

Syllabus template M.Sc. FOOD SCIENCE & NUTRITION SEMESTER I

Semester: I				
Course : Food Science & Nutrition				
Paper Title: Human Health & Nutritional Biochemistry				
Paper code: M2C4FN260141P			Credits:6	
Hours/week : 12				
Category: Core/MDC/SEC/VAC : CORE (Major)				
Theory / Practical / Composite : Practical				
No of Modules : No				
Course Overview: This course make the students learn how to analyse the biochemical components of the different food items. Here they learn to perform various qualitative and quantitative analysis with knowledge of different techniques like chromatography, spectrophotometry etc. Also different human body composition tests are also included as part of human physiology.Survey of Nutritional status in different communities is also done as part of the course.				
Course Outcome:				
1. Remember the composition of nutrients required for the human body.				
2. Understand and learn preparation of different kinds of buffers.				
3. Apply the knowledge of composition of nutrients for balanced and nutrient rich healthy diet for population groups.				
4. Analyse the micro and macronutrients in various food items and their implications.				
5. Evaluate critically the tests required for proper health check ups.				
6. Create new approaches & various measures for enhancing and analysing nutritional quality of diets.				
Prerequisites: <i>Basic knowledge about any prior course</i>				
SYLLABUS				
UNIT/Module	CONTENT	HOURS or NUMBER OF CLASSES	CO Mapping	COGNITIVE LEVEL
I.	1. Buffers and pH measurement i. Preparation of acidic buffers. ii. Preparation of basic buffer 2. Spectrophotometry i. Estimation of Phosphorous ii. Estimation of Proteins. iii. Estimation of Iron. iv. Estimation of Cholesterol. v. Determination of blood glucose–oxidase method.	12 /week	CO1,CO2,CO3, CO4,CO5,CO6	K1,K2,K3 K4,K5,K6

	vi. Estimation of Vitamin-C. vii. Estimation of calcium. 3. Qualitative tests for carbohydrates. 4. Determination of the saponification number and Iodine number of fats. 5. Chromatographic Techniques - Separation of amino acids, sugars and lipids. 6. Energy expenditure – i. Introduction to energy expenditure. ii. Physical activity level. iii. Use of wearable devices iv. Total energy expenditure v. Measurement of Oxygen saturation levels vi. Pulse rate measurements vii. Energy balance & Weight management: Body height, skin fold thickness, height, body composition. 7. Assessment of Protein Quality - Calculation of Net Dietary protein Cal% of diets and dishes. 8. Planning nutritive recipes.. 9. Assessment of Nutritional status 10. Identification of nutritional problems among vulnerable groups. 11. Visit to Aganwadi, primary health center and ICDS** centre.			
Text Books				
1. A Laboratory Manual of Food Analysis by Shalini Sehgal, Year – 2016				
2. Nutritional Biochemistry by Homer Wells.				
3. Food Science: The Biochemistry of Food & Nutrition, Lab Manual (Glencoe/McGraw-Hill)				
4.				
Suggested readings				
1. A Laboratory Manual of Food Analysis by Shalini Sehgal, Year – 2016				
Web Resources				

1.
2.
Evaluation Theory CIA: 30 Semester Exam: 70
Paper Structure for Practical Semester Exam Module : Practical : 100 Marks (30 End Sem + 70 CIA) Question Paper format: Practical end semester Viva voce – 20 marks (End Sem)

Course outcomes (COs) and Cognitive Level Mapping

COs	CO Description	Cognitive levels
CO1	Remember the general biochemical tests for analysis of food stuffs.	K1
CO2	Understand the preparation of buffers.	K2
CO3	Apply the knowledge of chemistry on biochemical analysis.	K3
CO4	Analyse the role of techniques like chromatography and spectrophotometry in analysis.	K4
CO5	Evaluate the role of micro and macronutrients present in food items in community.	K5
CO6	Create and develop analytical methods to analyse the biochemical parameters of food.	K6