

University of Dhaka



Department of Food and Nutrition

Syllabus for Bachelor of Science Honours degree
in Food and Nutrition

Sessions: 2024-2025 and onwards

Courses for 1st Year

Departmental Courses

Course No	Course Title	Credits	Marks
FN-101	Fundamentals of Nutritional Science	4	100
FN-102	Human Physiology	4	100
FN-103	Practical – I	2	50
FN-104	Practical –II	2	50
FN-105	Viva-voce	2	50
Total		14	350

Extra-Departmental Courses

Course No	Course Title	Credits	Marks
HE-152	Resource Management and Entrepreneurship	3	75
HE-153	Child Development	3	75
HE-154	Basic Art and Crafts	3	75
HE-155	Clothing & Textile	3	75
Total		12	300

Structure of Courses
Courses for First Year B.Sc Honours

FN-101 Fundamentals of Nutritional Science Credits: 04

1. **Introduction:** History of nutrition definition and function of nutrients, classification of nutrients, macronutrients and micronutrients.
2. **Energy intake and expenditure:** Forms of energy, unit of energy, measurement of energy expenditure, factors influencing energy expenditure, energy content of foods.
3. **Carbohydrate:** Sources and functions of different type of carbohydrates, dietary fiber, classes and their importance in health.
4. **Protein:** Classification of protein, essential and non-essential amino acids, amino acid content of food, amino acid supplementation, protein quality and its measurement, nitrogen balance, functions of proteins.
5. **Fat:** Fatty acids and their types, sources, nutritional role of essential fatty acids, their importance in health and disease, sources of dietary cholesterol and phospholipids, their role in the body, ω -3 and ω -6 fatty acids and their role in body.
6. **Vitamin:** Nutrition and metabolism of vitamins, nomenclature, properties and sources of vitamins and types of vitamins.
 - a) **Fat soluble vitamin:** Types of fat-soluble vitamins, functions and deficiency states of fat-soluble vitamins, requirement and toxicity.
 - b) **Water soluble vitamin:** Types of water-soluble vitamins, co-enzyme forms, functions, and requirement of water-soluble vitamins.
7. **Major minerals:** Physiological roles of major minerals, food sources, absorption, metabolism and excretion.
8. **Trace elements:** Physiological roles, food sources, absorption, metabolism and excretion.
9. **Water and electrolyte balance of the body:** Body fluids and its electrolyte balance, disturbances- acidosis and alkalosis.

Recommended Books

1. J. S. Garrow, 1999, Human Nutrition and Dietetics, 10th edition, Churchill Livingstone.
2. Harper, 1999, Biochemistry, 25th edition, McGraw hill Companies.
3. Bangi, Rass, Robby., 2009, Text book of Human nutrition, Oxford & IBH Publishing Company Pvt. Limited.
4. Swaminathan, 2014, Food and Nutrition Vol-, Edition:Second Reprint, Bappco .

FN-102

Human Physiology

Credits: 04

1. **Introduction of animal cell:** Definition, classification, structure and composition of cell, structure and functions of cell organelles.
2. **Study of tissues:** Definition, classification, functional characteristics of various tissues,
3. **Alimentary canal:** General anatomical features of the digestive tract, characteristics of the digestive tract, major functions of digestive tract, major functions of the pancreas, the liver and the gallbladder, process of digestion for carbohydrates, lipids and proteins.
4. **Cardiovascular and circulatory system:** Structure of arteries, veins and heart, cardiac cycle, heart rate and blood pressure, pulmonary circulation, systemic circulation.
5. **Lymphatic organs and immunity:** Structure, definition and functions of lymphatic organs, lymphatic tissue, lymph nodules, spleen, tonsils and thymus, specific immunity and acquired immunity.
6. **Respiratory system:** Anatomy and histology of the respiratory system- nasal cavity, pharynx, larynx, trachea, bronchi and lungs- their functions and mechanism of respiration.
7. **Excretory system:** Structure and functions of kidneys, urinary system- ureters and urinary bladder, urine production, filtration, tubular reabsorption, urine concentration mechanism and regulation of urine concentration.

8. **Reproduction and development:** Physiology of male reproduction- regulation of sex hormone secretion, spermatogenesis, physiology of female reproduction- puberty, menstrual cycle, female fertility, pregnancy and menopause.
9. **Nervous system:** Functional unit of nervous system- structure and functions of neuron, central nervous system and spinal cord.

Recommended Books

1. Seely, Stephen, Tate, 2006, Anatomy and Physiology; 6th edition, McGraw- Hill, Science/Engineering/Math.
2. Seely, Stephen, Tate, 1992, Anatomy and Physiology; 2nd edition, Mosby- year book, Inc.
3. Sylvia S. Mader, 2005, Human Biology, 9th edition, McGraw- Hill Science/Engineering/Math.
4. Stuart Ira Fux, 2015, Human Physiology, 14th Edition, McGraw- Hill education.
5. C.C. Chatterji, 2016, Human Physiology, 11th Revised Edition, CBS Publishers & Distributions.

FN-103

Practical-I

Credits: 2

- 1 Use and importance of different types of laboratory instruments.
- 2 Determining the strength of solution by titration methods.
- 3 Identification of monosaccharides, disaccharides and polysaccharides by colour test.
- 4 Estimation of vitamin C from different food sources.
- 5 Titrimetric estimation of calcium.
- 6 Titrimetric estimation of iron.
- 7 Estimation of iodine value of fat and oil.
- 8 Estimation of uric acid in blood by colorimetric method.

FN-104

Practical – II

Credits: 02

- 1 Measurement of body temperature by thermometer and thermal scanner, recording temperature.
- 2 Measurement of pulse rate and blood pressure by sphygmomanometer.
- 3 Preparation of blood film and observation of white blood cells under microscope.
- 4 Estimation of Haemoglobin (Colorimetric method)
- 5 Blood grouping.
- 6 Determination of bleeding time and clotting time of blood.
- 7 Plasma glucose assessment.
- 8 24-hour urine output measurement.

FN-105

Viva Voce

Credits: 2

Extra-Departmental Courses

HE- 152

Credits: 3

- 1 **Philosophy and purpose of resource management:** meaning of resource management, concept and classification of resources, characteristics of resources, principles of using resources, importance of resource management, obstacles to the improvement of management.
- 2 **Functions of management:** planning, organizing, controlling, evaluating.
- 3 **Decision making and Motivational factors :** meaning and kinds of decision, habitual versus rational group versus individual decision, developing decision making ability, steps, goal, value and standard.

- 4 **Time, energy and money management:** goals of time management, process of managing time, evaluation of common work method, fatigue work simplification, types of income and ways to increase income, family budgeting and account keeping, savings and investment.
- 5 **House plan and interior design:** selecting site and making plan for house, home furnishing - knowing, buying and arranging furniture.
- 6 **Introduction to Entrepreneurship:** meaning of entrepreneur and entrepreneurship, nature and importance of entrepreneurs, characteristics of entrepreneurship, functions of entrepreneurship and factors determining the growth of entrepreneurship, types of entrepreneurship.
- 7 **The entrepreneurial decision process:** Steps of decision making process, ethics and social responsibilities of entrepreneurship, qualities of successful entrepreneur.
- 8 **Women Entrepreneurship:** problems of women entrepreneurs and how to develop Women Entrepreneurship.

Practical

- 1 Managing budget: Preparing a one month budget for a middle class family, preparing a budget for a college student.
- 2 House plan and furniture lay out: Drawing a house plan for a middleclass family with 5 family members, Drawing furniture lay out using graph paper for bed room, living room and kitchen.
- 3 Specifying the business and primary activities, selection of a product or service, site selection, feasibility study of a business, prepare of a business plan.

Recommended Books

1. Gross, Erma; Crandall, Elizabeth. (1995).*Management for Modern Families*, Kalyani Publishers, India.
2. Nickel, Paulina; Dorsey, Jean Mouir. (2005).*Management in Family Life*, Asia Printograph, Shahdara, Delhi.
3. Batra Sonia, Mehra Preeti. (2005).*Family Resource Management*. Asia Printograph, Shahdara, Delhi.
4. খান, মমতাজ, (১৯৯৮), ২য় সংস্করণ, *পারিবারিক জীবন ও গৃহ ব্যবস্থাপনা*. প্রকাশক- আরিফ রশিদ, ঢাকা।
5. সুলতানা, ড. ফিরোজা, (১৯৯৭), ৪র্থ সংস্করণ, *গৃহ, সম্পদ ব্যবস্থাপনা ও উদ্যোক্তা*; সোলার বুকস এন্ড বুকস, বাংলাবাজার, ঢাকা।
6. সিদ্দিক, রেজাউল করিম; সরকার, মো: আকতারুজ্জামান, *ব্যবসায় উদ্যোগ ও ক্ষুদ্র ব্যবসায় ব্যবস্থাপনা*, প্রথম প্রকাশ (জুন, ২০০৩)

HE-153 Introduction to Child Development Credits: 3

- 1 **Introduction:** Meaning of growth and development, divisions of life cycle, patterns of development, principles of development.
- 2 **Research methods:** Baby biographies, twin studies, longitudinal method, cross-sectional method, observation.
- 3 **Developmental determinants:** Biological and environmental determinants, heredity and environment controversy in development.
- 4 **Pre-natal development:** How life begins, stages of prenatal development, factors influencing pre-natal development.
- 5 **Neonate:** Characteristics, reflex, activities, hazards
- 6 **Infancy and childhood:** a) Physical and motor development, b) Language development, ways of learning to speak, delayed speech, speech disorder. c) Intelligence and creativity, values of creativity, development of creativity, relations between intelligence and creativity. d) Emotional development, characteristics of emotion, common emotional pattern.e) Social development, social skills, family and societal influences.
- 7 **The child with special needs:** Intellectual disability, autism, down syndrome, family and societal responsibilities and awareness.
- 8 **Problem behavior and management of children:** Thumb sucking, telling a lie, in-attention, technology addiction, temper tantrums and anger.

Practical

- 1 Observe several preschool children of the same age in the nursery school and assess their physical development. Compare with the growth chart of WHO through histogram.
- 2 Make a report on the knowledge of a mother, focussed on the management of in-attention/technology addiction/anger.
- 3 Make a developmental milestone chart with diagram for the age of 1 to 5 years (physical/cognitive/ language/ social/ emotional).

Recommended Books

1. E. Berk Laura, 8th edition (2009) – Child Development. Published by PHI Learning Private Limited, New Delhi-11001.

2. W. Santrock John, 10th edition (2004) – Child Development. Published by McGraw. Hill, 1211, Avenue of the America, New York.
3. E. Papalia Drane, Sally Wendkos Olds, Ruth Duskin Feldman, Dana Gross, Ninth edition (2004)– Human Development. Published by Tata McGraw-Hill Publishing Company Limited New Delhi.
4. P. Sarafino Edward, James W. Armstrong (1980)– Child and Adolescent Development, Library of congress cataloging in Publication America.
5. B.Harlock Elizabeth, 5th edition (1978)– Child Growth and Development. Published by Tata McGraw –Hill Publication Company Limited New Delhi.
6. B. Hurlock Elizabeth, 6th Eleventh reprint–2004– Child Development. Published by Tata McGraw –Hill Publication Company Limited New Delhi.
৭. আহমেদ শাহীন, ২য় প্রকাশ,জানুয়ারি-২০১৫, শিশু বর্ধন, বিকাশ ও পরিচালনা, আইডিয়াল বুকস্, ঢাকা।
৮. বানু সুলতানা, ১ম প্রকাশ-২০১৩ ডিসেম্বর, বিকাশ মনোবিজ্ঞান (১ম খন্ড) জুলাই-২০১৭, চয়নিকা প্রকাশনী।
৯. হোসনে আরা গাজী, ২য় প্রকাশ- জুলাই -২০১৭, শিশু বিকাশ পরিচিতি মা ও শিশু স্বাস্থ্য, খান প্রকাশনী।

HE-154

Basic Art and Crafts

Credits: 3

- 1 **Introduction:** Concept, classification, characteristics and importance of art.
- 2 **History of art:** Primitive art, Egyptian art, Mesopotamian art, art of Indus valley civilization (Mohenjodaro, Harappa).
- 3 **Elements and principles:** a.Study of art elements
b. Study of art principles
c. Relation of art elements and principles to different aspects of life.
- 4 **Traditional crafts of Bangladesh:** a. Indigenous materials.
b. Traditional crafts.
- 5 **Cultural heritage and folk art of Bangladesh:** Folk literature, folk game, folk festival, folk song and dance.
- 6 **Historical places of Bangladesh:** Ahsan manzil, Lalbagh fort, Maynamati, Mahasthangarh, Shat gombuz mosque (the sixty dome mosque)
- 7 **Life and artwork of famous artists of Bangladesh:** Zainul Abedin, Kamrul Hasan, S. M. Sultan, Rashid Choudhury, Novera Ahmed, Safiuddin Ahmed
- 8 **Textile decoration:** Block, batik, tie and dye, stitchery, screen print

9 **Recreational art and craft:** Collage, paper craft (card, toys, bags, paper mash), flower arrangement.

10 **Development of art and its Economic aspects:** a. Identifying the problems and solutions for the development of art in Bangladesh.

b. Art as a significant factor in economic development.

Practical

1 **Three projects should be submitted by using different art media and materials:**

- a. Block print on cotton fabric by using wooden and natural block.
- b. Tie-dye on fabric by using vat dyes.
- c. Batik print on fabric.
- d. Stitchery: Running stitch, back stitch, cross stitch, buttonhole stitch, chain stitch, french knot stitch, satin stitch, feather stitch, lazy daisy stitch, herringbone stitch.
- e. Collage on canvas using paper, cloth, color, natural and artificial materials.
- f. Flower arrangement: Ikebana, European style.

Recommended Books

1. Ray, Faulkner, 1969, Art today, Publisher: Holt Rinehart & Winston,
2. Goldstein Harriet Irene, 1925, Art in everyday life, Publisher: The Macmillan Company,
3. মন্টু ফজলুল হক, ২০১১, চারু ও কারুকলা, মিতা ট্রেডাস, ঢাকা,
4. আলম ড. রফিকুল, ২০১৪, বিশ্ব সভ্যতা ও শিল্পকলা, চয়নিকা,
5. আলম ড. রফিকুল, ২০১৫, উপমহাদেশের শিল্পকলা, মাওলা ব্রাদার্স,
6. ওয়াকিলআহমেদ, ২০১৭, বাংলার চারুকার ও লোকশিল্প, গতিধারা,
7. মামুন মুনতাসীর, ২০১৭ঢাকা স্মৃতি-বিস্মৃতির নারী, ২য় সংস্করণ, অনন্যা,
8. সান্তার ড: আব্দুস, ২০১২, বাংলাদেশের শিল্প ও শিল্পী, আজমাইল পাবলিকেশন্স,
9. সান্তার ড. আব্দুস, ১৯৮৯, শিল্পের উপকরণ ও ব্যবহার পদ্ধতি,
10. সান্তার ড. আব্দুস, ১৯৮৮, শিল্পাচার্য জয়নুল আবেদিন, ঢাকা আমাদের বাংলা প্রেস লি:
11. তাহের ড. আবু, ২০০৮, বাংলাদেশের আধুনিক চিত্রকলা এবং তিন জন শিল্পী: জয়নুল আবেদিন এস.এম. সুলতান ও রশিদ চৌধুরী, ঢাকা বাংলাদেশ শিল্পকলা একাডেমী,
12. হাসনাত সম্পাদক আবুল, ২০১৬, নভেরা আহমেদ, বেঙ্গল পাবলিকেশন্স লিমিটেড,
13. রহমান সুলতান আমিনুর, হরেক পেশায় লোকশিল্প, নওরেজ সাহিত্য সংসদ,
14. বসাক শিলা, বাংলার নকশী কাঁথা, আনন্দ বাজার ,

15. Kindersley Dorling, DK., 2015, paper craft.

16. আলম প্রকৌশলী মো: সামসুল, ২০১৯, উড-ওয়াকিং-২, জাতীয় শিক্ষাক্রম ও পাঠ্য পুস্তকবোর্ড।

HE-155

Clothing and Textile

Credits: 3

- 1 **Introduction to Clothing and Textile:** Basic concept, textile, clothing, interrelation between clothing and textile.
- 2 **Textile fiber:** Definition, properties, classification with examples, difference between natural and manmade fiber.
- 3 **Fiber to yarn:** Concept, classification and basic performance, characteristics, preparation of fiber to yarn, end uses of cotton, flax, wool, silk and nylon yarn.
- 4 **Yarn to fabric:** Definition, classification of yarn, classification and different parts of loom, motion of loom, basic of weaving.
- 5 **Clothing:** Needs for clothing, economic, social, psychological and health factors involving in clothing, clothing consumption at different stages of family life cycle, considering factor of clothing selection for the family members.
- 6 **Wardrobe planning:** Definition, objects, wardrobe planning with special emphasis on considering factors.
- 7 **Clothing and personality:** Definition, elements, classification, effect of clothes on personality development, creating attractive personality through principles of art.
- 8 **Clothing budget:** Definition, types, objectives, advantages and disadvantages, characteristics, clothing allowances for the family, steps in making a clothing budget, factors affecting clothing budget.
- 9 **Decision making of clothing:** Introduction, how to make clothing decision, factors affecting clothing decision, steps of decision making.
- 10 **Clothing for children:** Special consideration for fabric, color, design and texture, design for the children cloth safety measure, functional and help garments.
- 11 **General principles for clothing construction:** Steps of dress making, removal of dress defects, identification of sewing defects and removal process.
- 12 **Care and washing of clothing:** Needs for care of clothing, daily, weekly and seasonal care.
- 13 **Care label:** Definition, objectives, types, care label code- washing, bleaching, ironing, dry cleaning, drying condition, good label for clothing

Practical

- 1 Study of anthropometrical measurement for human body (to identify the measuring points and preparing one`s own measurement sheet)
- 2 Drafting block pattern by taking accurate measurements and consideration correct drafting procedure construction any two of own garments

Recommended Books

1. M A Kashem, 2011, Garments and Technology, Gronthoneer publications
2. Textile Raw Materials, Md. Moshior Rahman, Brothers Publications
3. বেগম অধ্যাপক হাসিনা আরা, ২০১৭, বস্ত্র ও পোশাক শিল্প, প্রকাশনায় লাইফ পাবলিশার্স
4. অধ্যাপক তাহমিনা জামান, ২০১৬, বস্ত্র ও পরিচ্ছদ, আগামী প্রকাশনী
5. এম এ সাইম, টেক্সটাইল ফাইবার, গ্রন্থনীড় প্রকাশনী, ২০১১
6. প্রকৌশলী মোঃ মহিবুল ইসলাম, টেক্সটাইল ফাইবার, বাংলাদেশ কারিগরী শিক্ষা বোর্ড, ২০০২