

Based on Undergraduate Curriculum Framework 2022

दिल्ली विश्वविद्यालय

UNIVERSITY OF DELHI

Bachelor of Science in Home Science

or

**Bachelor of Science (Hons.) Home Science with Dissertation/
Academic Projects/ Entrepreneurship**

*Under UGCF-2022 based on NEP-2020
(Effective from Academic Year 2022-23)*



Syllabus as approved by Academic Council

Date:

No:

Executive Council

Date:

No:

Department of Home Science
Semester – IV

B.Sc. (Honours) Home Science

Paper No	Paper title	Credits	
		Theory	Practical
DSC HH 410	Textile Science	3	1
DSC HH 411	Personal Finance and Consumer Studies	3	1
DSC HH 412	Physical Science for Home Science	2	2
DSE HH 4A1	Laws and Policies for Women and Children in India	2	2
DSE HH 4B1	Food Science and Processing	2	2
DSE HH 4C1	Communication for Development	2	2
DSE HH 4D1	Pattern Making and Construction	2	2
DSE HH 4E1	Interior Design	2	2

UG Programme for Bachelor in B.Sc. Home Science (Hons.) degree in three years

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE

DSC HH 410 : Textile Science

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Textile Science	4	3	0	1	XII Pass	Appeared in Fashion Studies

Learning Objectives

- To impart knowledge regarding production, properties and usage of textile fibres and yarns
- To create awareness regarding various techniques of fabric production and their properties
- To give an overview of dyeing, printing and finishing of textiles

Learning Outcomes

- Describe textile fibres in terms of their production and properties
- Understand production techniques and properties of yarns
- Explain various methods of fabric construction and relate them to specific uses keeping in mind fabric properties
- Recall various dyeing, printing and finishing techniques

SYLLABUS OF DSC HH 410

THEORY

(Credits 3; Hours 45)

UNIT I: Fundamentals of Textile Fibres

6 Hours

Unit Description: This unit will deal with the key concepts of textile polymers, morphology of textile fibers, primary, secondary properties and classification of textile fibers.

- Morphology of textile fibers: Monomer, Polymer, Degree of Polymerisation, Crystalline and Amorphous Regions, Orientation
- Primary and secondary properties

- Fiber classification

UNIT II: Production and Properties of Fibers

12 Hours

Unit Description: This unit will introduce the student to selected commercially significant cellulosic, protein and man-made fibers, their production, chemistry, properties and usage.

UNIT III: Production and Properties of Yarns

8 Hours

Unit Description: This unit will discuss the techniques of yarn production, types of yarns and their properties.

- Yarn construction:
 - Mechanical spinning (Cotton system, Wool system, Worsted system)
 - Chemical spinning (Wet, Dry, Melt)
- Types of yarns: Staple and Filament yarns, Simple and Complex yarns, Textured Yarns
- Yarn Properties: Yarn Twist and Balance, Yarn Count

UNIT IV: Fabric Construction

11 Hours

Unit Description: This unit will apprise the students about different fabric construction techniques. Students will learn basic principles of weaving, knitting and non-woven fabrics.

- **Weaving**
 - Parts of a loom
 - Operations and motions of the loom
 - Classification of weaves- construction, characteristics, usage
- **Knitting**
 - Classification of knits
 - Construction and properties of warp and weft knits
- **Non-wovens**
 - Types
 - Construction
 - Properties and usage

UNIT V: Basics of Textile Processing

8 Hours

Unit Description: This unit help students gain insight to the fundamentals of textile processing, viz. dyeing, printing and finishing.

- **Dyeing**
 - Fundamentals of dyeing- Dyes and Pigments
 - Stages of dyeing- Advantages and Disadvantages
- **Printing**
 - Fundamentals of printing
 - Difference between dyeing and printing,
 - Methods of printing: Block, Screen
 - Styles of printing: Direct, Resist, Discharge
- **Finishes**
 - Classification of finishes
 - Routine finishes

PRACTICAL

(Credits 1; Hours 30)

1. Fibre Identification tests –Visual, burning, microscopic and chemical	8
2. Yarn Identification – Single, ply, cord, textured, elastic, monofilament, multifilament and spun yarn	4
3. Thread count and balance	6
4. Fabric identification (woven, knitted, non-woven)	2
5. Identification of basic weaves	4
6. Tie-Dye	6

Essential Readings:

- Rastogi, D. & Chopra, S. (Eds.) (2017). *Textile Science*. New Delhi, India: Orient Black Swan Publishing Limited.
- Rastogi, D, Chopra, S., Arora, C. & Chanchal (Eds.). (2016). *Textile Science-A Practical Manual*. New Delhi, India: Elite Publishing House Private Limited.
- Sekhri S. (2022). *Textbook of Fabric Science: Fundamentals to Finishing*. Delhi, India: PHI Learning Pvt Ltd.
- Joseph, M. L. (1988). *Essentials of Textiles*. (6th Edition). Florida: Holt, Rinehart and Winston Inc.
- Corbman, P.B. (1983). *Textiles- Fiber to Fabric*. (6th Edition). USA: McGraw Hill.

Suggested Readings:

- Collier B. & Tortora G. Phyllis. (1997). *Understanding Textiles*. USA: Merrill.
- Hollen, N. and Saddler, J. (1979). *Textile*. New York: Mcmillan.
- Sekhri S. (2023) , वस्त्र विज्ञान (Vastra Vigyaan). Delhi: PHI Learning Private Ltd.

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DISCIPLINE SPECIFIC CORE COURSE
DSC HH 411 : Personal Finance and Consumer Studies

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Personal Finance and Consumer Studies	4	3	0	1	XII Pass	Appeared in Fundamentals of Resource Management

Learning Objectives

- To provide students an understanding of income, saving and investment management in the changing socio-economic environment
- To acquaint students with the concept of consumers' role in an economy, consumer problems, education, consumer aids and empowerment
- To comprehend issues related to consumer protection, legislative measures and redressal mechanisms

Learning Outcomes

After completing the course, students will be able to:

- Acquire knowledge of income, saving and investment management in the changing socio-economic environment.
- Develop an understanding about the issues related to consumer protection, legislative measures and redressal mechanisms.
- Gain conceptual knowledge of critically evaluating and designing various consumer aids and about consumer education and protection.
- Learn to undertake food adulteration tests through lab analysis.
- Understand the schemes and services offered by banks and post offices.

SYLLABUS OF DSC HH 411

THEORY
(Credits 3; Hours 45)

UNIT I: Income and Expenditure

14 Hours

The unit focuses on developing the fundamental concepts of income, savings and investment management and its applicability in changing socio-economic environment.

- Household Income – Types, Sources, Supplementation of family income

- Income management – significance of budgeting, steps of making a budget, household accounts
- Factors influencing expenditure pattern
- Family savings and investments- need, principles, channels of investment, tax implications
- Consumer credit

UNIT II: Consumer in India: Consumer problems and education **12 Hours**

This unit attempts to acquaint the students with an understanding of the consumer problems, role of consumer education and empowerment in today's context.

- Definition of a consumer
- Role of consumers in the economy
- Types of consumer problems – products and service related, causes and remedies
- Guidelines for wise buying practices
- Consumer education and empowerment, sustainable consumption
- Changing nature of the business world –e-commerce, e-business

UNIT III: Consumer Protection **10 Hours**

This unit will orient the students to the need for consumer protection, and rights and responsibilities available for safeguarding consumers' interest.

- Consumer protection
- Consumer rights and responsibilities
- Consumer organizations and their role in consumer protection

UNIT IV: Legislative framework for consumers protection

This unit focuses on the legislative framework, acts and redressal mechanisms available for consumer protection.

- Basic legislative framework for consumer protection in India
- Consumer Protection Act (COPRA) and its amendment
- Alternative redressal mechanisms
- Standardization and quality control measures

PRACTICAL
(Credits 1; Hours 30)

1. Understanding and designing standardization marks.
2. Evaluation and designing of informative and attractive labels for different types of products.
3. Evaluation and designing of advertisements for print/digital media including products, services and social ads.
4. Case study of banks and post offices to understand their services and products.
5. Learning to fill different bank forms.
6. Analysis of consumer redressal through case study approach.
7. Food adulteration tests.

Essential readings

- Kotler, P.T., Armstrong, G., Agnihotri, P. (2018). *Principles of Marketing: Basic concepts of marketing*. Pearson Education. ISBN 13: 978-9352865611.

- Maheswaran, D. (2019). *Understanding Indian Consumers*. 1st Edition. Oxford University Press. ISBN 13: 978-0199479627.
- Mital M., Jain, S., & Mehta, C. (2015). *Family finance and Consumer Studies: A Practical Manual, Second Edition*. New Delhi: Elite Publishing House Pvt. Ltd.
- Mital, M., Sawhney, H. K. (2015). *Family Finance and Consumer Studies*. New Delhi: Elite Publishing House Pvt. Ltd.
- Rajni. (2020). *Personal Finance and Planning*. JSR Publishing House LLP.
- Seetharaman, P. and Sethi, M. (2001). *Consumerism: Strength and Tactics*. New Delhi: CBS Publishers.

Suggested readings

- Arora, R. (2005). *Consumer Grievances Redressal*. New Delhi: Manak Publications.
- Khanna, S. R., Hanspal S., Kapoor S. & Awasthi H.K. (2007). *Consumer Affairs*. Universities Press India Pvt. Ltd.

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DISCIPLINE SPECIFIC CORE COURSE
DSC HH 412: Physical Science for Home Science

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Physical Science for Home Science	4	2	0	2	XII Pass	NIL

Learning Objectives

- To acquire knowledge of different compounds/substances and their importance
- To impart knowledge about various alternate energy sources
- To enhance their skills in handling different equipment

Learning Outcomes

After completing the course, students would be able to:

- Acquire the ability to correlate structures of different compounds/substances like biomolecules, polymers, surfactants and metals with their properties and functions
- Understand the basic principles of different analytical techniques and the equipment used
- Develop understanding of the basics of different physical phenomenon and their applications in day-to-day life
- Understand the basic concept of nanotechnology and green chemistry
- Understand the various renewable energies and need of energy conversion

SYLLABUS OF DSC HH 412

THEORY
(Credits 2; Hours 30)

Section A-Chemistry

UNIT I: Macromolecules, Dyes, surfactants and metals

12 Hours

This unit highlights biomolecules, synthetic polymers, dyes, cleaning agents and metals

- Carbohydrates - Classification, structures and properties.
- Proteins – Amino acids (structures, classification and properties), and basic concepts of proteins structure
- Lipids – Classification, structures and properties of fatty acids, triacylglycerol and structural lipids
- Synthetic polymers – Classification, polymerisation, polymer morphology, general properties of polymers, (Examples - PE, PP, PVC, PET, PS, PTFE, Nylons), biodegradable polymers, compounding, recyclable plastics (Impact on environment and human health)

- Dyes – Classification of dyes, chemistry of dyeing, food colours, natural dyes
- Surfactants – Soaps and synthetic detergents (structure, cleansing action and their applications)
- Metals- Characteristics of metals and their alloys (iron, aluminium, copper, silver, steel), types of corrosion, tarnishing, prevention of corrosion

UNIT II: Introduction to Green chemistry

3 Hours

This unit highlights the importance of Green chemistry

- Definition of green chemistry
- Need of green chemistry (Indiscriminate use of chemicals, fertilizers and pesticides)
- 12 principles of green Chemistry
- Important examples of green chemistry

Section B-Physics

UNIT III: Renewable Energy and Electronics

9 Hours

This unit highlights the importance of Renewable energy and basics of electronics

- Basics of Semi-Conductors and their applications in simple electronic devices.
- Light sources-Incandescent lamp, fluorescent tube, CFL, LED
- Renewable sources of energy: Wind energy, ocean energy, hydro energy, geothermal energy
- Solar Energy- Importance, photoelectric effect, storage, solar cooker, solar green houses, solar desalination, solar cell, need and characteristics of photo-voltaic (PV) systems

UNIT IV: Sound, Optics and Nanotechnology

6 Hours

This unit highlights the introduction of nanotechnology, colour measurement, optics, sound and radio communication

- Spectrum of light, chromaticity and CIE chromaticity diagram, basics of spectrometry
- Basics of LASER and optical fibres
- Lenses-types of lenses, power measurement, defects and their remedies, applications in various instruments, photographic camera
- Introduction to nanotechnology, nano materials, properties and applications in different fields
- Basic knowledge of sound, echo, reverberations, acoustics of buildings
- Geostationary satellites, elementary knowledge of radio communication: AM and FM

PRACTICAL

(Credits 2; Hours 60)

1. Section A- Chemistry

- Safe handling and disposal of chemicals generally used in chemical laboratories
- Experiments using Analytical techniques:
 - Separation of mixture of amino acids using paper chromatography and determination of R_f values
 - Estimation of proteins by Lowry's/ Biuret method
 - Determination of hardness of water by using complexometric titration
- Qualitative tests for carbohydrates
 - Monosaccharides
 - Disaccharides and polysaccharides
- Preparation of Osazones of monosaccharides and disaccharides
- Saponification of the given oil
- Preparation of biodiesel from vegetable oil preferably waste cooking oil.

- Preparation of nanoparticles of gold using tea leaves / silver nanoparticles using plant extracts

2. Section B- Physics

- Study of different types of experimental errors, their reporting and graphing techniques
- Determination of inner diameter, outer diameter and depth of beaker using Vernier Calliper
- Determination of area of cross section of glass rod and wire using Screw Gauge
- The use of Multimeter for measuring (a) Resistances, (b) AC and DC Voltages, (c) DC Current, and (d) checking electrical fuses
- Study of the voltage and current of the solar cells in series and parallel combinations.
- Study of V-I & power curves of solar cells, and find maximum power point & efficiency of solar cell.
- Study of the application of solar cells to provide electrical energy to domestic appliances such as lamp, fan and radio.
- Electroplating of the given metal article with a superior metal and to determine the E.C.E.
- Determination of λ_{\max} using colorimeter.
- Verification of Beer- Lambert law.
- To study/observe the effect of size on colour of nanomaterials.
- Study of different types of lenses and determination of power of a convex lens.

Essential Readings

- Ahluwalia, V. K., Dhingra, S. and Gulati, A., 2005, College Practical Chemistry, University Press (India) Pvt. Ltd, India.
- Anastas, P.T. and Warner, J.C., 1998, Green Chemistry: Theory and Practice, Oxford University Press, U.S.A.
- Bahl, A. and Bahl, B.S., 2022, Advanced Organic Chemistry, (6th ed.), S. Chand and Sons, New Delhi.
- Beiser, A., Mahajan, S. and Choudhary, S.R., 2017, Concepts of Modern Physics, McGraw-Hill, India.
- Boyle, G., 2012, Renewable Energy, Power for a sustainable future (3rd ed.), Oxford University Press, U.S.A.
- Dua, A. and Manav, N., 2017, Practical Organic Chemistry, Manakin Press, New Delhi.
- Freedman, R.A., Young, H.D. and Ford, A.L., 2021, University Physics with modern physics (15th ed.), Pearson Education, India.
- Kulkarni, S. K., 2014, Nanotechnology: Principles & Practices (3rd ed.), Capital Publishing Company, New Delhi.
- Lancaster, M., 2016, Green Chemistry: An Introductory Text (2nd ed.), RSC Publishing, U.K.
- Poole, C.P., Frank, Jr. and Owens, J., 2003, Introduction to Nanotechnology (1st ed.), Wiley India Pvt. Ltd, India.
- Sharma, R.K., Sidhwani, I.T. and Chaudhari, M.K., 2013, Green Chemistry Experiments: A monograph, I.K. International Publishing House Pvt Ltd, New Delhi.
- Sukhatame, S.P. and Nayak, J. K., 2017, Solar energy, Tata McGraw - Hill Publishing Company Ltd., India.

Suggested Readings:

- Chattopadhyay, K.K. and Banerjee, A. N., 2009, Introduction to Nanoscience and Technology, PHI Learning Private Limited, New Delhi.
- Flint, B.L. and Worsnop, H.T., 1971, Advanced Practical Physics for students, Asia Publishing House, India.
- Jacob, T., 1979, Textbook of Applied Chemistry, McMillan India Ltd., Noida.

- Khandelwal, D. P., 1985, A Laboratory Manual of Physics for Undergraduate Classes, Vani Publication, New Delhi.
- Morrison, R.T., Boyd, R. N. and Bhattacharjee, S.K., 2021, Organic Chemistry (7th ed.), Pearson Education, New Delhi.
- Sharma, S.P., 2003, Basic Radio and Television (2nd ed.), Tata McGraw Hill, India.
- Singh, H., 2001, B.Sc. Practical Physics, S. Chand and Co., New Delhi.
- Solomon, T.W., 2017, Organic Chemistry (12th ed.), John Wiley & Sons, U.S.A.
- Vogel, 2009, Quantitative Chemical analysis, Pearson Education, New Delhi.
- Walker, J., Resnick, R., and Halliday, D., 2013, Fundamentals of Physics, Wiley, U.S.A.

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DISCIPLINE SPECIFIC ELECTIVE
DSE HH 4A1 : Laws and Policies for Women and Children in India

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Laws and Policies for Women and Children in India	4	2	0	2	XII Pass	Appeared in Human development II: Middle Childhood and Adolescence

Learning Objectives

- To understand the constitutional provisions for women and children in India
- To study the programmes and policies for women and children in India
- To appreciate the challenges in implementation of laws and policies

Learning Outcomes

The students will:

- Comprehend the existing constitutional provisions for women and children in India
- Obtain knowledge of policies and programmes as they relate to lives of children and women
- Be able to engage with the linkages between laws and policy implementation

SYLLABUS OF HH 4A1

THEORY

(Credits 2; Hours 30)

UNIT I: Overview of provisions

10 Hours

- Social and constitutional status of women and children
- Overview of laws and policies for women and children
- Rights based approaches to laws and policies
- Challenges in implementation of laws and policies

UNIT II: Constitutional provisions, laws and conventions for women

10 Hours

- Legislation for women (laws to protect reproductive rights and laws against violence and discrimination)
- Policies and programmes for women (empowerment, health and protection)
- Conventions for women (CEDAW)
- Specific challenges in implementation

UNIT III: Constitutional provisions, laws and conventions for children

10 Hours

- Legislation for children (PC-PNDT Act; JJ Act; POSCO Act; PwD Act and others)
- Policies and programmes for children (National Policy for Children; ICDS)
- United Nations Convention on the Rights of the Child (UNCRC)
- Specific challenges in implementation

PRACTICAL
(Credits 2; Hours 60)

1. Essential readings Collect various newspaper articles on relevant topics and make a E-journal/ E- scrapbook.
2. Construct a questionnaire and conduct a survey to explore awareness of laws and policies for women and children
3. Conduct interviews to explore existing conditions, challenges and situations in different communities.
4. Field visits/field placement to relevant government (CWC's, Observation homes) and non-government organizations
5. Audio-visual resources, films and documentaries to understand the need for laws and policies for women and children
6. Workshops/lectures by resource persons from the field of law, programme implementation, field level workers and critical analysis of laws related to children and women
7. Poster/pamphlet preparation for creating awareness on policies and programmes

Suggested Readings:

- A Comprehensive Guide to Women's Legal Rights For Indian Institute of Technology, Kanpur Legal Training Workshop.(2018). https://www.iitk.ac.in/wc/data/Majlis_Legal-rights-of-women.pdf
- Bhargava, V. (2005). Adoption in India: Policies and Experiences. New Delhi: Sage Publications.
- Begum, S. M. (Ed.). (2000). Human Rights in India: issues and perspectives. APH Publishing.
- Chopra, G. (2016). Child rights in India: challenges and social action. S.I.: Springer, India, private.

Essential Readings:

- Bajpai, A (2003). Child Rights in India: Law, Policy and Practice. New Delhi:
- Bhakhry, S. (2006). Children in India and their Rights. New Delhi: National Human Rights Commission.
- Contemporary publications and documents of the Government of India, UN bodies, established International and National Organisations.
- Human Development Report 2021-22 <https://hdr.undp.org/content/human-development-report-2021-22>
- Gangoli, G. (2016). Indian feminisms: Law, patriarchies and violence in India. Routledge.
- Halder, D. (2018). Child sexual abuse and protection laws in India. SAGE Publishing India.
- Kumari, V. (2004). Creative Child Advocacy: Global Perspectives. New Delhi: Sage.
- Selected Legislations for Children and Women. Ministry of Women and Child Development GOI website www.wcd.nic.in/
- Rights to the youngest: Towards a legal framework for early childhood development (2016). Books for Change: Bangalore. ISBN – 978-81-926907-2-8
- Saikia, N. (2008). Indian Women: A Sociolegal Perspective. New Delhi

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DISCIPLINE SPECIFIC ELECTIVE
DSE HH 4B1 : Food Science and Processing

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Food Science and Processing	4	2	0	2	XII Pass	Appeared in Food Science and Nutrition

Learning Objectives

- To enable students to understand the basic chemistry, science of food and techniques involved in food processing.
- To impart knowledge of sensory evaluation of food.
- To understand the role of microorganisms in food processing, preservation and spoilage.

Learning Outcomes

- Food science and its interplay in processing of food.
- Understanding of role of microorganisms in preservation and spoilage of food.
- Application of technology in food processing.
- Basics concepts of sensory evaluation in foods and its applications in different food metrices.

SYLLABUS OF HH 4B1

THEORY
(Credits 2; Hours 30)

UNIT I: Understanding to Food Science and Food Chemistry **12 Hours**

The unit will provide an understanding of the basic terms used in food science, its interdisciplinary approach and applications. It will also provide knowledge about food sources, chemistry and functional properties of important components of the food. Concept of how colloidal systems are formed and their applications in the food industry will also be discussed.

- **Food Science:** Definition, importance and scope of food science.
- **Food Chemistry-** Sources, chemistry and functional properties of Carbohydrates, Lipids and Proteins.
- **Colloidal Chemistry-** Definition, classification, properties and applications of sols, gels, foams and emulsions.

UNIT II: Food microbiology **6 Hours**

The unit will introduce microorganisms involved in food spoilage and preservation.

- **Introduction to microorganisms in food** - Characteristics of predominant micro-organisms in food (yeast, mold and bacteria), bacterial growth curve, intrinsic and extrinsic factors for growth of microorganisms.

- **Role of microorganisms in spoilage and preservation of food**- Important food spoilage micro-organisms (psychotrophic, thermophilic, osmophilic microbes), spoilage in specific food groups (raw meat, fruits & vegetables, milk and milk products), role of microorganisms in food fermentation.

UNIT III: Food processing Techniques

8 Hours

The unit provides an understanding of different food processing techniques, and their applications in food preservation.

- **Food processing techniques**-Non-thermal techniques - refrigeration, freezing, additives, filtration, osmosis, irradiation.
Thermal processing techniques – Blanching, dehydration, canning, pasteurization, concentration.

UNIT IV: Sensory Science

4 Hours

The unit will help in understanding of the physiological basis of the sensory evaluation of food and subjective and objective methods of sensory evaluation.

- Physiological basis of sensory evaluation
- Subjective and objective methods of sensory evaluation

PRACTICAL

(Credits 2; Hours 60)

1. Food analysis: Moisture, pH and acidity using standard methods. Total soluble solids (by refractometer).
2. Analysis of hygiene of college canteen and understanding the applications of GHP, HACCP, ISO 22000.
3. Identification of bacteria, yeast and mold from prepared slides.
4. Preparation of foam, gel and emulsion to understand their properties.
5. Preservation of food using non-thermal techniques (Freezing, use of additives).
6. Preservation of food using thermal techniques (Dehydration/Drying/Concentration).
7. Sensory evaluation of given food samples using different sensory evaluation methods.

Essential Readings:

- Frazier WC and Westhoff DC (2014). Food Microbiology, Fifth Edition. TMH Publication, New Delhi.
- Manay NS and Shadaksharaswamy M (2008). Food-Facts and Principles, Third Edition. New Age International (P) Ltd. Publishers, New Delhi.
- Mathur P. (2018). Food Safety and Quality Control. Orient BlackSwan Pvt. Ltd., Hyderabad.
- Suri S and Malhotra A (2014). Food Science, Nutrition and Safety. Delhi: Pearson India Ltd., New Delhi.
- Potter NN and Hotchkiss H J (1996). Food Science, Fifth Edition. CBS Publication, New Delhi.
- Srilakshmi B (2014). Food Science, 6th Edition. New Age International Ltd., Delhi.

Suggested Readings:

- Mohini Sethi, Eram Rao (2011). Food science- Experiments and applications, Second Edition. CBS publishers & Distributors Pvt Ltd., New Delhi
- Raina U, Kashyap S, Narula V, Thomas S, Suvira, Vir S, Chopra S (2010). Basic Food Preparation: A Complete Manual, Fourth Edition. Orient Black Swan Ltd., New Delhi.
- Sivashankar. B (2002). Food Processing and Preservation. PHI learning Pvt. Ltd., New Delhi

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DISCIPLINE SPECIFIC ELECTIVE
DSE HH 4C1: Communication for Development

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Communication for Development	4	2	0	2	XII Pass	Appeared in Communication Concepts and Theories

Learning Objectives

- To understand the concept of development and development indicators.
- To gain insights into the concept of Development Communication, philosophy, theories and approaches.
- To inculcate the knowledge of development communication and relations with media and society.
- To comprehend about problems and issues of the development.
- To examine the role of various media in development communication.

Learning Outcomes

- Be conversant with the dimensions of development and the development frameworks.
- Comprehend the key concerns of development and the role of communication.
- Understand issues in development as a basis for effective development communication.
- Comprehend the role of information, communication and media in the field of development and social change.

SYLLABUS OF HH 4C1

THEORY
(Credits 2; Hours 30)

UNIT I: Development and Development Indicators

8 Hours

The unit elucidates on the concept of development and its various dimensions. It provides an overview of development goals and highlights the level of development across countries.

- Concept of development
- Growth vs development
- Development goals
- Classification of countries based on development indices
- Indices as a measure of human development (HDI, GDI, GII, GGI & MPI)
- Characteristics of developing countries

UNIT II: Development Communication (DC)

11 Hours

This unit focuses on how communication is used to promote development. It highlights different perspectives and approaches of Dev. Comm. It explores how communication strategies are formulated for development and how communication contributes to inclusive growth.

- Development Communication (DC) - concept, genesis, characteristics, and philosophy
- Approaches to DC
- Models of DC - Dominant Paradigm, Dependency Model, Basic Needs Model, New Paradigm of development, Participatory Framework, Right based approach
- Success stories and Innovations in DC
- Growth and transitions in the field of DC -Development Support communication; IEC, BCC, SBCC to SBC; Socio ecological model

UNIT III: Media and Development Communication

11 Hours

The Unit focuses on the role of communication systems in development communication. It explores the role of government and other agencies in the field of development communication. The unit highlights the role of different types of media in the arena of development communication.

- DC strategies and communication systems dialogue; scope for participation, engagement and feedback
- Role of Traditional Media in DC
- Development Reporting in India: Print, Electronics and New media
- Role of mass media in DC
- Theories of Press
- Community Media: Types, Role in DC
- Mainstream Media and Digital Media in DC
- Scope of ICTs
- Convergence and partnerships for DC
- Role of Government and other agencies in DC

PRACTICAL (Credits 2; Hours 60)

1. Analysis of development indicators (HDI, GDI, GII, GGI, MPI)
2. Critical analysis of selected development communication initiatives
3. Analyzing and designing print and other media for Development Communication
4. Development Reporting in media across different sectors (Health, Environment etc)
5. Content analysis of mainstream and alternative media

Essential Readings:

- Kumar, K. J. (2000). *Mass communication in India*. New Delhi: Jaico Publishing House, India. ISBN 8172243731.
- McQuail, D. (2010). *Mass Communication Theory*. London: Sage Publications. ISBN 978-1-84920-291-6.
- Melkote, S. & Steeves, L. (2013). *Communication for Development in the Third World*. New Delhi: Sage Publications.
- Narula, Uma. (1994). *Development Communication: Theory and practice*. New Delhi: Har Anand Publications. ISBN 10: 8124101647.
- Pannu, P. & Azaad, Y. T. (2012). *Communication Technology for Development*. International Publishing House Pvt. Ltd, India. ISBN 938057890.
- Servaes, Jan (2008). *Communication for Development and Social Change*. New Delhi,: Sage Publication. DOI: 10.1177/097317411000500110.

- Servaes, J. (2020). *Handbook of Communication for Development and Social Change*. Springer. <https://doi.org/10.1007/978-981-10-7035-8> 2020.
- Waisbord, S. (2003). *Family Tree of Theories, Methodologies and Strategies in Development Communication: Convergences and Differences*. DOI:10.1007/978-981-10-7035-8_56-1.
- Wilkins, G.K., Tufte, T., & Obregon, R. (2014). *The Handbook of Development Communication and Social Change*. Wiley-Blackwel, ISBN: 978-1-118-50531-1.

Suggested Readings:

- Ashford, J. B., LeCroy, C. W., & Lortie, K.L. (2010). *Human Behavior in the Social Environment: A Multidimensional Perspective* (4th ed.). Belmont CA: Wadsworth/Thomson Learning.
- Mefalopulos, Paulo. (2008). *Development Communication Sourcebook- Broadening the Boundaries of Communication*, The World Bank.
- Melkote, R.S., Singhal, A., Shirley, S., & Edna Holt Marston, H. E. (2021). *Handbook of Communication and Development*. Edward Elgar Publishing. ISBN: 978 1 78990 634 9.
- Murthy, D V R. (2006). *Development Journalism, What Next?* New Delhi : Kanishka Publications. ISBN 8173918457.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time

DISCIPLINE SPECIFIC ELECTIVE
DSE HH 4D1: Pattern Making and Construction

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
Pattern Making and Construction	4	2	0	2	XII Pass	Appeared in Fashion Studies

Learning Objectives

- To learn the techniques of pattern making and to judiciously decide the technique required for various designs
- To be able to develop pattern making skills for various garment components
- To be proficient in making patterns in a variety of styles for women's garments

Learning Outcomes

- To understand the use and apply the knowledge of tools and terminology used in pattern making the various pattern making tools and its terminology.
- Apply the principles of pattern making for basic upper and lower slopers, sleeves, collars and dresses
- Manipulate the basic slopers to create design variations
- Assemble and complete a dress with all its components
- To develop a keen eye for assessing fit in clothes

SYLLABUS OF HH 4D1

THEORY
(Credits 2; Hours 30)

UNIT I: Pattern Making: Tools and Methods

6 Hours

- This unit enables the students to understand use and apply the knowledge of tools and terminology used in pattern making the various pattern making tools and their terminology also include the various principle and rules of pattern making.
 - Terms and tools for pattern making
 - Various software for pattern making
 - Drafting
 - Flat pattern making
 - Dart manipulation
 - Added fullness

- Contouring
- Rules of pattern making

UNIT II: Pattern making for women's wear

18 Hours

This unit helps the students to apply the principles of pattern making for basic upper and lower slopers, sleeves, collars and dresses.

- Development of Basic bodice block, Sleeve block and Skirt block
- Bodice variations: Double darts & multiple darts, Dart cluster, Princess line, Empire line-incorporating appropriate Placket and Pocket
- Sleeve variations: Leg-o-mutton, Petal, Bell, Circular, Shirtmaker
- Collar variations: Peter pan on altered neckline, Partial peter pan, Mandarin, Stand and fall-One piece and Two pieces
- Skirt and waistband variations: A-line, Flared, Gathered, Pleated
- Developing the Torso block: Boxy, Fitted and Semi-fitted

UNIT III: Design and Fit

6 Hours

Unit Description: This unit helps to recognize the concept of fit and acquire designing skills for the different figure.

- Body shapes
- Designing for different figure types
- Fit: Fitting area, fitting guidelines, fitting procedure, fitting problem and remedies
- Factors affecting fit, line, ease, grain, set and balance

PRACTICAL (Credits 2; Hours 60)

UNIT I: Flat Pattern making:

In this unit, students will learn the development of basic bodice, sleeve, and skirt slopers along with their variations for women's wear

- Developing basic bodice, sleeve, and skirt slopers
- Developing variations in bodices: Double darts & multiple darts, Dart cluster, Princess line, Empire line
- Yoke variations: basic front & back yoke, back yoke inverted box pleat, added fullness/gathers
- Sleeve variations: Leg-o-mutton, Petal, Bell, Circular, Shirtmaker
- Collar variations: Peter pan on altered neckline, Partial peter pan, Mandarin, Stand and fall (One piece and Two pieces)
- Skirt variations: A-line, Flared, Gathered, Pleated and Waistbands and waist facing
- Pockets and Plackets
 - Pocket: Applied, Inseam and slash
 - Plackets: shirt plackets, continuous wrap, wrap and projection and zipper attachments

UNIT II: Construction: Women's wear garment and its components

This unit equips the students to independently lay patterns, cut fabric and sew a garment

- Construction of a Tunic incorporating appropriate collar, sleeve, placket and pocket using the patterns developed in unit 1
- Construction of a Skirt with an appropriate waistband, zipper attachment using the patterns developed in unit 1

Essential Readings:

- Armstrong, H.J. (2009), *Pattern Making for Fashion Design*, Harper Collins Publishers, INC, New York. Chapter 1 pg. 1-22; Chapter 4, 5, 6, 7, 8 & 9
- MacDonald, Nora M. (2010), *Principles of Flat-Pattern Design*, Fairchild Books, New York. Chapter 5 & 6 pg. 117-182; Chapter 9 & 10 pg. 229-282
- Brown, P. and Rice, J. (2014) *Ready to Wear Apparel Analysis*, Fourth Edition. Pearson Education, India
- Mansfield, E. A. & Lucas, E. L., 1953, *Clothing Construction*, Chapter 3, pg 40-58
- Liechty, E.G., Potterberg, D.N., Rasband, J.A., 2010, *Fitting and Pattern Alteration: A Multimethod Approach*, Fairchild Publications, New York. Chapter 1 & 2 pg. 2-62; Chapter 4 pg 64-98
- Aldrich, W. (2008) *Metric Pattern Cutting for Women's Wear*, ISBN 10: 1405175672 / ISBN 13: 9781405175678, Wiley Blackwell Publication.

Suggested Readings:

- Dunham, G. R., (2021) *The Fitting Book: Make Sewing Pattern Alterations and Achieve the Perfect Fit You Desire*, ISBN: 9783033083745, Gina Renee Designs Publication, India
- Pepin, H., 1947, *Modern Pattern Design*, Funk and Wagnalls, USA
- Reader's Digest (Eds.). 2002, *New Complete Guide to Sewing*, Reader's Digest Association (Canada) Ltd. Montreal.
- Azad, N., (2019), *Sewing Technology*, Neelkanth Publishers Pvt. Ltd. India.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE
DSE HH 4E1: Interior Design

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Interior Design	4	2	0	2	XII Pass	Appeared in Fundamentals of Resource Management

Learning Objectives

- To comprehend the concept of design as applicable to interior spaces.
- To develop proficiency in making working and presentation drawings to be used by interior space design professional.
- To understand the application of materials and finishes for creating aesthetic and sustainable interiors.

Learning Outcomes

After completing this course, students will be able to:

- Understand the components of interior design and its application.
- Prepare working and presentation drawings for interiors.
- Critically evaluate different types of materials and finishes for designing interior spaces.

SYLLABUS OF HH 4E1

THEORY
(Credits 2; Hours 30)

UNIT I: Design Fundamental

6 Hours

This unit attempts to introduce the students to the concept of design, elements and principles.

- Design
 - Definition
 - Concept
 - Scope (Inclusive Design, Designing for circular future, Innovative Designs)
- Importance and requirement of good design
- Concept and scope of Interior Design
- Role of an Interior Designer
- Classification of Design: Structural & Decorative

UNIT II: Advanced Concepts in Interior Design

15 Hours

The unit attempts to give advanced understanding of the concepts of interior design to the

students.

- Application of Elements and Principles to Interior Spaces.
- Theme based Interior designing concepts
- Interior Construction
 - Paneling and Partitions,
 - False ceiling,
 - Electrical systems,
 - Plumbing systems.

UNIT III: Historical and Contemporary Trends in Interior Design

9 Hours

The unit introduces the students to historical and contemporary trends in Interior design.

- History of Architectural Design
- Historical and Contemporary Design Styles
- Vernacular Architecture
- Recent trends in design: Bio-Mimicry, Bio-philic

PRACTICAL (Credits 2; Hours 60)

1. Basic drawing techniques
2. Concept of Scale
3. Lettering
4. Concept Sheets and Mood Boards
5. Introduction to Computer Aided Drawings
6. Drawing and identification of common symbols
7. Drawing 1 BHK, floor plans and elevations
8. Rendering Techniques
9. Application of rendering in plans
10. Project / Portfolio (Innovative designs, materials and technologies for Interiors)

Essential Readings:

- Faulkner, S. & Faulkner, R. (1954). *Inside Today's Home*, Rinehart Publishing Company.
- Goldstein, H. and Goldstein, V. (1988). *Art in Everyday Life* (4th. ed), Oxford: IBH Publishing Co.
- Grimley, C. and Love, M. (2018). *The Interior Design Reference & Specification Book*, Rockport Publishers.
- Mitton, M. and Nystuen, C. (2021). *Residential Interior Design: A Guide to Planning Spaces* (4th. ed), Wiley
- Rao, M.P. (2020). *Interior Design Principles and Practices*, Standard Publishers Distribution.

Suggested Readings:

- Lawrence M. (1987). *Interior Decoration*, Chartwell Books.
- Mogg, C. C. (1995). *The Complete Home Decorator*, Portland House.
- Riley & Bayen. (2003). *The Elements of Design*, Free Press.
- Seetharaman P. and Pannu, P. (2001). *Interior Design & Decoration*, CBS publishers.
- Thompson, J. A. A. and Blossom, N. (Ed). (2015), *The Handbook of Interior Design*, Wiley.

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Based on Undergraduate Curriculum Framework 2022

दिल्ली विश्वविद्यालय
UNIVERSITY OF DELHI

Bachelor of Science in Home Science

or

**Bachelor of Science (Hons.) Home Science with Dissertation/ Academic
Projects/ Entrepreneurship**

*Under UGCF-2022 based on NEP-2020
(Effective from Academic Year 2022-23)*



Syllabus as approved by Academic Council

Date:

No:

Executive Council

Date:

No:

Department of Home Science
Semester – V

B.Sc. (Honours) Home Science

Paper No	Paper title	Credits	
		Theory	Practical
DSC HH 513	Human Development III: The Adulthood Years	3	1
DSC HH 514	Dietetics and Public Health Nutrition I	3	1
DSC HH 515	Psycho-Social Dimensions of Family and Community	2	2
DSE HH 5A1	Children with Disabilities	2	2
DSE HH 5A2	Childhood in India	2	2
DSE HH 5B1	Nutritional Biochemistry I	2	2
DSE HH 5B2	Social and Cultural Aspects of Nutrition	2	2
DSE HH 5C1	Gender, Media and Society	2	2
DSE HH 5C2	New Media for Change	2	2
DSE HH 5D1	Fabric Production	2	2
DSE HH 5D2	Understanding Fabrics	2	2
DSE HH 5E1	Entrepreneurship Development and Enterprise Management	2	2
DSE HH 5E2	Design Thinking and Innovation	2	2

UG Programme for Bachelor in B.Sc. Home Science (Hons.) degree in three years

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DISCIPLINE SPECIFIC CORE COURSE

DSC HH 513: Human Development III: The Adulthood Years

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Human Development III: The Adulthood Years	4	3	0	1	XII Pass	Appeared in Human development II: Middle Childhood and Adolescence

Learning Objectives

- To develop an understanding of different domains of development in adulthood
- To gain an understanding of how socio-cultural contexts shape development during adulthood
- To utilize a range of techniques to study different domains of development in adulthood

Learning Outcomes

Students will be able to:

- To describe different domains of development in adulthood : physical, cognitive, language and socio-emotional
- To understand development in adulthood in varied contexts and cultures
- To develop competency in the use of different techniques for studying various domains of development in adulthood

SYLLABUS OF DSC HH 513

THEORY (Credits 3; Hours 45)

UNIT I: Understanding Young Adulthood

15 Hours

- Physical and physiological changes
- Cognitive development
- Socio-emotional development- relationships and marriage
- Careers, work and leisure
- Gender and sexuality in Indian context

UNIT II: Development during Middle Adulthood

15 Hours

- Definition, developmental tasks of middle adulthood
- Physical changes, health and well-being
- Cognitive development and changes
- Social and emotional development-relationships and family dynamics, marital satisfaction and parenting

UNIT III: Aging in Late Adulthood

15 Hours

- Developmental tasks of late adulthood
- Physical and physiological changes associated with aging and health concerns
- Cognitive development: changes in cognitive abilities
- Socio-emotional development-grand parenting, social support networks, work and retirement, leisure and overall well-being
- Culture, religion and spirituality
- Death and grief

PRACTICAL

(Credits 1; Hours 30)

1. To study development during adulthood using multimedia resources.
2. Case profile of an individual in middle/late adulthood
3. Use of interview/questionnaire method to study adult roles (at least one male and one female)
 - Father/ Husband
 - Homemaker
 - Employed woman
 - Single parent
 - Grandfather/ grandmother
 - Retired person
4. Journaling in young adulthood
5. Visit to an old age home
6. Study psychological tests of intelligence and personality- any three

Essential Readings:

- Berk, L.E. (2007). Development through the lifespan. Delhi: Pearson Education.
- Papalia, D.E. and Martorell, G. (2015). Experience Human Development. McGraw Hill Education.
- Ranganathan, N.(Ed.).2020. Understanding Childhood and Adolescence. New Delhi: Sage
- Santrock, J.W. (2007). A Topical Approach to Lifespan Development. New Delhi: Tata McGraw-Hill.
- Singh, A. (Ed). 2015. Foundations of Human Development: A Lifespan approach. New Delhi: Orient Black Swan.

Suggested Readings:

- Sharma, N. (1999). Understanding Adolescence. National Book Trust.
- Rice. F. P. (1998). Human Development: A lifespan approach. New Jersey: Prentice Hall.
- Rutter, M. and Rutter, M. (1992). Developing Minds: Challenge and continuity across the lifespan. London: Penguin.

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DISCIPLINE SPECIFIC CORE COURSE
DSC HH 514: Dietetics and Public Health Nutrition I

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Dietetics and Public Health Nutrition I	4	3	0	1	XII Pass	Appeared in Nutrition: A Life Cycle Approach

Learning Objectives

- To explain the importance and scope of public health nutrition and its role in the health care system.
- To develop skills for using various methods and techniques for assessing nutritional status.
- To familiarize with the National public health nutrition concerns
- To develop an understanding about the principles of dietetics and nutrition care.
- To apprise the various aspects related to management of some common disorders / diseases.
- To inculcate the skill of dietary intervention according to patients' nutritional assessment and diagnosis.

Learning Outcomes

- Understand the concept of public health nutrition and its role in the health care system.
- Comprehend and use various methods and techniques for assessment of nutritional status assessment at individual and community level.
- Gain knowledge of the current National nutritional concerns.
- Understand the principles of the nutrition care process in hospital settings in the management of diseased person.
- Ability to modify normal diets as per the therapeutic condition.

SYLLABUS OF DSC HH 514

THEORY

(Credits 3; Hours 45)

UNIT I: Public Health Nutrition and Health Care Systems

8 Hours

- Definition and multidisciplinary nature of public health nutrition
- Concept, scope and current concerns in public health nutrition
- Health – Concept, definition, dimensions, determinants and indicators
- Health care systems:
- Levels of Health Care
 - Health Care System, Health care delivery system in India

- Role of Public Health sector and other sectors and agencies
- Primary Health care in India
- Role of important schemes and institutions
- Role of public health nutritionist in health nutrition

UNIT II: Assessment of Nutritional Status

8 Hours

- Objectives and importance of assessment of nutritional status of individual and population groups
- Methods of Assessment of Nutritional status of Individual and Population groups
 - Anthropometry and related measures
 - Biochemical Assessment
 - Clinical Examination
 - Dietary Assessment
 - Vital Statistics, Ecological factors and Qualitative Assessment Methods- An overview

UNIT III: National Public Health Nutrition Concerns

8 Hours

- Prevalence, etiology, clinical features, prevention and management at community level of the following:
 - Protein Energy Malnutrition, Moderate Acute Malnutrition , Severe Acute Malnutrition
 - Micronutrient deficiencies such as Vitamin A deficiency, Nutritional anemia, Iodine deficiency disorders, Vitamin D deficiency and Zinc deficiency
 - Fluorosis
 - Obesity, Metabolic Syndrome and Non communicable disease- An overview

UNIT IV: Principles of Nutrition Care

4 Hours

- Nutrition Care Process
- Therapeutic adaptations of a Normal Diet, Progressive diets

UNIT V: Etiology, patho-physiology, metabolic changes, clinical features and nutritional management of

17 hours

- Infection and Fevers- Typhoid, Tuberculosis, HIV-AIDS, Malaria/Dengue/Chikungunia
- G I Tract disorders- Diarrhea, Constipation, Lactose Intolerance, Celiac disease\
- Weight management- Underweight, overweight and obesity
- Eating Disorders

PRACTICAL

(Credits 1; Hours 30)

1. Assessment of nutritional status:
 - Anthropometry (height, weight , Middle upper arm circumference , Waist circumference)
 - Dietary Assessment - Food frequency questionnaire ,24 hour dietary recall
 - Review of nutritional status of population from National /Regional/ Nutrition Surveys (NFHS, CNNS, etc)
2. Planning and preparation of low cost nutritious diet/ recipes for population groups vulnerable to nutritional deficiency diseases (PEM, Nutritional Anemia, Vitamin A deficiency)
3. Therapeutic modifications of diets:
 - Normal, soft, clear- and full- fluid

4. Planning and preparation of diets/dishes for individuals suffering from:
 - Febrile disorders- Typhoid, Tuberculosis
 - GI Tract disorders- Diarrhoea and Constipation
 - Weight management- Underweight, overweight/ obesity

Essential Readings:

- Siddhu A, Bhatia N, Singh K, Gupta S (2017). Compilation of food exchange list, Technical Series 6, Lady Irwin College, University of Delhi. Publ. Global Books Organisation, Delhi
- Vir, S. (2023). Child, adolescent and women nutrition in India: Public Policies, programme and progress. KW Publishers, Daryaganj, New Delhi, India.
- Seth V, Singh K and Mathur P (2018). Diet Planning through the Life Cycle: Part 1 Normal Nutrition. A Practical Manual. 6 th Edn. Elite Publishing House Pvt. Ltd. New Delhi.
- Seth, V. and Singh K. (eds.) (2021) Principles of Medical Nutrition Therapy for Positive Clinical Outcomes, 1st Edition. Elite Publishing House Pvt. Ltd.
- Bamji MS, Krishnaswamy K and Brahmam GNV (Eds) (2016). Textbook of Human Nutrition, 4th edition. Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi
- Indian Dietetics Association, (2018) Clinical Dietetics Manual, 2nd Edition. Elite Publishing House Pvt. Ltd.
- Gibney, M. J., Margetts, B. M., Kearney, J. M. & Arab, L. (Eds.). (2005). Public Health Nutrition. Oxford, UK: Blackwell Science.
- Longvah T, Ananthan R, Bhaskarachary K and Venkaiah K (2017). Indian Food Composition Tables. National Institute of Nutrition, ICMR, Hyderabad.
- ICMR (2020) Estimated Average Requirements and Recommended Dietary Allowances for Indians .Published by National Institute of Nutrition, Hyderabad.

Suggested Readings:

- Chadha R and Mathur P eds.(2015) Nutrition : A Lifecycle Approach. Orient Blackswan, New Delhi.
- Wadhwa A. and Sharma S (2003). Nutrition in the Community-A Textbook. Elite Publishing House Pvt. Ltd. New Delhi
- ICMR (2011) Dietary Guidelines for Indians. Published by National Institute of Nutrition, Hyderabad.
- Khanna K, Gupta S, Seth R, Passi SJ, Seth R, Mahna R, Puri S (2013). Textbook of Nutrition and Dietetics.2nd Edn. Phoenix Publishing House Pvt. Ltd.
- Mahan, L.K. & Escott Stump, S. (2020). Krause's Food & Nutrition Therapy, 15th ed. Saunders Elsevier
- Jelliffe DB & Jelliffe E F P (1989). Community nutritional assessment with special reference to less technically developed countries. Oxford Medical Publications. Oxford University Press, Oxford, UK.
- Joshi, S.A. (2015). Nutrition and Dietetics, 4th ed. Mc Graw Hill education.
- WHO information on Dengue/ Chikungunia/ Malaria
 Dengue- <https://www.who.int/news-room/fact-sheets/detail/dengue-and-severe-dengue>. Assessed on March 2023
 Chikungunia-<https://www.who.int/news-room/fact-sheets/detail/chikungunya> .Assessed on March 2023
 Malaria- <https://www.who.int/news-room/fact-sheets/detail/malaria> .Assessed on March 2023
- WHO <https://www.who.int/tools/child-growth-standards/standards> Assessed on March 2023
- WHO (2009) <https://www.who.int/publications/i/item/9789241547635>. Assessed on March 2023

- [http://www.ilsindia.org/Workshop National Food Consumption Anthropometry Physical Activity Survey/Methodology.pdf](http://www.ilsindia.org/Workshop_National_Food_Consumption_Anthropometry_Physical_Activity_Survey/Methodology.pdf). Assessed on March 2023
- https://nhm.gov.in/images/pdf/programmes/wifs/operational-framework-wifs/operational_framework_wifs.pdf. Assessed on March 2023
- WHO <https://www.who.int/tools/child-growth-standards/standards>. Assessed on March 2023
- WHO (2009) <https://www.who.int/publications/i/item/9789241547635>. Assessed on March 2023
- https://www.nin.res.in/tenders/DABS/2.Anthro_BP_Dec_1_2022.pdf. Assessed on March 2023
- https://nhm.gov.in/images/pdf/programmes/wifs/operational-framework-wifs/operational_framework_wifs.pdf. Assessed on March 2023
- National Nutrition Monitoring Bureau (India) | GHDx (healthdata.org). Assessed on March 2023
- NFHS Project | International Institute for Population Sciences (IIPS) (iipsindia.ac.in). Assessed on March 2023

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DISCIPLINE SPECIFIC CORE COURSE
DSC HH 515: Psycho-Social Dimensions of Family and Community

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Psycho-Social Dimensions of Family and Community	4	2	0	2	XII Pass	NIL

Learning Objectives

- To develop a fundamental understanding of the dynamics of the family systems.
- To understand the various community systems and their functioning.
- To comprehend various psychosocial influences on families and communities.

Learning Outcomes

- Students will be able to:
- Understand the multifaceted nature of families and communities.
- Gain awareness of the changing structure, roles and expectations of families and communities in the present times.
- Gain in-depth knowledge of coping strategies and support mechanisms to empower families and communities.

SYLLABUS OF DSC HH 515

THEORY
(Credits 2; Hours 30)

UNIT I: Understanding Family Systems

10 Hours

- Dynamics of family structure and function
- Demographic and cultural variations
- Continuities and change in contemporary families: changing roles, expectations and identities; single parent/divorce/co-parenting; dealing with the loss of a family member or chronic illness.

UNIT II: Understanding Community Systems

10 Hours

- The concept of communities, evolution and types: Rural, urban, tribal, small town; meaning, characteristic features and growth in the communities.
- Community and social relationships: Everyday lives, conflict and crises, transitions
- Continuities and change in community systems.

UNIT III: Psychosocial Dimensions

10 Hours

- Local and global influences on families and communities
- Stressors and coping mechanisms, risk and protective factors
- Care and support mechanisms in family and community setting: childcare support, youth support groups, elderly care
- Families and communities as ecologies of resilience: negotiating migration, conflict/war zones, displaced or stateless situations, and natural disasters.

PRACTICAL
(Credits 2; Hours 60)

1. Interviews and focus group discussions to study the changing structure, roles, and expectations of the family: relationships with parents, grandparents, and siblings.
2. Understanding changing family and community dynamics through Movies/Documentaries
3. Understanding stressors and coping strategies among individuals through interview technique.
4. Understanding local/global influences and coping mechanisms in a traditional community (artisans/potters/folk musicians) using interviews and observations.
5. Using audio-visual materials to understand how human behaviour influences our self, psyche, and group relationships.
6. Workshop/lecture on building resilience and coping mechanisms.

Essential Readings:

- Abraham, F. (2006). *Contemporary Sociology: An Introduction to concepts and Theories*. Oxford University Press.
- Anand, V., Balakrishnan, G., & George, P. (2018). *Community practices in India: Lessons from the grassroots*. Cambridge Scholars Publishing.
- Maguire, K. (2012). *Stress and coping in Families*. Wiley.
- Sachdeva, P., & Florence. D. (2020). *Basic Sociology*. Elite Publishing House.
- Shah, M. A. (2014). *The Writings of A. M. Shah: The Household and Family in India*. Orient Blackswan.
- Thibaut, J. W., & Kelley, H. H. (2017). *The social psychology of groups*. Routledge.
- Ungar, M. (2021). *Multisystemic resilience: Adaptation and transformation in contexts of change*. Oxford University Press.

Suggested Readings:

- Compas, B. E., Murphy, L. K., Yarboi, J., Gruhn, M. A., & Watson, K. H. (2019). Stress and coping in families. In B. H. Fiese, M. Celano, K. Deater-Deckard, E. N. Jouriles, & M. A. Whisman (Eds.), *APA handbook of contemporary family psychology: Foundations, methods, and contemporary issues across the lifespan* (pp. 37–55). American Psychological Association. <https://doi.org/10.1037/0000099-003>.
- Hochschild, A. (2013). *So how's the Family? And other Essays*. University of California Press.
- Madan, T. N. & Das, Veena. (2003). *The Oxford India companion to sociology and social anthropology*. Oxford University Press
- Passer, M.W. & Smith, R.E. (2010). *Psychology: The science of mind and behaviour*. Tata McGraw-Hill.

- Stockholm Resilience Centre. (2015). Applying resilience thinking: Seven principles for building resilience in social-ecological systems.
<http://stockholmresilience.org/download/18.10119fc11455d3c557d6928/1459560241272/SRC+Applying+Resilience+final.pdf>
- Trawick, M. (1996). *Notes on Love in a Tamil family*. Oxford University Press.

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DISCIPLINE SPECIFIC ELECTIVE
DSE HH 5A1: Children with Disabilities

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Children with Disabilities	4	2	0	2	XII Pass	Appeared in Human development II: Middle Childhood and Adolescence

Learning Objectives

- To understand the varied perspectives on disability.
- To know major types of disabilities, the causes, prevention, characteristics of the disabilities and barriers which persons with disability face.
- To understand importance of early identification and early intervention, and inclusion.

Learning Outcomes

- Students will be able to understand various perspectives on disability and ways of preventing disability.
- Students will acquire skills in Early identification of childhood disability and etiology of a wide range of disabilities.
- Student will understand inclusive practices for including children with disability in classrooms.

SYLLABUS OF HH 5A1

THEORY
(Credits 2; Hours 30)

UNIT I: Understanding Disability

6 Hours

- Definition and concept of disability
- Perspectives and models of Disability
- Linking disability to milestones
- Prevention of Disability

UNIT II: Types of Disability

14 Hours

Etiology and types and early identification of following disabilities

- Locomotor Disabilities
- Intellectual Disability
- Sensory disability-Visual and auditory
- Learning Disability
- Autism Spectrum Disorder

UNIT III: Disability and Society

10 Hours

- Understanding inclusive practices
- Significance of early intervention
- Role of families of children with disability
- Legal provisions

PRACTICAL (Credits 2; Hours 60)

1. Focus Group discussion on the listing of disabilities and innovations for PwD in community and school teaching
2. Visit to organizations working with and for children with disabilities (CGC, Inclusive Schools, Resource Rooms, NGOs, Hospitals)
3. Observation of children with disability in classrooms
4. Exploring audio visual resources with reference to children with disability and their families
5. Survey of public space to gauge accessibility for PwD
6. Preparing pamphlets/posters to create awareness about rights of PwD
7. Preparing developmental checklists for assessing developmental delays
8. Case profile of a child with disability/of an organization working with children with disability
9. Planning developmentally appropriate material for children with disabilities.
10. Select psychometric tests- Disability screening schedule, Portage guide for early intervention, Tests for Learning Disability

Essential Readings:

- Chopra, G. (2015). *Child rights in India: Challenges and social action*. New Delhi: Springer (India) Pvt. Ltd.
- Chopra, G. (2012). *Early Detection of Disabilities and persons with disabilities in the community*. New Delhi: Engage publications
- Chopra, G. (2012). *Stimulating Development of Young Children with Disabilities at Anganwadi and at Home: A Practical Guide*. New Delhi: Engage publications.
- Chopra, G. (2011). *Mother and child care: Promoting health, preventing disabilities*. New Delhi: Engage publications
- Heward, W.L., (Ed) (2000). *Exceptional children: An introduction to special education*. New Jersey: Prentice-Hall Inc.
- Mangal, S. K. (2007). *Exceptional children: An introduction to special education*. New Delhi: Prentice Hall of India
- Sharma, N. (Ed) (2010). *The Social Ecology of Disability-Technical Series -3*, Lady Irwin College. Delhi: Academic Excellence
- The Rights of Persons with Disabilities Act, 2016.
<http://scpdodisha.nic.in/sites/default/files/Gazette%20Notification%20of%20PwD%20Act%202016.pdf>

Suggested Readings:

- Draft National policy for Persons with Disability (2022)
<https://disabilityaffairs.gov.in/upload/uploadfiles/files/Draft%20Copy%20New%20National%20Policy%20May%202022%20.pdf>. Accessed in March 2023.
- Jangira, N.K. (1997) "Special Educational Needs of Children and Young Adults: An Unfinished Agenda," *Education and Children with Special Needs: From Segregation to Inclusion*, Ed. Seamus Hegarty, MithuAlur, Thousand Oaks: Sage Publications Inc.
- Karna, G. N. (1999). *United Nations and rights of disabled persons: A study in Indian perspective*. New Delhi: A.P.H. Publishing Corporation.
- Mani, R. (1988). *Physically handicapped in India*. Delhi: Ashish Publishing House.

- Mastropieri, M. A., & Scruggs, T. E. (2004). *The inclusive classroom: Strategies for effective instruction*. NY: Pearson.
- Werner, D. (Ed) (2018). *Disabled village children: A guide for community health workers, rehabilitation workers, and families*. United States of America: Hesperian Health Guides

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE
DSE HH 5A2: Childhood in India

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Childhood in India	4	2	0	2	XII Pass	Appeared in Human development II: Middle Childhood and Adolescence

Learning Objectives

- To study the concept of multiple childhoods in India
- To understand the social and cultural dimensions of childhood in India
- To know/ appreciate the diverse contexts of childhood

Learning Outcomes

The students will:

- Understand the meaning of multiple childhoods and various views about it
- Appreciate children's experiences of ethnicity, class, caste, religion, and gender
- Learn about multiple contexts of development for children and diverse childhood experiences

SYLLABUS OF HH 5A2

THEORY

(Credits 2; Hours 30)

UNIT 1 Conceptualizing Childhood in India

10 Hours

- Construction of childhoods in India: Social and cultural dimensions; historical and political influences
- Folk theories of childhood
- portrayal in mythology, stories and films

UNIT 2 Understanding Multiple Childhoods: Growing up in Diverse Social Contexts

10 hours

- Growing up in familial and extra-familial settings
- Childhood in families
- Childhood in schools
- Childhood in rural and tribal communities

UNIT 3 Contemporary Issues of Childhood in India

10 Hours

- Childhood through the lens of social class, caste, gender, and religion
- Demographic profile in relation to diversity and childhoods
- Poverty and disadvantage, children in street situations
- Gendered childhoods/ transgender childhood

PRACTICAL
(Credits 2; Hours 60)

1. Using the model of developmental niche, prepare an autobiographical narrative of childhood, elaborating on the impact of the different settings on your experience as a child.
2. Observation and documentation of children in different socio-cultural settings
3. Construct and conduct an Interview schedule (Structured/ Semi structured) to understand beliefs of children, folk lore, folk song, toys and games for diverse ethnic groups.
4. Exploring diverse Indian childhood context
 - Audio-Visual aids: Movies and documentaries
 - Documentation: Images, visual and print sources
5. Workshops/ lecture/ seminar to understand the diverse contexts of growing up in India.
6. Case profile of children with disability/working children/ children in street situations
7. Develop a conceptual map/audit trail to depict the childhoods in India using secondary sources
8. Visit to Museum at the Department of Anthropology/Craft Museum/National Museum: for documenting artifacts/ play material/clothes/ any tangible material on display used by or for children

Essential Readings:

- Behera, D. K. (Ed.). (2007). *Childhoods in South Asia*. Pearson Education India.
- Jenks, C. (2020). *Childhood*. Routledge.
- Joshi, P., & Shukla, S. (2019). *Child development and education in the twenty-first century*. Springer. <https://doi.org/10.1007/978-981-13-9258-0>
- Kaur, R. (2022). *Constructions of Childhood in India: Exploring the Personal and Sociocultural Contours*. Routledge.
- Saraswathi, T. S., Menon, S., & Madan, A. (Eds.). (2017). *Childhoods in India: Traditions, trends and transformations*. Taylor & Francis.
- Sharma, D. (2003). *Infancy and childhood India*. In D. Sharma (Ed.), *Childhood, family and socio-cultural changes in India*. Oxford.
- Thapan, M. (Ed.). (2014). *Ethnographies of schooling in contemporary India*. SAGE Publications India.

Suggested Readings:

- Balagopalan, S. (2019). Afterschool and during vacations: On labor and schooling in the postcolony. *Children's Geographies*, 17(2), 231-245. <https://doi.org/10.1080/14733285.2018.1490008>
- Balagopalan, S. Introduction: Children's lives and the Indian context. *Childhood*, 18(3), 291–297. doi:10.1177/0907568211413369
- Sharma, D. (2000). Infancy and childhood in India: A critical review. *International Journal of Group Tensions*, 29, 219–251. <https://doi.org/10.1023/A:1026521211796>
- Thapan, M. (2022). Dalit Autobiographies as Counter Publics: An Exploratory Essay. *South Asia Multidisciplinary Academic Journal*, 28. <https://doi.org/10.4000/samaj.7910>
- Sarangapani, P. (2003). Childhood and Schooling in an Indian Village. *Childhood*, 10(4), 403–418. doi:10.1177/0907568203104002.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE
DSE HH 5B1: Nutritional Biochemistry I

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Nutritional Biochemistry I	4	2	0	2	XII Pass	Appeared in Physical Science for Home Science

Learning Objectives

- To provide basic concepts of biomolecules, the basic building blocks vital for various life forms
- To focus on key structures, properties and biological functions of biomolecules

Learning Outcomes

- Gain knowledge on structure-function relationship of biomolecules
- Developing an insight into biochemical role and significance of carbohydrates, proteins, lipids, nucleic acids, vitamins and minerals

SYLLABUS OF HH 5B1

THEORY
(Credits 2; Hours 30)

UNIT I: Carbohydrates

6 Hours

This unit lays emphasis on classification, structures and properties of carbohydrates.

- Introduction, definition and classification
- Structures of monosaccharides (glucose, fructose, galactose, ribose) and disaccharides (maltose, lactose, sucrose)
- Homopolysaccharides-structures and functions (dextrin, starch, glycogen)
- Stereoisomerism of monosaccharides (Keto-aldo, D- and L-isomerism, optical isomerism, epimerism, anomerism), mutarotation

UNIT II: Lipids

6 Hours

This unit highlights on classification, structures and biochemical functions of fatty acids and lipids.

- Introduction and structure of fatty acids (saturated and unsaturated)
- Essential and non-essential fatty acids
- Definition, classification and function of lipids (storage lipids-triacylglycerols; Membrane lipids-phospholipids and sphingolipids)

UNIT III: Amino acids and Proteins

5 Hours

This unit covers structures and classification of amino acids. The unit also discusses basic concepts of structural organization in proteins.

- Introduction, definition, classification and structure of standard amino acids
- Essential and non-essential amino acids
- Peptide bond-nature, conformation and dihedral angles psi and phi
- Structure of proteins-primary, secondary (alpha-helix, beta-sheets and beta-turns), tertiary and quaternary

UNIT IV: Nucleic Acids

6 Hours

The unit focuses on structures, biological functions and significance of nucleic acids.

- Introduction and structure of nucleosides and nucleotides
- DNA structure (B-form) and functions
- RNA structure and functions (mRNA, tRNA and rRNA)

UNIT V: Vitamins and Minerals

7 Hours

This unit covers structures and biochemical functions of vitamins along with biological role and significance of minerals.

- Definition and classification of vitamins
- Structure and biochemical role of fat soluble vitamins-A and D
- Structure and biochemical role of water soluble vitamins- Thiamine, Riboflavin, Niacin, Pyridoxine and Ascorbic acid.
- Biological role and occurrence of inorganic elements – iron, calcium, phosphorous, iodine, selenium and zinc.

PRACTICAL (Credits 2; Hours 60)

1. Qualitative tests for monosaccharides, disaccharides and polysaccharides.
2. Identification of monosaccharides, disaccharides and polysaccharides in unknown mixtures.
3. Quantitative estimation of glucose, sucrose and lactose by titrimetric method.
4. Qualitative tests for amino acids.
5. Qualitative analysis of DNA by diphenyl amine reagent.
6. Qualitative analysis of RNA by orcinol reagent.
7. Estimation of ascorbic acid using 2,6 dichlorophenol indophenol method in the given solution.
8. Estimation of calcium using EDTA by titration.

Essential Readings:

- Kennelly, P. J., Botham, K. M., McGuinness, O., Rodwell, V. W., Weil, P.A., 2022, *Harper's Illustrated biochemistry* (32nd ed.). McGraw-Hill Education.
- Nelson, D. L., Cox, M. M., 2017, *Lehninger Principles of Biochemistry* (7th ed.). W H Freeman & Co.
- Satyanarayana, U., Chakrapani U., 2021, *Biochemistry* (6th ed.). Elsevier.
- Sundararaj, P., Siddhu, A., 2002, *Qualitative tests and Quantitative Procedures in Biochemistry* (2nd ed.). New Delhi: A. H. Wheeler and Co Ltd.

Suggested Readings:

- Voet, D., Voet, J.G., 2012, *Principles of Biochemistry* (4th ed.). Wiley.
- Devlin, T.M. 2010, *Textbook of Biochemistry with Clinical Correlations* (7th ed.). New York, John Wiley-Liss.
- West, E.S., Todd, W.R., Mason, H.S., Bruggen J.T.V., 2017, *Textbook of Biochemistry* (4th ed.). Oxford & IBH.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE
DSE HH 5B2: Social and Cultural Aspects of Nutrition

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Social and Cultural Aspects of Nutrition	4	2	0	2	XII Pass	Appeared in Food Science and Nutrition

Learning Objectives

- To understand the relationship between socio-cultural aspects of food and nutrition in the historical and current context.
- To gain an insight of the social and cultural influences on food choices and diet-related behaviour.
- To recognize and appreciate the importance of cultural knowledge in nutrition.

Learning Outcomes

- Understand the social and cultural significance of food and its integration with the biological aspects.
- Comprehend the historical perspective and current dietary practices and food consumption patterns across cultures.
- Appreciate the social and cultural influences on food choices and diet-related behaviour.
- Recognize the importance of culture-sensitive dietary advice and guidance.

SYLLABUS OF HH 5B2

THEORY
(Credits 2; Hours 30)

UNIT I: Food, Nutrition and Culture

12 Hours

This unit deals with social and cultural significance of food and its integration with biological aspects of food and nutrition, and the historical perspective and current dietary practices, concerns and food consumption patterns. It also includes the cross-cultural differences and acculturation in food behaviour.

- Ethnological Perspectives on Role of Food - Social and cultural significance of food
- Integrating Biological and Socio-Cultural Aspects of Food and Nutrition
- Indian Perspective on Anthropology of Food: An Overview
- Dietary Practices and Food Consumption Pattern
 - Historical perspective
 - Current dietary practices, concerns and health-related issues
- Cross-cultural differences and eating behaviour
- Cultural Integrity and Acculturation in relation to Food Choices

UNIT II: Social and Cultural Influences on Food Choices and Diet-Related Behaviour

12 Hours

This unit deals with the role of food environment, especially socio-cultural practices, as well as demographic and other factors in determining food behaviour. It also includes culture-specific food taboos for vulnerable groups and socio-cultural influences on sustainable healthy diets.

- Relation of Food Environment with Food Choices and Dietary Practices
- Significance of Social Structures, Socio-demographic factors, Cultural practices, Religious structures and Policy
- Culture-specific foods and taboos for feeding children, adolescents, pregnant and nursing mothers
- Socio-cultural influences on sustainable healthy diets

UNIT III: Importance of Cultural Knowledge in Nutrition

6 Hours

This unit deals with the importance of cultural knowledge in influencing food behaviour and culture-specific dietary advice.

- Influencing change in Food Choices and Dietary Patterns
- Cultural Interpretation of Malnutrition
- Culture-sensitive dietary advice and guidance

PRACTICAL **(Credits 2; Hours 60)**

Activities/Project on:

- Staple foods/ethnic cuisines in different regions of India/across the Globe
- Traditional foods for special occasions in different cultures
- Food habits and dietary patterns of individuals following different religions
- Food habits and dietary patterns of migrants in comparison with their traditional eating behaviour
- Food waste behaviour in different cultures
- Infant and young child feeding and nutrition - Regional diets during pregnancy and variations in feeding during infancy and childhood
- Globalization and its effect on food environment and dietary practices

Essential Readings:

- Dufour, D.L., Goodman, A.H. and Pelto, Gretel H. (2012). *Nutritional Anthropology: Biocultural Perspectives on Food and Nutrition*. 2nd Edition. Oxford University Press.
- Gibney, M.J., Margetts, B.M., Kearney, J.K., & Arab, L. (Eds.) (2004). *Public Health Nutrition*. Wiley-Blackwell.
- Nambiar, V. (2021). *Indian Food Anthropology and the Eat Right Movement*. Volume I & II. Selective & Scientific Books, New Delhi.

Suggested Readings:

- Achaya, K.T. (1998). *Indian Food*. Oxford.
- Antani, V., Mahapatra, S. (2022). Evolution of Indian cuisine: a socio-historical review. *J. Ethn. Food*, 9, 15. <https://doi.org/10.1186/s42779-022-00129-4>

- Farb, P. and G. Armelagos. (1980). Consuming Passions: The Anthropology of Eating. Houghton Mifflin Harcourt.
- Germov, J. & Williams, L. (Eds.). (2009). A Sociology of Food and Nutrition: The Social Appetite. 3rd Edition. Oxford University Press.
- Harris, M. (1987). Foodways: historical overview and theoretical prolegomenon. In: Harris, M. and E. B. Ross (eds.) Food and Evolution: Toward a Theory of Human Food Habits. Philadelphia: Temple University Press.
- Higman, B.W. (2011). How Food Made History. 1st Edition. Wiley-Blackwell.
- Le, S. (2018). 100 Million Years of Food: What Our Ancestors Ate and Why It Matters Today. Reprint Edition. Picador.
- McIntosh, Wm. A. (1996). Sociologies of Food and Nutrition. Springer New York.
- McWilliams, M. (2010). Food Around the World: A Cultural Perspective. Second Edition. Pearson Education.
- Seal, PP. (2023). Food Anthropology in India. Routledge India.
- Sidney, C.H.C. & Tan, C. (2007). Food and Foodways in Asia: Resource, Tradition and Cooking. 1st Edition. Routledge.

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DISCIPLINE SPECIFIC ELECTIVE
DSE HH 5C1: Gender, Media and Society

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Gender, Media and Society	4	2	0	2	XII Pass	Appeared in Communication Concepts and Theories

Learning Objectives

- To sensitize students to the gender dynamics operating in societies and their impact on overall development at regional and national level.
- To understand the gender-based differentials in terms of socio-cultural constraints, deprivations and violence faced by men and women during their life cycle and the legal redressal available.
- To make students appreciate the inter-linkages between gender, media and society and how media can play an important role in promoting Gender equity.

Learning Outcomes

- The students will understand and internalize the concepts of sex and gender and how various socio-economic-cultural-political practices impact the construction of gender.
- The students will develop appreciation of inter-relationships between gender equality/equity on one hand and gender and development based indicators on the other.
- The students will be able to appreciate the dimensions, theories and approaches of women empowerment.
- The students will be enabled to critique the role of media in promoting gender equality and equity.

SYLLABUS OF HH 5C1

THEORY
(Credits 2; Hours 30)

UNIT I: Understanding Gender and Perspectives on Women's Status **8 Hours**

This unit elucidates upon the concept of gender, sex and LGBTQA+ identities. It elaborates on the status of women across ages and the shifts across various social orders.

- Concept of gender, differences between sex and gender
- LGBTQA + Binary and Non Binary identities: Concept, intersection with other gender identities, challenges, activist trends, initiatives by the Government
- Status of women- definition, quantification; shifts in status of women – historical and contemporary perspectives
- Patriarchal and matriarchal social order and impact on women's status

UNIT II: Gender and Development

14 Hours

This unit elaborates on the inter-relationships between Gender and Development as well as gender-based differentials in various sectors and their measurement. It also elaborates on the violence faced by women across various life cycle and the various legal provisions available for the same.

- Inter-relationships of Gender and Development; Gender differentials in health/nutrition, education, economic and political participation
- Indices of Human and Gender development with special reference to India's position
- Life Cycle Approach to gender studies; violence faced by women at different life stages (Domestic violence, Sex selection practices, Sexual Harassment at work place);
- Legal provisions available for dealing with such violence
- Empowerment of vulnerable groups including women- Economic, social and political dimensions of empowerment.

UNIT III: Gender, Media and Impact on Society

8 Hours

This unit elaborates on media's role in construction of gender, representation of women in media and gender stereotypes. It also focuses on framework for gender responsive media and gender mainstreaming.

- Social construction of gender reality by contemporary media
- Media and perpetuation of gender stereotypes
- Representation of women in media in political, cultural and social landscape
- Gender and media ethics
- Framework for gender responsive media and gender mainstreaming, ICTs and Gender

PRACTICAL (Credits 2; Hours 60)

1. Understanding the concept of sex and Gender
 - Quiz/games on sex and gender
2. Gender based Indices
 - Studies of gender-based indices with reference to Indian context
 - Research studies on issues linked to Gender
3. Portrayal of gender in Media
 - Analysis of portrayal of gender in media – Advertisements, radio, cinema
4. Programs and campaigns on gender equity
 - Case studies for national and state level programmes and campaign for gender equity
5. Media production on gender based issues
 - Developing Digital stories/ Power point presentations/ Radio Programs/Audio jingles on gender-based Issues

Essential Readings:

- Azad R., (2014). Gender discrimination-An Indian perspective, Atlantic Publishers and Distributors.
- Bhasin, Kamla (2000). *Understanding Gender*. New Delhi. Kaali for Women.
- Beauvoir, S. (2015). *The Second Sex*. London: Vintage Books.
- Chattopadhyay, S (2018). *Gender Socialization and the Making of Gender in the Indian Context*. New Delhi: Sage Publications.
- Ghadially, R. (2007). *Urban Women in Contemporary India*. . New Delhi: sage Publications.
- Saikia, J.P., (2017). *Gender Themes and Issues*, Concept Publishing Company.
- Sohoni, K Neeraja, (1994), *Status of Girls in Development Strategies*, New Delhi, Har-Anand Publications.

Suggested Readings:

- Dube, L. (2001) *Anthropological Explorations in Gender-Intersecting Fields*. New Delhi: Sage Publications.
- Goel, A, Kaur, A and Sultana, A (2006). *Violence against women: Issues and Perspectives*. New Delhi, Deep& Deep Publishers.
- Goel, A. (2004) *Education & Socio-Economic Perspectives of Women Development and Empowerment*. New Delhi: Deep & Deep.
- Goel, A. (2004) *Organisation & Structure of Women Development and Empowerment*. New Delhi: Deep & Deep.
- Kishwar, M. (1994) *Off the Beaten Track – Rethinking Gender Justice for Indian Women*. Mumbai: Oxford University Press.
- Krishna, S. (Ed) (2003) *Livelihood and Gender Equality in Community Resource Management*. New Delhi: Sage Publications
- UNDP, Human Development Reports (Latest publication).

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- Use of new media in governance
- Civic, Community, and Public Engagement
- Critique of new media as a tool of surveillance and oppression
- Social media as a liberating force
- Digital democracy and participation

UNIT III: New Media Laws and Ethics

10 Hours

This unit will give understanding of laws pertaining to new media and analytical knowledge into related ethical issues.

- Need for Laws and Ethics in New Media
- New Media Laws and Acts
- Social Media Freedom of Expression
- Intellectual Property Rights
- Privacy, Data and International Law
- Hate Speech
- Pornography and Obscenity
- Defamation
- Government Censorship
- New Media and Democracy
- New Media and Activism

PRACTICAL (Credits 2; Hours 60)

1. Case studies pertaining to ethical issues in the use of new media.
2. Evaluation of New Media campaigns.
3. Development and Designing of New Media Campaigns
4. Content Development for various new media tools.

Essential Readings:

- Jenkins, Henry. (2006). *Convergence Culture: Where Old and New Media Collide*. New York, NY: NYU Press.
- *Computer-Mediated Communication: A Theoretical and Practical Introduction to Online Human Communication*, Rowman & Littlefield, April 2021.
- John C. Sherblom *Computer-Mediated Communication: Approaches and Perspectives*, 6 March 2019
- Aaron Langille and Victoria Kannen *Virtual Identities and Digital Culture* Taylor & Francis Ltd, 2021.
- Jeremy Harris Lipschultz, *Social Media Law and Ethics*, Routledge, 2021.

Suggested Readings:

- Mike Z Yao, Rich Ling, “What Is Computer-Mediated Communication?”—An Introduction to the Special Issue, *Journal of Computer-Mediated Communication*, Volume 25, Issue 1, January 2020, Pages 4–8, <https://doi.org/10.1093/jcmc/zmz027>.
- Pannu Parveen, Tomar A Yuki, *Communication Technology for Development*, IK International publication, 2012.

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DISCIPLINE SPECIFIC ELECTIVE
DSE HH 5D1: Fabric Production

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Fabric Production	4	2	0	2	XII Pass	Appeared in Textile Science

Learning Objectives

- To provide students with knowledge of various production techniques.
- To learn about the various standard test methods required for the evaluation of various types of fabrics

Learning Outcomes

- Demonstrate an understanding of various types of fabric forming methods.
- Familiarize students with the types and scope of technical textiles.
- Acquire skills to inspect, manage and control quality in the textile industry.

SYLLABUS OF DSE HH 5D1

THEORY
(Credits 2; Hours 30)

UNIT I: Weaving

10 Hours

- Structure and components of woven fabric: warp, weft, selvedge, grain
- Yarn preparation for weaving
- Weaving operations
- Types of Loom: shuttle and shuttleless looms
- Types of weaves: Basic and Decorative
- Blended Fabrics

UNIT II: Knitting

8 Hours

- Structure and components of knitted fabric: courses, wales
- Yarn preparation for knitting
- Knitting needles
- Knitting process and machines
- Knit fabric stitches
- Knitted fabric classification: Warp and Weft knits
- Techniques for knitwear production- fully-cut, fully-fashioned and integral

UNIT III: Non-Wovens

6 Hours

- Production of non-woven
- Types of non-woven fabrics and their properties

- Application in various sectors- apparel and industrial

UNIT IV: Other methods of fabric construction

4 Hours

- Nets
- Laces
- Braiding
- Knotting

UNIT V: Technical Textiles

2 Hours

**PRACTICAL
(Credits 2; Hours 60)**

1. Yarn Count : Direct and Indirect	6
2. Dimensional Stability of cotton and wool and knitted fabric	8
3. Identification of weaves, point paper diagrams	12
4. GSM	4
5. Drape	6
6. Crease recovery	6
7. Bending length	6
8. Tear strength	6
9. Fabric analysis	6

Essential Readings:

- Joseph, M.L., (1988) Essentials of Textiles (6th Edition), Holt, Rinehart and Winston Inc., Florida.
- Rastogi, D. (Ed.) and Chopra, S. (Ed.), (2017), Textile Science, Orient Black Swan.
- Sekhri S., (2011) Textbook of Fabric Science: Fundamentals to Finishing, PHI Learning, Delhi.
- Chattopadhyay, K.D., 1995, Handicrafts of India, Wiley Eastern Limited, N Delhi.
- Corbman P. B., (1989), Textiles- Fibre to Fabric, 6th edition, Mc Graw Hill, New York.
- Pizzuto's J.J. "Fabric Science", Fairchild Publication, New York.
- Hollen N., Saddler J., Langford A.L., Kadolph S.J., (1988), Textiles, 6th Edition, Macmillan Publishing Company New York, USA
- Das, Shukla, 1992, Fabric Art- Heritage of India, Abhinav Publications, N Delhi.
- Chelna Desai, 1988, Ikats Textiles of India, Chronicle Books, India

Suggested Readings:

- Brackenbury, T. (2005). *Knitting Clothing Technology*, Blackwell Science Publishers
- Horrock A.R. and Anand, S.C. (2000). *Handbook of Technical Textiles*, Cambridge: Woodhead Publishing.
- Spencer, D.J. (2005) *Knitting Technology: A Comprehensive Handbook and Practical Guide*, 4th ed. Cambridge: Woodhead Publishing.
- Booth, J. E. (1964) Principle of textile testing an introduction to physical methods of testing textile fibers, yarns, and fabrics. 2nd Edition. London: Meanness Butterwroths.
- Saville, P. B. (1999) Physical testing of textiles. Cambridge: Woodhead Publishing Limited.
- Skinkle, J.H. (1940) Textile Testing. New York: Chemical Publishing Co. Inc. Brooklyn.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE
DSE HH 5D2: Understanding Fabrics

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Understanding Fabrics	4	2	0	2	XII Pass	Appeared in Textile Science

Learning Objectives

- To briefly study the fabric components.
- To enhance awareness of various commercially available fabrics.
- To understand the properties and end uses of the various types of fabrics.

Learning Outcomes

The students would be able to:

- Understand the components of a textile fabric.
- Identify the various commercially available fabrics.
- Appropriately select fabrics based on their properties, cost and recommended end use.

SYLLABUS OF HH 5D2

THEORY
(Credits 2; Hours 30)

UNIT I: Fabric components

7 Hours

In this unit, students will be able to understand the basics of fibres, yarns and fabric.

- Fibres and yarns
- Methods of fabric construction
- Fabric finishing- dyeing, printing, aesthetic and functional finishes

UNIT II: Commercially important woven fabrics: Identification, properties and end use 14 Hours

In this unit, students will gain an understanding of various types of woven fabrics

- **Cotton and other Cellulosic Fabrics**
 - Light weight fabrics- Mulmul, Voile, Organdy, etc.
 - Medium weight fabrics- Cambric, Poplin, Cotton Rubia, Denim, Chambray, Seer-sucker, Eyelash dobby, Schiffli, Jute, Linen, etc.
 - Heavy weight fabrics- Canvas, Casement, Gabardine, Damask, Corduroy, Velvet, Terry, etc.
- **Silk and Wool fabrics**
 - Lightweight fabrics- Silk Crepe, De'chine, Georgette, Chiffon, Organza, etc.

- Medium/Heavy weight fabrics- Flat silk, Satin, Taffeta, Dupion, Shantung, Raw silk, Tussar silk, Habutai silk, Tweed, Wool twill
- **Man-made fibre and blended fabrics**
 - Art silk, Lizzy-Bizzy, Terryvoile, Semi-crepe, Moss crepe, Artificial chiffon, Artificial

UNIT III: Commercially Important Knitted and Non-woven fabrics: Identification, properties and end use **4 Hours**

In this unit, students will learn about various types of knitted and non-woven and other types of fabrics

- Knitted Fabrics- Knitted Terry, Jersey, Rib Knit, Interlock knit, Pique, Velour, Scuba, Fleece, etc.
- Non-wovens- Different types and weights
- Others- Leatherette, Suede, Nets and Laces

UNIT IV: Traditional Indian Fabrics: Identification, properties and end use **5 Hours**

In this unit, students will be learn to identify various types of traditional Indian fabrics

- Selected woven, embroidered, painted, printed and dyed traditional Indian textiles.

PRACTICAL
(Credit 2; Periods: 60)

1. Identification of various types of fibres, yarns, fabric types (woven, knitted, non-wovens and others), weaves, thread count and fabric weight
2. Collection of swatches for portfolio preparation of woven, knitted, non-woven and traditional Indian fabrics

Essential Readings

- Corbman P. B., (1989), Textiles- Fibre to Fabric, 6th edition, Mc Graw Hill, New York.
- Hollen N., Saddler J., Langford A.L., Kadolph S.J., (1988), Textiles, 6th Edition, Macmillan Publishing Company New York, USA
- Joseph, M.L., (1988) Essentials of Textiles (6th Edition), Holt, Rinehart and Winston Inc., Florida.
- Rastogi, D. (Ed.) and Chopra, S. (Ed.), (2017), Textile Science, Orient Black Swan.
- Sekhri S., (2011) Textbook of Fabric Science: Fundamentals to Finishing, PHI Learning, Delhi.

Suggested Readings

- Pizzuto's J.J. "Fabric Science", Fairchild Publication, New York.
- Tholia A., (2013) Understanding Fabrics- A practical Approach, 2nd edition, Sarv International.
- Das, Shukla, 1992, Fabric Art- Heritage of India, Abhinav Publications, N Delhi.
- Chelna Desai, 1988, Ikats Textiles of India, Chronicle Books, India.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE
DSE HH 5E1: Entrepreneurship Development and Enterprise Management

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Entrepreneurship Development and Enterprise Management	4	2	0	2	XII Pass	Appeared in Fundamentals of Resource Management

Learning Objectives

- To familiarize the students with meaning and concept of entrepreneurship and its ecosystem
- To sensitize and orient students towards identifying entrepreneurial opportunities and market potential
- To impart knowledge for setting up an enterprise and its management

Learning Outcomes

The students would be able to:

- Understand the concepts of an entrepreneur, entrepreneurship and entrepreneurial ecosystem in context of India.
- Appreciate the role of entrepreneurial motivation and creativity in innovation.
- Develop skills in project identification, formulation and appraisal.
- Gain insight into setting up of an enterprise and its management.

SYLLABUS OF HH 5E1

THEORY
(Credits 2; Hours 30)

UNIT I: Entrepreneurship Development

10 Hours

Fundamental concepts of entrepreneurship development and entrepreneurial ecosystem.

- Entrepreneurship- concept, significance, stages, growth process, entrepreneurship development in India, entrepreneurship education model, drivers & barriers
- Entrepreneur- characteristics, competencies, types, style & motivation
- Women Entrepreneurship in India- characteristics, competencies, significance, status, factors promoting , challenges faced, strategies for women entrepreneurship development- income generation , self-help groups, micro enterprises and self- employment, skill development and technology transfer

- Entrepreneurial Ecosystem: Domains (accessible markets, availability of finance, conducive culture, human capital, progressive policy framework, and a range of institutional support)
- Creativity: Concept, significance & process
- Innovation: Concept, types, process, sustaining growth- disruptive innovation.

UNIT II: Enterprise Planning and Launching

10 Hours

Project identification, project formulation, project appraisal

- Types of enterprises: classification based on sector, capital, gender, place, product, ownership pattern, platform & process
- Project Identification: sensing business opportunities, feasibility study
- Project Formulation: Project report & its components, writing a business proposal
- Project Appraisal: Technical, marketing, financial, legal and environmental

UNIT III: Enterprise Management & Sustenance (with reference to start ups and micro enterprises)

10 Hours

- Production Management - Organizing production; input-output cycle - ensuring quality
- Marketing Management- Understanding markets and marketing: types, functions & marketing mix
- Financial Management - Concept, types and sources of finance, financial ratios & projections
- Human resource management – Concept, significance, practices, challenges
- Total Quality Management
- Business ethics

PRACTICAL (Credits 2; Hours 60)

1. Micro Lab
2. SWOC analysis of successful entrepreneurs and enterprises through case profiling.
3. Entrepreneurial Competencies & Motivation - Simulations & experiential learning.
4. Institutions facilitating entrepreneurship development in India.
5. Preparation and appraisal of a business plan.
6. Calculations of financial Indices.
7. Design and development of marketing mix for a startup.
8. Designing of sales campaign for digital marketing

Essential Readings:

- Barringer R. B. (2020). *Entrepreneurship: Successfully Launching New Ventures* (6e ed.). Pearson Education.
- Chhabra T. N. (2015). *Entrepreneurship Development*. New Delhi: Sun India.
- Charantimath, P. M. (2018). *Entrepreneurship Development and Small Business Enterprises*. Pearson Publications.
- Desai V. (2011). *The Dynamics of Entrepreneurial Development and Management*. Himalaya Publishing House.

Suggested Readings:

- Gundry L, K. & Kickul J. R. (2007). *Entrepreneurship Strategy: Changing Patterns in New Venture Creation, Growth, and Reinvention*. SAGE Publications, Inc.
- Taneja & Gupta. (2001). *Entrepreneur Development- New Venture Creation*. New Delhi: Galgotia Publishing Company.

- Zaware, N. (2019). Entrepreneurship Development and Startups Managemen. Educreation Publishing.

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DISCIPLINE SPECIFIC ELECTIVE
DSE HH 5E2: Design Thinking and Innovation

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Design Thinking and Innovation	4	2	0	2	XII Pass	Appeared in Fundamentals of Resource Management

Learning Objectives

- To comprehend the Design Thinking concept for fostering innovation
- To understand concept and role of innovation in present day context
- To apply design thinking solutions individually and in team for maximizing business growth
- To instill a culture of design thinking to enhance innovation within an organization

Learning Outcomes

The students would be able to:

- Overcome cognitive fixedness and develop new mindset that integrates design thinking for innovation.
- Empathize and apply human centered design for seeking innovative solutions.
- Create the optimal environment and team dynamics to steer innovation and collaboration.
- Develop the capacity to design and test cutting-edge for customer-focused prototypes

SYLLABUS OF HH 5E1

THEORY
(Credits 2; Hours 30)

UNIT I: Innovation

10 Hours

This unit will help students to understand the concept of innovation and types and its dimensions

- Innovation: Concept, significance, types and process
- Innovation diffusion theory
- Innovation in organizations: Drivers and barriers, bottom up and top down approach, horizontal versus vertical approach
- Dimensions of innovation: Innovation eco-system in India, social Innovation, grassroots innovation, frugal innovation and global Innovation-global innovation index framework (GII)

UNIT II: Design thinking approaches and processes

12 Hours

The focus of this unit would be on developing the basic concepts of design thinking, business use of design thinking, mindset, approaches and processes.

- Design thinking : Concept, discipline, role and mindset
- Design Thinking Approaches: Empathy, Ethnography, Divergent thinking, convergent thinking, Visual thinking, Assumption testing, Prototyping and Time for learning and validation
- Design thinking resources: people, place, materials and organizational fit
- Design thinking processes: Double diamond process, Stanford d. school 5 stage process

UNIT III: Design thinking in practice

8 Hours

This unit will help students to gain insights about design thinking tools, methods and its application.

- Stages of designing for growth
- Design thinking tools and methods: visualization, journey mapping, value chain analysis, mind mapping, brain storming, concept development, assumption testing, customer co creation, rapid prototyping, launching
- Design thinking applications in organizations

PRACTICAL (Credits 2; Hours 60)

1. The foundation for innovation: Define users' needs and problems, identify and reframe the most game changing part of the problem and analyze the contextual environment for viable solution.
2. Ideate: Develop user focus ideas to identify new problems, and apply tools for innovative solutions, ideation through design thinking approaches and refine innovative ideas.
3. Develop an experimentation mindset: Combine ideas into complex innovation concepts, critique and strengthen concepts, guide prototyping by creating critical questions related to concept's desirability, feasibility and viability.
4. Implement: Assess developer and user perspectives for bias that may affect implementation, apply framework to strengthen communications about an innovation's value and reflect on management skills for sustaining a culture of innovation

Essential Readings:

- Soni, Pwan. (2020). Design your thinking: The Mindsets, toolsets and skillsets for creative problem solving
- Kahneman, Daniel. (2011). Thinking fast and slow
- Drucker, P. F. (2006). Innovation and entrepreneurship: Practice and principles. USA: Elsevier.70
- Roy, R. (2008) Entrepreneurship. New Delhi: Oxford University Press

Suggested Readings:

- Chesbrough, H. (2006). Open business model: How to thrive in the new innovation landscape. Harvard Business School Press.
- CS Prasad (2012), Small and Medium Enterprises in Global Perspective, New Century Publications, New Delhi

- Fagerberg, J., Mowery, D. C., & Nelson, R. R. (Ed.). (2006). The Oxford Handbook of Innovation. New Delhi: Oxford University Press.
- Kaplan, J. M. (.2006). Patterns of entrepreneurship. John Wiley & Son.

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Based on Undergraduate Curriculum Framework 2022

दिल्ली विश्वविद्यालय
UNIVERSITY OF DELHI

Bachelor of Science in Home Science

or

**Bachelor of Science (Hons.) Home Science with Dissertation/
Academic Projects/ Entrepreneurship**

*Under UGCF-2022 based on NEP-2020
(Effective from Academic Year 2022-23)*



Syllabus as approved by Academic Council

Date:

No:

Executive Council

Date:

No:

Department of Home Science
Semester – VI

B.Sc. (Honours) Home Science

Paper No	Paper title	Credits	
		Theory	Practical
DSC HH 616	Traditional Indian Textiles	3	1
DSC HH 617	Space Design and Sustainability	3	1
DSC HH 618	Extension for Development	3	1
DSE HS 6-1	Research Methods in Home Science	3	1
DSE HS 6-2	Innovation and Entrepreneurship	1	3

UG Programme for Bachelor in B.Sc. Home Science (Hons.) degree in three years

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DISCIPLINE SPECIFIC CORE COURSE DSC HH 616: Traditional Indian Textiles

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Traditional Indian Textiles	4	3	0	1	XII Pass	Appeared in Textile Science

Learning Objectives

- To create awareness and foster appreciation of the country's rich textile heritage
- To impart knowledge of fundamentals of textile conservation and storage
- To acquaint students about the khadi, handloom and handicrafts sectors and measures taken by various organisations for their sustenance

Learning Outcomes

- Recognise and identify embroidered fabrics of different states in terms of stitches and designs
- Explain material and design of selected traditional woven fabrics.
- Describe our heritage of varied dyed, painted and printed fabrics.
- Classify conservation techniques and recognise signs of deterioration of textiles.
- Carry out care and conservation of traditional textiles.
- Provide an insight into the evolution and socio-economic significance of *khadi*, handloom and handicraft sectors.
- Discuss sustenance of traditional textile crafts and interventions by organisations.
- Analyse the textile arts in their historical perspective, the impact of modernisation and their contemporary status.

SYLLABUS OF DSC HH 616

THEORY
(Credits 3; Hours 45)

UNIT I: Study of Textile Crafts of India: with reference to history, production centers, designs, materials, colours and products. 30 Hours

- Woven Textiles - Banaras Brocades, Jamdanis and Baluchars of Bengal, Kani Shawls of Kashmir, Kanjivarams of Tamil Nadu
- Embroidered Textiles-Kanthas of Bengal, Kasuti of Karnataka, Phulkari of Punjab, Chikankari of Uttar Pradesh, Kashida of Kashmir, Gujarat embroideries
- Painted and Printed textiles –Kalamkaris of Andhra Pradesh, Dabu printing of Rajasthan, Ajrakh printing of Gujarat
- Dyed textiles –Bandhnis of Rajasthan and Gujarat, Ikats- Patola of Gujarat, Bandhas of Orissa, Telia Rumal of Andhra Pradesh

UNIT II: Status of Traditional Textiles in Modern India 7 Hours

- Evolution and socio-economic significance of Khadi, Handloom and Handicraft sector
- Sustenance of traditional textile crafts
- Interventions by organizations

UNIT III: Conservation of Traditional Textiles 8 Hours

- Types of Conservation – Preventive and Curative
- Factors influencing degradation of textiles
- Care and storage techniques

PRACTICAL
(Credits 1; Hours 30)

1.	Resist Dyeing Techniques	10
	• Tie & dye using various techniques on cellulosic and protein fibers	
	• Batik on cotton	
2.	Printing	4
	• Block printing: pigment	
	• Screen printing: pigment	
3.	Embroidery stitches of traditional embroideries	6
4.	Portfolio development-Traditional textile crafts	4
5.	Product development	4
6.	Visit to craft centers/museums: Craft documentation report on any one craft	2

Essential Readings:

- Agarwal, O.P., 1977, *Care and Presentation of Museum projects – II*, NRL
- Barnard, N., Gillow, J., 1993, *Indian Textiles*, Thames and Hudson, USA
- Chattopadhyaya, K.D., 1995, *Handicrafts of India*, Wiley Eastern Limited, N Delhi
- Crill, R., 2015, *The Fabric of India*, Victorial and Albert Museum, UK
- Das, Shukla, 1992, *Fabric Art- Heritage of India*, Abhinav Publications, N Delhi.
- Grundy & Northedge, (1998) *Standards in the Museum Care of Costume and Textile Collections*, Museums & Galleries Collection, Spin Offset Limited, Chapter 7-14, pg 35-54

- Mausumi Kar, (2015), *The Indian Textile and Clothing Industry An Economic Analysis*, Springer New Delhi Heidelberg New York Dordrecht London, Chapter 1& 2, pg 12-33.
- Pandit Savitri, 1951, *Indian Embroidery- Its Variegated Charm*, Pandit Publisher, Baroda
Embroidery tutorials, video links of woven textiles and slide share

Suggested Readings:

- Annual Report, (2002-2003), Handloom Industry, Ministry of textiles, Chapter 5, pg 1-20
- Chelna Desai, 1988, *Ikats Textiles of india*, Chronicle Books, India
- Craft Documentaries on Youtube
- Evaluation study on khadi and village industries programme, (2001) Programme evaluation organization planning commission government of India, New Delhi. Chapter 1 & 2, pg 1-9
- Karolia, Anjali, 2019, *Traditional Indian Handcrafted Textiles*, Niyogi Publishers

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DISCIPLINE SPECIFIC CORE COURSE
DSC HH 617: Space Design and Sustainability

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Space Design and Sustainability	4	3	0	1	XII Pass	Appeared in Personal Finance and Consumer Studies

Learning Objectives

- To understand the fundamentals of space planning.
- To acquire knowledge regarding materials, building construction techniques and technologies.
- To comprehend sustainable parameters in space design.

Learning Outcomes

- Comprehend the concept of design applicable to interior spaces.
- Understand the application of materials and finishes to create aesthetic and sustainable interiors.
- Comprehend the concept of sustainability and green rating systems.

SYLLABUS OF DSC HH 617

THEORY
(Credits 3; Hours 45)

UNIT I: Basic Concepts in Space Planning

10 Hours

This unit will develop understanding regarding the concept of space planning and designing.

- Concept of space as a resource, characteristics of space
- Principles of planning spaces
- Zoning
- Types of houses: Independent houses and Apartments.
- Contemporary Housing - Service Apartments, Senior living.
- Building bye-laws – NBC and MPD

UNIT II: Construction Features in Building Design

15 Hours

This unit will acquaint students with various elements of building construction important for developing a strong structure.

- Site selection
- Conventional and Non-conventional building materials, sustainable building materials
- Structural components of a building (Material and Types) – Foundation, Walls, Flooring, Roofs, Doors and Windows, Staircase.
- Basic building services
- Landscaping
- Earthquake resistant structures
- Home Automation

UNIT III - Concept of Space Design

15 Hours

This unit will introduce students to the area of space design such as elements and principles of design, furniture and furnishings and wall treatment.

- Introduction to Elements and Principles of design
- Concept of Colour in Interior Design - Colour Theories, Colour Psychology, Colour Schemes, Colour Forecasting
- Energy Efficient Lighting Systems
- Furniture - Types, Selection criteria, Arrangement
- Furnishings - Home Furnishing, Window treatment, Floor Coverings
- Wall treatment
- Use of sustainable material in space design

UNIT IV: Sustainable built environment

5 Hours

This unit will introduce students to the concept and application of sustainability in built environment.

- Introduction to sustainable built environment
- Green building rating guidelines in India – GRIHA and LEED
- Concept of Smart Cities

PRACTICAL (Credits 1; Hours 30)

1. Introduction to building terminologies, Concept of Scale, building constructions symbols
2. Evaluation of floor plans on the basis of principles of space planning
3. Preparation of floor plans
 - Multipurpose rooms/ studio apartment (Computer aided / manual)
4. Identification and characteristics of different building materials
5. Case study of a Green Building
6. Project on Landscaping / Home Automation

Essential Readings:

- Goel S., Seetharaman P. Kakkar, A. (2015). *Manual on Interior space designing*, Elite publishers.
- Goldstein, H. & Goldstein, V. (1988). *Art in Everyday Life (4th ed.)*, Oxford & IBH Publishing Co.
- Indian Green Building Council. (2022). *Introduction to Green Buildings and Built Environment*, BSP Books.
- Kumar, S. (2008). *Building Construction*, Standard Publisher.
- Rao, M.P. (2020). *Interior Design Principles and Practices*, Standard Publishers Distribution.

Suggested Readings:

- Duggal S.K. (2017). *Building Materials*. CRC Press.
- Green Rating for Integrated Habitat Assessment (GRIHA). (2021). *GRIHA Manuals*, GRIHA Council.
- Grimley, C. and Love, M. (2018). *The Interior Design Reference & Specification Book*, Rockport Publishers.
- Indian Green Building Council. (2021). *IGBC Manuals*, IGBC.
- Iyer, G. H. (2022). *Green Building Fundamentals*, Notion Press.
- Mitton, M. and Nystuen, C. (2021). *Residential Interior Design: A Guide to Planning Spaces (4th ed.)*, Wiley.
- Singh, G. (2019). *Building Construction and Materials*, Standard Publishers.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE
DSC HH 618: Extension for Development

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Extension for Development	4	3	0	1	XII Pass	Appeared in Communication Systems and Social Change

Learning Objectives

- To enable the students to grasp the concept of extension and its role in development.
- To gain knowledge and application of principles and processes involved in Extension Programme Planning and Management including community mobilization and stakeholder participation.
- To understand the principles and process of Extension Programme Design and Management.
- To develop understanding and skills in planning participatory approaches in Extension Programme Management.
- To inculcate a thorough understanding of the dynamic nature of extension programmes based on the changing needs of society as well as critical appraisal of the presently operating extension programs in the country.

Learning Outcomes

- Learn about the concept and scope of extension in national development.
- Develop an understanding of the principles and process involved in programme design and management.
- Develop skills for using participatory approaches in programme management.
- Gain knowledge for various development schemes and programmes operating at the national level.

SYLLABUS OF DSC HH 618

THEORY (Credits 3; Hours 45)

UNIT I: Extension: Concept and Principles 9 Hours

This unit explains the concept of extension and lays thrust on the fundamental concepts of extension applied in national development.

- Extension: concept, goals, philosophy, history and scope
- Types of extension and approaches to Extension
- Principles of Andragogy; Andragogy vs. Pedagogy
- Principles of extension
- Relationship between communication and extension - role of extension in development
- Methods of community contact in Extension

UNIT II: Participation & Leadership for Community Development 12 Hours

This unit highlights the concept of participation required as a prerequisite in any extension programme and develop skill sin the same.

- Stakeholders in Extension programs
- People's participation and social mobilization in development, levels of participation
- Participatory Learning and Action – concept, principles, classification of tools and techniques
- Leaders in extension – functions, types and leadership styles and theories
- Diffusion of innovation and adoption – concept, theory and application

UNIT III: Programme Management 12 Hours

This unit emphasizes on the principles and process involved in designing a programme and its management. The unit also strives to give conceptual clarity on project cycle and the different models of extension programme management.

- Project cycle- goals, objectives, indicators, outputs and outcomes
- Concept and Principles of extension program management
- Models of extension programme management - overview of models, Sandhu's model, Logic model
- Monitoring and evaluation

UNIT IV: Development Programmes 12 Hours

This unit elucidates on the in-depth understanding of the various Extension schemes and programmes initiated by the Government.

- Development issues and goals- national and international perspectives, Sustainable Development Goals
- Contemporary National Development Programmes (related to education, employment, income, health and nutrition, digitalization and women) – objectives, target groups, salient features, monitoring and evaluation, outcomes, stakeholders, partnership and funding

PRACTICAL (Credits 1; Hours 30)

1. Approaches to Adult Education
2. Develop skills in planning and using individual and small group methods in extension
3. Understanding the use of PLA as need assessment tools
4. Assessing the leadership skills in a case-study format

Essential Readings:

- Beck, S., 2020, Communication in the 2020s. Routledge.
- Kumar, S., 2002, Methods for community participation: a complete guide for practitioners. Vistaar Publications, New Delhi.
- Ray G.L., 2015, Extension, Communication and Management, Kalyani Publications, New Delhi.
- Sandhu, A S., 2018, Extension Programme Planning. Oxford and IBH Publishers, New Delhi.
- Singh, S., 2022, A Brief Book on Extension Education. New Vishal Publications, New Delhi.
- Singh, A K., 2020, Frontline Extension in India Innovations and Reforms. Biotech Publisher, New Delhi.
- Supe, S V., 2019, An Introduction to Extension Education. Oxford & Ibh Publishing Co. Pvt Ltd, New Delhi.

Suggested Readings:

- Bhatnagar. O.P & Dahama, O.P., 2009, Education and Communication for Development 2ed. Oxford & IBH Publishing Co. Pvt Ltd, New Delhi.
- Dale R., 2004, Evaluating Development Programmes and Projects. Sage Publications, New Delhi.
- Kumar & Hansra, 2000, Extension Education for Human Resource Development. Concept Publishing Company, New Delhi.
- Mikkelsen, B., 2002, Methods for Development Work and Research. Sage Publications, New Delhi.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE
DSE HS 6-1: Research Methods in Home Science

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
Research Methods in Home Science	4	3	0	1	XII Pass	NIL

Learning Objectives

- To provide students understandings about the basic concepts, approaches and methods in conducting Home Science research.
- To enable learners to appreciate and critique the nuances of designing a research study well.
- To sensitize students towards ethical concerns while conducting Home Science research.

Learning Outcomes

- Demonstrate knowledge of the scientific method, purpose and approaches to research in Home Science
- Compare and contrast quantitative and qualitative research approaches
- Explain different types of research design and their applicability in Home Science research
- Understand the key elements of a research process
- Explain ethical principles, issues and procedures

SYLLABUS DSE HS 6-1

THEORY
(Credits 3; Hours 45)

UNIT I: Research Purpose and Design

10 Hours

This unit will deal with meaning and importance of research in various areas of Home Science. Exposure to different types of research designs and measurement in Home Science research would also be given.

- Meaning, purpose and significance of research
- Research as a scientific method
- Types of research
- Quantitative, Qualitative and mixed method approaches

- Research Designs –Experimental and Non-Experimental; Descriptive and Observational; Participatory research
- Internal and external validity of research design
- Variables, concepts and measurement in research
- Levels of measurement
- Units of analysis

UNIT II: Sampling and Research tools & techniques

15 Hours

This unit will introduce the student to the concept of sampling and methods used to draw sample from population using examples from Home Science discipline. Students would also learn about types of data, its collection and reliability and validity concerns.

- Role of sampling in research
- Sampling techniques and their applicability, Sample size and sampling error
- Types of data: Primary and Secondary
- Tools of data collection; types, construction and administration- Interview, Questionnaire, Observation, Focus group discussion and other methods
- Validity and reliability of data collection tools

UNIT III: The Research Process

15 Hours

This unit will elaborate upon the various steps involved in conducting and reporting researches in Home Science.

- Defining the problem, research questions, objectives, hypotheses
- Review of related literature and originality in writing
- Systematic research: concept and methodology
- Planning the research
- Identifying variables and constructing hypothesis
- Selecting appropriate research methodology and tools
- Data analysis: coding and tabulation
- Writing a research report: styles and formats
- Citation formats: in medical sciences, social sciences

UNIT IV: Values, Social Responsibility and Ethics in Research

5 Hours

This unit will apprise the students about ethical concerns while conducting and reporting research.

- Ethical principles guiding research: from inception to completion and publication of research
- Plagiarism and Academic integrity in research: plagiarism tools and software
- Ethical issues relating to research participants and the researcher
 - Rights, dignity, privacy and safety of participants
 - Informed consent, confidentiality, anonymity of respondents, voluntary participation, harm avoidance

PRACTICAL (Credits 1; 30 Hours)

1. Data visualization
2. Levels of Measurement

3. Types of research designs
 - a. Experimental and non-experimental; Descriptive and observational
 - b. Qualitative, Quantitative and mixed method
4. Sampling techniques and sample size calculation
 - a. Probability sampling method
 - b. Non-Probability sampling methods
5. Tools of data collection- Interview schedule, questionnaire and FGD
 - Designing/ Construction
 - Preparation of tools for ethical review
 - Pilot testing/ validity and reliability of the tool\
6. Data collection and analysis process: conducting interviews, administering questionnaire
7. Coding and tabulation of data for analysis
8. Citation formats and Plagiarism
9. Reviewing a research paper from a specific area of specialization in Home Science

Essential Readings:

- Kerlinger F. N. and Lee, H.B. (2017). *Foundations of Behavioral Research* 4th Ed. Harcourt College Publishers.
- Kothari, C. R. (2019). *Research Methodology: Methods and Techniques*. New Age International Pvt Ltd, New Delhi.
- Kothari, C. R. (2022). *Shodh Padhati* 1st Ed. New Age International Pvt Ltd, New Delhi.
- Kumar, R. (2019) *Research Methodology: A Step-by-Step Guide for Beginners*. 5th Ed. Sage Publications, New Delhi.

Suggested Readings:

- Bernard, H. R. (2000). *Social research methods: Qualitative and quantitative approaches*. Thousand Oaks, CA.: Sage.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
- Davis, A. M., Treadwell, D. (2019). *Introducing Communication Research: Paths of Inquiry*. United Kingdom: SAGE Publications.
- Flynn, J.Z., Foster, I.M. (2009). *Research Methods for the Fashion industry*. Fairchild books, Bloomsbury publishing.
- Indian National Science Academy (INSA) (2019). *Ethics in Science Education, Research and Governance*. ISBN:978-81-939482-1-7. <http://www.insaindia.res.in/pdf/EthicsBook.pdf>
- Jacobsen, K. H. (2020). *Introduction to health research methods: A practical guide*. Jones & Bartlett Publishers.
- UGC (2021) *Academic Integrity and Research Quality*. New Delhi: UGC, Retrieved from https://www.ugc.ac.in/e-book/Academic%20and%20Research%20Book_WEB.pdf

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DISCIPLINE SPECIFIC ELECTIVE
DSE HS 6-2: Innovation and Entrepreneurship

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
Innovation and Entrepreneurship	4	1	0	3	XII Pass	NIL

Learning Objectives

- To motivate students to opt for innovation and entrepreneurship as a career option.
- To foster entrepreneurial traits and competencies
- To make students understand the critical role of creativity, design thinking and innovation in entrepreneurship development
- To prepare students to plan, launch and manage start-ups/enterprise
- To establish an ecosystem for students that is conducive to networking and incubating

Learning outcomes

After completing the course, students will be able to:

- Consider opting innovation and entrepreneurship as a career.
- Develop entrepreneurial traits and competencies.
- Ideate a viable business proposition.
- Network for venturing and innovating.
- Pitch a business proposal.

SYLLABUS OF DSE 6-2

THEORY
(Credit 1: Hours: 15)

UNIT I: Innovation

5 Hours

- This unit focuses on developing the fundamental concept of innovation and its dimensions.
- Innovation: Concept, significance, types and process
- Innovation diffusion theory

- Innovation in organizations: Drivers and barriers, bottom-up and top-down approach, horizontal versus vertical approach
- Dimensions of innovation: Innovation eco-system in India, social Innovation, grassroots innovation, frugal innovation, and global Innovation-global innovation index framework (GII)

UNIT II: Creativity & Design thinking

4 Hours

- The focus of this unit will be on developing the basic concepts and role of creativity & design thinking in innovation.
- Creativity- Concept, significance, role, processes and fostering creativity for innovation
- Design thinking: Concept, discipline, role, mindset, resources, and processes
- Design Thinking Approaches: Empathy, Ethnography, Divergent thinking, convergent thinking, Visual thinking, Assumption testing, Prototyping and Time for learning and validation

UNIT III: Entrepreneurship and Enterprise Management

6 hours

This unit will orient the students to the concept of entrepreneurship and enterprise management.

- Entrepreneurship - Concept, stages, growth process, and entrepreneurship development in India, Government policies and schemes
- Entrepreneur- characteristics, competencies, types, styles, and motivation
- Enterprise & its management- types and strategies for Start-up launching, management and sustenance
- Exit strategies for a new startup- trends in India
- Networking & business ethics

PRACTICAL (Credit 3: Hours: 90)

1. Entrepreneurial Motivation: Developing an appreciation for entrepreneurial traits and entrepreneurship as a career through

14 Hours

- Entrepreneurial motivation orientation – Sector-specific case studies of successful entrepreneurs and profiling of required traits for innovation
- Understanding self as a prospective entrepreneur - Who am I?, Locus of control, Competency Profiling, SWOC analysis, Mapping entrepreneurial styles

2. Understanding and appreciating Innovations and design thinking:

20 Hours

- Identification of innovations in day-to-day life
- Critical evaluation of innovations and design-driven solutions – case studies
- Environment scanning for business opportunities
- User's empathy mapping – understanding user's pain, pain creators and relievers
- Redesign activities for possible solutions - products and services
- Industry-integrated learning – live projects

3. Market research & mapping start-up station:

12 Hours

- Environment scanning for business opportunities

- Ideation: Generation, articulation, testing and incubating
- Develop a feasibility report

4. Business plan and appraisal: 10 Hours

- Business preparation
- Appraisal of business plan
- Risk auditing and mitigation

5. Operations and Marketing management: 12 Hours

- Develop operational management sheet and applications for registrations and licenses
- Familiarizing with the relevant documents, including the inventory and stock registers.
- Customer segmentation and profiling
- Prepare the 4Ps of the marketing mix, including digital marketing tools
- Prepare an elevator pitch

6. Financial management: 12 Hours

- Analysis of financial requirements and available capital
- Sources of finance - bootstrapping, crowdfunding, angel investing venture capital
- Financial statements, cash flow management, applicable interest rates of different types of loans
- Calculation of financial ratios, break-even analysis and applicable taxes
- Designing funding strategy and start-up valuation

7. Human resource management and legal framework: 10 Hours

- Functional requirements and cost implications
- Team formation
- Ensuring health and safety at the workplace
- Business communication
- Enterprise registration- Legal compliances, paperwork and cost
- Intellectual property rights

Essential Readings:

- Bhatt Arvind Kumar (2022). Innovation and Entrepreneurship. Atlantic publisher
- Chabbra T. N. (2019). Entrepreneurship Development. New Delhi: Sun India.
- Charantimath, P. M. (2018). Entrepreneurship Development and Small Business Enterprises. Pearson Publications.
- Carayanis Elias G, Samara Elpida T & Bakouros Yannis L.(2015). Innovation and Entrepreneurship. Springer.
- Drucker. Peter F. (2006), Innovation and Entrepreneurship. Harper Business
- Gundry L, K. & Kickul J. R. (2007). Entrepreneurship Strategy: Changing Patterns in New Venture Creation, Growth, and Reinvention. SAGE Publications, Inc.
- Santiago, Sam (2011), The official book of Innovation. Rising above LLC publisher
- Soni, Pwan.(2020). Design your thinking: The Mindsets, toolsets and skillsets for creative problem solving

Suggested Readings:

- Christensen M Clayton (2013). The innovator's dilemma. Harvard Business Review Press.
- Daum Callie (2020). Business strategy: essentials you always want. Vibrant publishers

- Goyal P. (2017). Before you start up: How to prepare to make your start-up a dream reality. Fingerprint publishing.
- HBR's 10 Must Reads on Startups and Entrepreneurship (2018). Featuring Bonus Article "Why the Lean Startup Changes Everything" by Steve Blank
- Nath,D. Mitra, S. (2020) Funding your startup and other nightmare. Penguin portfolio.
- Taneja & Gupta. (2001). Entrepreneur Development- New Venture Creation. New Delhi: Galgotia Publishing Company.

Web references:

- <https://web.iima.ac.in/assets/upload/mdp/480284395YEP%20Brochure.pdf>
- <https://www.iimb.ac.in/entrepreneurship>
- <https://www.mepsc.in/skill-based-programs/>
- <https://ediindia.ac.in/pgdm-innovation-entrepreneurship-venture-development/>

Training material:

- EMT kit developed by NIESBUD, New Delhi and EDII Ahmedabad

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