4 YEARS B.A. CURRICULUM OF HOME SCIENCE

Central Department of Home Science

Tribhuvan University

Prepared by:

Faculty of Humanities and Social Sciences

CENTRAL DEPARTMENT OF HOME SCIENCE

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Introduction

This course is designed for 4 years bachelor in Home Science in order to impart theoretical as well as practical knowledge and skills to the students. It covers four areas of Home Science - Food and Nutrition, Child Development, Resource Management and Dress Designing comprising Research Methodology. There are seven major subjects offer in this course such as Fundamentals of Nutrition and Food Science, Fundamentals of Human Development and Family Study, Textile Science and Apparel Design, Fundamentals of Resource Management, Nutritional Biochemistry and Microbiology, Human Physiology, and Research and Academic Writing. In addition, it also introduces two elective subjects - Community Nutrition and Public Health Issues and Basic Concept and Approaches on Early Childhood Development (ECD) according to Tribhuvan University curriculum guidelines. The weightage of each subject for both theoretical as well as practical will be at the ratio of 70:30 (Internal and Practical) respectively.

This curriculum has been designed to produce efficient and competent professionals particularly in the four areas of Home Science. The goal of this course is to produce professionals and experts in a variety of employment settings, including nutrition care, teachers, researchers, nutritionists, community workers, nutrition and child consultants, early childhood development expert, resource management managers, dress designers, and public health workers. The aim of this academic course is to develop skill and knowledge in order to effectively and successfully upgrade the students from bachelor to post-graduate in Home Science.

Learning Objectives of the Course are to:

- Understand the principles of nutrition and food science
- Understand the human development and family study including child right, child labor, girl trafficking and street children
- Explain about fibers, weaving, selection of various fabrics, traditional costumes, fashion cycle and develop skill to make garments
- Manage resources in the family
- Explain about metabolism of nutrients, chemical composition and pH value of different food groups
- Understand micro-organisms and their applications in foods, food preservation, food poisoning, and hygiene.
- Understand the anatomy of human physiology and different systems
- Acquire knowledge on research methodology including proposal writing and academic writing
- Understand the basic concept and approaches on early childhood development
- Explain the nutrition issues, food security, nutritional assessment tools, and policies and programs for improving nutrition.

Description of 4 Years B.A. Curriculum of Home Science

Description of 4 Years B.A. Curriculum of Home Science

Paper	Year	Code. No.	Course Title	Marks			Remarks
				Full Marks	Theory	Internal and Practical	
I	1st	HS-421	Fundamentals of Nutrition and Food Science	100	70	30	Major
II	1st	HS-422	Fundamentals of Human Development and Family Study	100	70	30	Major
III	2nd	HS-423	Textile Science and Apparel Design	100	70	30	Major
IV	2nd	HS-424	Fundamentals of Resource Management	100	70	30	Major
V	3rd	HS-425	Nutritional Biochemistry and Microbiology	100	70	30	Major
Elective-A	3rd	HS-410	A- Community Nutrition and Public Health Issues	100	70	30	Elective
Elective-B	3rd	HS-411	B- Basic Concept and Approaches on Early Childhood Development (ECD)	100	70	30	Elective
VI	4th	HS-426	Human Physiology	100	70	30	Major
VII	4th	HS-427	Research and Academic Writing	100	70	30	Major

Description of 1st Year B.A. Curriculum (Unit Wise) of Home Science

Paper	Year	Code. No.	Course Title	Marks			Remarks
				Full Marks	Theory	Internal & Practical	
I	1st	HS-421	**Fundamentals of Nutrition and Food Science:** Unit I - Nutrition and Food Science Unit II – Food and Balanced Diet Unit III – Nutritional Deficiency Diseases Unit IV – Nutritional Requirements Unit V – Cookery and Preservation Unit VI – Food Commodities Unit VII – Food Additives, Adulteration and Toxicity Unit IX – Practical	100	70	30	Major
II	1st	HS-422	**Fundamentals of Human Development and Family Study:** Unit-I Introduction Unit-II Prenatal, Infancy and Childhood Unit-III Adolescence and Adulthood Unit-IV Girl Child Unit- V Convention of the Right of the Child (CRC) Unit- VI Advanced Family Studies Unit-VII Old Age Unit – VIII Practical	100	70	30	Major

Description of 2nd Year B.A. Curriculum (Unit Wise) of Home Science

Paper	Year	Code. No.	Course Title	Marks			Remarks
				Full Marks	Theory	Internal & Practical	
III	2nd	HS-423	**Textile Science and Apparel Design:** Unit I – Fiber and Textile Unit II – Fabric Finishes Unit III – Weaving Unit IV – Material Selection Unit V- Traditional Costumes of Different Ethnic Groups in Nepal Unit VI - Fashion Unit VII – Fashion Cycle Unit VIII- Dress Designing Unit IX - Practical	100	70	30	Major
IV	2nd	HS-424	**Fundamentals of Resource Management;** Unit I- Home Management Unit – II- Management of Family Resources Unit –III Time Management Unit- IV Money Management Unit- V Household Work Management Unit- VI Housing Unit- VII Interior Decoration Unit – VIII Practical	100	70	30	Major

Description of 3rd Year B.A. Curriculum (Unit Wise) of Home Science

Paper	Year	Code. No.	Course Title	Marks			Remarks
				Full Marks	Theory	Internal & Practical	
V	3rd	HS-425	**Nutritional Biochemistry and Microbiology:** Unit I– Nutritional Biochemistry Unit II– Water Unit III - Energy Metabolism Unit IV - Chemical Composition and pH Value Unit V-Micro-organisms and Their Applications in Food Unit VI - Food Preservation Unit VII - Food Poisoning and Food Infection Unit VII – Food Sanitation and Hygiene Unit VIII – Practical	100	70	30	Major
Elective-A	3rd	HS-410	**A- Community Nutrition and Public Health Issues:** Unit I - Nutrition Issues Unit II – Nutrition Policies and Programs UNIT III - Public Health Concerns with Under-Nutrition and Issues Related to Lifestyle Unit IV- Food and Nutrition Security Unit V - Concept and Scope of Public Nutrition Unit VI - Assessment of Nutritional Status Unit VII - Nutrition Education Unit VIII - Practical	100	70	30	Elective
Elective-B	3rd	HS-410	**B- Basic Concept and Approaches on Early Childhood Development (ECD):** Unit I- Early Childhood Development Unit II -Management of Preschool/ECD Centers Unit III - Milestone of development (up to 5 years) Unit IV - Environments of ECD center / Pre School Unit V - Child Safety Unit VI - Role of Play for Development of Children Unit VII- Role of Family Unit VIII - Practical	100	70	30	Elective

Description of 4th Year B.A. Curriculum (Unit Wise) of Home Science

Paper	Year	Code. No.	Course Title	Marks			Remarks
				Full Marks	Theory	Internal & Practical	
VI	4th	HS-426	**Human Physiology:** Unit I – Anatomy of the Human Body Unit II – Skeletal System Unit III – Digestive System Unit IV – Blood Circulatory System Unit V –Respiratory System Unit VI – Excretory System Unit VII – Nervous System (Definition Only) Unit VIII – Sensory Organs Unit IX - Practical	100	70	30	Major
VII	4th	HS-427	**Research and Academic Writing:** Unit I – Scope of Research Methods Unit II - Types of Research Unit III - Definition and Identification of Research Problem Unit IV- Data Collection Tools and Techniques Unit V - Data Analysis and Presentation Unit VI - Proposal Writing Unit VI – Practical (Academic Writing and Presentation)	100	70	30	Major

Course Title: Fundamentals of Nutrition and Food Science

Level: B.A. 1st Year
Home Science (Code No.): 421

Full Marks: 100
Theory: 70
Internal & Practical: 30
Teaching Hours: 150

Course Description:
This course provides knowledge on nutrition and its classifications, sources and functions. It also covers about the balanced diet, my pyramid, various nutritional deficiency diseases and nutrients requirement in various age groups. This course deals with the importance of cookery, food preservation, safe food handling and storage of food. The contemporary concept of food commodities such as functional food, convenience food, fast food and food supplement are included in this course. In addition, this course provides knowledge to detect additives, adulterants and toxin in food.

Course Objectives:
After completion of this course the students will be able to:

- Explain the functions, sources, classification of food and nutrients.
- Understand about the deficiency of various macro-and micro- nutrients.
- Describe the nutritional requirements of various age groups.
- Explain cookery rules and methods of cooking.
- Understand the importance of nutrients preservation and methods of food preservation.
- Manage safe food handling and storage of food.
- Describe the benefits and health hazards of commodities like functional food, convenience food, fast food and food supplement.
- Detect food additives, adulteration and toxicity.

Course Contents:

Unit I – Nutrition and Food Science: **15**
a) History of Nutrition and Food Science
b) Definition and Function of Nutrition
c) Definition and Classification of Nutrients and Their Sources and Function

Unit II – Food and Balanced Diet: **10**
a) Definition, Classification and Function of Food
b) Meaning, Concept and Importance of Balanced Diet
c) Five Food Groups and their Nutrients
d) My Food Pyramid and Plate Method

Unit III – Nutritional Deficiency Diseases (Causes, Symptoms, Preventive and Curing Method): **20**
a) Carbohydrate Deficiency
b) Protein Deficiency
c) Fat Deficiency
d) Vitamin Deficiency

e) Mineral Deficiency

Unit IV – Nutritional Requirements: 25

a) Nutritional Requirements Infant and Pre-school
b) Nutritional Requirements School going children
c) Nutritional Requirements Adolescents – Boys and Girls
d) Nutritional Requirements Elderly
e) Nutritional Requirements Pregnant and Lactating Mothers

Unit V–Cooking Methods and Preservation: 15

a) Cookery Rules, Principles and Methods of Cooking
b) Importance of Nutrients Preservation and World Health Organization (WHO) 10 Golden Rules for Food Preservation
c) Methods of Food Preservation
c) Safe Food Handling
d) Storage of Food

Unit VI – Food Commodities (Concept, Definition and its Effect on Health): 15

a) Convenience Food
b) Fast Food
c) Commercially Packed Food
d) Functional Food
e) Food Supplements

Unit VII – Food Additives, Adulteration and Toxicity: 15

a) Definition of Food Additives and Its Classification
b) Definition of Adulterations and Hazards from Food Adulteration
c) Food Toxicity – i) Naturally Occurring Toxins in Some Foods
ii) Bacterial Toxins
iii) Mycotoxins

Practical: 35

1) Demonstration of food lab 3
2) Introduction of lab's rules and regulation and equipments 3
3) Commonly used terms on cookery 3
4) Weight and measurements different food commodities 6
5) Food preparation and understanding the principles involved in quality and portion size of following food items: 15
a) Beverages – Hot and cold
b) Cereals – Any two items
c) Meat/Fish/Poultry – One dish
d) Egg – Egg Items (Boiled, Poached, Fried, Scrambled, Omelets and Egg Pudding)
v) Vegetables – i) Green leafy vegetables
ii) Other vegetables
6) Detection of adulterants in cereals, pulses, tea, coffee, ghee, milk and spices 5

Method of Teaching:

1) Lecture
2) Laboratory and Practical
3) Power Point Presentation

References:

Department of Food Technology and Quality Control (2017). *Nepalese food composition table*, 3rd edition. National Nutrition Program, Ministry of Agricultural Development, Government of Nepal, Babarmahal, Nepal.

Gopalan C B V, Ramashastri and Balasubremaniam S C, (2000). Revised an updated by B.S. Narasing Rao, Y.G. Deosthale and K.C.Pant: *Nutritive value of Indian foods*, National Institute of Nutrition, Hyderabad, India.

Joshi A. S, (2010). *Nutrition and dietetics* (with Indian case study), 3rd edition, Tata McGraw Hill Education Pvt. Ltd. New Delhi.

Marie A. Boyle and Diane H. Morris "*Community nutrition in action*" An entrepreneurial approaches, West Publishing Company, 1994.

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Pradhan Jaya " *Poustikahar swostha jivan*" (Nutrition for Healthy Life) Jagaran Prakashan Pvt. Ltd., 2008.

Swaminathan M, (2003). *Handbook of food and nutrition*. Fifth edition; The Bangalore Printing & Publishing Co. Ltd.,

Course Title: Fundamentals of Human Development and Family Study

Level: B.A. 1st Year
Home Science (Code No.): 422

Full Marks: 100
Theory: 70
Internal & Practical: 30
Teaching Hours: 150

Course Description

Human development is defined as one of the branch of Home Science which is concern with development of life span .It deals with all aspect of development from prenatal development to old age .This course give practical and theoretical knowledge about various stages of human development and family relation.

Course Objectives:

After the completion of this course the students will be able to:

- know about prenatal ,infancy and childhood development.
- understand about important aspects of Adolescence and adulthood.
- understand the problems and their adjustment during old age.
- develop awareness about development during the life span of an individual.
- Perceive the importance of family and the community.
- know about child right , child labor ,girl trafficking and street children.

Unit I - Introduction **17**

a) Human development and family study Concept, Need and Scope.
b) Methods of child study: Interview, Observation, Case Studies, Psychological test & Intelligence (in brief).
c) Growth and Development- Definition , Principles , Related factors
d) Need to study development through the life cycle.

Unit II- Prenatal, Infancy and Childhood **18**

a) Pre-natal period: Prenatal development, overview of birth process and complications. Conditions affecting pre-natal development, Hazards during pre-natal development (Physical and Psychological hazards).
b) Infancy: Physical changes, Languages development, Social and Emotional development and cognitive/ intellectual development and milestone of infancy.
c) Early childhood and Middle childhood: development tasks and milestones, Orientation to pre-school education and significance.
d) Children with special needs & Organizations working for welfare of children.

Unit III -Adolescence and Adulthood **16**

a) Adolescence Definition and Characteristics,
b) Problems of adolescence-drugs and alcohol abuse, psychological breakdown, STD's, AID's and Teenage pregnancies.
c) Adulthood: Definition and Characteristics.

d) Adjustments in adulthood- Marital and Parenthood Adjustments. Menopause and Andropause.

Unit IV- Girl Child **16**

a) Socio economic environment
b) Existing situation of girl child of Nepal
c) Girl trafficking in Nepal (history and role of Maiti Nepal)
d) Special education program for girl child of Nepal(in remote area)

Unit V - Convention of the Right of the Child (CRC) **16**

a) Concept and definition of Convention of the Right of the Child
b) Key fundamental principles - Survival , Protection, Development and Participation
c) Nepal initiatives in the right of CRC
d) Street children and child labor

Unit VI- Advanced Family Studies **16**

a) Overview of Family Theories and function of family.
b) Existing family theories, their assumptions, values, and applications.
c) Changing families in a changing world ,changing role of father
d) Existing family problem in Nepalese society and reconstructing family
e) Multicultural (racial, ethnic, social) families.

Unit VII- Old Age **16**

a) Old age: Definition, Characteristics of old age.
b) Situation and Problems of senior citizens and intergenerational conflict with Senior citizens in Nepal
c) Senior citizens: Managing old age -Preparation and coping strategies to adjust in family and society.
d) Government plan and policies for welfare of senior citizens in Nepal. Role of NGOS, INGOS and Stakeholder for better life of Senior citizens.

Unit VIII - Practical: **16**

1) Report writing (related to Early childhood development/ old age/girl trafficking).
2) Growth chart (sample preparation).
3) Low cost teaching learning materials for pre scholar (at least 2).
4) Developmental mile stone (sample record file age group-2 to 5 years).

Method of Teaching:

1) Lecture
2) Field Visit Report Writing
3) Power Point Presentation

References:

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Bee,H,& Boyd,D.(2002).Life span Development.Allyan & Bacon:Boston.

Berk E.- *Infants, Children, and Adolescents,http://www.obacom.com/ie/berk/wip004a.htm .2010.*

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Hurlock,E.B.(2002).Development Psychology (5th ed).Tata Mc GRawHill Pub: New Delhi.

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Suriyahanth. A Child Development Kavitha Publications, Gandhi Gram Tamilnadu.

Swaminathan, M . (1998) . The first five years: A critical perspective on early childhood care and education in India. New Delhi: Sage publication

Human Development (ninth edition)Diana E.Papilla , Shallywendkosolds,

Ruth Dusk in Feldman:Tata McGraw-Hill 2005

Course Title: Textile Science and Apparel Design

Level: B.A. 2nd Year
Home Science (Code No.): 423

Full Marks: 100
Theory: 70
Internal Marks & Practical: 30
Teaching Hours: 150

Course Description:
This course provides basic knowledge on types and properties of fibers, fabric finishing and weaving. It is also designed to give knowledge and skill on the selection of various fabrics according to occasions. In addition, it also provides knowledge on tradition customs of different ethnic groups, fashion cycle and dress designing.

Course Objectives:
After completion of this course the students will be able to:

- Explain classification, characteristics and sources of textile fibers.
- Define fabric finishing, its types and properties.
- Identify different types of weaving.
- Select materials for clothing considering.
- Explain traditional customs, fashion cycle and dress designing.
- Define and use the different basic terminologies used in clothing construction.
- Take body measurement accurately in metric system.
- Sketch human body in different modes.
- Draft, cut and construct different dresses (garments) as mentioned in the curriculum.

Course Contents:

Unit I – Fiber and Textile **20**

a)Introduction and Properties of Fiber.
b) Definition of Textile and Classification of Textile Fibers:
  i) Natural Fiber and Its Types
  ii) Artificial or Man-made Fiber and Its Types
  iii) Function of Clothing

Unit II – Fabric Finishes **15**

a) Basic– Beatling, Shearing, Sizing, Tentering, Sanfronising, Bleaching, Calendaring, and Mercerizing.
b) Texturing – Embossing, Moiring, Napping and Crepe Effect.
c) Functional – Water Resistant and Repellent, Flame Retardant, Soil and Stain Resistant, and Crease Resistant.
d) Dying and Printing:
  i) Types of Dyes, General Theory of Dying, Tie and Dye, and Batik.
  ii) Difference between Dying and Printing – Block Printing, Roller Printing, Screen Printing and Stencil Printing.

Unit III – Weaving **15**

a) Definition of Weaving and Characteristics of Woven Fabrics
b) Types of Weaves - Basic Weaves - Plain Weave, Rib Weave, Basket Weave, Twill Weave, Satin And Sateen Weave; Fancy Weaves – Surface Figure Weave, Spot Weave, Swivel Weave, Lappet Weave, Pile Weave- Weft Pile, Warp Pile (Cut and Uncut), Leno Weave, Double Weaves, and Jacquard.

Unit IV – Material Selection **15**

a) Selection of Material for Clothing Considering:
i) Daily Activities or Home Wearing
ii) Occupation
iii) Season
iv) Age
v) School/College
vi) Sport
vii) Party Dress

b) Selection of Color, Design, Texture in Clothing Material According to:
i) Complexion
ii) Season
iii) Occasion
iv) Time
v) Fashion
vi) Age
vii) Figure Type

Unit V- Traditional Costumes of Different Ethnic Groups in Nepal **10**

a) Concept of Traditional Costumes.
b) Significance of Traditional Costumes
c) Transformation Traditional Costume into Modern Trend

Unit VI - Fashion **10**

a) Introduction of Fashion Designing, Significance of Fashion
b) Concept of Fashion Designing - Design as Process and Design as Product, Design Level - Macro Design and Micro Design, Product and Process – Creativity, Society and Environment
c) Reasons or Change in Fashion
d) Role of Fashion Designer

Unit VII –Fashion Cycle **15**

a) Fashion Development
b) Fashion Cycle
c) Adopting of Fashion - Trickledown Theory (traditional fashion adoption), Trickle Up the Theory or Bottom Up Theory
d) Factors that Tend to Work against Fashion Change Reason or Change in Fashion
e) Fashion Selection

Unit VIII- Dress Designing **15**

a) Principles of Costume Design and Figure Type

b) Fitting Problems;

i) Principle of Alteration

ii) Method of Alteration

c) Nomenclature of Dress

d) Basic Terminology used in Clothing Construction – Grain Line, Bias, Backing, Selvedge, Fraying, Warp, Weft, Clip, Slash, Lay out, Seams, Pleats, Placket Opening and Facing.

Practical: **35**

1) Identification of Fibers: 3
   -Burning Test
   -Microscopic Test
2) Seams: Basic and Decorative Stitches (Make a Handkerchief using minimum 5- Decorative stitches). 3
3) Making samples of Gathers, Pleats, Darts, Piping and Placket Opening. 4
4) Sketching of Human Figure (Male and female).
5) Make a Draft and Prepare a Dress. 20
6) Follow the Following Steps – Measurement, Pattern Construction, Pattern Designing, Pattern Layout, Cutting, Preparation.
7) Dress Making – Blouse, Tops and Kurta Salwar (According to Fashion)
8) Field Visit (Handloom Industry)
9) Prepare and Submit a File. 5

Methods of Teaching:

1) Lecture
2) Laboratory
3) Project Work
4) Power Point Presentation
5) Demonstration

References:

Abling Bina, (2005). *Fashion sketchbook*, fourth edition, published in India by Book International.

Glock E. Ruth, Kunz d1, Grace,(2005). *Apparel manufacturing Sewa product analysis*, Fourth Edition. Published by Dorling Kindersley (India) Pvt Ltd licenses of Pearson Education in South Asia.

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Lafuente Maite, Quantino Santos Danida, (2007). *Fashion illustration flat drawing* Published by Auther Printed in China.

Course Title: Fundamental of Resource Management

Level: B.A. 2nd Year
Home Science (Code No.): 424

Full Marks: 100
Theory: 70
Internal Marks & Practical: 30
Teaching Hours: 150

Course Description -
This course deals with the management of resources in the family particular references for achieving the family goals. It also deals with the family housing needs and interior decoration based on the principles and elements of art.

Course Objectives:

- To create on awareness among the students about management in the family as well as the other system.
- To recognize the importance of wise use of resources in order to achieve goals.
- To understand the family has needs and factors affecting selection and purchases of site for house building.
- To understand various element and principles of art used in the interior decoration.

Unit I- Home Management **18**

a) Concept and Role of home management.
b) Basic knowledge about home management process, planning , scheduling, execution, controlling and evaluation.
c) Factors motivating home management.
d) Goals- definitions, types, utility.
e) Decision- role of decision making in management.

Unit II- Management of Family Resources **17**

a) Meaning
b) Types Human and Non Human Resources
c) Decision making regarding family resources.
d) Affecting factors.

Unit III - Time Management **16**

a) Meaning
b) Work management
c) Affecting factors
d) Preparation of time plans for self and family

Unit IV - Money Management **16**

a) Income and Expenditure

b) Supplementary Income
c) Budget
d) Saving

Unit V- Household Work Management **16**

a) Work simplification
b) Latest Household appliances and utility
c) Simplification of Household work
d) Division of work

Unit VI - Housing **16**

a) Concept of Home - types
b) Family housing needs- Protective, economic and social.
c) Factors effecting selection and purchase of site for house building- legal
d) Aspects, location, physical features, soil conditions, cost, service.
e) Arrangement of rooms and kitchen.

Unit VII - Interior Decoration **16**

a) Home and Furnishing
b) Design -Decoration and structure
c) Color- properties and classification
d) Furniture- types, styles and arrangement

Unit VIII – Practical: **35**

1) Color chart preparation 15
2) Flower arrangement 10
3) Floor plan 10
4) File preparation of all practical work

Methods of Teaching:

1) Lecture
2) Power Point Preparation
3) Practical

References:

Anderson, E. (1976). Home appliances servicing. Taraporwalasons &Co.Ltd.Bombay.
Cascio Wayne, F.(1985).Managing Human Resources, McGraw Hill Book Co,NewYorK Conceptual approach , Tata McGraw Hill, New York.
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Mirza Saiyadin (1988) Human Resource Management : An Approach,NewDelhi.
Nickle. P. Dorsey, J.M.(1970)Management in family living, sterling Publishers.

Course Title: Nutritional Biochemistry and Microbiology

Level: B.A. 3rd Year
Home Science (Code No.): 425

Full Marks: 100
Theory: 70
Internal Marks & Practical: 30
Teaching Hours: 150

Course Description:
This course is designed to provide basic knowledge on digestion, absorption and metabolism of carbohydrates, proteins, fats, vitamins and minerals. It also deals with energy metabolism, chemical composition and pH value of different food groups. In addition, it also provides knowledge about micro-organisms and their applications in foods, food preservation, food poisoning, infection, sanitation and hygiene.

Course Objectives:
After completion of this course the students will be able to:

- Explain the chemical composition, classification and metabolism of carbohydrates, proteins, fats, vitamins and minerals.
- Describe the importance, functions, sources water and water balanced.
- Understand about the oxidation of foods, energy metabolism and calculation for calorie requirement.
- Describe the chemical composition and pH value of foods.
- Explain about micro-organisms and their applications in foods.
- Understand Physical and chemical Preservation, and different preservatives.
- Understand the causes of microbial food poisoning, food infection and take precautions for sanitary handling of foods.

Course Contents:

Unit I– Nutritional Biochemistry 20

a) Digestion, Absorption and Metabolism of Carbohydrates.
b) Digestion, Absorption and Metabolism of Proteins.
c) Digestion, Absorption and Metabolism of Lipids.
d) Digestion, Absorption and Metabolism of Vitamins.
e) Digestion, Absorption and Metabolism of Minerals

Unit II– Water 10

a) Functions of Water
b) Sources of Water
c) Water Balanced and Effects of Dehydration
d) Electrolytes

Unit III - Energy Metabolism 15

a) Oxidation of Food
b) Measurement of Energy and Basal Metabolism

c) Calculation for Calorie Requirement

Unit IV - Chemical Composition and pH Value of Foods 15

a) Chemical Composition of Some Important Foods - Milk, Fish, Cereals, Pulses, Vegetables and Fruits.
b) pH and Buffers - Acidity and Alkalinity Functions and Their Importance.

Unit V - Micro-organisms and Their Applications in Foods 15

a) Fermentation - Making Bread, Alcohol Beverages, Milk Products – Cheese
b) Acid Fermented Cereals, Vegetables, Soya Sauces

Unit VI - Food Preservation 15

a) General Principles of Preventing Micro-organism in Foods
b) Physical Preservation - Drying, Refrigeration, Home Canning and Smoking.
c) Chemical Preservation- Use of Chemicals such as Sodium Benzoate, Sulfur Dioxide, Sodium Nitrate, Sodium Chloride and Use of Spices, Fats and Oils.

Unit VII - Food Poisoning and Food Infection 10

a) Botulism Food Poisoning
b) Staphylococcal Food Poisoning
c) Salmonella Food Infection
d) Speeds of Communicable Diseases through Food

Unit VII – Food Sanitation and Hygiene 15

a) Definition and Objectives of Food Sanitation
b) Water – Potable Water, Sources of Contamination of Water and Treatment of Water
c) Food - Pesticide Residue, Food Contamination, Food handling, and Control of Insects and Rodents

Unit VIII - Practical **35**

1) Glucose sugar test and blood group test 5
2) pH test 2
3) Preparation of buffers 5
4) Study and identify slides of Yeast, Rhizopus, Penicillium, Aspergillus and Mocor.
5) Cultivation of micro-organisms of different foods mediums such a bread, egg, and meat. 13
6) Identify and draw a well labeled diagram of different micro-organisms as seen under microscope. 5
7) Prepare and submit the file. 5

Method of Teaching:

1) Lecture
2) Laboratory and Practical
3) Power Point Presentation

References:

B Srilakshmi (2017).*Food Science* (Multi Color Edition); 7th edition. New age internal publisher.

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Sharma D.C. and Sharma Devanshi, (2017). *Nutrition biochemistry*. C&S Publisher and Distributor Pvt. Ltd.

Trueman Patricia (2019). *Nutritional Biochemistry*; 1st edition. MJP Publishers, India.

William C. Frazier, Dennis C. Westhoff and N.M. Vanitha (2017). Food microbiology; 5th edition. McGraw Hill Education (India) Pvt. Ltd. ISBN -10:1-25-906251-3.

Course Title: Community Nutrition and Public Health Issues

Level: B.A. 3rd Year
Home Science (Code No.): 410 (Elective)

Full Marks: 100
Theory: 70
Internal Marks & Practical: 30
Teaching Hours: 150

Course Description:
The course is designed to provide knowledge on nutrition issues regarding under-nutrition and over-nutrition. The students will acquire knowledge about the various methods of nutritional assessment, importance of nutrition education and responsibilities of nutritionist. It also covers food security, polices and programs of nutrition.

Course Objectives:
After completion of this course the students will be able to:

- Understand about the nutritional problems both under-nutrition and over-nutrition.
- Explain the importance of nutritional intervention and strategies for improving nutrition.
- Describe various nutrition policies and programs for Prevention - Anemia, Vitamin A Deficiency, and Iodine Deficiency Disorder.
- Understand the concept of food security and its consequences.
- Understand nutritional assessment and develop skill to assess nutritional status.
- Explain balanced diet and diets during a normal life cycle.

Unit I –Nutritional Issues 20

a) Nutrition Problems – Causes and Consequences of Malnutrition in Nepal.
b) Prevalence of Nutritional Problems, Clinical Features and Preventive Strategies of:
i)Under- nutrition - Protein Energy Malnutrition: Server Acute Malnutrition and Moderate Acute Malnutrition, Nutritional Anemia's, Vitamins A Deficiency, Iodine Deficiency Disorders.
ii) Over -nutrition - Obesity, Coronary Heart Disease, and Diabetes.

Unit II – National Nutrition Policies and Programs 15

a) National Nutrition Policies.
b) Integrated Child Development Services (ICDC) Scheme, National Programs for Prevention - Anemia, Vitamin A Deficiency, and Iodine Deficiency Disorder.
c) Current Nutrition Programs for Improving Nutrition and Health Status of the Community.

Unit III - Food Security in Nepal 10

a) Definition and Background of Food Security.
b) The Causes and Consequences of Food Security.
d) Food Security.– Intra-household Food Distribution.

Unit IV - Public Health Nutrition 20

a) WHO Definition of Health, Basic Concept of Disease and Disease Transmission.
b) Concept of Immunization and Immunization Schedule.

c) Communicable Diseases - Causative organism, Mode of Transmission, Prevention and Control of Tuberculosis , Enteric Fever, Dengue Fever, HIV/AIIDS.
d) Maternal Health - Antenatal Care, Family Planning and Contraception.
e) Determinants of Birth Weight and Consequences of Low Birth Weight
f) Roles and Responsibilities of Nutritionist

Unit V: Fundamentals of Epidemiology in Nutrition **15**

a) Definition and Scope of Epidemiology, Health and Nutritional Epidemiology.
b) Definitions of Commonly Used Epidemiological Indicators like Crude Death Rate, Infant Mortality Rate, Under 5 Mortality, Birth Rate, Fertility Rate, and Maternal Mortality Rate.
c) Status of Micro-nutrient Deficiencies in Mothers and Children as Per Latest Surveys.

Unit VI- Balanced Diet and Nutrition during Normal Life Cycle **20**

a) Definition of Balanced Diet.
b) Diets during a Normal Life Cycle – Pregnancy, Infancy, Childhood, Adolescence and Adulthood.
c) Nutrition for the Aging and Complications Commonly Occurring in Late Adulthood.

Unit VII- Nutritional Assessment **15**

a) Definition and Objectives of Nutritional Assessment.
b) Methods of Assessment:
   i) Direct- Anthropometric Measurement, Bio-chemical Tests, Clinical Report and Dietary Survey.
   ii) Indirect Survey.

Unit VIII – Practical **35**

1) Measuring heights and weights of own in order to identify Body Mass Index (BMI), and Waist Hip Ratio. 5
2) Measuring heights, weights, arm circumference, chest circumference, and head circumference of infants and children under- 5 years and compared with standard references to determine the nutritional status. 5
3) Field visit – Nutritional assessment using appropriate nutritional assessment tools in community and report writing (Individual). 15
4) Prepare nutritional educational Material. 5
3) Power Point Presentation (Group). 5

Method of Teaching:

1) Lecture
2) Laboratory and Practical
3) Field Visit and Report Writing
4) Power Point Presentation

References:

Chadha R and Mathur P(2015). Nutrition: A Lifecycle Approach. Orient Blackswan.

Dietary Guidelines for Indians (2011). Dietary guidelines for Indians: A manual (2nd ed.) second edition , NIN.

Gopalan C B V, Ramashastri and Balasubremaniam S C, (2000). Revised an updated by B.S. Narasing Rao, Y.G. Deosthale and K.C.Pant: *Nutritive value of Indian foods*, National Institute of Nutrition, Hyderabad, India.

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Lillian Langseth (1996). Nutritional Epidemiology: Possibilities and Limitations.New Delhi.

M. Swaminathan, D.Sc.," *Handbook of Food and Nutrition"* Publishes by The Bangalore printing and Publishing Co., LTD.2003.

Marie A. Boyle and Diane H. Morris "*Community nutrition in action"* An entrepreneurial approaches, West Publishing Company, 1994.

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Park K (2011). Park's Textbook of Preventive and Social Medicine, 21st Edition. M/s BanarasidasBhanot Publishers, Jabalpur, India.

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R Bonita, R Beaglehole, T Kjellström,(2006). Assessment with special reference to less technically developed countries. Oxford Basic Epidemilogy, 2nd Edition , WHO.

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Wadhwa A and Sharma S (2003). Nutrition in the community-A Textbook. Elite Publishing House Pvt. Ltd. New Delhi.

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Course Title: Basic Concept and Approaches on Early Childhood Development

Level: B.A. 3rd Year
Home Science (Code No.): 41 D(Elective)

Full Marks: 100
Theory: 70
Internal Marks & Practical: 30
Teaching Hours: 150

Course Description:

The 0-8 years of child's life are crucial in relation to development. This period is foundation of life in human development. it has been proven that the brain cells start to develop during three and half inside the fetus and almost is completed within five years of life. Early childhood education and development is very important study for the future of children and also important for parents, family, society and nation. Holistic approach is considered the principle pillar of foundation for human development. The future of an individual is reflected in the developmental pattern of her/his early childhood stage.

This course deals with about the conceptual and applied knowledge of Early Childhood Education (ECE) and Early Childhood Development (ECD) program in Nepal. The overall objective of this course is to produce the ECD facilitator by providing knowledge and skills on the related areas

Course Objectives:

After the completion of this course, the students will be able to:

- Understand the clear concept and importance of Early Childhood development and its importance and its impact on latter development.
- Technically know the growth and developmental milestone of young children.
- Have knowledge on how to keep infants young children healthy and provide safe environment.
- Run Preschool/ECD centers by themselves.
- Work as Early Childhood Development Center (ECDC) facilitator in pre primary schools.
- Work as program coordinator / expert in child concern issues and areas and guide supervise.
- Guide and supervise young children in early childhood programs
- Develop techniques and tools to monitor and evaluate various methods of ECD program run by GOS and NGOS in Nepal.

Unit I- Early Childhood Development **18**

a) Meaning and Importance.
b) Objectives of ECD, ECE and ECC.
c) Types of ECD centers and Principles of ECEC.
d) Concept of day care center - Holistic Approach.

Unit II -Management of Preschool/ECD Centers **16**

a) Current issues in ECD program.
b) Existing situation of ECD programs in Nepal, GOs , INGOs and NGOs working in areas of ECD.
c) Management of learning center (pre schools and ECD centers).
d) Government plan and policies and curriculum for ECD.

Unit – III Milestone of Development (up to 5 years) **16**

a) Physical and Social.
b) Emotional.
c) Cognitive and language.
d) Tools and techniques to check physical, social, emotional ,cognitive and language development of child.

Unit –IV Environments of ECD Center / Pre School **16**

a) Minimum standard of Preschool/ECD centers
b) Stimulating Learning environment for holistic development
c) Classroom arrangement and thematic approaches
d) Monitor and evaluation of various of ECD program

Unit- V Child Safety **16**

a) Common accidents and safety for children at preschool/ ECD centers and home
b) Sanitation and cleanliness
c) Health concern -eating behavior, exercise, recreation, rest and sleep
d) Child Right and child abuse

Unit- VI Role of Play for Development of Children **17**

a) Play - Types and importance of play in child's holistic development(physical, motor, language, social, emotional, cognitive and creative)
b) Advantages of play and selection of toys.
c) Storytelling and importance.
d) Role of music and dance for the development of children

Unit- VII Role of Family **16**

a) Family environment and parental education /parenting.
b) Effect of family relation in child's development.
c) Parental participation.
d) Parent teacher relation.

Unit VIII – Practical **35**

1) Study of children for growth monitoring (basic-height and weight) at least two children (one boy and one girl) in a pre-school/ ECD center. 15
2) Low cost educational/playing materials at least two. 10
3) Developing tools to check children's (3-5 years) physical, motor, language, social, emotional, cognitive development. 10

Methods of Teaching:

1) Lecture
2) Field Visit of ECD Center/Pre-school
4)Report writing

References:

Bee,H,& Boyd,D.(2002).*Life span development*.Allyan & Bacon:Boston.

Chaube,S.P.(1996).*Child psychology*,Lakshmi Narain Aggarwal,Publication Agra,

Crain William,(2010) (6th ed).Theories of Human Development:Concepts and Applications,Prentice Hall Publications:New Jersey.,

Devdas,R.P.and Jay N.A (1989).*Text book on child development*, Mcmillan:India Length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass indexfor-age (http://www.who.int/childgrowth/standards/en/).

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Rajammal P. Jaya. *A text book on child development* .Macmillan Indian Limited ,Delhi India

Course Title: Human Physiology

Level: B.A. 4th Year
Home Science (Code No.): 426

Full Marks: 100
Theory: 70
Internal Marks & Practical: 30
Teaching Hours: 150

Course Description:
This course is designed to provide basic knowledge on structure and function of the body organs and various physiological systems. The course then follows with a study of the six systems of the human body: how they function, both alone and also how they interact with the other systems.

Course Objectives:
After completion of this course the students will be able to:

- Explain the structure and function of the human body.
- Understand the physiology of the digestive, circulatory, respiratory and excretory systems and various organs involve in these systems conceptualize them to their location within the body and to their relationship with other organs.
- Describe the terminology used in different systems.
- Understand the function of sensory organs.
- Identify the different parts of body organs.

Course Contents:

Unit I – Anatomy of the Human Body 20
a) An Introduction to the Physiology of the Human Body
b) The General Build of Human Body.
c) Structure and Function of Animal Cell, Simple Tissues, Joints, Ligaments, and Cartilages.

Unit II – Skeletal System 15
a) The Important Functions of the Skeleton
b) Type of Skeletons.

Unit III – Digestive System **15**
a) The Process of Digestion.
b) Alimentary Canal.
c) The Liver, pancreas and Spleen.
d) The Ductless or Endocrine Glands.

Unit IV – Blood Circulatory System 20
a) Anatomy of Heart.
b) Composition and Functions of Blood.
c) Blood Vessels, Lymph and Lymphatic Vessels.

Unit V –Respiratory System 15
a) Organs of Respiration.
b) Mechanism of Respiration.
c) Differences between Pure and Respired Air.

Unit VI – Excretory System 10
a) Anatomy and function of Kidney.
b) Composition of normal urine.
c) Mechanism of urine formation.

Unit VII – Nervous System (Definition Only) 10
a) Central Nervous System – Brain, and Spinal Cord.
b) Peripheral Nervous System.
c) Autonomic Nervous System

Unit VIII – Sensory Organs 10
a) Eye
b) Ear
c) Tongue
d) Skin
e) Nose

Unit XI - Practical 35
1) Identify and draw well labeled diagram of different bones of human body. 5
2) Sketching and drawing of cell, digestive, circulatory, respiratory, excretory organs. 20
3) Slide Presentation in group. 5
3) Submit the prepared file (Individual). 5

Method of Teaching:
1) Lecture
2) Laboratory
3) Power Point Presentation

References:

Adolf Faller; Michael Schünke; Gabriele Schünke; Ethan Taub, M.D,(2004). *The human body: An introduction to structure and function*. Thieme. ISBN 978-1-58890-122-4.

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Course Title: Research and Academic Writing
Level: B.A. 4th Year
Home Science (Code No.): 427

Full Marks: 100
Theory: 70
Internal & Practical: 30
Teaching Hours: 150

Course Description:
This course is designed to impart basic knowledge on social research, types of research, research methods used in nutrition and child development, components of research, data collection tools and techniques. It also deals with the components of proposal writing and academic writing.

Course Objectives:
After completion of this course the students will be able to:

- Explain the importance of social research.
- Understand the types of research and its application.
- Apply the components of research.
- Use data collection tools and techniques
- Understand the importance of proposal writing and its components.
- Enable to write academic report.

Course Contents:

Unit I – Scope of Social Research **15**
a) Definition and Objective of Social Research.
b) Research Methods used in Food and Nutrition, and Child Development with Specific References
c) Science, Scientific Methods and Scientific Approach to Research

Unit II - Types of Research **15**
a) Fundamental, Applied and Action Research
b) Qualitative and Quantitative Research
c) Historical, Survey, Field Study, Intervention Study, Experimental Study, Case Study, Longitudinal and Cross Sectional Studies etc.
d) Interviews, Informal Individual and Group Discussion, Home Visits, Observation.

Unit III – Components of Research **20**
a) Literature Review
b) Selection of Research Area
c) Significance
d) Research Design - Basic principles, Purpose, and Components.
e) Formulation of Hypothesis/Research Questions and objectives
f) Limitations and De-limitations of the Problems
g) Types of Variables

Unit IV - Data Collection Tools and Techniques **15**

a) Sampling
   i) Population and Sample
   ii) Probability Sampling: Random, and cluster- Sampling
   iii) Non-probability Sampling: Purposive, Quota and Snowball Sampling

b) Tools and Technique of Data Collection
   i) Informal and Focused Group Discussion
   ii) Interview
   iii) Questionnaire
   iv) Cumulative
   v) Observation
   vi) Home Visits
   vii) Scaling Methods
   viii) Social Mapping
   ix) Projects Techniques

Unit V - Data Analysis and Presentation **15**

a) Data Analysis and presentation: Statistical, graphical, content analysis
b) Discussion, Conclusion and Recommendation

Unit VI - Proposal Writing **15**

a) The Components of Proposal Writing – Title and Abstract.
b) Introduction -Background of the Study, Statement of the Problem, Significance of the Study, Research Questions, Objectives of the Study (General Objective and Specific Objectives).
c) Review of Literature - Global / South Asian /Regional and National
d) Research Methodology - Research Design, Study Area, Study Population and Sample Size, Sampling Method, Data Collection Techniques, Data Analysis, Ethical Consideration, Limitation of the Study, Conceptual Framework and Operational terms.

Unit VI - Academic Writing and Presentation **20**

a) Research and Academic Writing (including abstract)
c) Listing of References/Bibliography and Appendices

Unit VII – Practical: **35**

1) Case study- Topic selection	5
2) Research study using at least one data collecting tool.	5
3) Proposal writing	10
4) Academic Report preparation and submit to concern teacher	10
5) Slide presentation	5

Methods of Teaching:

1) Lecture
2) Field Visit
3) Group discussion
4) Workshop

5) Power Point Presentation

References:

Ackroyd, S. (2009). 'Research Designs for Realist Research', in D. Buchanan and A. Bryman (eds), Handbook of Organizational Research Methods. London: Sage.

Bandakar,P.L.and Wilkinson,T.S., (2000).*Tethodology and techniques of social research*,Himalaya Publishing House,Mumbai.

Bernard,H.R., (2000). S*ocial research methods: qualitative and quantitative approaches*,Thousand Oaks California,Saga Publications.

Bryman A, (2012). *Social research method*, 4th edition. Published in the United States by Oxford University Press Inc., New York.3 Great Clarendon Street, Oxford OX2 6DP. ISBN 978–0–19–958805–3.