1. **FST 1103 PRINCIPLES OF HUMAN NUTRITION**
2. *COURSE INSTRUCTOR (s)*

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1. *COURSE TYPE*

*Core course for Year 1 BSc. Food Science & Technology and Year 1 BSc Human Nutrition*

1. *COURSE STRUCTURE*

*Course is 3 credit units (3 CU): 2 lecture hours and 2 practical hours per week for 15 study weeks; [i.e. 30 lecture hours & 30 practical hours equivalent to 45 contact hours].*

1. *COURSE DESCRIPTION*

*Introduction to nutrients, their food sources, metabolism and importance in human health. Also provide an overview of the nutritional needs at different life stages; dietary guidelines; and the relationships among food, nutrition, and health. Students also are introduced to diet analysis strategies and assessment of nutritional status.*

1. *COURSE OBJECTIVES*

***General Objectives***

1. *At an introductory level, have an understanding of principles of nutrition including the roles, metabolism, requirements, and sources of nutrients*
2. *At an introductory level, have an understanding of how nutritional needs change throughout the lifespan and during stress and exercise.*

***Specific objectives***

1. *Describe the major global issues related to food and nutrition.*
2. *Describe current health promotion strategies and dietary guidelines*
3. *Demonstrate the ability to use diet analysis programs to determine nutrient intake.*
4. *Develop skills to conduct simple nutrition assessments to determine risk for undernutrition and overnutrition.*
5. *Be able to answer questions concerning the effect of socioeconomic, psychological, and cultural factors on food intake.*
6. *Be able to discuss hunger and global environmental and problems related to food and nutrition.*
7. *RECOMMENEDED REFERENCES*
   1. ***Nutrition Concepts and Controversies,*** *10th Edition by F. Sizer & E. Whitney. Published by Thomson Learning, Inc*
   2. ***Understanding Nutrition****, 11th Edition by E. Whitney and Sharon R Rolfes Published by Thomson Learning, Inc*
   3. ***Human Nutrition and Dietetics.*** *J. S. Garrow, W.P.T. James and A. (Eds) Churchill Livingstone. 10th Edition.*
   4. ***Vitamins and Mineral Requirements in Human Nutrition.*** *WHO/FAO (2004) Second Edition.*
8. *COURSE CONTENT, METHODS OF INSTRUCTION, TOOLS AND*

*EQUIPMENT*

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| ***TOPIC*** | ***CONTENT*** | ***METHOD OF INSTRUCTION/ Time allocation***  ***(i.e. contact hours)*** | ***TOOLS/ Equipment needed*** |
| 1. *Food consumption and nutrition assessment* | * *Factors that influence food choices* * *Ways to determine nutritional status of individuals – anthropometry; biochemical indicators of iron, vitamin A, iodine, and zinc; reliability of clinical assessments; common dietary assessment methods* | *-Interactive lectures*  *(2 hr)*  *-Reading*  *(2 hrs) – Family tree* | *LCD projector/ White boards* |
| 1. *Carbohydrates* | * *Role of starches and fibre in food and human nutrition* * *Digestion, absorption, and metabolism of each* * *Problems in carbohydrate metabolism (diabetes mellitus)* * *Food processing, fibre and health* | *- Interactive lecture*  *(2 hrs)*  *-Reading assignment – Fiber and food labelling* | *LCD projector/ White boards* |
| 1. *Lipids* | * *Overview of functions of triglycerides, sterols, and phospholipids important in food and human nutrition* * *Digestion, absorption, and metabolism of each* * *Essential fatty acids – sources and importance in health* * *Lipids in overweight and obesity* * *Problems of lipid deficiency and over-consumption* | *-Interactive lectures*  *(2 hr)*  *-Assignments*  *(2 hrs) – fat in foods* | *LCD projector/ White boards*  *Food/fat samples* |
| 1. *Protein* | * *Digestion, absorption, and metabolism* * *Essential amino acids* * *Complementation* * *Factors influencing bioavailability* * *Indicators of deficiency and toxicity* * *Protein energy malnutrition and kwashiorkor* * *Interventions to improve nutriture* | *- Interactive lectures*  *(2 hrs)*  *- Lab practical (6 hrs)*  *-Assignment – Management of protein and energy malnutrition* | *LCD projector/ White boards / Flip charts/ Materials* |
| 1. *Energy balance* | * *Overview of metabolism both macro and micronutrients* | *- Interactive lectures*  *(2 hrs)*  *- Assignment (2 hrs) – Diet analysis* | *LCD projector/ White boards/flip charts* |
| 1. *Evaluation* | *Mid semester evaluation* | *2 hour exam* | *Answer booklets and timer* |
| 1. *Water-soluble vitamins* | * *Overview of functions and food sources* * *Factors influencing bioavailability* * *Who is at risk for deficiency* * *Indicators of deficiency and toxicity* * *Dietary recommendations* * *Interventions to improve nutriture* | *-Interactive lecture*  *(2 hr)*  *-Assignment (2 hrs) – vitamins in food* | *LCD projector/ White boards* |
| 1. *Fat-soluble vitamins* | * *Role in metabolism of macronutrients* * *Overview of functions and food sources* * *Who is at risk for deficiency*   *(especially folic acid and B-12)*   * *Factors influencing bioavailability* * *Dietary recommendations* * *Indicators of deficiency and toxicity* * *Interventions to improve nutriture* | *-Interactive lectures*  *(2 hrs)*  *-Assignment (2 hrs) – vitamins in food* | *LCD projector/ White Board/ Flip charts/ Materials and reagents* |
| 1. *Water and electrolytes* | * *Overview of functions water* * *Health implications of dehydration and water toxicity* * *Water and electrolytes on the market* | *-Interactive lectures*  *(2 hrs)*  *-Assignment (2 hrs) – mineral in food* | *LCD projector/ White boards / Flip charts* |
| 1. *Minerals in nutrition* | * *Overview of functions and food sources of essential minerals* * *Factors influencing bioavailability* * *Indicators of deficiency and toxicity* * *Dietary recommendations* * *Interventions to improve nutriture* | *-Interactive lectures*  *(2 hrs)*  *-Assignment (2 hrs) – mineral in food* | *LCD projector/ White boards / Flip charts* |
| 1. *Nutrient needs in lifecycle* | * *Address the special nutrient needs of:* * *Pregnant and lactating women* * *Infants and young children* | *-Interactive lectures*  *(2hrs)*  *--Assignment (2 hrs) – ENA* | *LCD projector/ White boards / Flip charts* |
| 1. *Nutrient needs in lifecycle* | * *The school-age child* * *Adolescents* * *Older adults (65 yrs and older)* | *Interactive lectures*  *(2hrs)*  *-Assignment (2 hrs)-DETERMINE* | *LCD projector/ White boards / Flip charts* |
| 1. *Food, nutrition and health – Infectious diseases* | * *Overview of the relationships between nutrition and disease* * *Role of nutrition in prevention and management of common infectious diseases such as HIV/AIDS and malaria* | *Interactive lectures*  *(2 hrs)*  *-Assignment*  *- Diet adequacy (2 hrs)* | *LCD projector/ White boards / Flip charts* |
| 1. *Food, nutrition and health* | * *Role of nutrition in prevention and management of chronic diseases* * *Energy balance, body weight and chronic diseases* * *Rapid assessment of health risk* | *-Interactive lectures*  *(2 hrs)*  *-Assignment*  *- Health risk (2 hrs)* | *LCD projector/ White boards / Flip charts* |
| 1. *World food and nutrition issues* | * *Overview of world hunger and malnutrition – who is affected* * *Discuss factors influencing food production* * *Overview of pillars of food security – availability, access (physical and economic), utilization* * *Strategies to improve food security in country* | *Interactive lectures*  *(2 hrs)*  *-Assignment (2 hrs) – Who is hungry* | *LCD projector/ White boards / Flip charts* |
|  | *Final evaluation* | *3 hours* |  |

1. *SUMMARY OF T IME NEEDED*

* *Lecture hours 30 hr*
* *Practicals 30 hr*

1. *OVERALL COURSE EVALUATION*
   * *Assignments 20%*
   * *Practicals, class attendance and participation 10%*
   * *Course tests 20%*
   * *Final exam 50%*