

**UNIVERSITY OF KALYANI**

**SYLLABUS**


**FOR THREE YEARS B.Sc. DEGREE COURSE**

**IN**

**FOOD & NUTRITION (HONOURS)**

**According to the New Examination Pattern  
Part – I**

**WITH EFFECT FROM THE SESSION  
2009 – 2010**

  
29/07/2009  
Secretary, Faculty Councils (U.G.)  
University of Kalyani  
Kalyani, Nadia


**UNIVERSITY OF KALYANI**  
**KALYANI NADIA**  
**COUNCIL FOR UNDER GRADUATE STUDIES**  
**PROCEEDINGS OF THE 21<sup>ST</sup> MEETING OF THE (PREVIOUS) COUNCIL FOR UG**  
**STUDIES HELD ON 13/09/2005**

Revised Structure and Distribution of Marks for Practical Based Subjects at UG Level  
w.e.f. Academic Session 2005-2006

<b>BACHELOR OF SCIENCE (GENERAL)</b>	<b>PART-I</b>	<b>PART-II</b>	<b>PART-III</b>
Compulsory English : One half paper : 50 Marks Modern Indian Language : One half paper : 50 Marks	50 Marks 50 Marks	- - -	- - -
Environmental Studies : One full paper* : 100 Marks*	100 Marks* 3x1x100 =300 Marks		
Elective Subjects : <b>Three</b> : Four full papers : 3x4x100 each =1200 Marks		3x2x100 =600 Marks <span style="font-size: 2em;">}</span> Th: 3x1x100 = 300 Marks Pr: 3x1x100 = 300 Marks	3x1x100 =300 Marks <span style="font-size: 2em;">}</span> Th : 3x1x 60 = 180 Marks Pr : 3x1x40 = 120 Marks
<b>AGGREGATE MARKS : 1400</b>	<b>500 Marks</b>	<b>600 Marks</b>	<b>300 Marks</b>

<b>BACHELOR OF SCIENCE (HONOURS)</b>	<b>PART-I</b>	<b>PART-II</b>	<b>PART-III</b>
Compulsory English : One half paper : 50 Marks Modern Indian Language : One half paper : 50 Marks	50 Marks 50 Marks	- -	- -
Environmental Studies : One full paper* : 100 Marks*	100 Marks*	-	-
Elective subjects : <b>Two</b> : Three full papers : 2x3x100 each = 600 Marks	2x1x100 Marks =200 Marks	2x2x100 =400 Marks <span style="font-size: 2em;">}</span> Th: 2x1x100 =200 Marks Pr: 2x1x100 =200 Marks	- -
<b>One Honours Subject = 800 Marks</b>			
Theory: Seven Papers = 540 Marks Practical: Four Papers = 260 Marks	200 Marks (Th: 2 x 75 Marks) (Pr : 1 x 50 Marks)	200 Marks (Th: 2 x 75 Marks) (Pr : 1 x 50 Marks)	400 Marks (Th: 3 x 80 Marks) (Pr : 2 x 80 Marks)
<b><u>For Computer Science Honours</u></b>		<b><u>For Computer Science Honours</u></b>	
Theory : Seven Papers = 440 Marks Practical : Four Papers = 280 Marks Project : One Paper = 80 Marks	200 Marks (Th: 2 x 50 Marks) (Pr:1 x 100 Marks)	200 Marks (Th: 2 x 50 Marks) (Pr: 1 x 100 Marks)	400 Marks (Th: 3 x 80 Marks) (Pr : 1 x 80 Marks) (Project : 1 x 80 Marks)
<b>AGGREGATE MARKS : 1600</b>	<b>600 Marks</b>	<b>600 Marks</b>	<b>400 Marks</b>

\* With effect from the session 2009-2010.

  
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**w.e.f.- 2009 –2010**

**DISTRIBUTION OF MARKS**

**Part – I Examination (1 Year course )**

**Full Marks – 200**

<b>Paper – I</b>	<b>:</b>	<b>Human Nutrition</b>	<b>50</b>
		<b>Food Science - I</b>	<b>25</b>
<b>Paper – II</b>	<b>:</b>	<b>Physiology</b>	<b>50</b>
		<b>Food Science – II</b>	<b>25</b>
<b>Paper – III</b>	<b>:</b>	<b>Physiology (Practical)</b>	<b>50</b>

  
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**SYLLABUS FOR**  
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**w.e.f- 2009-2010**

Part – I

Paper – I

**Full Marks – 75**

**HUMAN NUTRITION**

**Marks – 50**

1. Concept and definition of terms Nutrition, Malnutrition and Health : Brief history of Nutritional Science. Scope of nutrition.
2. Minimum Nutritional Requirement and RDA - Formulation of RDA and Dietary Guidelines - Reference Man and Reference Woman.
3. Body composition and changes through the life cycle.
4. Energy in Human Nutrition : Idea of energy and its unit, energy balance, assessment of energy requirements – deficiency and excess, determination of energy in food, B.M.R. and its regulation, S.D.A.

**5. Nutrition During Pregnancy :**

Physiology of pregnancy, factors (non-nutritional) affecting pregnancy outcome, importance of adequate weight gain during pregnancy, antenatal care and its schedule, nutritional requirements during pregnancy and modification of existing diet and supplementation, nutritional factors affecting breast feeding, deficiency of nutrients and impact – energy, iron folic acid, protein, calcium, iodine. Common problems of pregnancy and their managements – nausea, vomiting, pica, food aversions, pregnancy induced hypertension, obesity, diabetes, adolescent pregnancy.

**6. Nutrition during Lactation :** Physiology of lactation :

Nutritional requirements during lactation, dietary management, food supplements, galactogogues, preparation for lactation. Care and preparation of nipples during breast feeding.

**7. Nutrition during infancy :**

Infant physiology relevant to feeding and care, breast feeding - colostrum, its composition and importance in feeding. Initiation of breast feeding. Advantages of exclusive breast feeding. Basic principles of breast feeding. Introduction of supplementary foods, initiation and management of weaning, bottle feeding - circumstances under which bottle feeding is to be given. Care and sterilization of bottles. Preparation of formula. Mixed feeding, breast feeding and artificial feeding.

**8. Growth and development from infancy to adulthood :**

Somatic, physical, brain and mental development, puberty, menarch, prepubertal and pubertal changes, Importance of Nutrition for ensuring adequate development.

**9. Growth monitoring and promotion :**

Use of growth chart and standards, preventions of growth faltering.


10. Nutritional needs of toddlers, preschool, school going children and adolescents – dietary management.
11. Management of preterm and low birth weight babies.
12. Feeding children with special needs.

**Reference :**

1. Guthrie, A.H. (1986) : Introductory Nutrition, 6<sup>th</sup> Ed. The C.V.Mesby Company.
2. Robinson, C.H. Lawler, M.R., ; Chenoweth, W.L. and Garwick, A.E. (1986) : Normal and Therapeutic Nutrition. 17<sup>th</sup> Ed. Mac Millan Publishing Co.
3. Swaminathan, M. (1985) : Essentials of Foods and Nutrition, Vols – I and II. Ganesh and Co. Madras.
4. Gopalan, C. et al (1991) : Nutritive value of Indian Foods, Indian Council of Medical Research.
5. Indian Council of Medical research (1989) : Nutrient Requirements and Recommended Dietary Allowance for Indians, New Delhi.
6. FAO/WHO/UNU : Technical Report Series, 724 (1985). Energy and Protein Requirement, Geneva.
7. WHO Technical Reports Series for different Nutrients.
8. Ghosh , S. (1992) : The Feeding and Care of Infants and Young Children. VHAI. 6<sup>th</sup> Ed. Delhi.
9. WHO (1979) : A growth chart for International use in Maternal and Children Health Care, Geneva.
10. King, M.H. ; King, F.M.A.; Morley, D; Burgess, A.P. (1972) : Nutrition for Developing Countries, ELBS Oxford University Press.
11. Indian National Code for Protection of Breast Feeding ; Govt. of India. Ministry of Social Welfare, New Delhi, 1983.
12. S. Davidson and R. Passmore et al. Current Edition. Human Nutrition and Dietetics.

**FOOD SCIENCE - I****Marks – 25**

1. Basic concept on food, nutrients, nutrition.
2. Classification of food, classification of nutrients.
3. **Carbohydrates** – Definition, classification, structure and properties.
  - \* Monosaccharides – glucose, fructose, galactose.
  - \* Disaccharides – maltose, lactose, sucrose
  - \* Polysaccharides – dextrin, starch, glycogen

  
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4. **Carbohydrates** – Sources, daily requirements, function, effects of too high – too low carbohydrates on health, digestion and absorption. Blood glucose and effect of different carbohydrates on blood glucose, glycemic index.
5. **Lipids** – Definition, classification and properties.  
\* Fattyacids, composition, properties, types.
6. **Lipids** – Sources, daily requirements, function, Digestion & Absorption, Role & nutritional significances of PUFA, MUFA, SFA, W -3 fatty acid.

## Paper – II

**Full Marks – 75**

### **PHYSIOLOGY**

**Marks – 50**

1. Structure and functions of cells.
2. Blood and its composition, blood groups, coagulation of blood, structure and function of heart, heart rate, cardiac cycle, cardiac out put. blood pressure and their regulations, circulation of blood (general course of circulation).
3. Gastrointestinal System : Structure and function of various organs of the GI tract, digestion and absorption of food and the role of enzymes and hormones.
4. Reproductive System : Structure and function of sex glands and organs including hormones. Menstrual cycle. Physiology of pregnancy, parturition, lactation and menopause.
5. Excretory System : Structure and functions of kidney, bladder, formation of urine, role of kidney in homeostasis. Structure and function of skin. Regulation of temperature of the body.
6. Respiratory System : Structure of respiratory system. Mechanism of respiration and its regulations. O<sub>2</sub> and CO<sub>2</sub> transport in blood. Vital capacity and other volumes. Acclimatization.
7. Nervous System : Elementary anatomy of nervous system. Function of different parts of the brain in brief. Sympathetic and parasympathetic nervous system. Special senses.
8. Musculoskeletal System : Types of muscles, functions and structure. Skeletal system – formation of bone and teeth. (General idea)
9. Endocrine System : Structure and functions, deficiency and excess symptoms.

### **Reference :**

1. Guyton,A.C., Hall, J.E. (1966) : Text book of Medical Physiology. 9<sup>th</sup> Ed. Prism Books (Pvt.) Ltd. Bangalore.
2. Winword (1988) : Sear's Anatomy and Physiology for Nurses. London, Edward Arnoll.
3. Wilson(1989) : Anatomy and Physiology in Health and Illness, Edinburgh, Churchill Livingstone.
4. Chatterjee, Chandi Charan (1988) : Text book of Medical Physiology.

**FOOD SCIENCE – II**

**Marks – 25**


1. **Proteins** - Definition, classification , structure and properties.  
\* **Amino acids** – Classification, types, functions.
2. **Proteins** - Sources, daily requirements, functions. Effects of too high – too low proteins on health, digestion and absorption, Assessment of Protein quality (BV, PER, NPU), Factors affecting protein bio-availability including anti-nutritional factors.
3. **Dietary Fibre** – Classification, sources, composition, properties & nutritional significance.
4. **Minerals and Trace Elements** –Physiological role, bio- availability and requirements, sources, deficiency and excess ( Calcium, Phosphorus, Iron, Fluoride, Zinc , Selenium, Iodine, Chromium ).
5. **Vitamins** –Physiological role, bio- availability and requirements, sources, deficiency and excess.
6. **Water** – Functions, requirements, water balance.

**Paper – III**

**PHYSIOLOGY (PRACTICAL)**

**Marks – 50**

1. Identification of prepared slides :  
(a) Lungs, (b) Suprarenal gland, (c) Thyroid, (d) Pituitary, (e) Testis, (f) Ovary, (g) Kidney, (h) Liver, (i) Pancreas, (j) Small intestine, (k) Large intestine, (l) Spinal cord, (m) Cerebellum.
2. Preparation of blood film and identification of white blood cell, counting of blood cells.
3. Determination of haemoglobin.
4. Determination of bleeding time and clotting time of blood. Blood grouping.
5. Measurement of blood pressure and pulse rate.
6. Study of muscles fibres and squamous epithelium.
7. Qualitative tests with saliva and urine.

  
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