Course Title	Nutrition Science				
Type of Course	**Major**				
Semester	3				
Academic Level	200				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours
	4	4	-	-	60

Course Outcomes (CO):

CO	CO Statement	Cognitive Level*	Knowledge Category#	Evaluation Tools used
CO1	Define the concept of health and nutrition	E	M	▪ Quiz / Assignment/ Discussion / Seminar ▪ Midterm Exam ▪ Final Exam
CO2	Discuss the microelements, macro elements, vitamins and minerals in the food	U	F	
CO3	Compare the nutrients supplied by the food	Ap	M	
CO4	Test the relationship between diet and health and to changing food and nutritional attitudes	An	C	
CO5	Developing supplementary nutrition program whenever necessary	R	P	
* - Remember (R), Understand (U), Apply (Ap), Analyse (An), Evaluate (E), Create (C) # - Factual Knowledge(F) Conceptual Knowledge (C) Procedural Knowledge (P) Metacognitive Knowledge (M)				

Detailed Syllabus: Nutrition Science

Module	Unit	Content	Hrs
I	**Health, Nutrition & Food**		**23**
	1	Physical, mental, social and spiritual health	3
	2	Determinants & indicators of health	3
	3	Nutrition & malnutrition, importance of ideal nutrition	3
	4	Balanced diet, BMI, Food guide, Pyramid and RDA	3
	5	Menu Planning, Significance of Menu Planning, Menu planning for family. Factors influencing meal planning.	3
	6	Nutrition for the normal life cycle, Nutrition during Pregnancy and Lactation.	2
	7	Nutrition for Fitness and Sports	3

	8	Nutrigenetics and Genomics	1
	9	HFSS foods	1
	10	DASH diet	1
II	**Energy**		**10**
	11	Definition, Calorie & Joule	3
	12	Measurement of Calorific values of Food	3
	13	Basal metabolism-BMR	2
	14	Energy requirements & expenditure	2
III	**Carbohydrates, Protein & Lipids**		**10**
	15	Sources	2
	16	Nutritional classification	2
	17	Digestion, Absorption and Transportation	2
	18	Health disorders due to its imbalance in the body	2
	19	Potential health benefits	2
IV	**Vitamins, Minerals, & Water**		**5**
	20	Nutritional classification and Sources	1
	21	Digestion, Absorption and Transportation	2
	22	Health benefits and disorders due to its imbalance in the body	2
	OPEN ENDED : DIET THERAPY		**12**
V			

Mapping of COs with PSOs and POs :

	PSO 1	PSO 2	PSO 3	PSO4	PSO 5	PSO6	PO1	PO2	PO3	PO4	PO5	PO6
CO 1	2	1	1	-	2	1	2	1	1	-	2	2
CO 2	-	1	2	1	3	-	-	2	1	3	1	-
CO 3	1	-	1	2	1	2	1	-	1	2	1	2
CO 4	-	2	2	1	1	-	-	2	2	1	2	-
CO 5	2	1	-	1	1	3	1	2	-	1	2	1

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

Assessment Rubrics:

- Quiz / Assignment/ Discussion / Seminar
- Midterm Exam
- Final Exam

Mapping of COs to Assessment Rubrics :

	Internal Exam	Assignment	Project Evaluation	End Semester Examinations
CO 1	✓			✓
CO 2	✓	✓		✓
CO 3	✓	✓		✓
CO 4	✓	✓	✓	✓
CO 5		✓	✓	✓

Course Title	Food Chemistry				
Type of Course	**Major**				
Semester	3				
Academic Level	200				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours
	4	3	-	2	75

Course Outcomes (CO):

CO	CO Statement	Cognitive Level*	Knowledge Category#	Evaluation Tools used
CO1	Understand basic constituents of foods and their response to various physio-chemical alterations.	U	C	▪ Quiz / Assignment/ Discussion / Seminar ▪ Midterm Exam ▪ Final Exam
CO2	Create better understanding of food pigments and their control measurements.	C	F	
CO3	Understand the importance of enzymes from various sources for chemical modification of foods.	U	P	
CO4	Analyse the factors which influence the textural quality of foods.	An	M	
CO5	Analyse the various constituents of foods	An	F	

* - Remember (R), Understand (U), Apply (Ap), Analyse (An), Evaluate (E), Create (C)
# - Factual Knowledge(F) Conceptual Knowledge (C) Procedural Knowledge (P) Metacognitive Knowledge (M)

Detailed Syllabus:

Module	Unit	Content	Hrs
I	**Classification, structure, sources & properties of carbohydrates, proteins, lipids and water**.		**20**
	1	**Carbohydrates** Monosaccharide - Glucose, fructose and galactose. Structure, properties and reactions.	3

		Oligosaccharides - Maltose, lactose and sucrose.	
	2	Properties - crystallization, inversion, hydrolysis. Reducing and non-reducing sugars, Caramelisation and Maillard reaction.	1
	3	Polysaccharides - Starch, structure and properties of amylose and amylopectin, Gelatinisation and retrogradation, Starch modification	2
	4	Sources and properties of cellulose, hemicellulose, pectic substances, gums and dietary fibre.	2
	5	**Proteins** Structure and classification of amino acids and proteins.	2
	6	Important food proteins.	1
	7	Physiochemical properties - denaturation & reactions.	1
	8	Protein Determination methods	1
	9	**Lipids** Chemistry, Classification and Properties of Lipids and Fatty acids	1
	10	Rancidity, auto oxidation and hydrolysis, Anti-oxidants.	1
	11	**Water** Structure of water and Ice	1
	12	Physical and chemical properties.	1
	13	Free and bound water.	1
	14	Methods of moisture determination in foods, Water activity	2
II		**Pigments**.	**6**
	15	Structure, sources and properties of pigments, Chlorophyll and Carotenoids, Flavonoids and anthocyanins Anthoxanthins and myoglobin,	3
	16	Methods to prevent discoloration of natural pigments.	3
III		**Enzymes**	**9**
	17	Introduction, definition, occurrence,	2
	18	Classification and properties, Factors effecting enzyme activity	4
	19	Enzymes in food and its applications in food industry	3
IV		**Colloids**.	**10**
	20	Chemistry of colloids...	3
	21	Properties of solutions, sols, suspensions and emulsions.	3
	22	Types of emulsions and Emulsifying agents, Food colloids	4
V		**PRATICALS**	**30**
		1. Standardization of NaOH and HCl 2. Determination of moisture 3. Determination of acidity and pH 4. Qualitative test for carbohydrates and proteins. 5. Qualitative analysis of protein by colorimetry. 6. Analysis of lipids: a. Iodine value b. Free fatty acids c. Peroxide value d. Saponification value 7. Analysis of water: a. Hardness b. Alkalinity	3 3 3 3 3 6 6

		c. Acidity d. Chloride **8.** Quatitative methods---Protein,carboh,Fat… Ash, Fibre	3

Mapping of COs with PSOs and POs :

	PSO 1	PSO 2	PSO 3	PSO4	PSO 5	PSO6	PO1	PO2	PO3	PO4	PO5	PO6
CO 1	2	1	3	-	-	2	2	1	3	-	-	2
CO 2	1	2	1	2	1	-	1	2	1	2	1	-
CO 3	2	1	1	-	-	2	2	1	1	-	-	2
CO 4	-	1	1	3	1	2	-	1	1	3	1	2
CO 5	2	1	3	-	-	2	2	1	3	-	-	2

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

Assessment Rubrics:

- Quiz / Assignment/ Discussion / Seminar
- Midterm Exam
- Final Exam

Mapping of COs to Assessment Rubrics :

	Internal Exam	Assignment	Project Evaluation	End Semester Examinations
CO 1	✓			✓
CO 2	✓	✓		✓
CO 3	✓			✓
CO 4	✓	✓	✓	✓
CO 5	✓	✓		✓
CO 6	✓		✓	✓