHAEL SWAN
- A Remedial English Grammar for Foreign Student
  - F.T. WOOD
- On Writing Well
  - William Zinsser; Harper Paperbacks,2006; 30th anniversary edition
- Oxford Practice Grammar,

- John Eastwood; Oxford University Press

Semester 4
(8)

a. **Course Name:** Basic French – II
b. **Course Code:** 00019304AE03
c. **Prerequisite:** Knowledge of MIL – 1 (French) or Basic French – I (00019303AE03)
d. **Rationale:** Basic Communication Skills of French Language.

e. **Course Learning Objective:**

CLOBJ 1	Talk about future activities and plans.
CLOBJ 2	Ask and respond to questions in French.
CLOBJ 3	Describe feelings in French.
CLOBJ 4	Talk about likes and dislikes.

f. **Course Learning Outcomes:**

CLO 1	Learners will be able to recall specific information (e.g., dates, steps, or goals).
CLO 2	Learners will be able to apply knowledge by forming and answering questions in real-life scenarios.
CLO 3	Learners will apply vocabulary and sentence structures to describe their own or others' feelings in French.
CLO 4	Learners will apply vocabulary and sentence structures to share their own preferences effectively.

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
				Internal Evaluation			**ESE**		
L	**T**	**P**	**C**	**MSE**	**CE**	**P**	**Theory**	**P**	**Total**
2	**-**	**-**	**-**	**-**	**100**	**-**	**-**	**-**	**100**

L- Lectures; **T**- Tutorial; **P**- Practical; **C**- Credit; **MSE**- Mid-Semester Evaluation, **CE**- Continuous Evaluation, **ESE**- End Semester Examination

h. Course Content:

Sr.	**Topic**	**Weightage**	**Teaching Hrs.**

1	**Grammar:** • Articles (definite, indefinite and partitive) • Prepositions (à, en, au, aux, à la, à l', chez, du, de la, des, d') • Les verbs (Present Tense) : ir, re, irregular verbs • La negation • Le futur Proche • Poser et Répondez aux questions (Asking Questions) – Qui, Quand, Où, Pourquoi, Quel, Quelle, Quels, Quelles, Close-Ended questions	33	10

2	**Listening Skills:**
	• **Basic Vocabulary:**
	  • Class room objects
	  • Study Subjects
	  • Common nouns of places
	  • Seasons
		16	5

3	**Speaking Skills:** • Talking to a French Speaking Stranger. • Talking about hobbies. • Talking and writing about hobbies.	18	5
4	**Reading Skills and Writing Skills:** • My family • Les dialogues (Talking to a classmate on the 1st day of school/college. / Talking to a friend about your family or vice versa. / Talking and writing about hobbies. / Talking to a French Speaking Stranger.) • My hobbies • My Best friend	33	10
	Total	**100%**	**30**

i. Text Book and Reference Book:

- Saison 1 Didier
- Enchanté 0
- Larrouse Dictionnaire de Poche
- Larousse French Grammar (Mini) by Paperback
- Plaisir D'ecrire by Viral Thakkar, Saraswati House Pvt. Ltd.

Semester 4
(8)

a. **Course Name:** Basic German - II
b. **Course Code:** 00019304AE02
c. **Prerequisite**: (00019303AE02) Basic German - I
d. **Rationale:** German is the second most used scientific language. Knowing the language of your German business partners improves your relations and therefore your chances for effective communication and success.

e. **Course Learning Objective:**

CLOBJ 1	Communicate, understand various City Places, Body Parts, Professions. Can also able to frame the Sentences with the help of Modal Verbs.
CLOBJ 2	Can communicate in German with Friends and in shopping mall and also able ask and guide Directions in German Language.
CLOBJ 3	Can read basic Passages in German
CLOBJ 4	Write basic topics in German

f. **Course Learning Outcomes:**

CLO 1	Recall German vocabulary related to city places, body parts, and professions.
CLO 2	Understand the context of conversations with friends in German
CLO 3	Communicate effectively in German in real-life situations such as shopping or asking for directions.
CLO 4	Analyze German sentence structures to understand the role of modal verbs and contextual clues in passages.

g. Teaching & Examination Scheme:

Teaching Scheme				**Evaluation Scheme**					
				Internal Evaluation			**ESE**		
L	**T**	**P**	**C**	**MSE**	**CE**	**P**	**Theory**	**P**	**Total**
2	**-**	**-**	**-**	**-**	**100**	**-**	**-**	**-**	**100**

L- Lectures; **T-** Tutorial; **P-** Practical; **C-** Credit; **MSE-** Mid-Semester Evaluation, **CE-** Continuous Evaluation, **ESE-** End Semester Examination

h. Course Content

Sr.	**Topics**	**Weightage**	**Teaching Hrs.**
1	**Grammar and Vocabulary:** • Körperteile (Body Parts) • Beruf (Professions) • Konjunktion (Conjunctions) • Modal Verb • Zeitformen (Tenses) • Briefeschreiben (Letter writing)	**30**	**10**

2	**Speaking Skills:** ● Dialogue Sprechen (Suggested Situation) ● Richtungen (Asking Directions) ● Conversation between two People ● Conversation in shopping mall/Shop	**30**	**6**
3	**Reading Skills:** • Lebenslauf (Daily activities) ● Kurzgeschichten (Short stories)	**20**	**6**
4	**Listening Skills:** • Objekt (Objects) • Audio Übung (audio exercises) • Conversation identification	**20**	**8**
	Total	**100 %**	**30**

i. Text Book and Reference Book:

- **Netzwerk A1 Deutsch als Fremdsprache Kursbuch**
  By Stefanie Dengler, Paul Rusch | Klett- Langenscheidt
- **Studio D**
  By Hermann Funk | Cornelsen
- **The Everything Essential German Book**
  By Edward Swick | Adams Media