

SYLLABUS

**BACHELOR
OF
HOME SCIENCE
(Full fledged)
(BHSc)**

AS PER NEW REGULATION

(2018-19)

BACHELOR OF HOME SCIENCE(BHSC)

SEMESTER	TITLE OF THE PAPER	PAPER CODE
I	PAPER 1.1 : HUMAN PHYSIOLOGY	BHSC101
	PAPER 1.2 : APPLIED CHEMISTRY	BHSC102
	PAPER 1.3 : HUMAN GROWTH AND DEVELOPMENT (PART- I)	BHSC103
	LANG-I : ENGLISH (BASIC)	
	LANG-II : ADDITIONAL ENGLISH / ಅವಶ್ಯಕ ಕನ್ನಡ / HINDI	
	INDIAN CONSTITUTION	
	II	PAPER 2.1 : MICROBIOLOGY
PAPER 2.2 : FIBER TO FABRIC		BHSC202
PAPER 2.3 : HUMAN GROWTH AND DEVELOPMENT (PART- II)		BHSC203
LANG-I : ENGLISH (BASIC)		
LANG-II : ADDITIONAL ENGLISH / ಅವಶ್ಯಕ ಕನ್ನಡ / HINDI		

BACHELOR OF HOME SCIENCE

SEMESTER I

PAPER 1.1 : HUMAN PHYSIOLOGY (4 + 1)

Subject code	BHSC101	Theory exam	Theory paper	60 marks
No of lectures /week	4 hrs		Internals	10 marks
Total no of lectures	52 hrs		Exam duration	3hrs
		Practical Exam	Internals	10 marks
			Final practical	20 marks
			Exam duration	3hrs

OBJECTIVES:

1. To gain knowledge of the structure and physiology of human body.
2. To understand the relationship between human physiology and health.

THEORY:

52 Hrs

Unit I

Cell Structure. Tissues of human body: Epithelial , connective , muscular, nervous.

Muscles and bones: composition, properties and functions

Blood: Composition and functions, coagulation, blood grouping and transfusion **18 hrs.**

Unit II

Circulatory system: Heart structure and functions, cardiac cycle, Functional tissue of heart. Blood pressure and its regulation .Lymphatic circulation and functions. **4 hrs**

Unit III

Digestive system-anatomical organization of digestive tract and process of digestion, absorption and assimilation of food. Respiratory system- Brief anatomy of respiratory system. Process of respiration mechanism and regulation of breathing. Measurements of Lung capacities Artificial respiration **12 hrs.**

Unit IV

Excretory system-structure and function of excretory organs, formation and composition of urine & sweat. Endocrine system- function of hormones, effects of hypo and hyper secretions. **6 hrs.**

Unit V

Reproductive system- Anatomy of male and female reproductive organs. Menstruation- definition, cycle and phases, contraception. Central nervous system- physiology of nerve cell, parts of central nervous system and function. Sense organ-structure and functions of eye, ear, nose, tongue, and skin. **12 hrs**

PRACTICAL:	No of Practicals - 14
1. Identification and study of slides.	2
2. Study of blood cell-fresh mount and stained. RBC and WBC Count using Neubaur's counting chamber.	2
3. Determination of haemoglobin Sahli's method.	2
4. Determination of blood groups.	1
5. Determination of coagulation time, bleeding time of blood.	1
6. Reading of pulse rate, body temperature.	1
7. Measurement of blood pressure at normal conditions and during exercise using sphygmomanometer.	1
8. Sensory tests.	1
9. Demonstration of different reflex actions in man.	1

Model question paper (Practicals)

Total marks – 10+20

1. Internals – 10(practical record)
2. Answer the following - 06
3. Identification of slides - 06
4. Experiment -08

BOOKS AND REFERENCE:

1. Best C.H. and Tylor N.B." living body" Asia publication house, Bombay (latest edition).
2. Kutty Mahaavan K., "An introduction to human physiology" Kerala educational and cultural Academym Trivendrum.
3. Chatterjee, C.C. and Banerjee, "Human Physiology",vol 1&2, Books and Allied pvt., Ltd., Calcutta(latest edition).

BACHELOR OF HOME SCIENCE
SEMESTER I
PAPER 1.2 -APPLIED CHEMISTRY (4 + 1)

Subject code	BHSC102	Theory exam	Theory paper	60 marks
No of lectures /week	4 hrs		Internals	10 marks
Total no of lectures	52 hrs		Exam duration	3hrs
		Practical Exam	Internals	10 marks
			Final practical	20 marks
			Exam duration	3hrs

OBJECTIVES:

1. To acquire knowledge of physical chemistry and its aspects.
2. To acquire knowledge of organic chemistry and its application to life.
3. To Import the knowledge & applicability of chemistry in industries.

THEORY:

52 Hrs

Unit I

Structure of matter electron, proton and Neutron, their characteristics. Brief outline of Bohr's model of atom.

Radio Activity: radio active elements, alpha, Beta rays and their Properties,

Radio active isotopes, Traces techniques use of radio active carbon, phosphorus, calcium Iodine and sulphur in biochemical investigations. Solutions: Solubility – molar and molar – Diffusion, Osmosis, Semi permeable membrane – Selective semi permeable membrane. Permeability cell membrane. Comparison of osmotic Pressures Isotonic isosmotic solutions. Osmotic pressure of blood and saline solution plasmolysis and haemolysis.

12 hrs

Unit II

Colloidal state: True and colloidal solution. Lyophobic and Lyophilic colloids coagulations and protection of lyophobic and lyophilic collides. Hydration of colloidal particles.

Emulsions: Type – Examples, Electrophoresis of proteins. Effect of pH. Dipolar nature of proteins and amino acids, Isoelectric point. Tiselius experiment, Elementary account of Donnan Membrane equilibrium.

Photo chemistry: Absorption and transmission of light, Beer's law – Measurement of optical density of solution.

14 hrs

Unit IV

Unsaturated Hydrocarbons: Ethylene, Acetylene & Butadiene.

Aldehydes: Formaldehyde and acetaldehyde preparation and condensation reactions – Formaldehyde resins.

Mechanism of scouring & bleaching agents.

Polymerisation (a) Synthetic polymer – thermo plastic & thermo setting (b) Synthetic fibre– Nylon

14 hrs

Unit V

Fatty acids – Simple esters and glycerol esters of higher fatty acids, fats and oils composition- hydrolysis – specification and other chemical characteristics. Preparation of soaps and glycerol fatty acids, derivatives and detergents
Proteins Structure (elementary) and classification.

Carbohydrates – Important chemical reactions of Aldoses and ketoses, structure of monosaccharides and disaccharides.

12 hrs

PRACTICAL:

No of Practicals - 14

- | | |
|---|---|
| 1. Solubility of salt at room temperature. | 2 |
| 2. Volumetric analysis (1) permangometry standardization of Permanganate by standard oxalic acid solution.(2) Iodometry titration of hypo solution and iodine solution. | 4 |
| 3. pH determination by comparison. | 4 |
| 4. Soaps & detergents – composition and making test for free alkali. | 2 |
| 5. Scouring & Bleaching application to textiles (cotton, Jute). | 1 |
| 6. Separation of liquid, purification of solids | 1 |

BOOKS AND REFERENCE:

1. Text Book of organic chemistry- Tewari.
2. Text Book of organic chemistry – M.K. Jain
3. Chemistry (Home science) – M. Pattabhi Raman Reddy and W. Vasumathi by Telugu Academy.
4. Text book of physical chemistry.

Model question paper (Practical)

4 hours

Total marks – 10+20

1. Internals – 10
2. Answer the following - 5
3. Bleach the sample - 5
4. Experiment - 10

BACHELOR OF HOME SCIENCE

SEMESTER I

PAPER 1.3 – HUMAN GROWTH AND DEVELOPMENT (PART – I) (4 + 1)

Subject code	BHSC103	Theory exam	Theory paper	60 marks
No of lectures /week	4 hrs		Internals	10 marks
Total no of lectures	52 hrs		Exam duration	3hrs
		Practical Exam	Internals	10 marks
			Final practical	20 marks
			Exam duration	3hrs

OBJECTIVES:

1. To study the principles of child growth and development.
2. To understand the scientific ways of human growth and development.
3. To understand the role of heredity, environment and their effect on development.
4. To know the hazards and behavioral problems.

THEORY:

52 Hrs

UNIT I

Principles of growth and development – definition, meaning, principles.

Role of heredity and environment in growth and development. Stages of growth and development.

10 Hrs

UNIT II

PRENATAL STAGE: Prenatal growth and development. Signs and complications of pregnancy, Potential hazards and remedial measures. Care during pregnancy. **10 Hrs**

UNIT III

Preparation for the arrival of the baby. Child birth process – signs, stages and types of deliveries. Care during puerperium – health and hygiene, diet, clothing and exercise.

Prematurity and low birth weight – causes and management

10 Hrs

UNIT IV

NEONATAL STAGE: Care of neonate, reflexes of new born. Adaptation to the environment. Successful breastfeeding. Infant morbidity and mortality – causes and remedies.

8 Hrs

UNIT V

INFANCY STAGE: Bacterial and viral diseases. Infections and other elements.
Temperamental differences. Physical growth, catch up growth and development. Pattern of gross and fine motor development – influences of nutrition, birth status, prematurity, body build on motor development.
Cognitive abilities – perception, cognition, size constancy, object permanence and sensory – motor stage (Piaget theory). Language development.
Social development – infant attachment, stranger fear, socialization. 14 Hrs

PRACTICAL:

No of Practicals – 14

- | | |
|---|---|
| 1. Conception and pregnancy. | 2 |
| 2. Audio visuals aids/ observation of | 5 |
| a) Signs and complications of pregnancy | |
| b) Stages in labor process | |
| c) Types of deliveries. | |
| d) Preparation of formula & sterilization equipments | |
| e) Reflexes. | |
| f) Management of diarrhea. | |
| 3. Methods of child study. | 2 |
| 4. Assessment of physical, motor and social development during infancy. | 5 |

BOOKS AND REFERENCE:

1. Hurlock E. B. “ Child Development” Mc.Craw Hill & Co., New Delhi (1976).
2. Ruth Strong.“ Introduction to child development” Mc. Graw Hill & Co., New York.
3. Crow L.D. & Grow A.“ Child Development “ Mc Graw Hill & Co., New York.
4. Shri. Sathya Sai Education Publications. “ Human Values Programmes – Booklets”
5. Rear K. H. “ The Nursery School” Oxford & I. B. H. Publishing Co., Calcutta.
6. Papalia. D.E. et al “Human Development” –Tata McgrawHill publishing co Ltd 2005.
7. Nirmala Kher “ An Introduction to child development” Asian Publication House, Bombay.

MODEL QUESTION PAPER (PRACTICAL)

MARKS 10+20

1. Internal – 10
2. Identification/diagram/question-05
3. Answer the following -5
4. Questionnaire preparation/calculation – 10

BACHELOR OF HOME SCIENCE
SEMESTER II
PAPER 2.1 : MICROBIOLOGY (4 + 1)

Subject code	BHSC201	Theory exam	Theory paper	60 marks
No of lectures /week	4 hrs		Internals	10 marks
Total no of lectures	52 hrs		Exam duration	3hrs
		Practical Exam	Internals	10 marks
			Final practical	20 marks
			Exam duration	3hrs

OBJECTIVES:

1. To study the scope of microbiology and role of microorganism in the living world.
2. To understand the dependency of personal health on clear air, water, food and surroundings.

THEORY:

52 Hrs

UNIT I

History and Relevance of microbiology as a modern science, Microbes and origin of life, Contributions of Scientists to the field of microbiology - Antony van Leewenhoek, Edward Jenner, Lazzaro Spallanzani, Louis Pasteur, Joseph Lister, Robert Koch, Alexander Fleming, Iwanowsky, Distribution of microorganisms air, water & soil.

Branches of microbiology:- Medical microbiology, Aquatic microbiology, microbiology of air, Food microbiology. Microbiology of milk, soil microbiology, Industrial Microbiology, space microbiology

Principles of microscopy, Resolving power, numerical aperture, working distance and magnification. Different types of Microscopes - Bright field, Dark field,

General characteristics of microbes: Algae, Protozoa, Fungi, Cyanobacteria, Bacteria, Viruses, Actinomycetes, Rickettsia and Mycoplasma.

14 hrs

UNIT II

Taxonomy: Haeckel's Three Kingdom system, Whittaker's Five Kingdom classification – Monera, Protista, Fungi, Plantae and Animalia, Different trends in classification of microorganisms, Principles and methods of classification. Different trends in classification of microorganisms, Principles and methods of classification. **Sterilization methods** - Control of bacteria by Physical and chemical methods.

Culturing of Micro Organisms

Culture media : Synthetic and non- synthetic – solid, liquid and semi solid media.

Special media : Enriched, selective, transport, differential media.

Methods of isolation of bacteria, fungi – serial dilution, pour plate, spread plate and streak plate.

Maintenance of Pure Cultures.

16 hrs

UNIT III

Water Microbiology and Soil microbiology: Water and waste sources sources, Bacteriology of water, sewage and wastewater treatment, water purification and solid waste treatment, Soil Microflora, Role of Microbes in soil process: Bio-geo-chemical cycle Carbon, Nitrogen, Sulphur and Phosphorous. **8 hrs**

UNIT IV

Food microbiology and Industrial microbiology - Food as a substrate for microorganisms, sources of contamination of food. Food spoilage and preservation, food borne infections, food poisoning, Fermented foods ,Microbiology of milk- normal micro flora of milk, sources of contamination, normal and abnormal fermentation, pasteurization: Scope and Applications of Industrial Microbiology, Fermentation technology and Fermentors, Down stream processing. **6 hrs**

UNIT V

Immunology and Medical Microbiology: History and scope of Immunology, Types - Natural, Acquired, Active and Passive, Cells, tissues and organs involved in immune system: History and development of medical microbiology. Normal flora of human body: Infectious diseases- sources of Infection, symptoms transmission and control
Microbial disease of Humans: Morphology, cultural and biochemical characteristics, classification, resistance, pathogenesis, clinical symptoms, laboratory diagnosis, epidemiology, prophylaxis and treatment of the following.

- a. **Bacterial diseases**-Tuberculosis, Cholera and Typhoid
- b. **Viral diseases** – Small pox, Mumps,Hepatitis, Influenza and AIDS.
- c. **Fungal diseases**-Candidiosis, Dermatomycosis
- d. **Protozoan diseases** - Malaria. And amoebiosis.

8 hrs

PRACTICALS:

No of Practicals – 14

- | | |
|--|---|
| 1. Laboratory safety: General rules and regulations | 1 |
| 2. Demonstration of laboratory equipments – Laminar Air Flow Chamber, Autoclave, Hot air Oven, Incubator, centrifuge, spectrophotometer, pH meter. | 1 |
| 3. Isolation and Enumeration of microorganisms Soil, water, air, bread, milk, other fermented foods using serial dilution technique. | 4 |
| 4. Observation of permanent slides of pathogenic microorganisms. | 1 |
| 5. Staining methods - Simple staining, Grams staining, Negative Staining, Endospore Staining and Acid – fast staining. | 2 |
| 6. Preparation of Culture Media - Broth, Semisolid and Solid Media. | 2 |
| 7. Pure culture techniques – Spread plate, Pour Plate, Streak plate, Slant, Stab, Broth culture methods. | 3 |

BOOKS FOR REFERENCES:

1. Singh R.P. Text book of Microbiology – Kallyani Publishers.
2. Prescott. Lansing, M., Harley John P and Klein Donald, A "Microbiology" WCB. McGraw Hill New York.
3. Sullia S. Band Shantaram. S. 1998 "General Microbiology" Oxford and IBH Publishing Co Pvt Ltd. New Delhi.
4. Sundara R. Rajan "Tools and Techniques of Microbiology" - Anmol Publications.
5. Bhattacharya "Experiments with Microorganisms" - Lmkay Publishers.
6. Panikar and Ananthanaryana, Text book of Microbiology. Pelczar, M.J., Chan, L.C.S and Kricg, N.R. - 1982 "Microbiology" Tata MaGraw Hill Book Co. New York.
7. Gunashckaran, P. "Laboratory Manual in Microbiology" New Age lull Ltd
8. Ancja K..R. Experiments in Microbiology, Plant pathology Tissue culture and Mushroom Cultivation. New Age International. New Delhi
9. Stanier, R. Y., Adlberg E. A. and Ingraham J.L., “ General Microbiology” 4th edition, Machuller.
10. Stanier, R.Y. Ingrahani J.L "General Microbiology" Prentice Hall of India Pvt Ltd., New Delhi.

MODEL QUESTION PAPER (PRACTICAL)

MARKS 10+20

1. Internal – 10
2. Experiments -15
3. Identification – 05

BACHELOR OF HOME SCIENCE
SEMESTER II
PAPER 2.2 - FIBER TO FABRIC (5 + 1)

Subject code	BHSC202	Theory exam	Theory paper	60 marks
No of lectures /week	4 hrs		Internals	10 marks
Total no of lectures	52 hrs		Exam duration	3hrs
		Practical Exam	Internals	10 marks
			Final practical	20 marks
			Exam duration	3hrs

OBJECTIVES:

To enable students to;

- Understand the physical and chemical properties of natural and man made fibres.
- Acquire knowledge about fibres, fibre blends and relate their performance to physical properties and content.
- Understand the mechanism of weaving as well as dyeing and printing technology.

THEORY:

52 Hrs

UNIT I

Introduction: Textile fibres – Definitions, classification, terminology used in Textiles, Manufacturing & processing of cotton, silk, and polyester, Properties of wool, and rayon nylon. Introducing minor fibres – Hemp, Sisal, Jute and Kapok

20 hrs

UNIT II

Classification of yarns and construction methods – Basic process of yarn construction, classification of yarns - Filament, staple yarns and novelty yarns.

Fabric construction methods – (a) Weaving – study of handloom and its part. Basic weaves – plain, twill & satin. Decorative or Fancy weaves – Pile, leno, jacquard and dobby (b) Knitting (c) Braiding (d) Lacing (e) Netting (f) felting (g) Non woven fabrics.

15 hrs

UNIT III

Finishes – Aesthetic finishes - Singeing, bleaching, mercerizing, tentering, Sanforising, shrinking, weighting, calendaring, sizing. Functional finishes – water repelling, water proof, moth proof, permanent press and mildew proof.

5 hrs

UNIT IV

Dyeing (a) classification of dyes and their types – Acid, basic, develop, mordant, naphthol, sulphur, vat and pigment. (b) Methods of Dyeing – stock, top, yarn, piece, garment and

solution pigmenting

6 hrs

UNIT V

Printing methods – Difference between Printing and Dyeing. Different methods and styles of printing-Block, roller, screen, stencil, duplex, rotary, spray, tie& dye, batik & digital printing

6 hrs

PRACTICALS:

No of Practicals – 14

1. Identification of the following fibres – cotton, silk, wool, rayon, nylon and dacron by means of visual inspection, solubility test, burning test and microscopic observation. 4
2. Collection of textile samples for analysis of type of fibre, construction method, finishing process and enrichment applied. 2
3. Weaving –Samples making of Plain, Basket, Ribbed, Twill, Satin, Sateen and Herringbone weave. 3
4. Preparation of knitting samples –Basic stitches (Knit and Purl) 2
5. Printing- (a) Spray printing 3
(b) Stencil printing
(c) Block printing
(d) Hand Painting
(e) Tie & Dye
(f) Batik printing

BOOKS AND REFERENCES:

1. Lollen and Saddler “ Textiles” Macmillan (1979).
2. Potter and Cobman, “Fiber to Fabric “ McGraw Hill Book Co
3. K.P. Hess, “Textiles, Fibres and their use”, oxford and I.B. Publishing co. New York.
4. Lorthy, K. Burnhein, “A textile terminology”.
5. Wintage – “ Selection and case for Textiles” Prentice Ball (1964).
6. Arthur Price and Allen C.C. “Fabric Science” Fair child Publishers New York (1997)

MODEL QUESTION PAPER (PRACTICAL)

MARKS 10+20

4. Internal – 10
5. Samle making – 15
6. Identification of fiber – 05

BACHELOR OF HOME SCIENCE

SEMESTER II

Paper 2.3 – HUMAN GROWTH AND DEVELOPMENT (4+1) (PART – II)

Subject code	BHSC203	Theory exam	Theory paper	60 marks
No of lectures /week	4 hrs		Internals	10 marks
Total no of lectures	52 hrs		Exam duration	3hrs
		Practical Exam	Internals	10 marks
			Final practical	20 marks
			Exam duration	3hrs

OBJECTIVES:

- To understand the variations in development and developmental hazards.
- To study the factors influencing growth and development.

THEORY:

52 Hrs

UNIT I

STAGES OF HUMAN GROWTH AND DEVELOPMENT- EARLY CHILDHOOD STAGE-Characteristics and developmental tasks, Physical and motor development.Cognitive abilities, concept formation – colour, volume, size, number, shape, time, distance, weight, texture, space, life and death. Language development pattern and influencing factors – prosody, phonology, semantics and syntax of child’s talk.Socialization and socializing agents.

Pattern of emotional development -positive and negative emotions.Habits and habit formation, Behaviour and behavioural problems.Disciplining: Needs and techniques.Role of play – Quality and quantity.

20 hrs

UNIT II

LATE CHILDHOOD - Characteristics and developmental tasks.Physical development. Development of social skills and peer relations. Biological and social factors influencing the behaviours of boys and girls.Personality development: influence of home, school and community.Interests, hobbies and creativity.Moral and spiritual development – meaning, patterns, aims and importance.

10 hrs

UNIT III

ADOLESCENCE - Physical development - growth spurt, pubertal changes, hormonal influence in development and variations,Moral development,Psychological and physiological problems –

alcohol, drug, addiction, smoking, tobacco, use of advance technology- smart phone, facebook, internet watsapp etc., and their management, Interest , hobbies and Vocational choice. **12 hrs**

UNIT IV

ADULTHOOD- Stages and developmental tasks, Physiological and psychological changes.

Problems and adjustments (emotional, social, financial and family) **6 hrs**

UNIT V

Oldage- Characteristics, Physical changes and Common diseases and ailments **4hrs**

PRACTICALS:

No of Practicals – 14

1. Assessment of physical development.-
a. Early childhood b) Late childhood c) Adolescence d) Adulthood e) Oldage. 3
2. Assessment of cognitive development during early & late childhood. 2
3. Assessment of social development during early & late childhood. 2
4. Assessment of personality development during adolescence. 2
5. Assessment of emotional during late childhood. 2
6. Study on problems of adolescents. 2
7. Study on problems of oldage. 1

BOOKS AND REFERENCE:

1. Mussen P.H., Conger J. J. “ Child development and Personality”
2. Kagon J. and Houston A.C., Harper & Row Publishers Inc., 10, East 53rd street, New-York.
3. Hurlock E. B. “ Child Development” Mc.Craw Hill & Co., New Delhi (1976)
4. Hurlock E. B. “ Adolescent Development” Mc. Graw Hill & Co., New Delhi.
5. Luclock E.B. “ Developmental Psychology” Mc. Graw Hill & Co., New Delhi.
6. Smart M. S. & Smart C.S. “ Child Development and Relationship” Mc.Graw Hill & Co., New York.
7. Papalia. D.E. et al “Human Development” –Tata McgrawHill publishing co Ltd 2005.

MODEL QUESTION PAPER (PRACTICAL)

MARKS 10+20

5. Internal – 10
6. Questionnaire preparation – 5
7. Answer the following -5
8. Plot the graph -5
9. Calculation of IQ & SQ -5