



M.Sc. HOME SCIENCE

S Y L L A B U S

(2 year programme)

2026

DHANAMANJURI UNIVERSITY

Dean
School of Life Sciences
Dhanamanjuri University
Manipur

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DHANAMANJURI UNIVERSITY

M. Sc. Home Science

(i) Food Science and Nutrition

(ii) Human Development

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1. M.Sc. Programme in Home Science is of two years duration consisting of 4 semesters carrying maximum marks of 2050 equal to 82 credits.
 2. Semester I will have 4 theory papers and 2 practical papers carrying in total 600 marks with 24 credits.
 3. Semester II will have 2 theory papers, 2 practical papers and 1 VAC/AEC paper carrying in total 450 marks with 18 credits.
 4. Semester III will have 3 theory papers and 2 practical papers carrying in total 500 marks with 20 credits.
 5. Semester IV will have 3 theory papers, 1 practical paper and a Dissertation carrying in total 500 marks with 20 credits.
 6. The pass mark for each paper is 40% [i.e. 32 + 8 respectively of End Sem. (written/practical exam) & In Sem. (internal assessment)].
 7. The papers offered under the two specialization courses by the department is as follows:

CORE PAPERS:

(Food Science and Nutrition)

- Community Nutrition and Public Health (Theory + Prac)
- Nutrition Through the Life Cycle (Theory + Prac)
- Applied Physiology (Theory + Prac)
- Preventive and Therapeutic nutrition (Theory + Prac)
- Advance Food Science (Theory + Prac)
- Statistical Methods and Computer Applications (Theory + Prac)
- Nutritional Biochemistry (Theory + Prac)
- Food Analysis (Theory + Prac)
- Food Product and Entrepreneurship (Theory + Prac)
- Advances in Human Nutrition (Theory + Prac)
- Food Microbiology and Food Safety (Theory)
- Research Methodology (Theory)
- Dissertation

(Human Development)

- Theories of Human Development and Behaviour (Theory + Prac)
- Guidance and Counselling: Skills and Techniques (Theory + Prac)
- Life Span Development I (Conception to Adolescence) (Theory + Prac)
- Life Span Development II (Adulthood to Old age) (Theory + Prac)
- Early Childhood Care and Education & Management (Theory + Prac)
- Statistical Methods and Computer Applications (Theory + Prac)
- Methods and techniques of assessment in human development (Theory + Prac)
- Mental health and Developmental Perspectives (Theory + Prac)
- Digital Media and Human Development (Theory + Prac)
- Children with Special Needs (Theory + Prac)
- Personality Development (Theory)
- Research Methodology (Theory)
- Dissertation

Syllabus

for

M.Sc. Home Science (Food Science & Nutrition)

COURSE STRUCTURE

1st Semester

Paper Code	Paper Type	Paper Title	Internal Assessment Marks	End-Semester Marks	Total Marks	No. of Credits
HSF- 501	DSC	Community Nutrition and Public Health	20	80	100	4
HSF- 502	DSC	Nutrition through the life Cycle	20	80	100	4
HSF- 503	DSC	Practical based on HSF-501& HSF-502	-	100	100	4
HSF- 504	DSC	Applied Physiology	20	100	100	4
HSF- 505	DSC	Preventive and Therapeutic nutrition	-	100	100	4
HSF- 506	DSC	Practical based on HSF-504 & 505	20	100	100	4
Total					600	24

2nd Semester

Paper Code	Paper Type	Paper Title	Internal Assessment Marks	End-Semester Marks	Total Marks	No. of Credits
HSF-507	DSC	Advanced Food Science	20	80	100	4
HSF-508	DSC	Practical based on HSF-507	-	100	100	4
HSF-509	DSC	Statistical Methods and Computer Application	20	80	100	4
HSF-510	DSC	Practical based on HSF-509	-	100	100	4
XXX-000	VAC/ AEC	Environment and Climate Change/Disaster Management/Foreign language	-	50	50	2
Total					450	18

3rd Semester

Paper Code	Paper Type	Paper Title	Internal Assessment Marks	End-Semester Marks	Total Marks	No. of Credits
HSF-611	DSC	Nutritional Biochemistry	20	80	100	4
HSF-612	DSC	Practical based on HSF-611	-	100	100	4
HSF-621	DSE	Food Analysis	20	80	100	4
HSF-622	DSE	Food Product Development and Entrepreneurship	20	80	100	4
HSF-623	DSE	Practical based on HSF-621 and HSF-622	-	100	100	4
Total					500	20

4th Semester

Paper Code	Paper Type	Paper Title	Internal Assessment Marks	End-Semester Marks	Total Marks	No. of Credits
HSF-613	DSC	Advances in Human Nutrition	20	80	100	4
HSF-614	DSC	Practical based on HSF-613	-	100	100	4
HSF-624	DSE	Food Microbiology and Food safety	20	80	100	4
HSF-615	DSC	Research Methodology	10	40	50	2
HSF-625	DSE	Research (Thesis/Dissertation/Project work/Field work/Patent)	-	150	150	6
Total					500	20

COURSE CONTENT

SEMESTER- I

COMMUNITY NUTRITION AND PUBLIC HEALTH

(THEORY)

Code: HSF-501

Credits: 4

Marks:100

Objectives:

1. To enable students to learn the concepts of community nutrition and public health.
2. Analyse nutritional problems and challenges at community, national and global levels
3. To enable the students to assess the nutritional status of individuals and of the community
4. To enable the students to develop skills for nutrition communication, advocacy and behaviour change.

Learning outcomes:

After completing the course, students will be able to –

1. Understand concepts of community and public health nutrition.
2. Assess nutritional problems and nutritional status of individuals and communities.
3. Apply nutritional epidemiology in planning and evaluating nutrition programmes.
4. Develop evidence-based strategies and interventions for improving community nutrition and health.

UNIT	TOPIC	MARKS
I	Community nutrition and national development • Community Nutrition—meaning and concept of community health; Relationship between nutrition and national development; Nutrition and food security, IMR, NMR, MMR, Prevalence of common nutritional problems – PEM, Vitamin A deficiency diseases, Anaemia, Iodine deficiency, Fluorosis. Ecology of Malnutrition and its consequences, measures to overcome malnutrition. • Nutrition intervention programmes—Nutritious Noon Meal Programme, ICDS, Poshan Abhiyan; Prophylaxis programmes—Vitamin A deficiency, Iron deficiency anaemia, Iodine deficiency; National Nutrition Policy.	25 marks

II	National, International and Voluntary Organizations in community and public health • International organizations – WHO, FAO, UNICEF, World Bank, FFHC, WFP. • National organizations –ICAR, ICMR, SCWB, NNMB, CFTRI, DFRL, and Nutrition Foundation of India. • Micronutrient initiatives – CARE, CRS, AFPRO, IDA.	25 marks
III	Assessment of Nutritional Status and Nutrition Education <i>Assessment of nutritional status-</i> Definition, Importance of good nutritional status • Methods of assessments- Direct & Indirect methods. • Direct-Anthropometry, Clinical assessment, Biochemical and biophysical assessment, Diet surveys by 24-hour recall method, weighed food inventory/food weightment survey, food dairy and food frequency, FAO dietary diversity-IDDS, HDDS, NAR, MAR • Indirect- Vital health statistics-MMR, IMR, NMR, Ecological and economical factors <i>Nutrition Education-</i> objectives and methods, integration of nutrition education with extension work; principles of planning, executing and evaluating, nutrition education programmes. Problems in conducting nutrition education programmes. Role of Public nutritionists in the healthcare system.	25 marks
IV	Epidemiology of Communicable & Non-Communicable Diseases • Definition of epidemiology-causes, signs and symptoms, treatment and prevention of major communicable diseases- Communicable disease- (Tuberculosis, Malaria, Dengue, HIV/AIDS, Diarrhoeal diseases, Acute respiratory infections); Non-Communicable Diseases (NCDs): Obesity, Diabetes Mellitus, Hypertension, CVDs, Cancer, Chronic Respiratory Diseases. • Immunity and immunisation: Principles and mechanisms of immunization-vaccines, immunoglobulins. Immunisation programmes and schedules-Active National (UIP & IAP) and WHO programmes on immunization.	25 marks

Suggested readings:

1. Annual Reviews of Nutrition, Annual Review Inc, California, USA.
2. Bodwell, C.E. and Erdman, J.W. (1998) Nutrient Interactions. Marcel Dekker Inc. New York.
3. World Reviews of Nutrition and Dietetics.
4. WHO Technical Report Series.
5. Indian Council of Medical Research. Recommended Dietary intakes for Indians-
6. Indian Council of Medical Research. Nutritive Value of Indian Foods-Latest Publication.
7. Nutrition Reviews

8. Journal of Nutrition
9. American Journal of Clinical Nutrition.
10. British Journal of Clinical Nutrition
11. European Journal of Clinical Nutrition.
12. International Journal of Vitamin and Nutrition Research

NUTRITION THROUGH THE LIFE CYCLE (THEORY)

Code: HSF-502

Credits: 4

Total Marks: 100

Objectives:

1. To acquire knowledge about the nutritional needs and concerns of an individual through the adult years.
2. To give an exposure to the students with an in-depth basic knowledge regarding nutritional challenges of vulnerable groups during various stages of life cycle
3. To approach the areas from various angles like nutritional needs of foetus, mothers (expectant and lactating), adolescents, adults and geriatrics in terms of cognitive learning abilities and to remain healthy and productive
4. To equip students to identify, evaluate and evolve management techniques to address nutritional challenge.

Learning Outcomes:

The course will enable the students to

- Appreciate the scientific understanding of mitigating nutritional challenges and relating key learning as professional expert in the area
- Utilize methods and hand tools for vulnerability assessment and designing adaptation strategies
- Utilize knowledge in scientific publication/ population education
- Be an expert in community health and R&D projects

UNIT	TOPIC	MARKS
I	Maternal nutrition: • Pregnancy: Physiological changes in pregnancy, weight gain during pregnancy, nutrient requirements, impact of good nutrition on the outcome of pregnancy, complications of pregnancy and their nutritional management. • Lactation: Psycho-physiological adjustments during lactation, Milk synthesis and secretion; Composition of breast milk, impact of nutrition on efficiency and milk production, Non-nutritional factors of human milk - immunological factors, enzymes and hormones; milk of animal and formula feeds; Human milk banking, food and nutrient requirements during lactation.	25 marks
II	Nutrition during Infancy: • Infancy: Physiologic development, role of nutrition on physical and mental development, rate of growth - weight as an indicator, assessment of growth, nutrient requirement during infancy. • Feeding of infants-Importance of breast feeding, breast feeding Vs artificial feeding, methods of formula preparation, weaning and supplementary foods, special nutritional concern in infant feeding, feeding the premature and low birth weight infants. Nutritional disorders and common ailments in infancy, feeding the sick child, immunization schedule.	25 marks

III	Nutrition during Preschool and Childhood: • Preschool: Growth and development – Physical and mental, prevalence of malnutrition in preschool years and food habits, nutritional requirements during preschool year and supplementary foods. • Childhood: Growth and development, nutritional requirements of school age children, specific problems in feeding school children. Factors influencing food intake of children, Common childhood ailments and dietary considerations– PEM, Anemia, Dental caries.	25 marks
IV	Nutrition during Adolescence, Adulthood and Geriatric: • Adolescence: Physical and physiological changes in adolescent, Nutrition requirements during adolescent. Growth spurt and nutrition; Food preferences and nutritional problems, eating disorder during adolescent. • Adulthood: Nutritional requirements in adulthood, nutritional concerns, diet and lifestyle related diseases and their prevention. • Geriatric: Physiological changes and problems associated with ageing, Nutritional requirement, nutrients influencing aging process, factors influencing food intake in elderly. Geriatric related diseases- Parkinson and Alzheimer syndrome, Medications and psychiatric problems in elderly.	25 marks

Suggested Reading

1. Bales CW, Ritchie CS. 2013. Handbook of Clinical Nutrition and Aging. 2nd Edition, Springer Science & Business Media, Humana Press Inc. New York.
2. Cataldo CB, De Brayae LK and Whitney EN. 2012. Nutrition and Diet Therapy. 6th Edn., Wadsworth/Thomson Learning Inc.
3. Chernoff R. 2003. Geriatric Nutrition: The Health Professional's Handbook. 2nd Edition, Jones & Bartlett Learning, Burlington, Massachusetts.
4. Kleinman RE. 2008. Paediatric Nutrition Handbook. 6th Edition, American Academy of Paediatrics Committee on Nutrition.
5. Sachdev HPS and Choudhury P. 2004. Nutrition in Children - Developing Country Concerns. B I Publications.
6. Schlenker E and Gilbert JA. 2014. Williams' Essentials of Nutrition and Diet Therapy. 11th Edition, e-book.
7. Sharbaugh C and Brown JE. 2013. Nutrition Through the Life Cycle. 5th Edition, Wadsworth Co Inc. Belmont, CA.
8. Srilakshmi B. 2019. Dietetics. 8th Edition, New Age International Publisher.
9. Whitney E, DeBruyne LK, Pinna K and Rolfes SR. 2011. Nutrition for Health and Health Care. 4th Edition
10. World Health Organization. 2005. WHO Library Cataloguing-in-Publication Data. Nutrition in Adolescence –Issues and Challenges for the Health Sector. WHO, Geneva.
11. <https://www.who.int>
12. <http://www.nutritionlink.org>
13. <https://www.icmr.nic.in>

PRACTICAL BASED ON HSF-501 AND HSF-502

Code: HSF-503

Credits: 4

Marks: 100

Community Nutrition and Public Health

1. Preparation of questionnaire for nutritional assessment
2. Assessment of Nutritional status of self and of a community using
 - Anthropometry
 - Dietary survey including nutrient calculation
 - Clinical assessment
 - Biochemical assessment
- Data entry, analysis, interpretation and report writing based on the above survey
3. Planning and preparation of low-cost nutritious recipes for infants, pre-school children, adolescents, Pregnant women, and lactating mothers to address protein-energy malnutrition, iron deficiency anaemia and Vitamin A deficiency.
4. Development of teaching aids for nutrition education programmes targeting specific population groups.
5. Planning and organizing a community-based nutrition education programme, writing a report.
6. Report
7. Practical Note book/Record.
8. Viva voce

Nutrition through the life cycle

1. Planning, preparing and evaluation of balanced diets for:
 - Pregnant women
 - Lactating mothers
 - Pre-schoolers
 - School-Children
 - Adolescents
 - Adults
 - Geriatric (Modification of texture and consistency in Alzheimer & Parkinson)
2. Assessment of growth for infant/preschool and school-going children
3. Develop and prepare low cost (based on regional context)
 - Complementary food for infants
 - Supplementary foods for pre schoolers
 - Healthy nutritious snacks for children and adolescents
4. Practical Note book/Record.
5. Viva-voce

APPLIED PHYSIOLOGY (THEORY)

Code: HSF-504

Credit 4

Total marks:100

Objectives:

1. To understand the structure and functions of major human body systems.
2. To correlate physiological functions with nutrition, metabolism and health.
3. To understand the role of physiology in lifestyle and metabolic disorders.
4. To apply physiological principles in nutrition and health sciences.

Learning Outcomes: Students will be able to –

- Understand the functional organization of the human body.
- Explain the normal functioning of organ systems and their interactions.
- Relate physiology with nutrition and metabolic health.
- Apply physiological concepts in clinical nutrition and health sciences.

UNIT	TOPIC	MARKS
I	Blood, Cardiovascular System and Immunology • Blood – composition, functions, plasma proteins, blood cells, hemoglobin, iron metabolism, blood groups, blood transfusion and anaemia. • Cardiovascular system – structure and functions of heart and blood vessels, cardiac cycle, blood circulation, blood pressure regulation, hypertension, cardiovascular disorders and effect of exercise on cardiovascular health. • Immunology – types of immunity, lymphocytes, immunoglobulins, cell-mediated and humoral immunity, malnutrition and immunity, immune deficiency and autoimmune disorders.	25 marks
II	Digestive, Respiratory and Gut-Brain Physiology Digestive system – structure and functions of gastrointestinal tract, digestion and absorption of carbohydrates, proteins and fats, gastrointestinal secretions and hormones, liver function tests. • Gut microbiota and gut-brain axis – nutritional significance of gut microbiota, probiotics, prebiotics, gut-brain axis, autonomic nervous system, appetite and satiety regulation. • Respiratory physiology – anatomy of respiratory tract, mechanism and regulation of respiration, transport and exchange of gases, pulmonary volumes and capacities, effect of exercise on respiration.	25 marks
III	Renal Physiology, Body Fluids and Nervous System Renal physiology – nephron structure and functions, urine formation, micturition, renal function tests, acid-base balance, water and electrolyte balance, diuretics and dialysis. • Body fluids – fluid compartments, composition and functions, electrolyte imbalance, dehydration and fluid balance during exercise and heat stress. • Nervous system – central and peripheral nervous system, neuron structure and functions, nerve impulse conduction, synapse, neurotransmitters, hypothalamus, stress response and neurophysiology of appetite.	25 marks

IV	Endocrine and Reproductive Physiology • Endocrine system – structure and functions of pituitary, thyroid, pancreas and adrenal glands, hormonal regulation of metabolism, appetite and energy balance, stress physiology, cortisol, diabetes mellitus, thyroid disorders, obesity and metabolic syndrome. • Reproductive physiology – male and female reproductive systems, reproductive hormones, menstrual cycle, pregnancy and lactation, nutrition and reproductive health, PCOS, infertility, menopause and associated physiological changes.	25 marks
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Suggested Readings

1. C.C Chatterjee (2016) Human Physiology, 11th edition, CBS publishers
2. Guyton, A.C. and Hall, J.E. (2021). *Guyton and Hall Textbook of Medical Physiology*, 14th Edition. Elsevier.
3. Boron, W.F. and Boulpaep, E.L. (2022). *Medical Physiology*, 4th Edition. Elsevier.
4. Barrett, K.E., Barman, S.M., Brooks, H.L. and Yuan, J.X.J. (2023). *Ganong's Review of Medical Physiology*, 27th Edition. McGraw Hill.
5. Sembulingam, K. and Sembulingam, P. (2023). *Essentials of Medical Physiology*, 9th Edition. Jaypee Brothers Medical Publishers.
6. Hall, J.E. (2021). *Pocket Companion to Guyton and Hall Textbook of Medical Physiology*, 14th Edition. Elsevier.
7. Tortora, G.J. and Derrickson, B. (2021). *Principles of Anatomy and Physiology*, 16th Edition. Wiley.
8. Silverthorn, D.U. (2022). *Human Physiology: An Integrated Approach*, 9th Edition. Pearson.
9. Scanlon, V.C. and Sanders, T. (2020). *Essentials of Anatomy and Physiology*, 9th Edition. F.A. Davis Company.

Journals

1. *European Journal of Applied Physiology*
2. *Frontiers in Physiology*
3. *Clinical Nutrition*
4. *The American Journal of Clinical Nutrition*
5. *Nutrition Reviews*
6. *Journal of Applied Physiology*
7. *Nutrients*
8. *Frontiers in Nutrition*

PREVENTIVE AND THERAPEUTIC NUTRITION (THEORY)

Code: HSF-505

Credits: 4

Marks:100

Objectives :

- To understand the concept of nutrition in the prevention of non-communicable diseases (NCD's).
- To acquire knowledge of behavior change communication and dietary counseling principles in managing patients in hospital settings.
- To understand the concept of emerging trends in preventive nutrition.
- To understand the pathophysiology, metabolic changes, clinical symptoms, treatment, and management of some disease conditions.

Learning Outcomes

The students will be able to:

- Understand the role of nutrition in the prevention and management of non-communicable diseases (NCDs).
- Know the principles and techniques of behavior change communication and dietary counseling used in hospital and clinical settings.
- Understand the concept of emerging trends in preventive nutrition.
- Apply the principles of dietary counseling in the management of patients in hospital settings.
- Modify the diet as per the pathophysiology, metabolic changes, and clinical symptoms of disease conditions.

UNIT	TOPIC	MARKS
I	Introduction to NCDs Prevalence, risk factors, Burden and future projections of NCDs: Global & Indian Scenario, Risk factors associated with NCDs and disease outcome	25 marks
II	Preventive Nutrition Strategies Concept, Definition and role of preventive nutrition in NCD's, management and prevention strategies for NCD's and risk factors, Evidence -based dietary approaches to reduce NCD's risk, healthy lifestyle interventions for NCDs prevention, National program for prevention and control of NCDs	25 marks
III	Medical Nutrition Therapy for selected disorders • Diabetes Mellitus • Dyslipidemia, Atherosclerosis, Hypertension • Cancer • Gastrointestinal disorders- Gastroesophageal reflux disease, Peptic ulcer, Irritable bowel syndrome • Liver disease- Infective hepatitis, cirrhosis • Renal diseases - Nephrosis, Nephritis, Acute and Chronic Renal failure, Renal stones • Polyendocrine Metabolic Ovarian Syndrome (PMOS)/PCOD • Thyroid gland disorders: Hyperthyroidism, Hypothyroidism	25 marks

IV	Diet counselling in Nutritional Care Introduction to Diet Counselling, Principles of effective counseling, Communication and counselling skills Behavior Change Communication: Objectives, principles, concept and process Importance of dietary counselling and use of online applications like Nutritive Calculator, Diet Cal in the nutrition care process, Evaluation of counseling outcomes	25 marks
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References:

Books:

1. Mahan, L.K. and Stump, S.E, (2024), Krause's Food, Nutrition and Diet Therapy 15th Edition, W.B. Saunders Co, USA.
2. Gilbert, J., Schlenker, E. D. (2023). Williams' Essentials of Nutrition and Diet Therapy. Netherlands: Elsevier.
3. Marcia Nahikian Nelms, (2016), Medical Nutrition Therapy: A Case Study, Cengage Learning, Boston, USA
4. Whitney, E. N., Whitney, E., Rolfes, S. R. (2022), Understanding Nutrition. United States: Cengage.
5. Mazur, E. E., Litch, N. A. (2022), Lutz's Nutrition and Diet Therapy. United States: F.A. Davis.
6. Joshi, S.A.(2021), Nutrition and Dietetics with Indian case studies, Mc Graw Hill
7. Gibney MJ, Elia M, Ljungqvist & Dowsett J. (2005) Clinical Nutrition. The Nutrition Society Textbook Series. Blackwell Publishing Company
8. Staci Nix (2021), Williams' Basic Nutrition and Diet Therapy, 16th edition, Elsevier
9. Thompson Janice J, Manore Melinda (2017), Nutrition: An Applied Approach, 5th edition, Pearson
10. Snetselaar, L. (2009). Nutrition Counselling Skills for the Nutrition Care Process. Fourth Ed. Sudbury, Massachusetts: Jones Bartlett Publishers.
11. Willett, Walter et al. (2019). Food in the Anthropocene: the EAT– Lancet Commission on healthy diets from sustainable food systems. The Lancet, Volume 393, Issue 10170, 447 – 492.
12. Vir, S.C. (Ed.). (2011). Public Health Nutrition in Developing Countries. Part 1 and 2. Woodhead Publishing India.

Journals:

1. Indian Journal of Nutrition and Dietetics, Published by Avinashilingam University, Saradalya Press, India
2. Journal of American Dietetic Association, USA
3. Australian Journal of Nutrition Dietetics, Australia
4. Journal of Human Nutrition and Dietetics, Published by John Wiley and Sons
5. Journal of the Academy of Nutrition and Dietetics, Published by Elsevier

Websites:

1. www.eatright.org
2. www.world-heart-federation.org
3. www.cancerresearch.org
4. GPAQ-<https://www.who.int/docs/default-source/ncds/ncd-surveillance/gpaqanalysis-guide.pdf>
5. National Operation Guidelines for Prevention and Control of NCDs https://mohfw.gov.in/sites/default/files/NPNCD%20Operational%20Guidelines_0.pdf

PRACTICAL BASED ON HSF-504 AND HSF-505

Code: HSF-506

Credits: 4

Marks: 100

Applied Physiology

1. Measurement of blood pressure and pulse rate.
2. Estimation of blood glucose level using standard methods.
3. Estimation of Total Energy Expenditure (TEE) using Basal Metabolic Rate (BMR) and Physical Activity Level (PAL) values.
4. Calculation of BMR using kymograph.
5. Estimation of haemoglobin concentration using standard methods.
6. Pulse examination and study of the effect of exercise on heart rate recovery to assess cardiovascular fitness.
7. Urine analysis for pH and specific gravity.
8. Demonstration of Digestive Enzyme Action
9. Lab record
10. Viva voce

Preventive and Therapeutic Nutrition

1. Planning and conducting a diet counselling session and physiological assessment for NCD's prevention: Diabetes, cancer, CVD
2. Formulation of preventive strategies for specific diseases.
3. Use of physical activity assessment tool- GPAQ (Global Physical Activity Questionnaire)
4. Visit to Dietary department of Hospitals to observe a diet counseling session
5. Planning and preparation of diets/dishes for individuals suffering from
 - Diabetes Mellitus
 - Dyslipidemia/ Atherosclerosis/ Hypertension
 - GI Tract disorders- GERD, peptic ulcer
 - Liver-Infective hepatitis, Cirrhosis
 - PMOS.
6. Visit Report
7. Lab record
8. Viva voce

SEMESTER II
ADVANCED FOOD SCIENCE
(THEORY)

Code: HSF-507

Credits: 4

Marks:100

Objectives:

- 1) To have a systematic knowledge and understanding of chemistry of food components like proteins, carbohydrates and lipids.
- 2) To familiarize the students with changes occurring in various foodstuffs as a result of processing and cooking
- 3) To enable the students to inculcate theoretical knowledge in various applications and food preparations.

Learning Outcomes:

Students will -

- Understand the characteristics and behaviour of food constituents during processing
- Be familiarized with changes occurring in various foodstuffs as a result of processing and cooking

UNIT	TOPIC	MARKS
I	Constituents and Physico-Chemical Changes of Foods Structure and properties of water and ice; Types of water; Sorption phenomena; Water solution interactions; Phase transition of foods containing water; heat transfer during processing; relationship between viscosity and temperature; Hydrogen ion concentration (pH), Water activity and food spoilage; Food dispersion: Colloidal system, and rheology of food dispersions; Structure, formation and stability of gels, sols, emulsion and foams.	20
II	Polysaccharides, Sugars and Sweeteners Structure and composition of starch; Properties and characteristics of food starches; Effect of heat on food starch properties and the factors influencing gelatinization and dextrinization changes; Modified food starches; Structure, composition and characteristics of non-starch polysaccharides such as cellulose, hemicellulose, pectin and gums; Role of starch and non-starch polysaccharides in food and industrial applications; Properties of sugars and sweeteners: Sugars, syrups, sugar alcohols, potent sweeteners, sugar products; Role of sweetener in food	20

	products.	
III	Proteins and Enzymes Amino acid - types and their properties; Structure and composition of proteins; Classification and properties of proteins; Effect of heat on physio-chemical properties of proteins; Role of proteins in food products; Texturized vegetable protein, protein concentrate and isolates preparation methods; Enzymes: Classification and its nature; Mechanism of action; Factors influencing enzyme activity; Role of enzymes in food products; Immobilized enzymes and its application in food industries.	20
IV	Fats and Oils Structure and composition of fats, properties of fat; Method of oil extraction; Oil composition and the properties; Sources of fat/oil and its shelf life; Refining of oil and winterization; modification of fats, Methods to determine the quality of fat/oil; Effect of processing on physico-chemical properties of fat/oil; Quality changes in fat/oil during storage and prevention of fat spoilage; Role of fat/oil in food products; Fat substitutes/replacements.	20
V	Food additives: Colours, Flavours Food additives – Definition, functions, major food additives used in processing; Pigment's classification, structure and properties; Effects of processing on stability of pigments in foods and the factors influencing stability of colours in foods; Role of colours in food products; Flavors: Taste and nonspecific saporous sensations, Flavour compounds in vegetables, fruits and spices; Flavours produced from fermentation and volatiles on foods; Effect of processing on food flavours; Role of flavours in food products.	20

Suggested Readings:

1. Vickie A. Vaclavik and Elizabeth W. Christian (2014), Essentials of Food Science, 4th Edition, Springer Nature Publication
2. Fennema, O.R., 2006, Food Chemistry, Academic Press.
3. Roday S., (2012) Food Science and Nutrition (2nd edition Oxford University Press, New Delhi
4. Norman N. Potter and Joseph H. Hotchkins (2007) Food Science, Fifth edition, CBS Publishers and Distributors, New Delhi
5. Usha Chandrasekar (2002) Food Science in Indian Cookery, Phoenix publishers House Private Limited.
6. Manay, S. and Shadaksharamasamy, Food: Facts and Principles, New Age International (P) Publishers, New Delhi.
7. Srilakshmi, B. 2007. Food Science, New Age International (P) Ltd., Publishers, New Delhi.

**PRACTICAL BASED ON HSF-507
(ADVANCED FOOD SCIENCE)**

Code: HSF-508

Credits:4

Marks: 100

1. Effect of solutes on boiling point and freezing point of water.
2. Effects of types of water on characteristics of cooked vegetables, pulses and cereals.
3. Microscopic examination of plant starches and study the gelatinization on starch.
4. Preparation of gluten and factors affecting gluten formation in different cereals and millets.
5. Sugar cookery and the factors influencing the stages of sugar cookery
6. Estimation of sugar/sucrose in fruit juice/concentrate using refractometer.
7. Preparation of protein concentrate/isolate.
8. Effect of acid and alkali on cooking time in pulses.
9. Effect of acid, alkali, heat and enzyme on meat.
10. Control of enzyme activity in cut fruits and vegetables.
11. Fats and oils: Smoking temperature of fats and oils. Influence of heat on physicochemical properties of oil
12. Role of fats in cookery as shortening agents in bakery products.
13. Effect of acid, salt, alkali, heat and enzymes on pigments.
14. Workshop on culinary skill enhancement/ food preparations.
15. Note book/Record.
16. Report.
17. Viva-voce.

STATISTICAL METHODS AND COMPUTER APPLICATIONS

Code: HSF-509

Credits:4

Marks: 100

Objectives:

- To understand the scientific approaches to research
- To understand the significance of research methods in particular fields
- To learn basic statistical procedures for research.
- To understand applications of statistical techniques for analysis and interpretation.
- To use selective software for qualitative and quantitative data analysis.

Learning outcomes:

Students will be able to:

- Demonstrate knowledge of the scientific method, purpose and approaches
- Compare and contrast quantitative and qualitative research
- Explain research design and the research cycle
- Prepare key elements of a research proposal
- Explain ethical principles, issues and procedures

Unit I Data Organization, Presentation and Descriptive Statistics • Nature, characteristics and types of data • Editing, coding and classification of data • Grouped and ungrouped data • Frequency distribution and cumulative frequency distribution • Tabulation of data and parts of a statistical table • Diagrammatic and graphical presentation of data: bar diagrams, pie charts, histograms, frequency polygons, frequency curves, ogives and line graphs • Statistics: meaning, definition, scope, functions and limitations • Measures of central tendency: Mean, Median, Mode and Weighted Mean	25 marks
Unit II Measurement, Variability and Relationship among Variables • Scales of measurement: Nominal, Ordinal, Interval and Ratio scales • Measures of dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation and Coefficient of Variation • Measures of shape of distribution: Skewness and Kurtosis • Standard Error of Mean • Probability distribution: Normal distribution and its characteristics • Correlation: Pearson's Product Moment Correlation and Spearman's Rank Correlation • Regression: Simple Linear Regression and prediction using regression equation	25 marks
Unit III Inferential Statistics • Concept and significance of hypothesis testing • Null and Alternative Hypotheses • Levels of significance and confidence intervals • Type I and Type II errors • Parametric and Non-parametric tests: assumptions and applications • z-test, Student's t-test, Chi-square test and F-test • Analysis of Variance (ANOVA): one-way and two-way ANOVA, interpretation of ANOVA tables	25 marks

Unit IV Computer Applications and Statistical Software <i>Basic Computer Applications</i> • Hardware and software concepts • Operating systems and file management <i>Spreadsheet Applications</i> • Functions and formulas • Data sorting and filtering • Pivot tables and data validation • Preparation of charts: histogram, boxplot, pie chart, scatter diagram and line graph <i>Statistical Software Applications</i> • Data entry, coding and management • Computation of descriptive statistics • Correlation, regression and ANOVA using statistical software (SPSS/R/Excel) • Interpretation of statistical outputs Citation management and automatic generation of bibliography <i>Presentation Software</i> • Preparation of academic presentations • Incorporation of images, graphics, audio and video	25 marks
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References

1. Kothari, CR (2004) Research Methodology, Methods & Techniques, 2nded. New Age International Publishers.
2. Goode, WJ and Hatt, PK (1981) Methods in Social Research, McGraw Hill International Editions, Sociology Series.
3. Marjory L. Joseph, William D Joseph (1996) Research Fundamentals in Home Economics / Human Ecology. Plycon Press.
4. WHO (2001) Health Research Methodology – A Guide for Training in Research Methods.
5. Stennberg, R J (1991) The Psychologist's Companion: A Guide to Scientific Writing for students and Researchers. Cambridge: CUP.
6. Garrett, H. (1971), Statistics in Psychology and Education, New York: David Haley & Co.
7. Gupta, S.P and Gupta, A (1998).Statistical Methods. New York: Sultan Chand.

Code: HSF-510

PRACTICAL BASED ON HSF-509

Credits:4

Marks: 100

Statistics

1. Data Presentation
 - a. Construction of Frequency Distribution Table
 - b. Graphic representation of data- Histogram, stem and leaf chart
2. Computations of Measures of Central Tendency and Measures of Dispersion based on Home Science Data.
 - a. Calculation of Mean in group Data
 - b. Calculation of Median in group Data
 - c. Calculation of Mode in group Data
 - d. Determination of Standard Deviation of Mean
3. Computation Chi-square test for
 - a. Goodness to fit
 - b. Independence of attributes in 2x2 and r x c contingency table
4. Application of student's "t" test for small sample
5. Computation and significance Test for
 - a. Pearson's Correlation Coefficient
 - b. Spearman's Rank Correlation
6. Computation Regression Coefficient
7. Computation of One-Way ANOVA using Home Science data

Computer Applications

8. Interpretation of Tables and Pivot Tables
9. Sorting and filtering tables
10. Creating charts using appropriate statistical software
 - i. Boxplot
 - ii. Line graphs
 - iii. Scatter Plot
 - iv. Frequency Polygon
 - v. Cumulative Frequency of Ogives
11. Calculation of Descriptive Statistics.
12. Record
13. Viva

SEMESTER III

NUTRITIONAL BIOCHEMISTRY (THEORY)

Code: HSF-611

Credits: 4

Total marks: 100

Objectives:

- To enable students to understand the role of nutrients in the body.
- To know the classification, functions and metabolism of carbohydrates, amino acids, proteins, vitamins, and minerals.
- To enable students to understand the mechanisms adopted by human body for regulation of metabolic pathways

Learning outcomes:

Students will be able to

- Understand the classification, functions and metabolism of carbohydrates, amino acids, proteins, vitamins, and minerals.
- Understand the inborn errors of macronutrients
- Understand the mechanisms adopted by human body for regulation of metabolic pathways

UNIT	TOPIC	MARKS
I	CARBOHYDRATES AND THEIR METABOLISM Carbohydrates: Classification, functions, requirements, digestion, absorption, transport, utilization and storage. • Carbohydrate metabolism- – Glycolysis, Glycogenesis, Glycogenolysis, Gluconeogenesis, Citric Acid Cycle, Hexose Monophosphate Pathway and Their Regulation – Electron Transport Chain • Inborn errors of Carbohydrate Metabolism: Galactosemia, Hereditary Fructose Intolerance, Fructosuria and Glycogen Storage Disease.	25
II	PROTEIN, AMINO ACID AND THEIR METABOLISM Proteins: – Classification and functions – Digestion and absorption – Transport and storage Amino acids: – Classification and functions – Utilization of amino acids Protein and Amino acid metabolism: – Deamination, transamination, deamidation – Amino acid pool – Protein biosynthesis – Urea cycle • Amino acids: balance, imbalance and toxicity – Metabolism of tyrosine, tryptophan, phenylalanine	25

	– Metabolism of methionine, leucine and arginine ❖ Inborn errors of amino acid metabolism- Phenyl Ketonuria, Cystinuria, Albinism, Alkaptonuria, Maple Syrup Disease, Homocystinuria, Tyrosinemia.	
III	LIPIDS AND THEIR METABOLISM • Lipids: Classification and functions, Digestion and absorption, Deposition and storage • Lipid metabolism – Synthesis of fatty acids, phospholipids and cholesterol – β-oxidation of fatty acids – Ketogenesis. – Biosynthesis of triglycerides and phosphatides • Bile pigments, Ketosis, Fatty Liver • Ketone bodies, Prostaglandins – significance. • Plasma lipoproteins and Hyperlipidaemias • Inborn errors of Lipid Metabolism- Gaucher's disease, Niemann's picks disease, Tay-sach's, Fabry's disease	25
IV	VITAMINS AND MINERALS Vitamins • Fat Soluble Vitamins (Vitamin A, D, E and K): Physiological action, transport, utilization, storage, functions and deficiency. • Water Soluble Vitamins (Thiamin, Riboflavin, Vitamin B12, Pantothenic acid, Folic Acid, Pyridoxine, Niacin): Physiological action, transport, utilization, storage, functions and deficiency. Minerals • Functions, absorption, utilization and deficiency of Calcium, Phosphorous – Role of calcium in ossification and bone growth – Inter-relationship between parathormone and vitamin D in the regulation of calcium and phosphorous metabolism • Iron: Functions, absorption, transport, utilization and storage. – Role of iron in prevention of anemia • Iodine: Physiology of iodine, Role of iodine in human nutrition • Physiology, functions and deficiency of Zinc, Selenium and Manganese.	25

Suggested readings

1. D M Vasudevan, Sreekumari S, Kannan Vaidyanathan. Sixth Edition, (2011). Text Book of Biochemistry for Medical students. Jaypee Brothers Medical Publishers (P) Ltd.
2. Haney Elsayy (2010), Nutritional Biochemistry, LAP Lambert Academic Publishing
3. Urvashinandal (2013), Handbook of Food and Nutritional Biochemistry, Agrobios India.
4. Mahtab S. Bamji, N Prahlad Rao, Vinodini Reddy, Text Book of Human Nutrition , 2nd edition, Oxford & IBH Publishing Co. Pvt. Ltd.
5. Robert K Murray, Daryl K Granner, Peter A, Mayes, Victor W Rodwell., Harper's Illustrated Biochemistry, 26th edition, McGraw Hills
6. Leihninger A L., Principles of Biochemistry , CBS Publishers and Distributors.

7. A V S S Rama Rao, A Textbook of Biochemistry, 9th edition, UBS Publisher's Distribution Pvt. Ltd.
8. Tom Brody, Nutritional Biochemistry, 2nd edition, Academic Press

Practical based on HSF-611

Code: HSF-612

Credits: 4

Total marks: 100

BLOOD ANALYSIS

1. Methods of blood collection
2. Estimation of haemoglobin
3. Estimation of serum creatinine
4. Estimation of bilirubin
5. Estimation of cholesterol

URINE ANALYSIS

6. Estimation of urine sugar
7. Estimation of urine albumin
8. Estimation of bile salt
9. Estimation urine calcium
10. Estimation of urine creatinine
11. Estimation of urine urea
12. Analysis and interpretation of the above blood and urine analysis
13. Determination of acid value of fats and oil sample
14. Assessment of Iodine content in iodized salt (Iometric Titration Method)
15. Case study and Interpretation of biochemical indicators related to vitamin and mineral deficiencies
16. Laboratory Record
17. Viva voce

FOOD ANALYSIS (THEORY)

Code: HSF-621

Credits: 4

Marks: 100

Objectives

1. To provide knowledge of principles and methods used in food analysis.
2. To develop understanding of sampling and analytical techniques for foods.
3. To familiarize students with proximate, instrumental and quality analysis of foods.
4. To impart knowledge on food safety, adulteration and quality assessment.

Learning Outcomes

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

1. Apply analytical methods for food quality evaluation.
2. Perform proximate, mineral and vitamin analysis of foods.
3. Operate basic analytical instruments used in food laboratories.
4. Evaluate food safety, adulteration and quality parameters.
5. Interpret analytical data and laboratory results scientifically.

UNIT	TOPICS	MARKS
I	Principles of Food Analysis & Sampling Nature and scope of food analysis: quality control, safety, labeling, regulatory compliance (FSSAI, Codex). Steps in analysis: selection, preparation, assay, calculation, interpretation. Sampling techniques: random, stratified, systematic, composite; sampling plans for solid, liquid, and heterogeneous foods. Sample preparation: homogenization, drying, fat extraction, deproteinization, filtration, storage. Preparation of standard solutions: molarity, normality, percent solutions, dilution factors, buffer preparation. Method validation parameters: accuracy, precision, LOD, LOQ, linearity, robustness. Quality assurance (QA) and quality control (QC) in food analysis.	25
II	Instrumental Techniques in Food Analysis Colorimetry & UV-Vis Spectrophotometry – principles, Beer-Lambert law, application for pigments, additives. Atomic Absorption Spectrophotometry (AAS) – for minerals (Ca, Fe, Zn, Pb, Cd). Flame Photometry – Na, K estimation. Fluorimetry – vitamins (riboflavin, thiamine), aflatoxins. Electrophoresis – protein separation, food authenticity (e.g., species identification). Refractometry – soluble solids, sugar content, oil adulteration. Chromatography – Paper, TLC, GLC (fatty acids), HPLC (vitamins, preservatives, mycotoxins). Introduction to LC-MS/MS and GC-MS – for pesticide residues and contaminants.	25

	NIR spectroscopy – rapid quality analysis.	
III	Proximate, Minerals, and Vitamins Analysis Moisture – oven drying, distillation, Karl Fischer (for low-moisture foods). Ash – total ash, water-soluble/insoluble ash, acid-insoluble ash (for adulteration). Carbohydrates – reducing sugars (Lane-Eynon, DNSA), total sugars, starch, dietary fiber. Crude fiber – acid-alkali digestion. Fat – Soxhlet, Mojonnier, Gerber (milk), acid hydrolysis (for processed foods). Protein – Kjeldahl (total N), Dumas, Biuret, Lowry. Tannins and phytates – titrimetric and colorimetric methods (anti-nutrients). Minerals – Calcium (permanganometry/EDTA), Iron (colorimetry/phenanthroline), Phosphorus (molybdovanadate method). Vitamins – Ascorbic acid (2,6-dichlorophenol indophenol titrimetry/HPLC). Comparison of AOAC, FSSAI, and ISO methods.	25
IV	Rheological Analysis & Advanced Applications Rheological parameters – Viscosity, Shear Stress, Shear Rate, Modulus, Creep, Relaxation. Types of fluid behavior – Newtonian, pseudoplastic, dilatant, thixotropic. Rheological instruments – Capillary Viscometer, Rotational Viscometer (Brookfield), Dynamic Oscillatory Rheometer. Texture Profile Analysis (TPA) – Hardness, Cohesiveness, Springiness, Chewiness, Gumminess (With Texture Analyzer). Applications – Quality Of Sauces, Gels, Dough, Dairy Products, Fruits. Recent Advances – Texture In 3d-Printed Foods, Rheology Of Plant-Based Meat Analogues. Regulatory Relevance – Texture as a Quality Parameter (E.g., Ice Cream, Bread, Cheese). Integration with sensory analysis .	25

Suggested Readings:

1. Official Methods of Analysis (2023), Association of Official Analytical Chemists - Officially recognized methods of analysis for many food components.
2. C.S. James (2013). Analytical Chemistry of Foods. Blackie Academic and Professional - General overview of food analysis techniques.
3. S.S. Nielsen, (1998). Introduction to Food Analysis. Aspen Publishers - The best general overview of food analysis techniques currently available.

**FOOD PRODUCT DEVELOPMENT AND ENTREPRENEURSHIP
(THEORY)**

Code: HSF-622

Credits: 4

Marks:100

Objectives:

1. Provide advanced knowledge on food product development and commercialization.
2. Develop skills in formulation, standardization and evaluation of innovative food products.
3. Enable students to understand entrepreneurship opportunities in the food sector.
4. Familiarize students with packaging, labelling, regulatory and marketing aspects of food products.
5. Encourage innovation using indigenous and functional foods for sustainable food enterprises.

Learning Outcomes:

Students will be able to –

- Develop nutritionally balanced and marketable food products.
- Apply principles of sensory evaluation, shelf-life studies and quality assurance.
- Understand product commercialization and food regulations.
- Prepare business plans and feasibility reports for food enterprises.
- Analyze market trends and entrepreneurial opportunities in the food industry.
- Develop entrepreneurial and managerial skills for establishing food-based ventures.

UNIT	TOPICS	MARKS
I	Food Product Development and Innovation Concept, scope and importance of food product development; stages involved in development of new food products; product development cycle; idea generation and screening; factors influencing consumer preferences and market trends; market survey and identification of consumer needs; formulation and standardization of food products; development of functional foods, nutraceuticals, convenience foods and indigenous food products; factors affecting success and failure of food products.	25
II	Product Evaluation, Shelf-Life and Packaging Sensory evaluation of foods: subjective and objective methods; selection and training of sensory panel members; development of score cards and hedonic rating scales; consumer acceptability studies; shelf-life evaluation and food deterioration; chemical, physical and microbiological evaluation of food products; quality control in food products; packaging materials and packaging systems; eco-friendly and bio-based packaging; vacuum packaging and modified atmosphere packaging; food labelling and nutritional labelling according to FSSAI guidelines.	25

III	Entrepreneurship Development in Food Industry Concept and characteristics of entrepreneurship; entrepreneurial competencies and skill development; entrepreneurship opportunities in food processing industries; small-scale food industries and start-ups; business idea generation and feasibility analysis; SWOT analysis; preparation of business plans and project reports; financial institutions, MSME schemes and government support for entrepreneurs; incubation centres and support systems for food entrepreneurs; role of entrepreneurship in sustainable food enterprises.	25
IV	Commercialization, Marketing and Food Business Management Commercialization of food products; scale-up production and product launch; product costing and pricing strategies; branding, advertising and promotion techniques; test marketing and consumer feedback; food laws and licensing procedures; FSSAI regulations and food safety standards; Intellectual Property Rights, patents and trademarks; supply chain and distribution management; e-commerce and digital marketing in food industries; sustainability and waste management in food enterprises.	25

Suggested Readings

1. Desai, V. (2019). *Fundamentals of entrepreneurship and small business management* (3rd ed.). Himalaya Publishing House.
2. Fuller, G. W. (2011). *New food product development: From concept to marketplace* (3rd ed.). CRC Press.
3. Lawless, H. T., & Heymann, H. (2010). *Sensory evaluation of food: Principles and practices* (2nd ed.). Springer.
4. Manay, N. S., & Shadaksharaswamy, M. (2015). *Foods: Facts and principles* (3rd ed.). New Age International Publishers.
5. Moskowitz, H. R., Saguy, I. S., & Straus, T. (2009). *An integrated approach to new food product development*. CRC Press.
6. Potter, N. N., & Hotchkiss, J. H. (2012). *Food science* (5th ed.). CBS Publishers & Distributors.
7. Robertson, G. L. (2016). *Food packaging: Principles and practice* (3rd ed.). CRC Press.
8. Smith, J., & Charter, E. (2010). *Functional food product development*. Wiley-Blackwell.
9. Stone, H., Bleibaum, R., & Thomas, H. A. (2020). *Sensory evaluation practices* (5th ed.). Academic Press.
10. Subbulakshmi, G., Udipi, S. A., & Rao, A. (2021). *Food processing and preservation*. New Age International Publishers.

References:

- Food Safety and Standards Authority of India. (2023). *Food safety and standards regulations manual*. FSSAI.
- Ministry of Micro, Small and Medium Enterprises. (2022). *Entrepreneurship and MSME development schemes*. Government of India.
- National Institute of Food Technology Entrepreneurship and Management. (2021). *Food business incubation and entrepreneurship handbook*. NIFTEM.

Journals

- Food Quality and Preference*. Elsevier.
- Journal of Food Science and Technology*. Springer.
- LWT – Food Science and Technology*. Elsevier.
- International Journal of Food Science and Nutrition*. Taylor & Francis.

PRACTICAL BASED ON HSF-621 and HSF-622

Code: HSF-623

Credits: 4

Marks: 100

FOOD ANALYSIS

1. Laboratory safety practices, Good Laboratory Practices (GLP) and handling of laboratory chemicals.
2. Familiarization, operation and maintenance of analytical instruments: Analytical balance, pH meter, Spectrophotometer, Centrifuge, Hot air oven, Muffle furnace, Refractometer, Viscometer
3. Sampling techniques and preparation of food samples for analysis.
4. Preparation of standard solutions, buffers and reagents.
5. Proximate Analysis: Moisture, fats, carbohydrates, proteins, crude fiber, total ash, mineral
6. Field visit to food testing laboratory or food quality control laboratory.
7. Report.
8. Laboratory record.
9. Viva-Voce.

FOOD PRODUCT DEVELOPMENT AND ENTREPRENEURSHIP

1. Market survey and identification of consumer preferences for innovative food products.
2. Development and standardization of value-added food products.
3. Food fair of the developed food products.
4. Preparation of business plan and feasibility report for food enterprise.
5. SWOT analysis of selected food business.
6. Field visit to food industries, incubation centres or entrepreneurial units.
7. Project report.
8. Field visit report.
9. Note book/Record.
10. Viva-Voce.

SEMESTER IV
ADVANCES IN HUMAN NUTRITION
(THEORY)

Code: HSF-613

Credits: 4

Total Marks:100

Objectives:

1. To understand how nutrient requirements changes in special conditions.
2. To familiarize students with changes occurring in the physiology and metabolism of human body as a result of change in altitude, gravity and exercise.
3. To understand how optimal nutrition is important for immunity
4. To learn various measures for enhancing nutritional quality of diets.
5. To learn about the management strategies for different sports and physical activities
6. To explore the application of nutrigenomics in the food and nutrition industry.

Learning outcomes:

The students would be able to

- Understand nutritional management in special conditions.
- Apply the knowledge of nutrition immunity interactions and their operational implications.
- Explain the importance of every nutrient and sensitive methods for assessment of nutrient needs
- Track emerging concepts in the field of nutrition

UNIT	TOPIC	MARKS
I	Macronutrients and Micronutrients Energy expenditure components: basal and resting metabolic rate; Factors influencing energy expenditure; Dietary fibre - Physiological role and health benefits of dietary fibre, sources; Resistant starch, its physiological benefits and food sources. Factors influencing protein quality, amino acid composition and digestibility, Protein quality evaluation methods: Protein Digestibility Corrected Amino Acid Score (PDCAAS) Fatty acid types: Saturated and unsaturated; Essential Fatty Acids (EFA): definition and functions. Fat- and Water-soluble vitamins: dietary sources, hypervitaminosis and antivitaminosis. Macro and micro minerals: dietary sources, factors affecting absorption of calcium and iron, toxicity.	25
II	Nutrition in Special Condition: <i>High Altitude and air travel:</i> Physiological changes due to high altitude and air travel; Acclimatization process; Health and nutritional problems at high altitude and air travel; Nutrient requirements and dietary management at high altitude and air travel <i>Space Nutrition:</i> Need and scope for space travel; History of space travel; Physiological changes in astronauts; Nutrient requirement and dietary management during space travel. Space food systems <i>Sea Travel Nutrition:</i> Physiological changes in human body during sea travel; Psychological preparedness for sea travel; Health and nutritional problems encountered during sea travel; Nutrient requirements and dietary management during sea travel.	25

III	Nutrition Resilience in Health and Emergencies <i>Nutrition and Immunity:</i> Host defense mechanisms and nutrients essential in the development of immune system. Effect of infections on the nutritional status of an individual. Effect of malnutrition on immunity. Nutrient deficiencies and excesses affecting the immuno-competence and susceptibility to infections with respect to carbohydrate, fat, protein, vitamins and minerals <i>Enhancing Nutritional Quality:</i> Methods in improving nutritional quality of diets, bioavailability of nutrients, nutrient losses during cooking and processing. Food security, technologies for food and nutrition security. <i>Nutrition in emergencies:</i> Need and importance; Types of emergency situations such as natural and manmade; Nutritional and health problems in emergencies; Nutrient requirement and dietary management during emergencies.	25
IV	Sports nutrition and Emerging Concepts in Human Nutrition: <i>Sports Nutrition:</i> Need and scope of sports nutrition; Requirement of nutrients for specific sports events; Nutrition support before, during and after sports event; Concept of carbohydrate loading and the methods of carbohydrate loading; Water and electrolyte requirement during exercise and their role in performance. Nutrition management during sports/game. <i>Ergogenic aids:</i> Definition, types and dosage; Doping: Definition, types and consequences; Muscle physiology for performance and fitness; Biomechanics; Physiological testing for fitness and performance; Strength, flexibility, anaerobic power and cardio respiratory fitness. <i>Nutrigenomics:</i> Scope and importance to human health; genetics and disease; bringing nutrigenomics to food industry.	25

Suggested readings:

1. ICMR (2010). Nutrient Requirements and Recommended Dietary Allowances for Indians.
2. Bamji M.S., Rao N.P., Reddy V. Eds. (2009). Textbook of Human Nutrition. 3rd Edition. Oxford and IBH Publishing Co. Pvt. Ltd.
3. Mahan, L.K. and Ecott-Stump, S. (2000). Krause's Food, Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd.
- 4.Sizer, F. and Whitney, E. (2000). Nutrition – Concepts and Controversies, 8th Edition, West Wadsworth, An International Thomson Publishing Co.
5. Whitney, E.N. and Rolfes, S.R. (2003). Understanding Nutrition, 8th Edition, West Wadsworth, An International Thomson Publishing Co.
6. Ira Wolinsky (Ed) (2003): Nutrition in Exercise and Sports, 3rd Edition, CRC Press
7. Goyet Fish, V., Seaman, J. and Geijer, U. (2008): The Management of Nutritional Emergencies in Large Populations, World Health Organisation, Geneva
8. Shills, M.E., Olson, J., Shike, M. and Roos, C. (1998). Modern Nutrition in Health and Disease. 9th Edition, Williams and Williams. A. Beverly Co. London.
9. Srilakshmi B, Suganthi V and Kalaivani C Ashok. 2017. Exercise Physiology Fitness and Sports Nutrition. New Age International Publishers.
10. Benardot D. 2005. Advanced Sports Nutrition. 2nd Edition, Human Kinetics Publishers, Champaign, IL.
11. Chopra S, Singh SN and Mathur P, Nutritional Fuelling for Microgravity Environment of

Code: HSF-614

Credits: 4

Total Marks:100

PRACTICALS:

1. Measurement of energy expenditure: Factorial Approach and Heart Rate Monitoring Method
2. Calculate the energy expenditure and plan a one-day menu for mountaineer.
3. Management of motion sickness in special condition through diet.
4. Prepare a low- cost nutrient-rich recipes to support immune function using locally available food.
5. Evaluation of nutritional status and immune function using case studies.
6. Determination of vitamin-C losses during processing- Cutting, Boiling, Steaming, Pressure cooking.
7. Preparation of emergency feeding plans for disaster situations-Flood/Conflict situations.
8. Preparation of pre-event, during-event, and post-event meal plans for sports persons.
9. Market survey on sports supplements and ergogenic aids available in the local market.
10. Visit to a sports academy / established fitness centres.
11. Workshop/Seminar on sports nutrition.
12. Note book/Record.
13. Report.
14. Viva-voce

FOOD MICROBIOLOGY AND FOOD SAFETY
(THEORY)

Code: HSF-624

Credits: 4

Marks:100

Objectives:

1. To study the microbial flora associated with food.
2. To acquire knowledge and understand the importance of microbiology and its applications in food industry and in health.

Learning outcomes :

Student will be able to -

- Understand the nature of microorganisms involved in food spoilage, food infections and intoxications
- Comprehend the various factors responsible for food spoilage.
- Understand the specifications of various contamination sources and disease developed in certain processed products.
- Understand the importance of food safety, sanitation and quality control during food processing.

UNIT	TOPIC	MARKS
I	Fundamentals of microbiology- Bacteria, Yeasts, Molds and Viruses History and Development of Microbiology Bacteria: Morphology and cultural characteristics Yeasts : Morphology , Industrial importance of yeasts Molds: Morphology, Significance of molds, Common household molds in relation to food Viruses: Viruses and Bacteriophages, Morphology Factors affecting microbial growth, Beneficial uses of microorganisms in food	25
II	Contamination, spoilage, preservation and microbes of fruits, vegetables and cereals, fleshy foods, poultry, fish • Food Contamination and Spoilage- Definition, sources of contamination, principles underlying food spoilage • Principle of food preservation, methods of food preservation • Microbiological Spoilage of Fresh Whole Fruits and Vegetables - Contamination and Spoilage of fruits and vegetables • Microbiology of cereals and cereal products - Contamination and Spoilage of cereals, Mycotoxin, Prevention of mold and mycotoxin , • Microbiology of fleshy foods, poultry, fish- Contamination and Spoilage of meat and its products, poultry, fish	25

III	Microbial Food Borne Diseases- Food borne diseases - Definition, Characteristics, habitat, toxins disease and symptoms, food association, prevention of : • Food borne intoxications- Staphylococcal intoxication, Botulism, • Food borne infections- Salmonellosis, Listeria monocytogenes, Escherichia coli, Gastroenteritis • Foodborne Toxicoinfections- Clostridium perfringens, Bacillus cereus • New and emerging food borne pathogen • Indicators of bacterial pathogens	25
IV	Food Safety • Indicators of food quality and food safety - Coliforms, Enterococci, Bifidobacteria, coliphages. • Concept of Food safety Management systems, Good Hygienic Practices (GHP), Good Manufacturing Practices (GMP), HACCP, ISO2200, level. Food laws and Regulations.	25

Suggested readings:

1. Frazier W.C and Westhoff D.C.(2017), Food Microbiology, 5th Edition, Tata McGraw Hill Publishing Co., Ltd. New Delhi.
2. Bibek Ray, Fundamental Food Microbiology (2007) Fourth Edition, CRC Press
3. M.P. Doyle, L.R. Beuchat and Thoma J. Montville, (2001) Food Microbiology: Fundamentals and frontiers , 2nd edition, ASM press, USA
4. Annak.Joshua, (2001). Microbiology, Popular Book Depot.Chennai-15.
5. Modern Food Micro-Biology by James M. Jay, (2000), 6th edition, An Aspen Publication, Maryland, USA.
5. Modern Food Micro-Biology by James M. Jay, (2000), 6th edition, An Aspen Publication, Maryland, USA.

**RESEARCH METHODOLOGY
(THEORY)**

Code: HSF- 615 Credits: 2 Marks: 50

**RESEARCH
(THESIS/DISSERTATION/PROJECT WORK)**

Code: HSF- 625 Credits: 6 Marks: 150

Objective:

To initiate research work and submit the dissertation at the end of IV Semester

The students will be guided and supervised by a member of the teaching faculty of the concerned department. The dissertation in which the research culminates should reflect the students' own original work.

Syllabus

for

M.Sc. Home Science (Human Development)

COURSE STRUCTURE

1st Semester

Paper Code	Paper Type	Paper Title	Internal Assessment Marks	End-Sem. Marks	Total Marks	No. of Credits
HSH-501	DSC	Theories of Human Development and Behaviour	20	80	100	4
HSH-502	DSC	Guidance and Counselling: Skills and Techniques	20	80	100	4
HSH-503	DSC	Practical based on HSC-501 and HSH-502	-	100	100	4
HSH-504	DSC	Life Span Development I (Conception to Adolescence)	20	80	100	4
HSH-505	DSC	Life Span Development II (Adulthood to Old age)	20	80	100	4
HSH-506	DSC	Practical based on HSH-504 and HSH-505	-	100	100	4
Total					600	24

2nd Semester

Paper Code	Paper Type	Paper Title	Internal Assessment Marks	End-Sem. Marks	Total Marks	No. of Credits
HSH-507	DSC	Early Childhood Care and Education & Management	20	80	100	4
HSH-508	DSC	Practical based on HSH-507	-	100	100	4
HSH-509	DSC	Statistical Methods and Computer Applications	20	80	100	4
HSH-510	DSC	Practical based on HSH-509	-	100	100	4
XXX-000	VAC/AEC	Environment and Climate Change/Disaster Management/Foreign language	-	50	50	2
Total					450	18

3rd Semester

Paper Code	Paper Type	Paper Title	Internal Assessment Marks	End-Sem. Marks	Total Marks	No. of Credits
HSH-611	DSC	Methods and techniques of assessment in human development	20	80	100	4
HSH-612	DSC	Lab based on HSH-611	-	100	100	4
HSH-621	DSE	Mental health and Developmental Perspectives	20	80	100	4
HSH-622	DSE	Digital Media and Human Development	20	80	100	4
HSH-623	DSE	Lab based on HSH-621 and HSH-622	-	100	100	4
Total					500	20

4th Semester

Paper Code	Paper Type	Paper Title	Internal Assessment Marks	End-Sem Marks	Total Marks	No. of Credits
HSH-613	DSC	Children with Special Needs	20	80	100	4
HSH-614	DSC	Lab based on HSH-613	-	100	100	4
HSH-624	DSE	Personality Development	20	80	100	4
HSH-615	DSC	Research Methodology	10	40	50	2
HSH-625	DSE	Research (Thesis/Dissertation/Project work/Field work/Patent)	-	150	150	6
Total					500	20

1st Semester

THEORIES OF HUMAN DEVELOPMENT AND BEHAVIOUR (THEORY)

Code: HSH-501

Credits: 4

100 marks

80 marks – End Semester Examination

20 marks – Internal Assessment

Objectives:

- To enable the students to understand the main theories related to human development
- To instill a critical reasoning in the students in studying the different theories and their implications.

Learning outcomes:

Students will be able to:

- Explain the various theories of human development
- Apply critical reasoning and their implications to the significant role of each theory

UNIT I: Foundations of Development: Psychoanalytic, Psychosocial, Moral and Cognitive Development • <i>Significance of theory:</i> Need and value of theory Key characteristics of theory • <i>Ethological theories:</i> Darwin, Lorenz, Tinbergen • Freud's PsychoAnalytical Development Theory • Erik Erikson's Psychosocial Development Theory • Kohlberg's Moral Development Theory • Piaget's Moral Development Theory • Piaget's Cognitive Development Theory	25 Marks
UNIT II Language Development, Learning and Environmental Influences Language Development Theories • Behaviourist Perspective • Nativist Perspective • Interactionist Perspective Behaviourism and Social Learning Theories • Classical Conditioning Theory • Operant Conditioning Theory • Watson's Behaviourism • Albert Bandura's Social Learning Theory Ecological Perspective • Urie Bronfenbrenner's Ecological Systems Theory	25 Marks

Hierarchy of Needs Theory	
• Abraham Maslow's Hierarchy of Needs Theory	
UNIT III Intelligence and Cognitive Processing	25 Marks
• Multifactorial Theories of Intelligence • Thurstone's Primary Mental Abilities • Guilford's Structure of Intellect Model • Lev Vygotsky's Theory • Howard Gardner's Multiple Intelligence Theory • Information Processing Theory	
UNIT IV Emotional Development and Emotional Behaviour	25 Marks
• James-Lange Theory • Cannon-Bard Theory • Schachter Two-Factor Theory • Lindsey's Activation Theory • Lazarus Appraisal Theory	

References

Books :

1. Crain, W. (1992). Theories of Development. Concepts and applications. New Jersey: Prentice Hall.
2. Berk L.L. (2009), Child Development, Allyn and Hacom, USA
3. Berk L.L. (2007), Development through the life span, Pearson Educational, New Delhi.
4. Com. D. (2000), Essentials of Psychology Exploration and Application, Wrodsworth, USA.
5. Gerrig R.J. and Zimbard, P.G. (2006), Psychology and life. Pearson Educationals, New Delhi.
6. Papalia F.D. (2005), Human Development, McGraw Hill Inc., New York
7. Santrock J.W. (2006), Child Development, Tata McGraw Hill Publishing Company, New Delhi.

Journals

1. Journal of Child Development, Blackwell Publishers, US
2. Psychological Studies, ICSSR, New Delhi
3. Research Highlights, Saradalaya Press, Coimbatore
4. Young Children, Polly Greenbug Publications, Washington

GUIDANCE AND COUNSELLING SKILLS & TECHNIQUES (THEORY)

Code: HSH-502

Credits: 4

Total Marks:100

80 marks – End Semester Examination
20 marks – Internal Assessment

Objectives:

- To impart knowledge to the students regarding the concept and needs of guidance and counselling.
- To inculcate in them the different techniques of guidance and counselling.

Learning outcomes:

Students will be able to:

- Develop the skills to offer counselling for children and adults
- Inculcate skills in organizing progs related to preventive/developmental counselling

Unit-I: Guidance and Counselling Guidance and counselling – meaning, nature, scope and principle. Areas of guidance – educational, vocational and personal guidance, counselling and psychotherapy: basic difference. Characteristics of counsellor, qualities of effective counsellor. Ethical consideration for counsellor, guidelines for effective counselling.	25 marks
Unit-II: Counselling Skills and Process Core skills- Empathy, congruence, unconditional positive regards, concreteness, confidentiality Self-disclosure, Confrontation, Immediacy Attending skills- SOLER: Observation and listening Responding skills- Responding to content, feelings and meaning. Responding to silent, resistant and reluctant client Personalizing skills- personalising to meaning, problems, goals decision making Initiating skills- goal setting, developing programme, designing schedules and reinforcements, implementing programme Stages of counselling process-Relationship building, assessment and diagnosis, formulation of counselling goals, intervention and problem solving, termination and follow up.	25 marks
Unit-III: Techniques of counselling and Approach to counselling Individual counselling, group counselling- types of group, stages in group counselling .Types of counselling – directive, non-directive and elective. Approaches to counselling – Humanistic, scientific and behavioral approaches. Cognitive Behavioral Approach- concepts, process and techniques of - Rational emotive therapy, cognitive behavioral therapy, transactional	25 marks

Analysis Experiential Approach- concepts, process and techniques of - Person centered therapy, Gestalt Therapy, Existential therapy Creative Arts Therapy- concept procedure and techniques of -Music therapy, art therapy, drama therapy, psychodrama, dance therapy, play therapy, laugh therapy.	
Unit-IV: Special areas of Counselling Children and adolescence counselling – special problems of children, child abuse and neglect, Depression, Anti-social behavior Marriage and family counselling – counselling process, marital assessment, skill based marriage counselling, Psychodynamic family counselling, experiential family counselling structural family counselling, strategic family counselling, Adlerian family counselling and the counselling process Mental health counselling- Mental health and disorders.	25 marks

References

Books

1. Manju G. (2003), Effective Guidance and Counselling, Mangal Deep Publishers, Jaipur
2. Nayak N.K. (2002), Guidance and Counselling, APH Publishing Co., New Delhi
3. Nayak A.K. and Rao. V.K. (2007), Guidance and career counselling, APH publishing Cooperation, N Delhi
4. Patri V.R. (2005), Counselling Psychology, Author Press, New Delhi
5. Sharma A.S. (2008), Counselling Psychology, Commonwealth Publisher, New Delhi
6. Sharoy J. (2005), Counselling children, adolescents and families, Sage Publications, London

Journals

1. Child Psychiatry, Community, Mental Health, Hyderabad, Bonjana Hills
2. Indian Journal of Clinical Psychology, Chandigarh, Dept. of Psychiatry

Practical based on HSH-501 and HSH-502

Code: HSH-503

Credits: 4

Marks: 100

Practical based on HSH-501 Theories of Human Development and Behaviour

- 1) Review and prepare a summary of 5 research articles related to the subject
- 2) Conduct group discussions using moral dilemma situations and Identify stages of moral reasoning.
- 3) Critically analyse the life and works of selected theorists
- 4) Preparation of models on different theories
- 5) Debate on criticism and strengths of different theories
- 6) Notebook
- 7) Viva

Practical Based on HSH-502 Guidance and Counselling: Skills & Techniques

1. Visit to clinic/mental health institutes/Counselling centres to observe counselling process and report writing.
2. Case analysis – Analyse cases related to counselling of mental health problems (child abuse and neglect/anti-social behaviour/ substance abuse/ stress/anxiety/depression)
3. Application of counselling techniques, types and approaches through role play – Group/individual counselling, Directive/non-directive/eclectic counselling
4. Interaction with a professional counsellor or mental health expert and submission of report.
5. Articles prepared during the course
6. Notebook
7. Viva

LIFE SPAN DEVELOPMENT I (CONCEPTION TO ADOLESCENCE)

Code: HSH-504

Credits: 4

Marks: 80

80 marks – End Semester Examination

20 marks – Internal Assessment

Objectives:

- To provide students with an understanding of the principles, patterns, and processes of human development from infancy to adolescence.
- To enable students to examine the physical, cognitive, language, emotional, social, and moral development occurring during infancy, childhood, and adolescence.
- To develop an understanding of developmental tasks, challenges, and issues associated with different stages from infancy to adolescence.
- To familiarize students with factors influencing growth, development, adjustment, and well-being during childhood and adolescence.

Learning Outcomes

Students will be able to:

1. Explain the concepts, principles, domains, and developmental tasks associated with human development.
2. Describe the developmental characteristics, milestones, and developmental changes during infancy, early childhood, and late childhood.
3. Analyze the physical, cognitive, language, emotional, social, and moral development of children across different developmental stages.
4. Examine the developmental changes, challenges, adjustment issues, and developmental tasks associated with adolescence.

Unit I: Introduction to Human Development • Concept, principles, and characteristics of growth and development • Nature versus nurture debate • Domains of development and their interrelationship • Determinants of growth and development • Havighurst's developmental tasks • How life begins • Pre-natal development	25 marks
Unit II: Infancy and Toddlerhood (Birth–2 Years) • <i>Infancy</i>: Neonate - Physical characteristics, adaptations, adjustments, and reflexes, Importance of breastfeeding, Care of the newborn, Characteristics and developmental milestones, Physical development, Cognitive development, Language development, Emotional development, Social development • <i>Toddlerhood</i>: Characteristics and developmental milestones, Physical development, Cognitive development, Language development, Emotional development, social development, Common developmental concerns during toddlerhood	25 marks

Unit III: Early Childhood (2–6 Years) and Late Childhood Characteristics and developmental milestones: Physical development, Cognitive development, Language development, Emotional development, social development, Foundation of moral development Play and its significance in development School readiness Common developmental problems and behavioural issues in early childhood	25 marks
Unit IV: Late Childhood and Adolescence (6–18 Years) <i>Late Childhood (6–11 Years)</i> - Characteristics and developmental milestones, Physical development, Cognitive development, Language development, Emotional development, social development, Moral development, Common developmental problems and challenges <i>Adolescence (11–18 Years)</i> - Characteristics and developmental tasks of adolescence, Puberty and physical development, Cognitive development during adolescence, Emotional development and identity formation, Social development: Peer relationships, family relationships, and autonomy, Moral development during adolescence, Self-concept and self-esteem, Challenges faced by adolescents in the Indian context, Risk behaviours and adjustment problems: Substance abuse, delinquency, internet addiction, and mental health concerns, Role of family, school, and community in promoting healthy adolescent development	25 marks

References

- Berk, L. E. (2022). *Development through the lifespan* (8th ed.). Pearson.
- Berk, L. E. (2021). *Child development* (10th ed.). Pearson.
- Boyd, D., & Bee, H. (2019). *Lifespan development* (8th ed.). Pearson.
- Feldman, R. S. (2023). *Development across the life span* (10th ed.). Pearson.
- Papalia, D. E., & Martorell, G. (2021). *Experience human development* (15th ed.). McGraw-Hill Education.
- Santrock, J. W. (2024). *Life-span development* (20th ed.). McGraw-Hill Education.
- Santrock, J. W. (2024). *Child development* (16th ed.). McGraw-Hill Education.
- Santrock, J. W. (2023). *Adolescence* (18th ed.). McGraw-Hill Education.
- Kuppuswamy, B. (2018). *Child behaviour and development* (Reprint ed.). Konark Publishers.
- Mangal, S. K., & Mangal, S. (2019). *Child development* (2nd ed.). PHI Learning.
- Rice, F. P., & Dolgin, K. G. (2017). *The adolescent: Development, relationships, and culture* (14th ed.). Pearson.

LIFE SPAN DEVELOPMENT – II (Adulthood to Old Age) (THEORY)

Code: HSH-505

Credits:4

Total Marks:100

80 marks – End Semester Examination
20 marks – Internal Assessment

Objectives

1. To develop an understanding of the developmental changes, tasks, and challenges associated with early, middle, and late adulthood.
2. To familiarize students with the concepts of marriage, family, interpersonal relationships, and the influence of social change on family life.
3. To enable students to understand the ageing process and the physical, psychological, social, and economic aspects of old age.
4. To provide knowledge of family-related legislations, welfare programmes, and services for individuals and families, particularly older adults.

Learning Outcomes

After completing this course, students will be able to:

1. Explain the developmental characteristics and tasks associated with different stages of adulthood and old age.
2. Analyze marriage, family dynamics, interpersonal relationships, and the impact of social change on individuals and families.
3. Evaluate major theories of ageing and the multidimensional issues and challenges faced by older adults.
4. Apply their understanding of developmental concepts, family systems, and welfare provisions through field-based and practical experiences.

UNIT I Early Adulthood Developmental tasks, physical development – biological aging, physical change, cardio vascular and respiratory systems, motor performance, cognitive development, emotional and social development. Relationships at early adulthood – romantic love, friendships. Love and bonding – Affection, Friendship and Love Theories of love – Robert Sternberg's theory of love, Rubin's theory of love, Stendhal's classification of love, Lee's styles of loving; Selecting a vocation, factors influencing, establishing a career change.	25 marks
UNIT II Concept of Marriage, Family and Social Change Marriage: Definitions, Concepts, Types, Goals and Functions; Marital Adjustment – Definition and Factors affecting adjustment; Theory of mate choice – Theory of Complementary Needs, Filter theory, Stimulus-Value-Role theory; Rh compatibility, medical screening. Areas of marital adjustments, marital hazards. Constitutional provisions, Legislations for marriage and family – Hindu Marriage Act, Muslim Marriage Act, Christian Marriage Act, Special Marriage Act, Child Marriage Act, Dowry Prohibition Act, Adoption and Maintenance Act, Divorce and Family Laws	25 marks

Family – Definitions, Concept, Goals and Functions; Single parent families, female headed families, childless families, adaptive families and dual earner families. Family life cycle. Family crisis - causes and effects. Concept and characteristics of social change. Impact of migration, industrialization, urbanization, liberalization, privatization and globalization on family	
UNIT III Middle Adulthood: Developmental tasks; physical changes – vision, hearing, skin, muscle, fat, skeleton, reproductive system; Cognitive development – changes in mental abilities; Emotional and social development; Social clock, mid-life crisis; Relationships at midlife – marriage and divorce; changing parent – child relationships, grandparenthood; Job satisfaction, career change, unemployment, planning for retirement.	25 marks
UNIT IV Late Adulthood/old Age/Elderly Developmental tasks; Ageing processes: physiological, psychological, social and economic aspects; Demographic profile of Elderly Theoretical perspectives: Disengagement theory, Activity theory, Human development theory, Continuity theory, Age stratification theory, Labelling theory Intergenerational family relationship during old age Services and Programs for elderly in India	25 marks

References

Books

1. Baral, J.K and Chowdhry, A (2002), A Family in transition-power and development, Northern book Centre, New Delhi
2. Berk I.E (2007), Development through the life span, Pearson Educational, New Delhi
3. Carr, A (2003). Family therapy- concepts, process and practice, John Wiley and Sons Ltd, New Delhi
4. Hurlock F.B (2005), Child growth and development, Tata McGraw Hill Publishing Company, New Delhi
5. Hurlock F.B (2006), Development Psychology- A life span approach, Tata McGraw Hill Publishing Company, New Delhi
6. Ratra, A., Kaur, P and Chhikara, S (2006). Marriage and family in divorce and changing scenario, Deep and Deep publications Pvt Ltd, New Delhi
7. Roy P.K. (2004), Family diversity in India, patterns, practices and ethics, Gyan Publishing House, New Delhi.
8. Roy, V.K. and Reddy, R.S. (2008), Parent education, Common wealth, New Delhi
9. Santrock J.W. (2007), A tropical approach to life span development, Tata McGraw Hill Publishing Company, New Delhi
10. Sheela I (2003), Women's marriage in Indian cultural practice, Dominant Publishers and Distributors, New Delhi.

Journals

1. Child Care Health and Development, Black well Publishing, U.K.
2. Child Development, Black Well Publishing, USA
3. Indian Psychological Review, Agra Psychological Research Cell, Agra
4. Social change, Council for Social Development, New Delhi

PRACTICALS BASED ON HSH-504 and HSH-505

Code: HSH-506

Credits: 4

Marks: 100

Based on HSH-504 Life Span Development – I (Conception to Adolescence)

1. Develop a booklet on infant reflexes.
2. Visit to post-partum unit of a hospital and write a report on the various activities done there.
3. Prepare an album on developmental milestones during 0-6 years old.
4. Observation and recording of physical and motor development, cognitive development and language development, socio-emotional development, personality development in a preschooler.
5. Interaction with a resource person on pre-natal development, birth process and its complications.
6. Workshop on issues and challenges of early and late childhood with a resource person.
7. Group discussion/workshop on any problems /developmental task of adolescents
8. Articles prepared during the course
9. Record
10. Viva-voce

Based on HSH-505 Life Span Development – II (Adulthood to Old Age)

1. Group discussion/workshop on any problems related to Adulthood and elderly.
2. Visit to a family court/family counselling centre and present a report.
3. Prepare a booklet/leaflet/pamphlet on mid-life crisis/selection of a vocation/job satisfaction/planning for retirement.
4. Visit to old age home
5. Articles/assignment prepared during the course.
6. Notebook
7. Viva

2nd Semester

Early Childhood Care and Education & Management

Code: HSH-507

Credits: 4

Total Marks:100

80 marks – End Semester Examination

20 marks – Internal Assessment

Objectives:

- To enable the students to understand the concepts of early childhood education
- To impart knowledge of preschool education to the students.
- To develop the skills of preparing learning materials and literature for the preschoolers.

Learning outcomes:

Students will be able to:

- Explain the concept of ECE, its various perspectives and significance
- Describe the role of play, its types and values in the various domains of development
- Develop skills in curriculum development and the different approaches and programme planning of an ECE centre

Unit I: Foundations of ECCE Concept, principles, importance, objectives and scope of ECCE. Programmes of ECCE in India. Types of ECCE centres – play centre, daycare, Montessori, kindergarten, balwadi, anganwadi and laboratory nursery. Formal, non-formal and play-way approaches. Philosophical perspectives: • Western – Pestalozzi, Rousseau, Froebel, Montessori and Dewey • Indian – Tagore, Sri Aurobindo, Gandhi, Tarabai Modak and Gijubhai	25 marks
Unit II: Curriculum and importance of play Meaning and significance of ECCE curriculum. Components – objectives, content, methods and evaluation. Curricular areas: • Language and literacy • Numeracy • Environmental awareness • Science concepts • Art, music, movement and drama • Fine and gross motor development Developmentally Appropriate Methods and approaches: • Play-way, project and Montessori methods • Child-centred, teacher-centred and theme-based approaches • Reggio Emilia and Waldorf approaches Concept, values, principles and theories of play – surplus energy, recreation and recapitulation theories. Types of play – solitary, parallel, associative, cooperative, free and structured, indoor and outdoor play.	25 marks

Unit III: Organization and administration of ECCE Institutions <i>ECCE institutions-</i> Guidelines for ECCE institutions, Contemporary issues in ECCE- inclusive education, digital learning, child safety and protection, NEP 2020 Perspectives. Physical environment, infrastructures and learning materials <i>Indoor and outdoor play equipment-</i> Selection, care and maintenance of play equipment <i>ECCE personnel-</i> Qualification, roles and responsibilities of administrator, principals, teachers, assistants, counselors, caretaker and cook <i>Administration---</i> Types and maintenance of records and registers, Budgeting, Supervision	25 marks
Unit IV: Programme Planning, Evaluation and Home-School Relationship Programme planning – principles, characteristics, monthly, weekly and daily planning; full day, half day and play group programmes. Evaluation of curriculum, programme, methods, materials, personnel and infrastructure. Home-school relationship: • Importance and aims • Parent involvement • PTA – need and significance	25 marks

References

1. Agarwal J.C. and Gupta S. (2007), Early Childhood Care and Education, Shilpi Publication, New Delhi
2. Choudhary S. (2006), Nursery Education: A Preschool Challenge, Dominant Publishers and Distributors, New Delhi
3. Gupta S.M. (2016), Early Childhood Care and Education, PHI Learning Pvt. Ltd., New Delhi
4. Islam S.K. and Rao. V.K. (2008), Early Childhood care and education, Commonwealth Publishers, New Delhi
5. Kaul V. (2009), "Early Childhood Education Programme". National Council of Educational Research and Training, New Delhi
6. McMillan M. (2006), The Nursery School, Cosmo Publications, New Delhi
7. Mishra R.C. (2005), Early Childhood Care and Education, APH Publishing corporation, New Delhi
8. Mohanty J. and Mohanty B. (2002), Early Childhood Care and education. Deep and Deep Publishers, New Delhi
9. Sharma R. (2006), Preschooling in India and Its Impact on Education, Vista International Publishing, New Delhi.

Practical based on HSH -507

Code: HSH-508

Credit: 4

Marks: 100

1. Preparation of a review paper on analysing current trends in ECE-Global and Indian context.
2. Creating a layout plan with designated learning centres (art, numeracy, puzzles and block, dramatic play, science, creative art, music, doll, reading and story book, concept etc.).
3. Organize a parent education class / workshop / exhibition involving parents of preschool children.
4. Visit to ECCE centers.
5. Identifying, selecting and creating DAP- aligned teaching learning materials/ aids and resources for play and joyful learning.
6. Designing play-based and inquiry-based lessons for a day schedule.
7. Implementing planned activities in a pre-school (child lab).
8. Reports of visit
9. Note book/Record
10. Viva-voce

STATISTICAL METHODS AND COMPUTER APPLICATIONS**Code: HSH-509****Credits:4****Marks: 100****Objectives:**

- To understand the scientific approaches to research
- To understand the significance of research methods in particular fields
- To learn basic statistical procedures for research.
- To understand applications of statistical techniques for analysis and interpretation.
- To use selective software for qualitative and quantitative data analysis.

Learning outcomes:

Students will be able to:

- Demonstrate knowledge of the scientific method, purpose and approaches
- Compare and contrast quantitative and qualitative research
- Explain research design and the research cycle
- Prepare key elements of a research proposal
- Explain ethical principles, issues and procedures

Unit I Data Organization, Presentation and Descriptive Statistics • Nature, characteristics and types of data • Editing, coding and classification of data • Grouped and ungrouped data • Frequency distribution and cumulative frequency distribution • Tabulation of data and parts of a statistical table • Diagrammatic and graphical presentation of data: bar diagrams, pie charts, histograms, frequency polygons, frequency curves, ogives and line graphs • Statistics: meaning, definition, scope, functions and limitations • Measures of central tendency: Mean, Median, Mode and Weighted Mean	25 marks
Unit II Measurement, Variability and Relationship among Variables • Scales of measurement: Nominal, Ordinal, Interval and Ratio scales • Measures of dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation and Coefficient of Variation • Measures of shape of distribution: Skewness and Kurtosis • Standard Error of Mean • Probability distribution: Normal distribution and its characteristics • Correlation: Pearson's Product Moment Correlation and Spearman's Rank Correlation • Regression: Simple Linear Regression and prediction using regression equation	25 marks
Unit III Inferential Statistics • Concept and significance of hypothesis testing • Null and Alternative Hypotheses • Levels of significance and confidence intervals • Type I and Type II errors • Parametric and Non-parametric tests: assumptions and applications • z-test, Student's t-test, Chi-square test and F-test • Analysis of Variance (ANOVA): one-way and two-way ANOVA, interpretation of ANOVA tables	25 marks

Unit IV Computer Applications and Statistical Software <i>Basic Computer Applications</i> • Hardware and software concepts • Operating systems and file management <i>Spreadsheet Applications</i> • Functions and formulas • Data sorting and filtering • Pivot tables and data validation • Preparation of charts: histogram, boxplot, pie chart, scatter diagram and line graph <i>Statistical Software Applications</i> • Data entry, coding and management • Computation of descriptive statistics • Correlation, regression and ANOVA using statistical software (SPSS/R/Excel) • Interpretation of statistical outputs Citation management and automatic generation of bibliography <i>Presentation Software</i> • Preparation of academic presentations • Incorporation of images, graphics, audio and video	25 marks
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References

1. Kothari, CR (2004) Research Methodology, Methods & Techniques, 2nded. New Age International Publishers.
2. Goode, WJ and Hatt, PK (1981) Methods in Social Research, McGraw Hill International Editions, Sociology Series.
3. Marjory L. Joseph, William D Joseph (1996) Research Fundamentals in Home Economics / Human Ecology. Plycon Press.
4. WHO (2001) Health Research Methodology – A Guide for Training in Research Methods.
5. Stennerg, R J (1991) The Psychologist's Companion: A Guide to Scientific Writing for students and Researchers. Cambridge: CUP.
6. Garrett, H. (1971), Statistics in Psychology and Education, New York: David Haley & Co.
7. Gupta, S.P and Gupta, A (1998). Statistical Methods. New York: Sultan Chand.

Code: HSH-510

PRACTICAL BASED ON HSH-509

Credits:4

Marks: 100

Statistics

1. Data Presentation

- a. Construction of Frequency Distribution Table
- b. Graphic representation of data- Histogram, stem and leaf chart

2. Computations of Measures of Central Tendency and Measures of Dispersion based on Home Science Data.

- a. Calculation of Mean in group Data
- b. Calculation of Median in group Data
- c. Calculation of Mode in group Data
- d. Determination of Standard Deviation of Mean

3. Computation Chi-square test for

- a. Goodness to fit
- b. Independence of attributes in 2x2 and r x c contingency table

4. Application of student's "t" test for small sample

5. Computation and significance Test for

- a. Pearson's Correlation Coefficient
- b. Spearman's Rank Correlation

6. Computation Regression Coefficient

7. Computation of One-Way ANOVA using Home Science data

Computer Applications

8.. Interpretation of Tables and Pivot Tables

9. Sorting and filtering tables

10. Creating charts using appropriate statistical software

- i. Boxplot
- ii. Line graphs
- iii. Scatter Plot
- iv. Frequency Polygon
- v. Cumulative Frequency of Ogives

11. Calculation of Descriptive Statistics.

12. Record

13. Viva

3rd Semester

METHODS AND TECHNIQUES OF ASSESSMENT IN HUMAN DEVELOPMENT (THEORY)

Code: HSH-611

Credits: 4

Total Marks:100

80 marks – End Semester Examination

20 marks – Internal Assessment

Objectives:

- To appraise the students with different methods and techniques of assessment in human development.
- To expose them to the different assessment techniques throughout life span.

Learning outcomes:

Students will be able to:

- Explain the various assessment methods used in assessing human development
- Apply the different assessment techniques in studying human development

UNIT I Introduction Methods of studying human development - Longitudinal, Cross sectional and Experimental methods for studying human development, ethical consideration in childhood study Methods of assessment – Formative and Summative, Formal and Informal, Performance assessment, Dynamic assessment	25 marks
UNIT II Approaches to studying children • Introduction to fieldwork and its significance • Anthropometric measurement – height, weight, upper arm circumference, skin fold thickness. • Nutritional status of young children • Developmental assessment Scales for infant: Bayley scale APGAR Neonatal Behavioural Assessment Scale	25 marks
UNIT III Projective techniques • Meaning • Advantages and Disadvantages • Types of projective techniques (Rorschach Test, Holtzman Inkblot Test, Thematic Apperception Test, Sentence Completion Test, Graphology, Draw a Man test, House-Tree-Person, Children's Apperception Test)	25 marks
UNIT IV Non projective Techniques • Meaning • Advantages and Disadvantages • Types of non-projective techniques (Interview, Questionnaire, Observation, Checklist, Rating scale, Case Study, Wechsler battery, Raven's Progressive Matrices, Self-Esteem Inventory, Myers Briggs Type Indicator) <i>Reliability and Validity test</i> <i>Sociometric method and sociogram</i> <i>Scoring and interpretation of Differential Aptitude Test</i>	25 marks

References

1. Aylward, G. (1994). Practitioner's guide to developmental and psychological testing. New York: Plenum Press.
2. Blaxter, L., Hughes, C. and Tight, M. (1999). How to Research. New Delhi: Viva Books.
3. Hayes, N. (ed). (1997). Doing Qualitative Analysis in Psychology. Hove: Psychology Press.
4. Smith, J.A., Harre, R., and van Langenhove, L. (1995). Rethinking Psychology. London: Sage.
5. Yin, R. (1994). Case study research: Design and methods (2nded.) Beverly Hills, CA: Sage Publishing.
6. Nagpal, R. and Sell, H. (1985). Subjective well-being inventory. New Delhi : World Health Organization.

Practical based on HSH-611

Code: HSH-612

Credits: 4

Marks: 100

Based on HSH-611 Methods and Techniques of Assessment in Human Development

1. Preparation of data collection tools: interview schedule, questionnaire and observation sheet on relevant areas
2. Conduct a case study for different age groups on different topics and submit a detailed report
3. Assessment of a child (5 to 10 years) using sociometric method
4. Conduct an analysis of data generated from an in-depth qualitative or quantitative evaluation study in order to draw inferences and suggest an improvement plan for the programme / system evaluated.
5. Visit to an institution for observation and administration of projective technique
6. Conducting qualitative observation of a child in a Laboratory Nursery School and writing a report
7. Use of non-projective techniques for assessment using
 - Raven's Progressive Matrices
 - Self-Esteem Inventory
 - Sex-Role Inventory
 - Myers Briggs Type Indicator
8. Report of visit
9. Notebook
10. Viva

MENTAL HEALTH AND DEVELOPMENTAL PERSPECTIVES (THEORY)

Code: HSH-621

Credits: 4

Total Marks:100

80 marks – End Semester Examination

20 marks – Internal Assessment

Objectives:

- To understand the concept, dimensions, and importance of mental health across different stages of life.
- To understand common mental health problems and developmental disorders among children, adolescents, adults, and the elderly.

Learning Outcome:

After completing this paper, students will be able to:

- Explain the concepts and importance of mental health and human development.
- Analyze the relationship between developmental processes and mental wellbeing.
- Identify factors affecting mental health and recognize common mental health issues and developmental challenges faced during childhood, adolescence, adulthood, and old age.
- Apply knowledge of developmental perspectives in understanding behaviour, emotions, and adjustment patterns.

UNIT I - Introduction to Mental Health & its relevance during infancy Definition, Concept and Importance of holistic health, well-being and happiness; National Mental Health policy of India (1982); Needs and programmes for community mental health. Infancy – Implication of attachment and bonding for mental health; Deprivation syndrome.	25 marks
UNIT II - Mental health needs and Behavioural Difficulties Manifested from Early Childhood Years till Adolescence Safety, Security, Relationships, Autonomy and Self-concept, Nutrition and Health; Feeding problems, Aggression, Withdrawal and Problems related to early schooling and formal living. Mental health needs, Problems related to school and adolescence Maladjustment at home and school – recognition, appreciation, friendships and industry, discipline, truancy, fears and phobias. Providing guidance / Intervention work with children, parents, teachers, peers and school administration. School mental health programmes for students and teachers, Improving school climate; Mental health needs of adolescent.	25 marks
UNIT III - Adulthood and Elderly Mental health problems in the community – Life events that cause stress, violence and sexual abuse, marital adjustments and career adjustment, Traumatic Childhood; Substance abuse and addiction; Midlife crisis; Management of stress – coping strategies, counselling, training in relaxation, yoga, meditation.	25 marks

UNIT IV - Mental Health - Causes, Sign & Symptoms and Treatment of different types of Mental Health problems	25 marks
Behavioural and Developmental Disorders, Anxiety Disorder, Mood Disorder, Eating and Sleep Disorder, Psychotic Disorder, Personality Disorder, Trauma and Stress Related Disorders, Substance Use Disorders, Cognitive Disorders	
Therapies for mental health problem: Psychotherapy, Behavioural Therapy and Family and Social Support Therapy	
Mental Health Assessment tools	

Suggested Readings

1. Gururani G. D.(2006), Textbook of Mental health and Hygiene, Akanksha Publishing.
2. Innes, A., Kelly, F., & McCabe, L. (2012). *Key Issues in Evolving Dementia Care: International Theory based Policy and Practice*. Jessica Kingsley.
3. Kennedy Carroll (1988). Human Development. New York : Macmillan.
4. Kimmel Douglas (1974). Adulthood and Aging. New York : Wiley.
5. Fontaine Karen Lee(2008), Mental Health Nursing 5th Edition, Pearson India publication.
6. Ramesh chadurvethi, R. (2006). Guidance and counselling techniques. Chennai: SBA Book Publishers.
7. Shreevani R. (2011), A Guide to Mental Health and Psychiatric Nursing 3rd Edition, Jaypee Brothers.
8. SidanaAjeet , et al., (2012), Community Mental Health in India, JAY PEE publishing.
9. Nayar Usha S (2012), Child and Adolescent Mental Health, New Delhi, SAGE India
10. Hazen Eric P , Mark A Goldstein , Myrna Chandler Goldstein (2010), Mental Health Disorders in Adolescents: A Guide for Parents, Teachers, and Professionals, Rutgers University Press
11. Nair Mkc (2016), Adolescent Counseling, Jaypee Brothers Medical Publishers Pvt. Ltd.
12. Martin Michael, Cynthia Waltman Greenwood (1995), Solve Your Child's School-Related Problems, Perennial publishers
13. Segal, D.L., Qualls, S.H. and Smyer, M.A. (2018). *Aging and Mental Health*. Chichester: Wiley Blackwell.
14. Stuart Hamilton, I. (2012). *The Psychology of Ageing*. London: Jessica Kingsley Publishers.

Digital Media and Human Development (THEORY)

Code: HSH-622

Credits: 4

Total Marks:100

80 marks – End Semester Examination
20 marks – Internal Assessment

Objectives:

- Understand the role of digital media in human development across the lifespan.
- Examine the impact of social media, AI, gaming, and digital environments on children, adolescents, and families.
- Analyze opportunities and risks associated with digital technology.
- Develop skills for responsible digital engagement, media literacy, and digital wellbeing.
- Gain practical exposure to digital tools used in education, communication, and developmental research.

Learning outcomes:

Students will be able to:

1. Understand the role and influence of digital media on human development across different stages of life.
2. Analyze the impact of digital media on self-concept, behaviour, mental health, relationships, and wellbeing.
3. Apply media literacy, digital citizenship, and responsible technology-use practices in educational, family, and social contexts.

Unit I: Introduction to Digital Media and Human Development Meaning, nature, and scope of digital media, Concept of digital childhood and digital society Types of digital media: Social media, Streaming platforms, Gaming, AI-based applications, Educational technologies; Human development in the digital age Theoretical perspectives in digital media usage: • Ecological systems theory • Social learning theory	25 marks
Unit II: Digital Media Across Developmental Stages • Screen exposure in infancy and early childhood • Digital learning and media engagement among school-age children • Role of digital media in cognitive, language, and social development, • Self-concept and self-image in the digital age; social media and identity formation during adolescence; Peer influence, online validation, and self-esteem • Social comparison and presentation of self on digital platforms • Influence of influencers, beauty standards, and online trends on self-image • Online friendships, relationships, and emotional wellbeing • Digital relationships and communication among young adults • Parenting in the digital era: Digital parenting styles, Monitoring and mediation, Co-viewing and guidance; Impact of digital media on family interaction and communication	25 marks

Digital engagement and technological adaptation among older adults	
Unit III: Digital Media, Mental Health, and Wellbeing - Concept of digital wellbeing and balanced technology use - Psychological effects of excessive screen exposure; Internet addiction and problematic media use; Social media addiction and fear of missing out (FOMO); Cyberbullying, trolling, online harassment, and cyberstalking - Sleep disturbances and sedentary lifestyle associated with digital media - Social comparison, body image concerns, and self-esteem issues - Influence of influencers, celebrity culture, and online trends on behaviour - Gaming behaviour: Online gaming and aggression, Gaming disorder, Educational and therapeutic gaming - Digital stress, anxiety, loneliness, and emotional regulation - Exposure to inappropriate content and its developmental implications - AI algorithms, personalized feeds, and behavioural influence - Strategies for healthy and mindful technology use - Role of parents, teachers, and counsellors in promoting digital wellbeing	25 marks
Unit IV: Media Literacy, AI, and Emerging Trends - Meaning and importance of media literacy - Critical evaluation of digital content - Fake news, misinformation, propaganda, and fact-checking - Digital footprints and online identity management - Privacy, data protection, and cyber security awareness: AI and human development, AI in education, AI-assisted learning tools, AI and child development - Chatbots and virtual assistants - Role of digital media in education, advocacy, and social change - Digital inclusion and accessibility for diverse populations - Assistive technologies for children with special needs - Virtual classrooms and online learning environments - Emerging technologies: Virtual Reality (VR), Augmented Reality (AR), Metaverse, Wearable technologies - Ethical concerns in AI and digital technology - National and international policies related to digital safety and media regulation	25 marks

Suggested Readings

- Livingstone, S. (2021). *Parenting for a Digital Future*. Oxford University Press.
- Turkle, S. (2017). *Reclaiming Conversation: The Power of Talk in a Digital Age*. Penguin.
- Valkenburg, P. M., & Piotrowski, J. T. (2017). *Plugged In: How Media Attract and Affect Youth*. Yale University Press.
- Ito, M. et al. (2019). *The Digital Youth Network*. MIT Press.
- American Academy of Pediatrics. (Latest Guidelines on Children and Media Use).
- UNICEF. (2023). *Children in a Digital World*.
- OECD Reports on Digital Education and Wellbeing.
- Government of India. National Education Policy (2020) — Digital Learning Initiatives.

Practical based on HSH-621 and HSH-622

Code: HSH-623

Credits: 4

Marks: 100

Based on HSH-621 Mental Health and Developmental Perspectives

1. Administration of standardized psychological mental health assessment tools.
2. Develop Interview schedule and conduct a case study of individuals from different developmental stages to study their emotional, behavioural, or adjustment problems.
3. Organize campus-wide mental health awareness campaign using self-developed tools.
4. Interaction programme with a resource person on mental health.
5. Visit to Mental Health Institute to observe mental health services
6. Notebook/Report
7. Viva

Based on HSH-622 Digital Media and Human Development

1. Prepare and administer a survey on screen time habits among children, adolescents, or adults and report writing.
2. Analyze selected social media posts/videos for themes related to body image, gender roles, parenting, or mental health.
3. Develop a digital wellbeing plan for a child, adolescent, or family including healthy media use guidelines.
4. Review and evaluate one educational app or AI tool used for child learning or development.
5. Design a poster, infographic, short video, or presentation on:
 - Cyber safety
 - Responsible social media use
 - Media literacy
 - Healthy screen habits
6. Articles prepared during the course
7. Notebook/Report
8. Viva

4th Semester

CHILDREN WITH SPECIAL NEEDS (THEORY)

Code: HSH-613

Credits – 4

Total Marks:100

80 marks – End Semester Examination
20 marks – Internal Assessment

Objectives:

- To understand the concepts of disability, its classification, challenges and needs of children with special needs.
- To enable the students to know the importance of identification, screening and intervention
- To gain knowledge of educational services, teaching strategies and management approaches
- To understand the importance of special and inclusive education to enhance their learning and development.

Learning outcomes: Students will be able to:

- Identify the differently abled children and engage them in a better manner
- Trace children with social and emotional problems and channelize them in a positive way
- Enlighten the disabled on the different provisions of the government

Unit -I Introduction <i>Differently abled children</i> Concept, meaning, types and definitions Difference between impairment, disability and handicap, Need for early identification and intervention, Needs and problems of differently abled children, Special schools and integrated school, Inclusive education <i>Children with emotional/behavioral disorders and children in difficult circumstances</i> Emotional/behavioral disorders- definition, classification, characteristics, causes, identification and remedial measures Children in difficult circumstances- juvenile delinquency, abused children, deprived children, orphan, Labored children- definition, characteristics, causes and remedial measures.	25 marks
Unit –II Intellectually challenged children and children with motor difficulties <i>Intellectually challenged children</i> Definition, classification/types, characteristics, causes, prevention and management Gifted and creative children, Mentally retarded children, Cerebral palsy and Down syndrome <i>Children with motor difficulties</i> Definition, characteristics, significance and symptoms, treatment and management, Muscular dystrophy, spina bifida, traumatic injuries, spinal cord injury, multiple sclerosis, Tourette Syndrome, paraplegia	25 marks
Unit-III: Neuro developmental disorder Definition, classification/types, characteristics, causes, prevention and management ADHD, Learning disability, slow learners, Autism	25 marks
Unit-IV: Sensory/communicative disorder Definition, classification/types, characteristics, causes, prevention and management: Visual impairment, Hearing impairment, Speech impairment	25 marks

References

Books

1. Mangal S.K. (2000). Educating exceptional children. RHI Learning Pvt Ltd, New Delhi
2. Reddy G.I. and Sujatha I. (2006). Children with disabilities, Discovery Publishing House, New Delhi
3. Reddy G.I. (2007). Education of children with special needs. Discovery Publishing House, New Delhi
4. Reddy I., Ramar R. and Kusuma A. (2004). Hearing impairment – an educational consideration. Discovery Publishing House, New Delhi
5. Relakar S., Delvi I. and kaul A. (2006) fundamentals of speech and speech teaching.
6. Sharma K. (2006) Rehabilitation of hearing impaired children. Sarup and Sons, New Delhi

Journal

1. Childhood Disability Update- A Ramco scientific communication, New Delhi
2. Consult Education for persons with handicapped. NIMHANS, Bangalore

Practical based on HSH-613

Code: HSH-614

Credits: 4

Marks: 100

1. Preparation of checklist for identification of different types of children with special needs.
2. Preparation of teaching aids /charts /poster /play equipment /materials for children with special needs.
3. Visit to institutions of children with special needs to observe their teaching methods.
4. Case profile of a child/an adolescent with disability.
5. Three Day exposure visit to institutions dealing with children with special needs/occupational therapy centre.
6. Assessing/Surveying various public spaces for Universal Design Principles for Inclusion.
7. Report of Visit
8. Notebook
9. Viva

PERSONALITY DEVELOPMENT (THEORY)

Code: HSH-624

Credits: 4

Marks: 100

Objectives:

- To enable the students to understand the concept of personality.
- To equip them with the skills to develop a healthy personality.

Learning outcomes:

Students will be able to:

- Explain the different theories of personality and the different types and factors influencing
- Compare and contrast the different types of personality disorder and its associated symptoms and characteristics

Unit-I: Concept of personality Definitions, meaning and forms of personality. Influence of heredity and environment on personality-physical, intellectual, emotional, social, sex, education, aspiration and achievement Impact of Media culture on Personality Development	25 marks
Unit-II: Theories of personality and its Implications <i>Implications of various theories relevant to personality development:</i> <i>Trait theories</i> - OCEAN 5 factors of personality, Cattell, Eysenck <i>Psychodynamic theories</i> - Freud's Psychoanalytic theory, Erickson's Psycho-social theory, Carl Jung's theory, Alfred Adler theory <i>Humanistic theories</i> – Carl Rogers, Abraham Maslow <i>Social Cognitive theory</i> – Albert Bandura <i>Behavioural theories</i> – Watson, Skinner	25 marks
Unit-III: Development of personality Self-image, self-esteem, self- concept <i>Determinants of personality development-</i> self-confidence, body language, communication skills, public speaking, social etiquette, projecting a positive social image <i>Other aspects of personality development-</i> problem solving, conflict and stress management, decision making skills, leadership qualities, time management, SWPOT analysis	25 marks
Unit-IV: Personality disorders Concept, definition and causes Types of personality disorders – • Suspicious (Paranoid, Schizoid and Anti-social), • Emotional and Impulsive (Borderline, Narcissistic, Bipolar) and • Anxious (Avoidant, Dependent, Obsessive Compulsive) Symptoms, characteristics and related therapies.	25 marks

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References

Books

1. Fediman J. (2009), *Personality and Personal Growth*, Darling Kindersly Publisher, South Asia.
2. Hariharan M. (2008), *Coping with life stream*, Nag Publications, New Delhi.
3. Harish C.M. (2007), *Personality, development, modern methods and technique*
4. Howard E.S. (2006), *Personality, classic theories and modern research*, Darling Kindersle India
5. Hadock E.B. (2008), *Personality Development*, 32nd Edition, Tata McGraw Hill Publishing Company Limited, New Delhi
6. John A. (2007), *Personality Development*, Lotus Press, New Delhi
7. Santrock J.W. (2007), *Psychology Essential*, Tata McGraw Hill Publication, New Delhi
8. Wallnee R.H and Mastress C.A. (2009), *Personality Development*, Baba Baskhenath Publishers India

Journals

1. *Journal of Child development*, Black Well Publications Pvt. Ltd., United States
2. *Psychological Studies*, ICSSR, New Delhi

**RESEARCH METHODOLOGY
(THEORY)**

Code: HSH- 615

Credits: 2

Marks: 50

**RESEARCH
(DISSERTATION)**

Code: HSH- 625

Credits: 6

Marks: 150

Objective:

To initiate research work and submit the dissertation at the end of IV Semester

The students will be guided and supervised by a member of the teaching faculty of the concerned department. The dissertation in which the research culminates should reflect the students' own original work.