KANNUR UNIVERSITY

(Abstract)

Scheme and Syllabus of the B.Sc. Home Science - Programme in tune with KU-FYUGP Regulations 2024 with effect from 2024 Admission onwards- Approved- Subject to ratification by the Academic Council- Implemented- Orders Issued

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FYUGP Spl.cell

ACAD/FYSC-III/17520/2024 Dated: 04.09.2024

Read:-1. U.O. No. FYUGPSC/FYSC-I/5074/2024, dated: 18/04/2024

2. The FYUGP Syllabus in B.Sc. Home Science submitted by Chairperson, Board of Studies in Home Science(Cd) on 29.05.2024

3. The Minutes of the Scrutiny Meeting held on 10.06.2024

4. E-mail of the Chairperson, Board of Studies in Home Science (Cd), dated 24.06.2024

5. The Minutes of the Meeting of the Academic Council, held on 25.06.2024

ORDER

1.The Regulations of the Kannur University Four Year UG Programmes (KU-FYUGP Regulations 2024) for affiliated Colleges was implemented with effect from 2024 admission onwards, vide paper read as(1) above.

2.Subsequently, the Chairperson, Board of Studies in Home Science(Cd) vide paper read as (2) above, submitted the Scheme and Syllabus of the B.Sc. Home Science programme in tune with KUFYUGP Regulations 2024 with effect from 2024 admission onwards.

3.Thereafter, the Scrutiny Committee, which included the Dean, Faculty of Science vide paper read as (3) above, scrutinized the Syllabus and recommended suggestions.

4.Accordingly, vide paper read as (4) above, the Chairperson, Board of Studies in Home Science(Cd) forwarded the modified Syllabus of the B.Sc. Home Science programme for approval.

5.Subsequently, the Syllabus was placed before the Academic Council for consideration.

6.Accordingly, the Scheme and Syllabus of the B.Sc. Home Science programme in tune with KU-FYUGP Regulations 2024 was approved by the meeting of the Academic Council held on 25-06-2024 and granted permission to publish the same, as and when it is ready, after making the necessary modifications, as per the paper read as (5) above.

7.Considering the matter in detail, the Vice Chancellor approved the Minutes of the aforesaid meeting of the Academic Council and the Scheme and Syllabus of the B.Sc.Home Science programme in tune with KU-FYUGP Regulations 2024 are approved.

8.The approved Syllabus of the B.Sc. Home Science programme is appended with this U.O.

Orders are issued accordingly.

Sd/-

ANIL CHANDRAN R

DEPUTY REGISTRAR (ACADEMIC)

For REGISTRAR

To: The Principals of Arts and Science Colleges

Copy To: 1. The Examination Branch (through PA to CE)
2. The Chairperson, Board of Studies in Home Science(Cd)
3. PS to VC/PA to R
4. DR/AR (Academic)
5. The Web Manager(For uploading in the website)
6. SF/DF/FC

Forwarded / By Order

SECTION OFFICER

KANNUR UNIVERSITY

BOARD OF STUDIES IN HOME SCIENCE (UG)

FOUR-YEAR UNDER GRADUATE PROGRAMME (KU-FYUGP)

B.Sc. HOME SCIENCE - HONOURS/ RESEARCH

SYLLABUS FOR UNDER GRADUATE COURSES

(2024 ADMISSION ONWARDS)

BOARD OF STUDIES- HOME SCIENCE (UG)

1	Dr Sr. Celine Mathew C (Chairperson)	Associate Professor	Department of Home Science, Nirmalagiri College, Kuthuparamba Kannur.
2	Sithara Balan V	Assistant Professor	Department of Home Science, Government College for Women, Thiruvananthapuram
3	Dr Jvothi H	Assistant Professor	Department of Home Science, Government College for Women, Thiruvananthapuram
4	Dr Mini Joseph	Assistant Professor	Department of Home Science, Government College for Women, Thiruvananthapuram.
5	Dr Annie Ninan	Associate Professor	Department of Home Science, Unity Women's College Manrjery, Malappuram.
6	Sajitha Suseelan S	Assistant Professor	Department of Home Science, Morning Star College Angamaly, Ernakulam.
7	Deepthi Lisbeth K	Assistant Professor	Department of Home Science, Nirmalagiri College, Kuthuparamba, Kannur
8	Dr Betty Rani lssac	Associate Professor	Department of Home Science, St. Therasas College, Ernakulam
9	Dr Lismitha Godwin	Assistant Professor	Department of Home Science, Morning star College, Angamaly, Ernakulam
10	Dr Suman K T	Associate Professor	Department of Home Science, Kerala Agricultural University, Thrissur

TABLE OF CONTENT

KANNUR UNIVERSITY

VISION AND MISSION

VISION:

To establish a teaching, residential and affiliating University and to provide equitable and just access to quality higher education involving the generation, dissemination and a critical application of knowledge with special focus on the development of higher education in Kasaragod and Kannur Revenue Districts and the Manandavady Taluk of Wayanad Revenue District.

MISSION:

- To produce and disseminate new knowledge and to find novel avenues for application of such knowledge.
- To adopt critical pedagogic practices which uphold scientific temper, the uncompromised spirit of enquiry and the right to dissent.
- To uphold democratic, multicultural, secular, environmental and gender sensitive values as the foundational principles of higher education and to cater to the modern notions of equity, social justice and merit in all educational endeavours.
- To affiliate colleges and other institutions of higher learning and to monitor academic ethical, administrative and infrastructural standards in such institutions.
- To build stronger community networks based on the values and principles of higher education and to ensure the region's intellectual integration with national vision and international standards.
- To associate with the local self-governing bodies and other statutory as well as nongovernmental organizations for continuing education and also for building public awareness on important social, cultural and other policy issues.

PREFACE

Home Science is a dynamic and interdisciplinary field of study that focuses on the management and economics of the home and community. It integrates various aspects of sciences, arts, and humanities to improve the quality of life. It combines scientific principles with practical applications to improve the overall quality of life, making it an essential discipline for personal and community development.

Students studying Home Science will explore a broad range of subjects including food and nutrition, human development, textiles and clothing, family resource management, and extension education. This comprehensive approach not only equips students with practical skills for everyday living but also provides a scientific foundation for understanding and addressing the challenges faced by individuals and families in modern society.

One of the primary areas of Home Science is food and nutrition, where students learn about the principles of nutrition, dietetics, and food preparation. This knowledge is crucial for promoting health and well-being, as it enables students to plan balanced diets, prepare nutritious meals, and understand the nutritional needs of different age groups. Additionally, courses in human development provide insights into the various stages of life, from infancy to old age, highlighting the psychological, social, and emotional aspects of human growth. This understanding is essential for fostering healthy relationships and effective communication within families and communities.

Textiles and clothing is another significant component of Home Science, focusing on the properties and uses of different fabrics, clothing construction, and fashion design. Students gain practical skills in selecting fabrics, designing garments, and caring for clothing, which are valuable both personally and professionally. Furthermore, family resource management teaches students how to efficiently manage household resources such as time, money, and energy. This area emphasizes budgeting, household maintenance, and interior decoration, preparing students to create comfortable and efficient living spaces.

Extension education in Home Science plays a crucial role in community development, as it involves spreading knowledge and skills to improve living standards in both urban and rural areas. Through educational programs and training, students learn how to empower communities, promote sustainable practices, and enhance the quality of life for individuals and families. Overall, Home Science offers a versatile and practical education that prepares students for diverse career opportunities in education, healthcare, industry, research, and community service, while also equipping them with essential life skills.

Home Science is essential for personal empowerment, professional development, community welfare, and environmental sustainability. Its interdisciplinary nature and practical applications make it a valuable field of study that addresses the complexities of modern living and enhances the overall quality of life.

PROGRAMME OUTCOMES

PO1. Critical Thinking:

1.1. Acquire the ability to apply the basic tenets of logic and science to thoughts, actions and interventions.

1.2. Develop the ability to chart out a progressive direction for actions and interventions by learning to recognize the presence of hegemonic ideology within certain dominant notions

1.3. Develop self-critical abilities and also the ability to view positions, problems and social issues from plural perspectives

PO2. Effective Citizenship:

2.1. Learn to participate in nation building by adhering to the principles of sovereignty of the nation, socialism, secularism, democracy and the values that guide a republic.

2.2. Develop and practice gender sensitive attitudes, environmental awareness, empathetic social awareness about various kinds of marginalisation and the ability to understand and resist various kinds of discriminations.

2.3. Internalise certain highlights of the nation's and region's history. Especially of the freedom movement, the renaissance within native societies and the project of modernisation of the post-colonial society.

PO3. Effective Communication:

3.1. Acquire the ability to speak, write, read and listen clearly in person and through electronic media in both English and in one Modern Indian Language

3.2. Learn to articulate, analyse, synthesise, and evaluate ideas and situations in a well-informed manner.

3.3. Generate hypotheses and articulate assent or dissent by employing both reason and creative thinking.

PO4. Interdisciplinarity:

4.1. Perceive knowledge as an organic, comprehensive, interrelated and integrated faculty of the human mind.

4.2. Understand the issues of environmental contexts and sustainable development as a basic interdisciplinary concern of all disciplines.

4.3. Develop aesthetic, social, humanistic and artistic sensibilities for problem solving and evolving a comprehensive perspective.

Highlights of Regulations of FYUGP

Programme Overview:

The proposed KU-FYUGP curriculum shall comprise Three Broad Parts:

a) Foundation Components b) Discipline Specific Pathway components (Major/Minor) and c) Discipline Specific Capstone Components.

- The Foundation component of the KU-FYUGP shall consist of a set of general courses and a set of discipline-specific courses.
- General Foundation Courses shall be common for all students and shall be: Grouped into 4 major baskets as Ability Enhancement Courses (AEC), Skill Enhancement Courses (SEC), Value Addition Courses (VAC) and Multi-disciplinary Courses (MDC).
- Discipline-Specific Courses shall include Discipline-Specific Pathway Courses, both Major and Minor streams, enabling students to gain basic knowledge in the chosen discipline.
- FYUGP shall have three Broad Pathways, (a) 3-year UG Degree, (b) 4-year UG Degree (Honours) and (c) 4-year UG Degree (Honours with Research).
- The practice of lateral entry of students to various years exists, but an exit with a Degree shall be awarded only upon successful completion of the third year.
- Students who choose to exit after 3 years shall be awarded UG Degree in their respective Major Discipline after the successful completion of the required minimum of courses of 133 credits.
- A four-year UG Honours Degree with Research in the Major Discipline shall be awarded to those who complete the FYUGP with a specific number of Courses of 177 credits including 12 credits from a graduate project /dissertation in their major discipline. Students who aspire to pursue research as a career may opt for Honours with research stream in the fourth year.
- A 4-year UG Honours Degree in the Discipline/ Disciplines shall be awarded to those who complete the FYUGP with a specific number of Courses with 177 credits including an optional graduate project/ dissertation of 8 credits in their major discipline.
- The students at the end of second semester may be permitted to change their major programme of study. Based on the availability of seats and infrastructure facilities the students may be permitted to opt any discipline which he/she had studied during the

first two semesters as discipline specific foundation course/multidisciplinary foundation course. If the student switches his/her major to a discipline in which an MDC has been done he/she will have to do additional DSC courses in new discipline to acquire the required minimum credits.

Credit Structure:

- One hour of lecture or tutorial or a minimum of two hours of lab work, practical work, or field work per week is given one credit.
- One credit in a semester should be designed for 15 hours of lectures or tutorials or 30 hours of practicum plus 30 hours of learner engagement in terms of course-related activities such as seminar preparation, submitting assignments, etc.
- A one-credit seminar or internship or studio activities or field practice/projects or Community engagement and service means two-hour engagements per week (30 hours of engagement per semester)
- All Discipline Specific Major/ Minor Courses shall be of 4 credits.
- For all Discipline Specific Major/ Minor Courses, there may be practical/ practicum of two or four hours per week.
- All Courses under the Multi-Disciplinary, Ability Enhancement, Value Addition and Skill Enhancement categories are of 3 credits.
- A student shall have the option of acquiring extra credits to a maximum of 240 credits for a 4-year (8-semester) UG program.
- A student shall have the option of acquiring extra credits to a maximum of 180 credits for a 6-semester UG program.

Course structure of the FYUG Degree Programmes:

- Major components consist of three types: Discipline Specific Core, Discipline Specific Elective Courses, and the research/laboratory/ fieldwork.
- All students shall undergo a Field Trip/Summer Internship/ Apprenticeship in a Firm, Industry or Organization; or Training in labs with faculty and researchers or other Higher Education Institutions (HEIs) or research institutions.
- Options shall be made available for students to earn credit by completing quality assured remote learning modes, including online programmes offered on the Study Webs of Active Learning for Young Aspiring Minds (SWAYAM) or other online educational platform approved by the board of studies from time to time.
- Students can earn a maximum of 12 credits through online courses.

ELIGIBILITY FOR ADMISSION AND SELECTION OF COURSES

- Admission, enrollment, registration, options for changing major programs, selection of academic pathways, readmission and scheme migration, assessment and evaluation, and final grading and awarding of degrees are based on the Kannur University FYUGP Regulations and Curriculum Framework 2024, as well as the norms and rules established by the Government and the University from time to time.
- Students must have completed the examination conducted by a recognized Board or University at the +2 level of schooling or its equivalent

Assessment and Evaluation

- There shall be Theory and Practical examinations at the end of each semester, ordinarily during October for odd semesters and during March for even semesters, as prescribed in the Scheme of Examinations.

JOB OPPORTUNITIES

• Home Science, an interdisciplinary field encompassing various aspects of family living, nutrition, health, and resource management, offers diverse career opportunities. Here are some **areas where Home Science graduates can find employment:**

Nutrition and Dietetics:

• Dietitian/Nutritionist in hospitals, clinics, and wellness centers.
• Nutrition consultant for schools, sports teams, and corporate wellness programs.
• Food service manager in cafeterias, restaurants, and food production companies.

Community Health and Extension:

• Community health worker or educator in non-governmental organizations (NGOs).
• Public health nutritionist.
• Extension officer in rural development programs.

Education and Research:

• Teacher or lecturer in schools, colleges, and universities.
• Researcher in academic institutions or private research organizations.
• Curriculum developer for educational programs and materials.

Textile and Apparel Industry:

• Fashion designer or textile designer.
• Quality control manager in textile manufacturing units.
• Merchandiser in retail and export houses.

Interior Design and Home Management:

• Interior designer for residential and commercial spaces.

• Home management consultant.

• Event planner or coordinator for various functions and events.

Child Development and Family Welfare:

• Child development specialist in preschools, daycare centers, and special education institutions.

• Family counselor or therapist.

• Program coordinator for family welfare and support services.

Hospitality Management:

• Manager in hotels, resorts, and hospitality enterprises.

• Catering manager for large events and institutions.

• Customer service manager in hospitality-related businesses.

Food Science and Technology:

• Food technologist in food production and processing companies.

• Quality assurance manager in the food industry.

• Product development specialist for new food items.

Entrepreneurship:

• Starting a business in catering, bakery, or food products.

• Launching a line of home decor, clothing, or handcrafted items.

• Providing consultancy services in nutrition, interior design, or family management.

Government and Policy Making:

• Policy advisor in governmental agencies related to health, education, and family welfare.

• Administrator in public health programs and initiatives.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO 1: Understand the basic concept of food science, nutrition, human physiology, food preservation, and microbiology and demonstrate expertise in food preparation, meal planning, and nutritional assessment to enhance health and vitality through the creation of balanced diets and innovative culinary practices.

PSO 2: Apply principles of household and event management, housing, and interior decoration encompassing elements and principles of design, budgeting, time utilization, and organization, to foster sustainable behaviors, conserve resources within households and communities, and thereby foster entrepreneurial ventures.

PSO 3: Understanding human development across all life stages, emphasizing family dynamics, parenting techniques, general and health psychology and the socio-emotional welfare of individuals and families.

PSO 4: Understand the basic concepts of textile science and acquire proficiency in selecting textiles, constructing garments, and designing fashion, producing both functional and visually appealing clothing and home accessories.

PSO 5: Students will be equipped to effectively lead and participate in community development initiatives through the application of extension education principles, life skills, communication strategies, and relevant technologies.

PSO 6: Apply scientific principles to create hygienically safe, gender-friendly, sustainable living environments, fostering well-being within the home and the community.

PSO 7: Conduct research relevant to home science, contributing to advancing knowledge in the field and fostering innovation in household practices.

COURSE STRUCTURE FOR FOUR YEAR UG PROGRAMME (FYUGP) HOME SCIENCE (2024 ADMISSION ONWARDS)

SEMESTER 1

No	Title	Hours/ week	Credit	CE	ESE	Total marks
1	AEC 1 (English)	3	3	25	50	75
2	AEC 2 (Additional Language)	3	3	25	50	75
3	MDC 1	3	3	25	50	75
4	DSC A1 (Major)	4	4	30	70	100
5	DSC B1 (Minor 1)	4	4	30	70	100
6	DSC C1 (Minor 2)	4	4	30	70	100
	Total credits		21			

SEMESTER II

No	Title	Hours/week	Credit	CE	ESE	Total marks
1	AEC 3 (English)	3	3	25	50	75
2	AEC 4 (Additional Language)	3	3	25	50	75
3	MDC 2	3	3	25	50	75
4	DSC A2 (Major)	4	4	30	70	100
5	DSC B2 (Minor 1)	4	4	30	70	100
6	DSC C2 (Minor 2)	4	4	30	70	100
	Total credits		21			

SEMESTER III

No	Title	Hours/w eek	Credit	CE	ESE	Total marks
1	MDC 3 (KS)	3	3	25	50	75
2	VAC 1	3	3	25	50	75
3	DSC A 3 (Major)	4	4	30	70	100
4	DSC A 4 (Major)	4	4	30	70	100
5	DSC B 3 (Minor 1)	4	4	30	70	100
6	DSC C 3 (Minor 2)	4	4	30	70	100
	Total credits		22			

SEMESTER IV

No	Title	Hours/week	Credit	CE	ESE	Total marks
1	SEC 1	3	3	25	50	75
2	VAC 2	3	3	25	50	75
3	VAC 3	3	3	25	50	75
4	DSC A5 (Major)	4	4	30	70	100
5	DSC A6 (Major)	4	4	30	70	100
6	DSC A7 (Major)	4	4	30	70	100
	Total credits		21			

SEMESTER V

No	Title	Hours/ week	Credit	CE	ESE	Total marks
1	SEC 2	3	3	25	50	75
2	DSC A8 (Major)	4	4	30	70	100
3	DSC A9 (Major)	4	4	30	70	100
4	DSC A10 (Major)	4	4	30	70	100
5	DSE A11*	4	4	30	70	100
6	DSE A12*	4	4	30	70	100
	Total credits		23			

SEMESTER VI

No	Title	Hours/week	Credit	CE	ESE	Total marks
1	SEC 3	3	3	25	50	75
2	DSC A13 (Major)	4	4	30	70	100
3	DSC A14 (Major)	4	4	30	70	100
4	DSC A15 (Major)	4	4	30	70	100
5	DSE A16*	4	4	30	70	100
6	DSE A17*	4	4	30	70	100
7	INTERNSHIP	2	2	15	35	50
	Total credits		25			

EXIT WITH UG DEGREE/PROCEED TO FOURTH YEAR WITH 133 CREDITS

17 Major course 17 x 4 = 68

6 minor course 6 x 4 = 24

13 foundation courses (AEC, SEC, VAC, MDC) 13 x 3 = 39

1 Internship 2 x1 = 2

Total = 133

SEMESTER VII

No	Title	Hours/ week	Credit	CE	ESE	Total marks
1	DSC A18 (Major)	4	4	30	70	100
2	DSC A19 (Major)	4	4	30	70	100
3	DSC A20 (Major)	4	4	30	70	100
4	DSC A21 (Major)	4	4	30	70	100
5	DSE A22*	4	4	30	70	100
	Total credits		20			

SEMESTER VIII

No	Title	Hours/week	Credit	CE	ESE	Total marks
1	DSC A23 (Major)	4	4	30	70	100
2	DSC A24 (Major)	4	4	30	70	100
3	DSC A25 (Major)	4	4	30	70	100
	OR					
1	PROJECT		12	40	60	100
1	DSE A 26* (Major Elective)	4	4	30	70	100
2	DSE A 27*(Major Elective)	4	4	30	70	100
3	DSE A 28*(Major Elective)	4	4	30	70	100
	OR					
1	DSC B4 (Minor)	4	4	30	70	100
2	DSC B5 (Minor)	4	4	30	70	100
3	DSC B6 (Minor)	4	4	30	70	100
	Total credits		24			

EXIT WITH UG DEGREE/PROCEED TO FOURTH YEAR WITH 177 CREDITS

** In the VIII semester, for a total of 24 credits:*

1. *Choose either 3 Major courses or a project for 12 credits.*
2. *Choose either three elective courses in the Major Discipline or three Minor Pathway Courses at level 300 or above / level 400 or above for 12 credits.*

FOUR-YEAR UNDERGRADUATE PROGRAMME IN HOME SCIENCE

DETAILS OF COURSES OFFERED

LIST OF DISCIPLINE-SPECIFIC COURSES (DSC)

SEMESTER	COURSE CODE	COURSE NAME	MARKS					CREDIT		HOURS/WEEK
			L		P		TOTAL	L	P	
			CCA	ESE	CCA	ESE				
DISCIPLINE SPECIFIC MAJOR COURSES										
I	KU1DSCHSC101	Perspectives of HomeScience -I	25	50	10	15	100	3	1	5
II	KU2DSCHSC102	Perspectives of HomeScience -II	25	50	10	15	100	3	1	5
III	KU3DSCHSC201	Human Nutrition	25	50	10	15	100	3	1	5
	KU3DSCHSC202	Family Resource Management and Consumer Studies	25	50	10	15	100	3	1	5
IV	KU4DSCHSC203	Interior Decoration	25	50	10	15	100	3	1	5
	KU4DSCHSC204	Family Dynamics	30	70	-	-	100	4	-	4
	KU4DSCHSC205	Food preservation and microbiology	25	50	10	15	100	3	1	5
V	KU5DSCHSC301	Textiles science and Apparel designing -I	25	50	10	15	100	3	1	5
	KU5DSCHSC302	Fundamentals of Human Development	30	70	-	-	100	4	-	4
	KU5DSCHSC303	Nutrition Through Life Cycle	25	50	10	15	100	3	1	5
VI	KU6DSCHSC308	Textiles science and Apparel designing -II	25	50	10	15	100	3	1	5

	KU6DSCHSC309	**Social and Behaviour Change Communication**	**30**	**70**	**-**	**-**	**100**	**4**	**-**	**4**
	KU6DSCHSC310	**Clinical Nutrition and Dietetics**	**25**	**50**	**10**	**15**	**100**	**3**	**1**	**5**
VII	**KU7DSCHSC401**	**Research Methodology and Statistics**	**30**	**70**	**-**	**-**	**100**	**4**	**-**	**4**
	KU7DSCHSC402	**Human Physiology and Nutritional biochemistry**	**25**	**50**	**10**	**15**	**100**	**3**	**1**	**5**
	KU7DSCHSC403	**Advanced Human Nutrition**	**25**	**50**	**10**	**15**	**100**	**3**	**1**	**5**
	KU7DSCHSC404	**AI in Nutritional Health**	**30**	**70**	**-**	**-**	**100**	**4**	**-**	**4**
VIII	**KU8DSCHSC412**	**Medical Nutrition Therapy**	**25**	**50**	**10**	**15**	**100**	**3**	**1**	**5**
	KU8DSCHSC413	**Functional Foods and Nutraceuticals**	**25**	**50**	**10**	**15**	**100**	**3**	**1**	**5**
	KU8DSCHSC414	**Sports and Fitness Nutrition**	**30**	**70**	**-**	**-**	**100**	**4**	**-**	**4**
DISCIPLINE SPECIFIC MINOR COURSES										
I	**KU1DSCHSC121**	**Perspectives of HomeScience -I**	**25**	**50**	**10**	**15**	**100**	**3**	**1**	**5**
	KU1DSCHSC122	**Nutrition for Health**	**30**	**70**	**-**	**-**	**100**	**4**	**-**	**4**
II	**KU2DSCHSC123**	**Perspectives of HomeScience -II**	**25**	**50**	**10**	**15**	**100**	**3**	**1**	**5**
	KU2DSCHSC124	**Food and the Future**	**30**	**70**	**-**	**-**	**100**	**4**	**-**	**4**
III	**KU3DSCHSC221**	**Fundamentals of Human Development**	**30**	**70**	**-**	**-**	**100**	**4**	**-**	**4**
	KU3DSCHSC222	**Fashion Fundamentals**	**25**	**50**	**10**	**15**	**100**	**3**	**1**	**5**

LIST OF DISCIPLINE-SPECIFIC ELECTIVE COURSES (DSE)

SEMESTER	COURSE CODE	COURSE NAME	MARKS					CREDIT		HOURS/WEEK
			L		P		TOTAL	L	P	
			CCA	ESE	CCA	ESE				
V	KU5DSEHSC304	Extension & Community Management	30	70	-	-	100	4	-	4
	KU5DSEHSC305	Human Physiology	30	70	-	-	100	4	-	4
	KU5DSEHSC306	Textile Heritage and Traditions of India	30	70	-	-	100	4	-	4
	KU5DSEHSC307	Event Management	25	50	10	15	100	3	1	5
VI	KU6DSEHSC311	Food Science	30	70	-	-	100	4	-	4
	KU6DSEHSC312	Nutrition trends in the 21st century	30	70	-	-	100	4	-	4
	KU6DSEHSC313	General Psychology	30	70	-	-	100	4	-	4
	KU6DSEHSC314	Applied Health Psychology	30	70	-	-	100	4	-	4
VII	KU7DSEHSC405	Public Health Nutrition	30	70	-	-	100	4	-	4
	KU7DSEHSC406	Advanced Food Science	25	50	10	15	100	3	1	5
	KU7DSEHSC407	Early Developmental Stimulation	30	70	-	-	100	4	-	4
	KU7DSEHSC408	Urban and Rural Development	30	70	-	-	100	4	-	4
	KU7DSEHSC409	Landscape gardening	30	70	-	-	100	4	-	4
	KU7DSEHSC410	Food Safety and Quality Control	30	70	-	-	100	4	-	4

	KU7DSEHSC411	**Food Processing Technology**	**30**	**70**	**-**	**-**	**100**	**4**	**-**	**4**
VIII	**KU8DSEHSC415**	**Product Development and Marketing**	**25**	**50**	**10**	**15**	**100**	**3**	**1**	**5**
	KU8DSEHSC416	**Food Service Management**	**30**	**70**	**-**	**-**	**100**	**4**	**-**	**4**
	KU8DSEHSC417	**Inclusive Education**	**25**	**50**	**10**	**15**	**100**	**3**	**1**	**5**
	KU8DSEHSC418	**Environment and Human Resource Management**	**25**	**50**	**10**	**15**	**100**	**3**	**1**	**5**
	KU8DSEHSC419	**Apparel Manufacturing Technology**	**25**	**50**	**10**	**15**	**100**	**3**	**1**	**5**
	KU8DSEHSC420	**ONLINE / MOOC COURSE I**	**30**	**70**	**-**	**-**	**100**	**4**	**-**	**4**
	KU8DSEHSC421	**ONLINE / MOOC COURSE II**	**30**	**70**	**-**	**-**	**100**	**4**	**-**	**4**
	KU8DSEHSC422	**ONLINE / MOOC COURSE III**	**30**	**70**	**-**	**-**	**100**	**4**	**-**	**4**

**Semester I & II - Foundation courses [100-199]*
**Semester III & IV – Intermediate level courses [200-299]*
**Semester V & VI – Higher level courses [300-399]*
**Semester VII & VIII - Advanced level courses [400-499]*

LIST OF MULTI-DISCIPLINARY COURSES (MDC)

SEMESTER	COURSE CODE	COURSE NAME	MARKS					CREDIT		HOURS/WEEK
			L		P		TOTAL	L	P	
			CCA	ESE	CCA	ESE				
I	KU1MDCHSC101	Nutrition in Cosmetology	25	50	-	-	75	3	-	3
II	KU2MDCHSC102	Life Skill Education	25	50	-	-	75	3	-	3

LIST OF SKILL ENHANCEMENT COURSES (SEC)

SEMESTER	COURSE CODE	COURSE NAME	MARKS					CREDIT		HOURS/WEEK
			L		P		TOTAL	L	P	
			CCA	ESE	CCA	ESE				
IV	KU4SECHSC201	Patisserie and Confectionary	15	35	10	15	75	2	1	4
V	KU5SECHSC301	Surface ornamentation	15	35	10	15	75	2	1	15
VI	KU6SECHSC302	Processing and preservation of fruits and vegetables	15	35	10	15	75	2	1	15

LIST OF VALUE-ADDED COURSES (VAC)

SEMESTER	COURSE CODE	COURSE NAME	MARKS					CREDIT		HOURS/WEEK
			L		P		TOTAL	L	P	
			CCA	ESE	CCA	ESE				
III	KU3VACHSC201	Nutrition for Wellness	25	50	-	-	75	3	-	3
IV	KU4VACHSC202	Gender and Society	25	50	-	-	75	3	-	3
IV	KU4VACHSC203	Entrepreneurship Development	25	50	-	-	75	3	-	3

ASSESSMENT RUBRICS

As per the regulation of Kannur University, one credit corresponds to 25 marks. Hence a 3-credit course must be evaluated for 75 marks and 4 credit courses for 100 marks. The ratio of continuous comprehensive assessment (CCA) to End semester examination (ESE) for theory/lecture courses is 30:70 and for the practical courses, it is 40:60. Therefore the mark distribution for various courses of different credits can be distributed as follows.

FOR 4 CREDIT COURSES:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	Test Paper- 1	6
b)	Test Paper-2	6
c)	Assignment/ Seminar	8
d)	Viva-Voce/field visit/ discussion	10
		Total = 30 marks
Grand Total		**100**

FOR 3 + 1 CREDIT COURSES:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	Test Paper- 1	5
b)	Test Paper-2	5
c)	Assignment/ Seminar	5
d)	Viva-Voce/Discussion/ field visit	10
		Total = 25 marks
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	Practical test	3
b)	Record	5
c)	Lab performance	2
		Total = 25 marks
Grand Total		**100**

Records

A record is compulsory for each practical course. The valuation of records, to be done internally, should be based on the effort and promptness of the student in lab work.

FOR 3 CREDIT COURSES:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	Test Paper- 1	5
b)	Test Paper-2	5
c)	Assignment/ Seminar	5
d)	Viva-Voce/field visit/ discussion	10
		Total = 25 marks
Grand Total		**75**

FOR 2 + 1 CREDIT COURSES:

Evaluation Type		**Marks**
End Semester Evaluation		**35**
Continuous Comprehensive Assessment		**15**
Continuous Evaluation: Method of Assessment		
a)	Test Paper- 1	2.5
b)	Test Paper-2	2.5
c)	Assignment/ Seminar	5
d)	Viva-Voce/Discussion/ field visit	5
		Total = 15 marks
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	Practical test	5
b)	Record	3
c)	Lab performance	2
		Total = 10 marks
Grand Total		**75**

The external theory examination of all odd semesters will be conducted by the college itself and the even semesters by the University at the end of each semester. The end-semester

practical examination, viva-voce and the evaluation of practical records shall be conducted by the course in-charge and an internal examiner appointed by the Department Council.

Internship

Each student must complete an internship within the six semesters to engage with practical aspects of their learning and enhance employability. A report is required by the end of the sixth semester. The internship must last a minimum of 60 working hours. Internships require prior approval, and an attendance certificate must be submitted to the HoD after completion. HoDs ensure completion of the internship.

Suggested Internships: Summer internships at food processing units, Dietaries in hospitals, Catering services, Food testing laboratories, Nutrition consultancies, Organic farms or sustainable food initiatives, Textile industries, Garment manufacturing units, Fashion design houses, Textile research laboratories, Fashion merchandising firms, Preschools and childcare centers, Child welfare organizations, Geriatric care facilities, Family counseling centers, Early intervention programs, Retail stores, Interior design firms, Event planning companies, Consumer advocacy groups, Financial planning firms, Field Trips and Educational Visits, (Food processing units, Textile industries, Hospitals and dietaries, Schools (for observation and interaction with children), Agricultural farms, Handicraft centers, Museums related to textiles, food, or consumer sciences, Consumer complaint forums or consumer protection agencies), Apprenticeships and Social Responsibility (NGOs focused on nutrition, women empowerment, or child welfare, Government-run programs for women and child development, Community-based initiatives for health and nutrition, Volunteer work in schools or orphanages, Participation in awareness campaigns on food safety, nutrition, and consumer rights), Competitions: in cooking, baking, sewing, embroidery, or interior design Internships in media: food and lifestyle magazines, television shows, or online platforms, Entrepreneurship development programs: to explore business opportunities in the home science domain.

For an internship/apprenticeship, two credit of Internship/apprenticeship means four-hour engagement per week. Accordingly, in a semester of 15 weeks' duration, two credits in this course is equivalent to 60 hours of engagement in a semester.

FOR 2 CREDIT COURSE/ INTERNSHIP/FIELD VISIT

Evaluation Type	**Marks**
End Semester Evaluation	**35**
Continuous Comprehensive Assessment	**15**
Grand Total	**50**

Mandatory/Optional Project

In the eighth semester, a mandatory 12-credit project (minimum 360 working hours) is required for FYUGP research or honors, or an optional 8-credit project (minimum 240 working hours) alongside a major theory course. Project guidance can be provided by a faculty member of the department. If necessary, the expertise of an external guide may be utilized. Facilities and expertise for the project can be on-campus or off-campus, with required permissions for off-campus projects. Students must maintain and submit a project logbook/register along with the final report.

FOR 12 CREDIT PROJECT (300 marks)

Evaluation Type	**Marks**
1. Internal Evaluation (90 marks)	
a) Initiative and Independence	15 Marks
b) Technical Skill	15 Marks
c) Communication Skills	15 Marks
d) Professionalism	15 Marks
e) Presentation	30 Marks
If the student is doing the project in an external Institution, the internal marks may also be obtained from the Project Supervisor	
2. Final Evaluation (210 Marks)	
a) Abstract	10 Marks
b) Novelty of the work	15 Marks
c) Experimental/Project Design	30 Marks
d) Literature Survey	20 Marks
e) Results and Discussion	50 Marks
f) Presentation/Open Defence	60 Marks
g) Viva – voce	25 Marks

FOR 8 CREDIT PROJECT (200 marks)

Evaluation Type	**Marks**
1. Internal Evaluation (60 marks)	
a) Initiative and Independence	10 Marks
b) Technical Skill	10 Marks
c) Communication Skills	10 Marks
d) Professionalism	10 Marks
e) Presentation	20 Marks
If the student is doing the project in an external Institution, the internal marks may also be obtained from the Project Supervisor	
2. Final Evaluation (140 Marks)	
a) Abstract	5 Marks
b) Novelty of the work	5 Marks
c) Experimental/Project Design	25 Marks
d) Literature Survey	10 Marks
e) Results and Discussion	40 Marks
f) Presentation/Open Defence	40 Marks
g) Viva – voce	15 Marks

Grading

Mark system is followed for evaluating each question. For each course in the semester letter grade and grade point are introduced in 10-point indirect grading system.

Sl. No	**Percentage of Marks (ESE and CCA put together)**	**Description**	**Letter Grade**	**Grade Point (P)**	**Range of Grade Points**
1	95% and above	Outstanding	O	10	9.50 - 10
2	Above 85% and below 95 %	Excellent	A+	9	8.50 – 9.49
3	Above 75% to below 85%	Very Good	A	8	7.50 – 8.49
4	Above 65% to below 75%	Good	B+	7	6.50 – 7.49
5	Above 55% to below 65%	Above Average	B	6	5.50 – 6.49
6	Above 45% to below 55%	Average	C	5	4.50 – 5.49
7	Above 35% to below 45% (CCA and ESE put together) with a minimum of 30% in ESE.	Pass	P	4	3.50 – 4.49
8	Below an aggregate of 35% or below 30% in ESE	Fail	F	0	0 – 3.49
9	Not attending the examination	Absent	Ab	0	0

FIRST SEMESTER COURSES

KU1DSCHSC101: PERSPECTIVES OF HOMESCIENCE -I

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	DSC- Major	100-199	KU1DSCHSC101	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)	
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	T	P
3	1	0	35	65	100	1.5	2.5

Course Description:

Years of national and international experience in the field of Home Science have contributed to the wisdom that all the five windows of opportunity that Home Science offers be opened, i.e. Human Development and Childhood Studies, Food and Nutrition Resource Management and Design Application, Development Communication and Extension and Fabric and Apparel Sciences. In this course, the students will learn the fundamental principles and career prospects of all the five areas. This course also aims to impart knowledge of various areas related to Human Development and Food Science. Through a combination of theoretical learning and practical applications, this course aims to provide students with the knowledge and skills necessary to create a nurturing and efficient home environment.

Course Prerequisite: Any student with a +2 or equivalent degree

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Explain the multidisciplinary approach of Home Science and its relevance in national development.	U
2	Understand the basic terms, aspects, principles and functions of food Science and nutrition in healthy life sustenance.	U
3	To apply the role of elements and principles of design in interior design.	A
4	Develop an understanding of basics of textiles and fashion.	U
5	Students will apply what they learn through hands-on experiences in meal planning, interior design, textiles, and teaching methods to develop practical skills.	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔	✔	✔	✔			
CO 2	✔						
CO 3		✔					
CO 4				✔			
CO 5	✔	✔	✔	✔	✔		

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**OVERVIEW OF HOME SCIENCE**		**8**
	1	Disciplines of Home Science	
	2	Scope (Educational and Vocational), Careers and Opportunities	
	3	Multidisciplinary approach of Home Science	
	4	Relevance of Home Science in the current scenario	

2	**FOOD AND NUTRITION**		**13**
	1	Definition and terms used in nutrition- Health, Food, Nutrients, Nutrition, Malnutrition, and Balanced Diet. Classification and Functions of food- Physiological, Psychological and Social Functions	
	2	Basic Four and Five Food Groups and its Significance and My Healthy Plate for the day.	
	3	Recommended Dietary Allowances and Factors affecting RDA, Reference Man and Woman.	
	4	Principles and objectives of meal planning and diet therapy, Meal budgeting.	

3	**INTERIOR DESIGN**		**12**
	1	Interior Design – Meaning and concepts. Role of Interior design in the	

		modern era.	
	2	Objectives of aesthetic planning - Beauty, expressiveness, and functionalism. Types of design- Structural and decorative design.	
	3	Classification of decorative design - Naturalistic, geometric, abstract.	
	4	Elements of design- line, shape, texture, colour, pattern, light and space	

4	**TEXTILE TERMINOLOGY**		**12**
	1	Textile Terminology - fibre, yarn, weaving, loom, fabric, grain, and selvedge.	
	2	Fibre-Definition, primary and secondary properties, Classification of textile fibres. Methods of identification of textile fibres -visual inspection, microscopic test and burning test.	
	3	Fashion terminology-fashion, fad, classic, fashion accessories, fashion cycle, Knockoff, toile, atelier, boutique, empire line and season.	

5	**TEACHER SPECIFIC / PRACTICAL EXPERIENCE**	**30**
	1. Cooking demonstrations: food preparation techniques, and culinary hygiene. 2. Textile signs: collection and identification of textile fibres from different sources. 3. Application of various types of design: elements of design	

Essential Readings:

1. Srilakshmi, B (2020), Food Science, New Delhi; New Age International (P) Ltd. Publishers.
2. Gopalan, C; Sastri, B.V.R and Balasubramanian, S.C (1989), “Nutritive Value of Indian Foods”, Hyderabad; National Institute of Nutrition, ICMR, Pp 45-95.
3. Srilekshmi B (2020). Dietetics. New Delhi; New age International (P) Ltd. Publishers.
4. Frida Ramstedt. (2020).The Interior Design Handbook: Furnish, Decorate and Style Your Space: Clarkson Potter publishers.
5. Chris Grimley. (2018). The Interior Design: Rockport Publishers.
6. Amber Lewis. (2020).Made for Living: Clarkson Potter Publishers.

Suggested Readings:

1. Corbman P.B. (1985). Textiles-Fibre to Fabric. New York: McGraw Hill Book Co. Chapter 13-22,33 pg 245-586
2. Joseph M.L. (1988), Essentials of Textiles (5th Edition), Holt, Florida Rinehart and Winston Inc. Chapter 2 pg 31-36, 45-89

3. Frings G. (1996). Fashion-From Concept to Consumer (5th Edition). USA: Prentice Hall Publications, Chapter 1, 2, 3, pp. 4- 16, 49, 63-75.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU1DSCHSC121: PERSPECTIVES OF HOMESCIENCE -I

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	DSC- Minor	100-199	KU1DSCHSC121	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)	
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	T	P
3	1	0	35	65	100	1.5	3

Course Description:

Years of national and international experience in the field of Home Science have contributed to the wisdom that all the five windows of opportunity that Home Science offers be opened, i.e. Human Development and Childhood Studies, Food and Nutrition Resource Management

and Design Application, Development Communication and Extension and Fabric and Apparel Sciences. In this course, the students will learn the fundamental principles and career prospects of all the five areas. This course also aims to impart knowledge of various areas related to Human Development and Food Science. Through a combination of theoretical learning and practical applications, this course aims to provide students with the knowledge and skills necessary to create a nurturing and efficient home environment.

Course Prerequisite: Any student with a +2 or equivalent degree

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Explain the multidisciplinary approach of Home Science and its relevance in national development.	U
2	Understand the basic terms, aspects, principles and functions of food Science and nutrition in healthy life sustenance.	U
3	To apply the role of elements and principles of design in interior design.	A
4	Develop an understanding of basics of textiles and fashion.	U
5	Students will apply what they learn through hands-on experiences in meal planning, interior design, textiles, and teaching methods to develop practical skills.	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔	✔	✔	✔			
CO 2	✔						
CO 3		✔					
CO 4				✔			
CO 5	✔	✔	✔	✔	✔		

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**OVERVIEW OF HOME SCIENCE**		**8**
	1	Disciplines of Home Science	
	2	Scope (Educational and Vocational), Careers and Opportunities	
	3	Multidisciplinary approach of Home Science	
	4	Relevance of Home Science in the current scenario	
2	**FOOD AND NUTRITION**		**13**
	1	Definition and terms used in nutrition- Health, Food, Nutrients, Nutrition, Malnutrition, and Balanced Diet. Classification and Functions of food- Physiological, Psychological and Social Functions	
	2	Basic Four and Five Food Groups and its Significance and My Healthy Plate for the day.	
	3	Recommended Dietary Allowances and Factors affecting RDA, Reference Man and Woman.	
	4	Principles and objectives of meal planning and diet therapy, Meal budgeting.	
3	**INTERIOR DESIGN**		**12**
	1	Interior Design – Meaning and concepts. Role of Interior design in the modern era.	
	2	Objectives of aesthetic planning - Beauty, expressiveness, and functionalism. Types of design- Structural and decorative design.	
	3	Classification of decorative design - Naturalistic, geometric, abstract. Elements of design - Line, form, colour, and texture and its application in the interiors.	
	4	Elements of design- line, shape, texture, colour, pattern, light and space	
4	**TEXTILE TERMINOLOGY**		**12**
	1	Textile Terminology - fibre, yarn, weaving, loom, fabric, grain, and selvedge.	
	2	Fibre-Definition, primary and secondary properties, Classification of textile fibres. Methods of identification of textile fibres -visual inspection, microscopic test and burning test.	

	3	Fashion terminology-fashion, fad, classic, fashion accessories, fashion cycle, Knockoff, toile, atelier, boutique, empire line and season.	

5	**TEACHER SPECIFIC / PRACTICAL EXPERIENCE**	**30**
	1. Cooking demonstrations: food preparation techniques, and culinary hygiene. 2. Textile signs: collection and identification of textile fibres from different sources. 3. Application of various types of design: elements of design	

Essential Readings:

1. Srilakshmi, B (2020), Food Science, New Delhi; New Age International (P) Ltd. Publishers.
2. Gopalan, C; Sastri, B.V.R and Balasubramanian, S.C (1989), "Nutritive Value of Indian Foods", Hyderabad; National Institute of Nutrition, ICMR, Pp 45-95.
3. Srilekshmi B (2020). Dietetics. New Delhi; New age International (P) Ltd. Publishers.
4. Frida Ramstedt. (2020).The Interior Design Handbook: Furnish, Decorate and Style Your Space: Clarkson Potter publishers.
5. Chris Grimley. (2018). The Interior Design: Rockport Publishers.
6. Amber Lewis. (2020).Made for Living: Clarkson Potter Publishers.

Suggested Readings:

1. Corbman P.B. (1985). Textiles-Fibre to Fabric. New York: McGraw Hill Book Co. Chapter 13-22,33 pg 245-586
2. Joseph M.L. (1988), Essentials of Textiles (5th Edition), Holt, Florida Rinehart and Winston Inc. Chapter 2 pg 31-36, 45-89
3. Frings G. (1996). Fashion-From Concept to Consumer (5th Edition). USA: Prentice Hall Publications, Chapter 1, 2, 3, pp. 4- 16, 49, 63-75.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	Test Paper- 1	5
b)	Test Paper-2	5
c)	Assignment/ Seminar	5

d)	Viva-Voce/Discussion/ field visit	10
		Total = 25 marks
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	Practical test	3
b)	Record	5
c)	Lab performance	2
		Total = 25 marks
Grand Total		**100**

KU1DSCHSC122: NUTRITION FOR HEALTH

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	DSC- Minor	100 -199	KU1DSCHSC122	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CC	ESE	Total	
4	0	-	30	70	100	2

Course Description:

This course aims to develop a holistic and multidimensional understanding of the various topics. Students will examine relationships between nutrition and consequences of deficiencies and the promotion of long-term health and wellbeing. After successful completion of this course, students will be able to identify the fundamentals of a healthy eating pattern; recognize associations between dietary intake and diseases and identify dietary interventions for those diseases; provide practical advice to improve dietary behaviors; and become adept at accessing resources to maintain the most up-to-date knowledge, skills, and tools to promote good nutrition.

Course Prerequisite: Any student with a +2 or equivalent degree

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	State Dietary Guidelines for Indians and importance of My healthy plate for the day , Balanced diet	U
2	Recall the functions, sources and role of nutrients in the maintenance of good health	R
3	Comprehend the significance of vitamins and minerals in maintenance of human health.	R
4	Summarize how dietary components, macronutrients (carbohydrates, proteins and fats) and micronutrients (vitamins and minerals), influence health and disease	R
5	Describe Indian reference man and woman	R

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔					✔	
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	**UNIT**	**DESCRIPTION**	**HOURS**
1		**INTRODUCTION TO NUTRITION, HEALTH AND ENERGY REQUIREMENT**	8
	1	a) Basic concepts in food and nutrition, Functions of food- Physiological, psychological and social. Dietary Guidelines for Indians, My healthy plate for the day and Food Labels	
		b) Definition, energy sources, units of measurement Gross calorific and physiological fuel values of energy Determination of energy value of foods	

		Components of energy expenditure Indian reference man and Indian reference woman	

2	**MACRONUTRIENTS AND WATER**		**15**
	1	Carbohydrate – Classification, functions and sources Dietary fibre- types and functions Protein –Classification, functions and sources	
	2	Fat-Classification, functions and sources Water- Distribution, functions, dehydration and intoxication	

3	**MICRONUTRIENTS- VITAMINS**		**13**
	1	Fat-soluble Vitamins (A, D, E & K)- Function, sources and deficiency	
	2	Water soluble vitamins: Thiamin, Riboflavin, Niacin, B12, Folic acid, and Vitamin C: functions, food sources, deficiencies	

4	**MICRONUTRIENTS - MINERALS**		**12**
	1	Macro minerals- Calcium, Phosphorus, Sodium and potassium: Functions, sources and deficiencies	
	2	Micro Minerals- Iron, zinc, Iodine: functions, sources and deficiencies	

5	**TEACHER SPECIFIC MODULE/ RELATED EXPERIENCE**	**10**
	1.Take food recall and group foods based on nutritive value 2.Preparation of recipes – Protein/ Fiber 3. Preparation of recipes – Vitamin A/ Vitamin C/ Iron/ calcium 4. Record food label information of any two foods	

Essential Readings:

1. Gibney, M.J., Lanham- New, S.A., Cassidey, A. and Vorster H.H. (2009). Introduction to Human Nutrition, Second Edition, The Nutrition Society Textbook Series, Blackwell Publishing.
2. Mahna R, Puri S , Khanna K, Gupta S, Passi S J and Seth R. 2016, Textbook of Nutrition and Dietetics, Elite Publishing House.
3. Mahtab, S, Bamji, Kamala Krishnasamy, Brahmam, G.N.V. (2012)Text Book of Human Nutrition, Third Edition, Oxford and IBH Publishing Co. P. Ltd., New Delhi.
4. Raghuramulu N., Madhavan Nair K and Kalyanasundaram S (2003) A manual of laboratory techniques, NIN, Hyderabad.
5. Satyanarayana, U. and Chakrapani, U.(2018)Biochemistry.7th edition. Elsivier/ Books and Allied.

Suggested Readings:

1. Srilakshmi, B. (2017) Nutrition Science, New Age International (P) Ltd., New Delhi.
2. Sunetra Roday (2017). Food Science and Nutrition, Oxford University Press, New Delhi.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU1MDCHSC101: NUTRITION IN COSMETOLOGY

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
I	MDC	100-199	KU1MDCHSC101	3	45

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	0	-	25	50	75	1.5

Course Description:

This course explores the intersection of food, nutrition, and beauty, focusing on the role of dietary habits in promoting healthy skin, hair, and overall appearance. Students will examine the science behind various nutrients and their effects on skin health, hair growth, and nail strength. Practical applications of dietary recommendations for enhancing beauty and addressing common cosmetic concerns will be emphasized.

Course Prerequisite: Plus two or equivalent

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Gain a holistic understanding of beauty, recognize its connection to nutrition, and be able to apply this perspective to enhance cosmetic health effectively.	U
2	Learn about the impact of nutrition on common skin issues,	A

	enabling them to recommend healthy dietary habits for better skin health and beauty.	
3	Gain a comprehensive understanding of nutritional influences, and lifestyle strategies to promote scalp health, hair growth, and nail strength.	U
4	Learn about the beauty-enhancing properties of nutrient-rich superfoods, and how to incorporate them into daily diets for promoting radiant skin and hair.	A
5	Students will evaluate dietary habits using the Dietary Skin-Ageing Index (DSAI) to assess skin aging and health, explore home remedies for skin, hair, and nail problems, analyze case studies and research trends in food cosmetology, create personalized beauty nutrition plans based on individual needs, and develop holistic lifestyle recommendations for optimal cosmetic health.	C, An, E

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	√						
CO 2	√						
CO 3	√						
CO 4	√						
CO 5	√						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**INTRODUCTION TO NUTRITION COSMETOLOGY**		**5**
	1	a) Introduction to Food & Nutrition Cosmetology-Understanding the concept of beauty from a holistic perspective	3
		b) Beauty Nutritionists-Role and responsibilities, Qualifications and Training, Skills and Attributes	2

2	**THE SCIENCE OF SKIN HEALTH**		**17**
	1	Structure of skin -Layers of the Skin- epidermis, dermis, and subcutaneous tissue Cell Types: keratinocytes, melanocytes, fibroblasts, and immune cells.	3

		Skin types	
	2	Nutrients Essential for Skin Health- Vitamin A, C and E, Minerals - selenium and zinc, antioxidants - polyphenols and carotenoids - Role in promoting beauty and health	3
	3	Dietary Habits and Skin Conditions Impact of diet on common skin concerns: Acne- relationship between dietary factors and acne development, the role of high glycemic index foods, dairy products, and chocolate, dietary recommendations, low-glycemic diet, reducing dairy intake, and incorporating anti-inflammatory foods.	5
	4	Eczema- Aging-Role of dietary factors in skin aging, including oxidative stress, inflammation, and collagen degradation. Role of hydration and inflammation in skin health -importance of adequate hydration, impact of dehydration, recommendations -dietary intake of water-rich foods, hydration strategies, and skincare practices.	4

3	**NUTRITION FOR HEALTHY HAIR AND NAIL**		**10**
	1	Hair Structure and Growth Cycle: Anagen Phase, Catagen Phase, Telogen Phase	2
	2	Hair Growth and Strength, Hair Loss and Scalp Health -Genetic Factors (Androgenetic Alopecia), Hormonal Imbalances, Importance of protein, iron, zinc, biotin, vitamin D and essential fatty acids	3
	3	Dietary and Lifestyle Strategies for Promoting Scalp Health and Hair Growth-Scalp Care and Hygiene, Stress Management and Lifestyle Factors	3
	4	Nourishing Nails and Cuticles-Anatomy of the nail-nail plate, nail bed, nail matrix, lunula, and cuticle (eponychium). Nutritional factors affecting nail strength and brittleness.	2

4	**ANTI AGEING NUTRITION**		**8**
	1	Super foods for Beauty-Exploration of nutrient-rich foods with beauty-enhancing properties: Berries, Greens, Fatty fish, Nuts and seeds. avocado. green tea. Greek yogurt, sweet potatoes Incorporating superfoods into daily diets for radiant skin and hair - Eating the anti-ageing rainbow.	8

5	**TEACHER SPECIFIC/ RELATED EXPERIENCES (ANY ONE)**	**5**
	1. Assessment of Dietary Skin-Ageing Index (DSAI): is a tool used to assess the impact of dietary habits on skin aging and overall skin health.	
	2. Home remedies for skin, hair and nail problems.	
	3. Case studies and Research trends in food cosmetology	
	4. Personalized Beauty Nutrition Plans-Practical application of nutritional principles to individualized dietary plans	

	5. Developing holistic lifestyle recommendations for optimal cosmetic health

Essential Readings:

1. Dosal, J., & Ceresnie, M. (2021). Dietary Modifications for Acne and Rosacea. Integrative Dermatology: Practical Applications in Acne and Rosacea, 137-163.
2. Hart, J. (2014). Eat pretty: Nutrition for beauty, inside and out. Chronicle Books.
3. Marini, A., & Krutmann, J. (2015). Beauty from the inside: Nutrition and skin aging. Anti-aging nutrients: Evidence-based prevention of age-associated diseases, 299-314.
4. Piccardi, N., & Manissier, P. (2009). Nutrition and nutritional supplementation: Impact on skin health and beauty. Dermato-endocrinology, 1(5), 271-274.
5. Sardana, K., & Sachdeva, S. (2022). Role of nutritional supplements in selected dermatological disorders: A review. Journal of Cosmetic Dermatology, 21(1), 85-98.
6. Tabor, A., & Blair, R. M. (Eds.). (2009). Nutritional cosmetics: beauty from within. William Andrew.

Suggested Readings:

1. Solway, J., McBride, M., Haq, F., Abdul, W., & Miller, R. (2020). Diet and dermatology: the role of a whole-food, plant-based diet in preventing and reversing skin aging—a review. The Journal of clinical and aesthetic dermatology, 13(5), 38.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 25 marks	
Grand Total		**75**

SECOND SEMESTER COURSES

KU2DSCHSC102: PERSPECTIVES OF HOMESCIENCE -II

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	DSC- Major	100-199	KU2DSCHSC102	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)	
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	T	P
3	1	0	35	65	100	1.5	3

Course Description:

This course builds upon the foundational concepts introduced in Perspectives of Home Science I. Students will delve into the basic concepts of Child development and Extension and Communication. It will lay the foundation for building upon sustainable practices in Child Development and Extension and Communication. Through a combination of theoretical learning and practical applications, students will develop a comprehensive understanding of sustainable living principles and how they can be integrated into everyday life.

Course Prerequisite: Any student with a +2 or equivalent degree.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Comprehend the basic concepts and importance of child development study.	U
2	Understand the different parenting style and its role in behaviour formation in children	U
3	Understand the role of extension and communication in the discipline of home science	U
4	Inculcate the soft skills in theoretical and practical ways to develop effective communication skills for community outreach programs	A
5	Gain hands-on experience in arranging community health fairs, creating child development resources, and effective communication through role-playing.	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1			✔				
CO 2			✔				
CO 3					✔		
CO 4					✔		
CO 5			✔		✔	✔	

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**CHILD DEVELOPMENT**		**11**
	1	Child Development- Significance of Child Development.	
	2	Scope of Child development in contemporary society	
	3	Stages of development	
2	**GROWTH AND DEVELOPMENT.**		**12**
	1	Concept of Growth and Development.	
	2	Different Domains of child development	
	3	Parenting styles and its effects on child behaviour	
3	**HOME SCIENCE EXTENSION**		**12**
	1	Home Science Extension- Concept of Extension and Development and its interconnection. Understanding Home Science Extension	
	2	Philosophy and Principles of Extension	
	3	Communication- definitions, Process of communication, Key elements, Models of communication.	
	4	Types and its classification of communication according to form and use.	

4	**VERBAL SKILLS**		**10**
	1	Verbal Skills- Public speaking, individual and group presentations, group discussion and interview.	
	2	Non-Verbal Skills- Role of body language, facial expressions, posture, proxemics.	
	3	4.3 7 C's of Effective Communication	
	4	Barriers in Communication	

5	**TEACHER SPECIFIC MODULE/ PRACTICAL EXPERIENCE**	**30**
	1. Conduct workshops on parenting skills, 2. Develop health education material for the community, 3. Develop educational materials on child development, 4. Practice effective communication techniques through role-playing exercises and simulations. 5. Promotion of kitchen garden activities.	

Essential Readings:

1. Berk. L.E, (2014), Child development, PHI learning Ltd, Newdelhi.
2. Devadas R.P and Jeya. N, (Reprinted 2010), A text book on Child Development, Mac Millan India Ltd.Delhi.
3. Hurlock. E.B, (2017), Child Development, 6th edition (Indian edition), Mc Graw Hill Education, New York.
4. 1Santrock, J.W, (2017), Child development, 13th edition, McGraw Hill education, New York.
5. Suriakanthi A, (2010), Child development: An introduction, 5th edition, Kavitha publications, Gandhigram.

Suggested Readings:

1.Adler, R. B., Rosenfeld, L. B., & Proctor, R. F. (2015). "Interplay: The Process of Interpersonal Communication."

2.Covey, S. R. (2004). "The 7 Habits of Highly Effective People: Powerful Lessons in Personal Change."

3.O'Connor, J., & Seymour, J. (2014). "Introducing NLP: Psychological Skills for Understanding and Influencing People."

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU2DSCHSC123: PERSPECTIVES OF HOMESCIENCE -II

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	DSC- Minor	100	KU2DSCHSC123	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)	
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	T	P
3	1	0	35	65	100	1.5	3

Course Description:

This course builds upon the foundational concepts introduced in Perspectives of Home Science I. Students will delve into the basic concepts of Child development and Extension and Communication. It will lay the foundation for building upon sustainable practices in Child Development and Extension and Communication. Through a combination of theoretical learning and practical applications, students will develop a comprehensive understanding of sustainable living principles and how they can be integrated into everyday life.

Course Prerequisite: Any student with a +2 or equivalent degree.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Comprehend the basic concepts and importance of child development study.	U
2	Understand the different parenting style and its role in behaviour formation in children	U
3	Understand the role of extension and communication in the discipline of home science	U
4	Inculcate the soft skills in theoretical and practical ways to develop effective communication skills for community outreach programs	A
5	Gain hands-on experience in arranging community health fairs, creating child development resources, and effective communication through role-playing.	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1			✔				
CO 2			✔				
CO 3					✔		
CO 4					✔		
CO 5			✔		✔	✔	

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**CHILD DEVELOPMENT**	**11**
	1	Child Development- Significance of Child Development.	
	2	Scope of Child development in contemporary society	
	3	Stages of development	
2		**GROWTH AND DEVELOPMENT**	**12**
	1	Concept of Growth and Development.	
	2	Different Domains of child development	
	3	Parenting styles and its effects on child behaviour	
3		**HOME SCIENCE EXTENSION**	**12**
	1	Home Science Extension- Concept of Extension and Development and its interconnection. Understanding Home Science Extension	
	2	Philosophy and Principles of Extension	
	3	Communication- definitions, Process of communication, Key elements, Models of communication.	
	4	Types and its classification of communication according to form and use.	
4		**VERBAL SKILLS**	**10**
	1	Verbal Skills- Public speaking, individual and group presentations, group discussion and interview.	
	2	Non-Verbal Skills- Role of body language, facial expressions, posture, proxemics.	
	3	4.3 7 C's of Effective Communication	
	4	Barriers in Communication	
5		**TEACHER SPECIFIC MODULE/ PRACTICAL EXPERIENCE**	**30**
		1. Conduct workshops on parenting skills, 2. Develop health education material for the community,	

	3. Develop educational materials on child development, 4. Practice effective communication techniques through role-playing exercises and simulations. 5. Promotion of kitchen garden activities.	

Essential Readings:

1. Berk. L.E, (2014), Child development, PHI learning Ltd, Newdelhi.
2. Devadas R.P and Jeya. N, (Reprinted 2010), A text book on Child Development, Mac Millan India Ltd.Delhi.
3. Hurlock. E.B, (2017), Child Development, 6th edition (Indian edition), Mc Graw Hill Education, New York.
4. 1Santrock, J.W, (2017), Child development, 13th edition, McGraw Hill education, New York.
5. Suriakanthi A, (2010), Child development: An introduction, 5th edition, Kavitha publications, Gandhigram.

Suggested Readings:

1. Adler, R. B., Rosenfeld, L. B., & Proctor, R. F. (2015). "Interplay: The Process of Interpersonal Communication."
2. Covey, S. R. (2004). "The 7 Habits of Highly Effective People: Powerful Lessons in Personal Change."
3. O'Connor, J., & Seymour, J. (2014). "Introducing NLP: Psychological Skills for Understanding and Influencing People."

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**

Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU2DSCHSC124: FOOD AND THE FUTURE

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	DSC- Minor	100-199	KU2DSCHSC124	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	0	0	30	70	100	2

Course Description:

This course explores the complex and ever-changing landscape of food production, consumption, and security in the face of global challenges. Through a multidisciplinary lens, the course will examine the intersection of food with science, technology, economics, policy, culture, and ethics. By analysing current trends and emerging innovations, we will explore how to ensure a sustainable and equitable food system for the future.

Course Prerequisite: Any student with a +2 or equivalent degree

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Able to define key concepts and components of food systems	R
2	Analyze the impact of demographics, climate change, and other factors on food security	U
3	Evaluate the role of science and technology in food production, safety, and sustainability	E
4	Explore the cultural, ethical, and social justice dimensions of food	A

5	Analyze the economic forces shaping food prices, trade, and global supply chains	An

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**INTRODUCTION: FOOD SYSTEMS IN A CHANGING WORLD**	**12**
	1	Introduction to key concepts and components of food systems, The global food system: Challenges and opportunities.	
	2	Demographics, climate change, and food security	
	3	Sustainability in food production and consumption	
	4	Future Scenarios- Exploring future scenarios and potential disruptions in food systems.	

2		**SCIENCE AND TECHNOLOGY IN FOOD**	**13**
	1	Introduction to food technology and its impact on the food industry.	
	2	Innovations in food packaging and ensuring food safety through technology.	
	3	Precision agriculture and innovative farming practices, genetically modified organisms (GMOs), and food biotechnology	
	4	Food processing, preservation, and waste reduction technologies	

3	**FOOD AND CULTURE**		**12**
	1	Food traditions and dietary diversity	
	2	Cultural perspectives on sustainability and ethical consumption	
	3	Food access, equity, and social justice issues	
	4	The future of food consumption and consumer behavior	

4	**THE FUTURE OF FOOD OR SUSTAINABLE FOOD PRODUCTION**		**13**
	1	Sustainable Agriculture-Principles and practices of sustainable agriculture.	
	2	Urban Farming and Vertical Agriculture-Innovative approaches to urban food production.	
	3	Aquaculture and Alternative Proteins-Examining the role of aquaculture and alternative protein sources in sustainable food production.	
	4	Circular Economy and Food Waste-Strategies for reducing food waste and promoting a circular food economy.	

5	**TEACHER SPECIFIC**	**10**
	1. Economics and Policy of Food : Food prices, trade, and global supply chains 2. Food security and policy interventions 3. The role of international organizations in addressing food system challenges	

Essential Readings:

1. Sustainability: A Comprehensive Introduction: https://www.routledge.com/An-Introduction-to-Sustainable-Development/Rogers-Jalal-Boyd/p/book/9781844075201 by Michael P. Benson and Daniel Park (latest edition)
2. How to Live Well Without Owning Very Much: https://www.amazon.com/More-Less-Finding-Under-Everything/dp/1601427972 by Joshua Becker (focuses on mindful consumption within sustainability)

Suggested Readings:

1. E-Sources & Websites:
2. The World Wildlife Fund (WWF) Sustainability Hub: https://www.worldwildlife.org/topics/sustainability
3. The United Nations Sustainable Development Goals: https://sdgs.un.org/goals

4. The Ellen MacArthur Foundation - A Circular Economy: https://www.ellenmacarthurfoundation.org/ (focuses on reducing waste and creating a circular economy)

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU2MDCHSC102: LIFE SKILL EDUCATION

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	MDC	100 -199	KU2MDCHSC102	3	45

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	0	-	25	50	75	1.5

Course Description:

The abilities that enable a person to be resourceful and optimistic in the face of life's challenges are known as life skills. The goal is to develop one's personality through self-awareness, interpersonal relationships, reflection on the tangible and abstract, change-making and leadership, and adherence to tried-and-true beliefs and ideals. By exposing students to the ideas that drive both personal and professional success, this course aims to maximize their potential and increase their employability. Students will also gain the necessary skills to put these ideas into practice in their daily lives and careers.

Course Prerequisite: Any student with a +2 or equivalent degree

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
CO-1	Define and Identify different life skills required in personal and professional life	U
CO-2	Develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.	R, U
CO-3	Explain the basic mechanics of effective communication and demonstrate these through presentations	A
CO-4	Take part in group discussions	A
CO-5	Use appropriate thinking and problem solving techniques to solve new problems	An, E
CO-6	Understand the basics of teamwork and leadership	An, E

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1			✓		✓		
CO 2			✓		✓		
CO 3			✓		✓		
CO 4					✓		
CO 5					✓		
CO 6					✓		

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	**UNIT**	**DESCRIPTION**	**HOURS**
1			
	1	**UNDERSTANDING LIFE SKILLS**	**10**
		a) Life skills: Definitions and different perspectives, WHO and UNESCO life skills.	5

		b) Understanding life skills- Self-awareness, Empathy, Critical thinking, Creative thinking, Decision making, Problem Solving, Effective Communication, Interpersonal relationship, Coping with stress, Coping with emotions. c) Life skills for professionals- Positive thinking, right attitude, attention to detail, having the big picture, learning skills, research skills, perseverance, setting goals and achieving them, helping others, leadership, motivation, self-motivation, and motivating others, personality development, IQ, EQ, and SQ.	5
2	1	**INTEGRATING LIFE SKILLS**	**10**
		a) Intra and Interpersonal relationships b) Capacities, strengths, resources and opportunities- Know Myself-SWOT Analysis. Goal setting- Personal – Long term and short term goals, and social goals. c) Morals, Values and Ethics: Integrity, Civic Virtue, Respect for Others, Living Peacefully. Caring, Sharing, Honesty, Courage, Valuing Time, Time management, Cooperation, Commitment, Empathy, Self-Confidence, Character, Spirituality, Avoiding Procrastination, Sense of Ethics.	5 5
3	1	**LIFE SKILLS IN EVERYDAY LIFE**	**15**
		a) Self-awareness: definition, need for self-awareness; Coping With Stress and Emotions, Human Values, tools and techniques of SA: questionnaires, journaling, reflective questions, meditation, mindfulness, psychometric tests, feedback.	5
		b) Stress Management: Stress, reasons and effects, identifying stress, stress diaries, the four A's of stress management, techniques, Approaches: action-oriented, emotion-oriented, acceptance-oriented, resilience, Gratitude Training.	5
		c) Coping with emotions: Identifying and managing emotions, harmful ways of dealing with emotions, PATH method, and relaxation techniques.	5
4		GROUP SKILLS	**5**
		a) Group and Team Dynamics: Introduction to Groups: Composition, formation, Cycle, thinking, Clarifying expectations, Problem-Solving, Consensus, Dynamics techniques, Group vs Team, Team Dynamics, Virtual Teams.	3
		b) Managing team performance and managing conflicts, entrapreneurship.	2
5	**TEACHER SPECIFIC MODULE/ RELATED EXPERIENCES**		**5**
	a) Create awareness on gender stereotyping prevalent in the society. Organising a debate on a topic of social development. b) Miming- acting without words using gestures, signs, physical		

	movements, and facial expressions. Any social issue can be enacted. c) Story Telling- Telling of narratives with a particular theme, based on actual events.	

Essential Readings:

1. Shiv Khera, "You Can Win" , Macmillan Books, New York, 2003.
2. Barun K. Mitra, "Personality Development & Soft Skills", Oxford Publishers, Third impression,2017.
3. ICT Academy of Kerala, "Life Skills for Engineers", McGraw Hill Education (India) Private Ltd.,2016.
4. Caruso, D. R. and Salovey P, "The Emotionally Intelligent Manager: How to Develop and Use the Four Key Emotional Skills of Leadership", John Wiley & Sons, 2004.

Suggested Readings:

1. Kalyana, "Soft Skill for Managers"; First Edition; Wiley Publishing Ltd, 2015.
2. Larry James, "The First Book of Life Skills"; First Edition, Embassy Books, 2016.
3. Handbook of activities on lifeskills- American India Foundation, 2018, American India Foundation.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 25 marks	
Grand Total		**75**

THIRD SEMESTER COURSES

KU3DSCHSC201: HUMAN NUTRITION

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
3	DSC Major	200-299	KU3DSCHSC201	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

The course 'Human Nutrition' is designed to enable the students to define nutrition, explain the process of nutrition evaluate foods in regards to nutritional values and apply nutritional values to personal diet. Moreover, the Course is focused on the advances in the most emerging area of Human nutrition and provides a detailed insight into understanding the composition, sources and deficiency of nutrients. The knowledge and skills acquired help the student to utilize food and nutrients as the powerful tools for physical, mental and social well-being.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Recall the functions, sources and role of nutrients in the maintenance of good health	R
2	Comprehend the significance of vitamins and minerals in maintenance of human health.	U
3	Summarize how dietary components, macronutrients (carbohydrates, proteins and fats) and micronutrients (vitamins and minerals), influence health and disease	R
4	Identify the basis of human nutritional requirements and recommendations.	A
5	Develop skill for food and nutrient analysis	An

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**INTRODUCTION TO HUMAN NUTRITION AND ENERGY**	10
	1	Dietary guidelines for Indians. My plate for the day. Concept of RDA/EAR.	
	2	Factors affecting nutrient intake of various age groups, Indian reference man and woman.	
	3	Units of energy, determining energy content of foods using Bomb Calorimeter, Gross Calorific Value and Physiological Fuel value of Foods.	
	4	Total energy expenditure measurement and components. Direct and Indirect calorimetry.	
	5	Basal metabolism - definition, factors affecting. BMR, measurement, Thermic effect of activity, thermic effect of food, adaptive thermogenesis, Energy requirement for different age groups.	

2		**WATER AND CARBOHYDRATES**	10
	1	Water- Distribution and functions in human body. Water balance from intake and output.	
	2	Water imbalance(Dehydration) and Intoxication (oedema)	
	3	Carbohydrate -Composition, classification, functions and food sources. Metabolic pathways of carbohydrates	

	4	Dietary and functional fiber and potential health benefits.	

3	**PROTEINS& LIPIDS**		**10**
	1	Amino Acids – Essential and Non-Essential, Classification, functions of proteins.	
	2	Metabolism (Deamination, Transamination and Decarboxylation, Urea cycle), Requirements and sources. Methods of evaluating protein quality of foods (BV, PER, NPU, DIAAS). Protein Energy Malnutrition.	
	3	Fats and oils, Visible and invisible fats. Composition, functions, Types of fatty acids, Significance of Essential Fatty Acids classification.	
	4	Fat metabolism (Beta oxidation), ketone body formation, Food sources and requirements.	

4	**VITAMINS AND MINERALS**		**15**
	1	Fat soluble vitamins- A, D, E and K: - Functions, food sources, requirements, deficiency and toxicity.	
	2	Water soluble vitamins–Thiamine, Riboflavin, Niacin, Pyridoxine, Folic acid, B12 and C: - Functions, food sources, requirements and deficiency.	
	3	Minerals-Calcium, Phosphorous, Iron, Iodine:- Functions, food sources, requirements and deficiency/Toxicity .	

5	**PRACTICAL'S/ TEACHER SPECIFIC**	**30**
	1. Height weight measurements and classification by BMI 2. Food Analysis Qualitative tests for a) Carbohydrates b) Protein c) Calcium d) Phosphorus e) Iron 3. Quantitative tests for a) Lactose in milk b) Vitamin C in food stuffs c) Calcium in foods	

Essential Readings:

1. Gibney, M.J., Lanham- New, S.A., Cassidey, A. and Vorster H.H. (2009). Introduction to Human Nutrition, Second Edition, The Nutrition Society Textbook Series, Blackwell Publishing.
2. Mahtab, S, Bamji, Kamala Krishnasamy, Brahmam, G.N.V. (2012)Text Book of Human Nutrition, Third Edition, Oxford and IBH Publishing Co. P. Ltd., New Delhi.
3. Raghuramulu N., Madhavan Nair K and Kalyanasundaram S (2003)A manual of laboratory techniques,NIN,Hyderabad.
4. Satyanarayana, U. and Chakrapani, U.(2018)Biochemistry.7th edition. Elsivier/ Books and Allied.

Suggested Readings:

1. Srilakshmi, B. (2017) Nutrition Science, New Age International (P) Ltd., New Delhi.
2. SunetraRoday (2017). Food Science and Nutrition, Oxford University Press, New Delhi.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU3DSCHSC202: FAMILY RESOURCE MANAGEMENT AND CONSUMER STUDIES

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
3	DSC Major	200 -299	KU3DSCHSC202	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

This course explores the intersection of family dynamics, resource allocation, and consumer behaviour. Through theoretical frameworks and practical applications, students will examine how families manage resources, make consumption decisions, and navigate financial challenges. This course emphasizes the development of critical thinking skills and practical strategies for promoting effective resource management and responsible consumer practices within the context of diverse family structures and socio-economic backgrounds.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the role of family resource management and consumer education in promoting family well-being	U
2	Analyze principles of body mechanics and apply work simplification techniques to enhance ergonomic efficiency and reduce the risk of injury in daily activities	An
3	Develop practical skills for budgeting, saving, and financial planning to meet family needs and goals.	E
4	Utilize consumer literacy skills to make informed and responsible consumer decisions in various marketplaces.	A
5	Apply resource management skills to real life situations	C

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1		✔					
CO 2		✔					
CO 3		✔					
CO 4		✔					
CO 5		✔			✔		

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**BASICS OF HOME MANAGEMENT**		**10**
	1	Definition of Home management.	1
		a) Steps in management process: planning, organising, co-ordinating, controlling, evaluation.	2
	2	Concepts in management: values, goals, standards, attitudes	3
	3	Qualities of a good home maker.	2
	4	Decision making: Significance and steps Types of decisions Methods of resolving conflicts.	2

2	**MANAGEMENT OF RESOURCES**		**10**
	1	Meaning, classification and characteristics of resources. Factors influencing resource management.	2
	2	Management of Time: significance, steps in making time plan - tools and aids in time management: time norm, time cost, peak load, work curve – Leisure time and its utilization	2
	3	Management of money: family income: types and sources. Guidelines in money management. Family budget: types and steps in making family budget, advantages of budgeting, Engel's law of consumption.	3
	4	Account keeping- Financial records: types, purpose and advantages. Savings and investments: definition need and benefits of saving, types	3

		of savings. Methods of supplementing household income.	

3	**MANAGEMENT OF ENERGY**		**13**
	1	Significance of energy management. – Energy requirement for various household activities – Work curve	3
	2	Fatigue: types, causative factors and alleviating techniques	2
		Work simplification: meaning and techniques, Mundel's classes of changes. Body mechanics.	3
		Household equipments: selection, use and care of equipments such as cooking stoves, range and ovens, microwave oven, pressure cooker, refrigerator, mixer, vacuum cleaner.	3
	3	Indigenous equipment: smokeless chulah, hay box cooker, janatha refrigerator, solar cooker and biogas	2

4	**CONSUMER EDUCATION**		**12**
	1	Aims, need and importance of consumer education.	2
	2	Consumer problems. - Rights and responsibilities of a consumer.	3
		Consumer Aids.	2
	3	a) Consumer Protection Act. Consumer redressal procedure	4
		b) Tips for wise buy-man-ship.	1

5	**TEACHER SPECIFIC MODULE / PRACTICAL**	**30**
	1. Preparation of time plan for college girl/homemaker and its evaluation. 2. Study of expenditure pattern of family and preparation of a model family budget. 3. Development and evaluation of labels and advertisements for consumer products. 4. Preparation of a consumer complaint for any consumer product. 5.Planning, organizing, implementing and evaluating a group activity (event/ party / exhibition / tour / any other programme)	

Essential Readings:

1. Nickell P. and Dorsey, J. M. (1986): Management in family living, Wiley Eastern Ltd., New Delhi.
2. Gross, I.H. and Crandall, E. W. & Knoll (1972). Management for modern families, 4th ed. Appleton century crafless, Inc.
3. Premlatha Mullick- Text Book of Home Science, Kalyani Publishers, Ludhiana

4. M.A. Varghese , Home Management, New Age International , N. Delhi.
5. Gupta, S.; Garg, N. And Aggarwal, A. (1993): Textbook of Home Management, Hygiene and Physiology, Kalyani Publishers, New Delhi.
6. The Educational Planning Group (1994): Home Management- A Textbook of Home Science for Senior students, Arya Publishing House.

Suggested Readings:

1. American Association of Family and Consumer Sciences (AAFCS): https://www.aafcs.org/
2. Consumer Financial Protection Bureau (CFPB): https://www.consumerfinance.gov/

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU3DSCHSC221: FUNDAMENTALS OF HUMAN DEVELOPMENT

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
3	DSC- Minor	200-299	KU3DSCHSC221	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	0	-	30	70	100	2

Course Description:

This course explores human development from conception through adolescence, focusing on the physical, cognitive, social, and emotional changes during these critical stages. Students will gain a comprehensive understanding of the factors influencing development, including genetic inheritance, prenatal influences, environmental factors, and social interactions.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Analyze the influence of biological, environmental, and social factors on child development across various stages, from prenatal development to adolescence	An
2	Evaluate the importance of early identification and intervention strategies for addressing developmental delays in children	E
3	Develop strategies to promote healthy physical, cognitive, social, and emotional development in young children through appropriate care and educational approaches.	C
4	Explain the physical, psychological, and social changes that occur during adolescence, including their impact on self-perception, identity formation, and relationships.	U

5	Students will be able to design and implement effective teaching-learning materials for Early Childhood Education (ECE) , critically analyze disciplinary techniques used in home environments, and utilize modern presentation tools to communicate key concepts in ECE effectively.	C, A, E

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1			√				
CO 2			√				
CO 3			√				
CO 4			√				
CO 5			√				

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**PRENATAL DEVELOPMENT TO INFANCY**		**16**
	1	Stages of prenatal development, prenatal influences, stages of labour, types of birth, pregnancy complications, and Prenatal stimulation.	10
	2	Prenatal diagnostic techniques. Artificial insemination – IVF and GIFT, fraternal and identical twins, Neonate – Definition, characteristics, reflexes, abilities and adjustments, APGAR.	2
	3	a) Infancy – Developmental milestones in all domains, Immediate care of the newborn, types of feeding – natural and artificial, Immunization, infant stimulation b)At-risk babies, SIDS, LBW babies, Baby friendly hospitals	4
2	**DEVELOPMENTAL DELAYS AND INTERVENTION**		**12**
	1	Developmental delay – meaning, definition, need and importance of early identification, techniques used for assessment	4

	2	Early stimulation and early intervention – meaning, need and importance.	4
	3	Children with special needs- a brief introduction	4

3	**EARLY AND LATE CHILDHOOD YEARS**		**12**
	1	Early and late Childhood – Definition, milestones and domains of development, habit formation, discipline, importance and values of play, misdemeanours during late childhood	6
	2	Early Childhood Education – Definition, types, significance and objectives. Emergent literacy and school readiness, concept formation,	6

4	**ADOLESCENCE**		**10**
	1	Physiological changes, needs, and challenges – transition from childhood to adulthood – Puberty and its consequences, Gender differences, Sexuality, sexual needs, sex education, body image and its impact.	5
	2	Psychological changes – identity formation, emotions, and behavior problems, sociological changes – peer and family relationships	5

5	**TEACHER SPECIFIC/RELATED EXPERIENCE (ANY TWO)**	**10**
	1. Preparation of teaching-learning materials for ECE 2. Prepare charts on any two of the following; Stages of development, Areas of development, Immunization Schedule, Changes in body size, Motor milestones. 3. Observation and reporting of any one development (physical, motor, intellectual, emotional, or social) of a preschool child. 4. Prepare indigenous low-cost toys. 5. Analyze the disciplinary technique used in one's home and its effect on one's behaviour. 6. OHP/PowerPoint presentation of any related topic. 7. Visit to a pre-school/ Anganwadi/ balwadies/ Montessori school/special schools	

Essential Readings:

1. Hurlock, E.B., (2015), Developmental Psychology, McGraw Hill Education India Pvt. Ltd., New Delhi
2. Devadas, R.P; Jaya, N(2002), A Textbook on Child Development, Macmillan India Limited, Madras

3. Jegannath Mohanty and BhagyadharMohanty (1994), Early Childhood Care and Education (ECCE), Deep and Deep pub,New Delhi.
4. Berk, L.E., (2007), Development through the Life Span, Pearson Education, New Delhi.
5. Suriakanthi, A., (2005), Child Development, Kavitha Publications, Gandhigram, Tamil Nadu.

Suggested Readings:

1. Papalia, D.E., and Olds, S.W., (2005), Human Development, Tata Mc.Graw HillCompany,New York.
2. Rice Philip. K (2001) Human development, Prentice Hall, New Jersy.
3. Santrock, J.W., (2006), Child Development, Tata Mc.Graw Hill Publishing Company, NewDelhi.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
		Total = 30 marks
Grand Total		**100**

KU3DSCHSC222: FASHION FUNDAMENTALS

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
3	DSC-Minor	200 -299	KU3DSCHSC222	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

From Fundamentals to Marketing is a comprehensive exploration of the multifaceted world of fashion, covering everything from its historical roots to contemporary marketing strategies. This course is designed to provide students with a deep understanding of the fashion industry, its design principles, the significance of clothing, garment construction techniques, and marketing strategies employed within the apparel industry**.**

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Develop a foundational understanding of fashion history, industry structure, and socio-economic impact, enabling informed analysis and forecasting of fashion trends.	U
2	Acquire proficiency in applying design principles, analyzing consumer behavior, and understanding fashion adoption theories, facilitating the creation and evaluation of innovative fashion designs.	An
3	Gain insight into the multifunctional roles of clothing, including its psychosocial implications and impact on different age groups, enhancing the ability to make informed clothing choices and evaluate garment quality.	E
4	Master practical skills in sewing machine operation, fabric preparation for well-crafted garments, and understanding of production processes.	A
5	Understand marketing concepts and merchandising strategies within the fashion industry, enabling the development of effective promotional campaigns and merchandising plans to meet consumer demands.	C

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1				✔			
CO 2				✔			
CO 3				✔			
CO 4				✔			
CO 5				✔			

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**FASHION FUNDAMENTALS**		**10**
	1	History of Fashion: Explore key fashion eras and their cultural influences	2
	2	The Fashion Industry: Understand the different sectors – design houses, manufacturing, retail.	2
	3	Fashion Careers: Discover diverse career paths within the industry.	2
	4	Fashion cycle, fashion terminology, Socio-economic impact of fashion, fashion forecasting	4
2	**FASHION DESIGN PRINCIPLES AND ADOPTION OF FASHION**		**15**
	1	Elements and Principles of Design	3
	2	Structural and Applied Design	5
	3	Consumer groups- fashion leaders, followers	3
	4	Adoption process- Trickle-down theory, bottom-up theory & trickle across the theory	4
3	**IMPORTANCE OF CLOTHING**		**10**
	1	Clothing functions and theories of origin	2
	2	Psychosocial aspects of clothing. – Personality factors and clothing choices. –Selection of clothing for different age groups	4
	3	Selection of clothes for self	2
	4	Selection and Evaluation of ready-made garment	2
4	**GARMENT CONSTRUCTION AND PATTERN MAKING**		**15**
	1	Sewing machine - parts and functions, care and maintenance, common problems and remedies, sewing tools	4
	2	Steps in preparing fabric for construction, layouts, marking, cutting, stitching, and finishing of garments.	6

	3	Pattern Making: Importance and methods of taking body measurements Pattern making techniques- a brief introduction to drafting, draping	5

5	**TEACHER SPECIFIC/FASHION MARKETING AND MERCHANDISING**	**10**
	Definition and concepts of marketing- wholesale and retail store, visual merchandising	3
	Role and responsibility of a merchandiser,	3
	A brief introduction to various departments in the apparel industry	4

Essential Readings:

1. Armstrong Helen Joseph , Pattern making for Fashion Design, Harper & Row, Publications.
2. E.Rolfo Kopp& Zelin , How To Draft Basic Pattern, Fair Child Publication Inc.
3. Gerry Cooklin, Garment Technology For Fashion Designers, Book Link.
4. Black Well (1988) The Technology Of Clothing Manufacture, Scientific Publications Hill House,
5. M.S, Dress Design-Draping And Flat Pattern, London. Mansfield.
6. Riter.J.(1998) Hand Book For Fashion Designing, Best Drafting Techniques, Mital Publications.

Suggested Readings:

1. Practical Clothing Construction, Part I, Basic Sewing Processes. Mary Mathews.
2. Practical Clothing Construction, Part II, Designing, Drafting and Tailoring. Mary Mathews.
3. Claire B.Shaeffer, High Fashion Sewing Secrets from the World's Rodale Best Designers
4. Zarapkar,K.R (2008)Zarapkar System Of Cutting,Navaneet Publications India Ltd,Gujara

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**

d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU3VACHSC201: NUTRITION FOR WELLNESS

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
3	VAC	200-299	KU3VACHSC201	3	45

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	-	-	25	50	75	2

Course Description:

This course provides a comprehensive understanding of nutrition science and its application to promote wellness and prevent disease. Students explore the fundamental principles of nutrition science, dietary guidelines, macronutrients, micronutrients, nutritional assessment, and the role of nutrition in optimizing health and well-being. This course equips students with the skills and knowledge necessary to navigate the complexities of modern nutrition and foster lifelong wellness

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the basic principles of nutrition science.	U
2	Evaluate dietary patterns and their impact on health.	E
3	Apply nutrition knowledge in promoting wellness and preventing disease.	A
4	Develop skills in dietary assessment and counselling.	A
5	Students will be able to analyze and compare different dietary patterns, in terms of their nutritional composition, health benefits, cultural significance, and potential impact on chronic disease prevention and management.	An, A

****Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)***

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔					✔	
CO 4	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	**UNIT**	**DESCRIPTION**	**HOURS**
1	**INTRODUCTION TO NUTRITION**		12
	1	Definitions	
	2	Food: Classification and Functions	
		a) ICMR Food groups	
	3	Recommended dietary allowances	
		a) My plate and Food pyramid; Balanced Diet	
		b) Reference man and reference woman	
	4	Introduction to nutrients	
		a) Macronutrients (Carbohydrates, Protein, Fat)	

		b) Micronutrients (Vitamins and Minerals)	
		c) Water and electrolytes	

2	**ASSESSMENT OF NUTRITIONAL STATUS**		9
	1	Anthropometric assessment	
	2	Biochemical assessments	
	3	Clinical assessments	
	4	Dietary assessment	

3	**FUNCTIONAL FOODS AND ITS ROLE**		7
	1	Introduction to functional foods	
		a) Definitions and History	
	2	Types of functional foods	
		a) Phytochemicals , Antioxidants	
		b) Probiotics	
		c) Prebiotics	
		d) Synbiotics	
	3	Sources and potential health benefits	

4	**NUTRITION AND DISEASE MANAGEMENT**		12
	1	Introduction to diet therapy	
		a) Types of Diet	
	2	Role of Nutrition in Disease management	
		a) Diabetes Mellitus	
		b) Cardiovascular Disease (Atherosclerosis, Hypertension)	
		c) Peptic ulcer	
	3	Nutrition and Weight Management	
		a) Obesity	
		b) Underweight	

5	**TEACHER SPECIFIC / RELATED EXPERIENCE**	**5**
	Dietary patterns 1. Introduction to Dietary pattern 2. Plant based Diets 3. Mediterranean Diets 4. Asian and Western Diets	

Essential Readings:

1. Srilakshmi, B. (2016) Nutrition Science, New Age International (P) Ltd., New Delhi.
2. Mahan, L.K, Raymond, J.L. (2017). Krauses's Food & Nutrition Care Process (14th ed). Elsevier
3. Dietary Guidelines for Indians- A Manual (2nd ed) (2011), National Institute of Nutrition, ICMR.
4. Tiwari, B.K., Brunton, N.P., Brennan, C.S. (2013). Handbook of Plant Food Phytochemicals Sources, Stability and Extraction, Wiley- Blackwell A John Wiley & Sons, Ltd., Publication.
5. Moghe, S.B., Jain. S., Srivastava, V. (2013). Functional Foods and Nutraceuticals, Alagappa University, Vikas Publishig House Pvt. Ltd.
6. Makhaik, M.S., Shakya, A.K., Kale, R. (2021). Dietary Phytochemicals: As a Natural Source of Antioxidants, *Antioxidants- Benefits, Sources, Mechanisms of Action*, IntechOpen

Suggested Readings:

1. Barnes Stephen, 2008, Nutritional Genomics, Polyphenols Diets and their Impact on Dietetics, *J. Am. Diet. Assoc.,* 108: 1888-1895
2. Information on Fibre and Sugars: ifcinfo.health.org
3. Research Highlights: www.nin.res.in.
4. Information on 'Vitamin Deficiency' : www.who.int/home/search

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 25 marks	
Grand Total		**75**

FOURTH SEMESTER COURSES

KU4DSCHSC203: INTERIOR DECORATION

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
4	DSC-Major	200-299	KU4DSCHSC203	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

This course is designed to introduce students to the fundamental principles, techniques, and practices involved in the art and science of interior decoration. Through a combination of theoretical lectures, practical exercises, and hands-on projects, students will develop a solid understanding of the key elements of interior decoration and gain the skills necessary to create aesthetically pleasing and functional interior spaces.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the key elements and principles of design and their application in interior decoration	U
2	Understand the principles of color theory and psychology and will be able to use color effectively to evoke moods, create focal points, and establish visual cohesion in interior decoration projects.	A
3	Able to select and position lighting fixtures to enhance ambiance, support activities, and highlight architectural features within interior spaces.	E
4	Develop spatial awareness analyze spatial requirements identify different kitchen layouts while enhancing usability and flow within interior spaces.	An
5	Apply the principles and elements of design to create aesthetically pleasing interior spaces.	C

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1		✔					
CO 2		✔					
CO 3		✔					
CO 4		✔					
CO 5		✔					

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**PRINCIPLES OF INTERIOR DESIGN**		**5**
	1	Principles of design: proportion, balance, rhythm, emphasis, harmony.	5
2	**COLOUR AND LIGHTING IN INTERIORS**		**10**
	1	Qualities of colour. Prang colour system.	2
	2	Colour harmonies or schemes for different rooms. – Use and effects of colour in interiors.	4
	3	Sources, functions and types of lighting. Lighting fixtures and styles.	4
3	**FURNITURE, FURNISHINGS AND ACCESSORIES**		**15**
	1	Furniture: functions, selection and arrangement in interiors. Materials used in furniture making.	3
	2	Furnishings: functions & types, Criteria for selection of soft furnishings.	3
		Window: functions and parts of casement window. Window treatments: hard and soft. Curtain styles: traditional and modern. Rugs and carpets: selection, care and maintenance.	3
		Types, selection, placement and role of accessories in interiors. Flower arrangement: Principles, different styles and basic shapes, steps in	6

		making flower arrangement, Dry flower arrangement and drying techniques.	

4	**HOUSING AND INTERIOR EXTERIOR SPACE ORGANISATION**		**15**
	1	Housing: functions. - Selection of building sites. Factors to be considered in planning a house, Merits and demerits of renting and owning a house.	4
		Space requirement for various activities in various rooms. Principles of space planning, space saving techniques.	4
	2	Kitchen: types, working areas, work triangle. Modular kitchen. Indoor gardening: selection, care and maintenance of indoor plants.	4
		Landscaping: objectives. Types: formal and informal.	3

5	**TEACHER SPECIFIC/ PRACTICALS**	**30**
	1. Application of various types of design: principles of designs. Application of motif in a design suitable for furnishing / accessories. 2. Preparation of Prang colour charts and application of colour schemes in interiors 3. Demonstration of basic shapes in flower arrangement, Drying techniques and dry flower arrangement. 4. Illustration of various curtain styles. 5. Creation of any decorative or functional accessories from waste material.	

Essential Readings:

1. Premlatha Mullick - Text Book of Home Science, Kalyani Publishers, Ludhiana.
2. Varghese, M.A., Home Management, New Age International , N. Delhi.
3. Gupta, S.; Garg, N. And Aggarwal, A. (1993): Textbook of Home Management, Hygiene and Physiology, Kalyani Publishers, New Delhi.
4. Agan.T, The House - Its plan and Use.
5. The Educational Planning Group (1994): Home Management- A Textbook of Home Science for Senior students, Arya Publishing House.
6. Pile, J. (2007). Color in Interior Design. McGraw-Hill Education.
7. Dodsworth, S. (2012). The Fundamentals of Interior Design. Bloomsbury Publishing.

Suggested Readings:

1. Architectural Digest (https://www.architecturaldigest.com/)
2. Elle Decor (https://www.elledecor.com/)
3. Behance (https://www.behance.net/)

4. Pinterest (https://www.pinterest.com/)

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU4DSCHSC204: FAMILY DYNAMICS

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
4	DSC Major	200-299	KU4DSCHSC204	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	0	-	30	70	100	2

Course Description: This course equips the students with the knowledge and skills to navigate the complexities of family life across adulthood. They will explore different stages of adulthood, marriage dynamics, and healthy family communication. Capable of understanding family crisis management, the challenges associated with aging, and the effects of contemporary issues. By the end, students will be prepared to build strong, resilient families that can thrive in the ever-changing world.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Demonstrate an understanding of the concept of adulthood, its various stages, and the adjustments families make during these transitions.	U
2	Analyze the different stages of family life, identify effective communication and conflict resolution strategies, and explain how to build healthy family relationships.	An
3	Develop critical thinking skills to assess the impact of various crises on families and propose strategies for coping with these challenges and utilizing available support systems.	A
4	Gain knowledge about the process of aging and the adjustments needed in different aspects of life. They will be able to analyze the needs of the elderly and identify appropriate support systems for healthy aging.	U
5	Critically evaluate the influence of contemporary issues on families and propose strategies for building resilient and adaptable families that can thrive in the face of change.	E

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1			√				
CO 2			√				
CO 3			√				

CO 4			√				
CO 5			√				

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**ADULTHOOD**		**12**
	2	Definition, characteristics, stages, changes in various domains of development, roles, responsibilities, adaptations, and adjustments in work and family, changes in lifestyle, midlife crisis, approaching retirement.	5
	2	Marriage – mate selection, Institution, traditional and modern marriages, adjustments and adaptations	7
2	**DYNAMICS OF FAMILY**		**18**
	1	a) Family – definition, types, family life cycle, interpersonal communication styles in families (effective vs. ineffective). Technology's Impact on Families - social media, online relationships, balancing technology use.	6
		b) The impact of family communication on mental health, managing expectations, self-goals and adjustments, conflict resolution skills, and building healthy family relationships	4
		c)Diversity in Families - Cultural variations, family structures, LGBTQ+ families	3
	2	Parent-child relationships – importance, parental attitudes, responsible parenthood, and the influence of parents on the personality and behavior of children.	5
3	**FAMILY CRISIS**		**10**
	1	Divorce, death, separation, financial instability, illness, death, family violence, suicide, unemployment, natural disasters, epidemics, Maternal employment, globalization, immigration and migration, single and lone parenthood, blended and reconstituted families.	7

	2	Family Violence and Abuse - Domestic violence, child abuse, elder abuse.	3

4	**AGEING IN THE NEW MILLENNIUM**		**10**
	1	Definition, characteristics, adjustments - self, family, vocation, retirement, singlehood; needs and conditions contributing to happiness in old age	5
	2	Common problems and abuses among the elderly, geriatric care, family caregiving – second parenting, multigenerational cohabitation, social security, and support services for the aged.	5

5	**TEACHER SPECIFIC/RELATED EXPERIENCE**	**10**
	Select a form of family crisis or stress. Describe ways of preventing and managing crisis.	
	Create posters about ways to improve interpersonal communication skills	
	Visit a home for the aged and report it in the form of a case study/interview	
	conduct debate/discussion on parent-child relationships	

Essential Readings:

1. Mc Kenry P, & Price S. (2005). Families and Change: Coping with Stressful Events. (3rd ed.). New York: Sage Publication.
2. Blanton Brad, (2005), Radical Parenting; Seven Steps to a Functional Family in a Dysfunctional World, Magna Publishing Co. Ltd.
3. Durand V Mark , Meme Hieneman (2008), Helping Parents with Challenging Children, Parent Workbook: Positive Family Intervention, USA , Oxford University Press.
4. Gopal Kalyani, [2013], Foster Parenting Step-by-Step: How to Nurture the Traumatized Child and Overcome Conflict, Jessica Kingsley Publication.
5. Gupta Sangeeta, [2008], The Joy of Parenting: a comprehensive parenting guide covering infancy to adolescence, PustakMahal, New delhi.
6. Hurlock E. B. Child Development Tata HC Grawshill Publishing Company Ltd.

Suggested Readings:

1. Johnson Elle Olivia , [2012], The Parent's Guide to In-Home ABA Programs, Jessica Kingsley Publishers.
2. Rajaratnam Aarti C., BrindaJayaraman (2013), Parenting : Innocence to Innersense, Notion Press.

3. Greenberg Daniel (2013), Child Rearing, New Delhi, Banyan Tree
4. LichtmanLouis J (2011), A Practical Guide for Raising a Self-Directed and Caring Child: An Alternative to the Tiger Mother Parenting Style, iUniverse.
5. Keck Gregory C(2009), Parenting Adopted Adolescents: Understanding and Appreciating Their Journeys, NavPress Publishing Group.
6. Landis T. Fand Landis G.M. (1963) Building a Successful Marriage. (4th ed.). USA: Prentice Hall, Inc.
7. Rao, M. (2008). Law relating to Women & Children. Lucknow: Eastern Book Company.
8. Rao N S, Counseling and Guidance, (2nd ed.). New Delhi: Tata McGraw Hill Publishing Company Ltd.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU4DSCHSC205: FOOD PRESERVATION AND MICROBIOLOGY

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
4	DSC	200-299	KU4DSCHSC205	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description

The "Food Preservation and Microbiology" course provides a comprehensive overview of food preservation methods, including principles, techniques, and their application in

maintaining food safety and quality. Through theoretical knowledge and practical experience, students learn preservation methods, identify sources of contamination, and implement preventive measures to ensure the production of safe and nutritious food products.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Assess and compare the advantages and disadvantages of different food preservation methods	An
2	Understand the roles of food additives in food processing, the detection and prevention of food adulteration, enabling them to ensure the safety and quality of food products in accordance with regulatory requirements.	U
3	Know the intrinsic and extrinsic factors affecting microbial growth and implement appropriate sterilization and disinfection techniques, contributing to the maintenance of food safety and quality.	U, A
4	Develop the ability to recognize common microbial spoilage patterns in various food products, identify the microorganisms responsible, and understand the types, causes, and symptoms of foodborne illnesses, enabling them to implement preventive measures to mitigate food safety risks.	U, A
5	Through hands-on practical exercises, students will gain proficiency in the application of food preservation techniques, such as drying, fermentation, and preparation of preserved food products, enhancing their practical skills and reinforcing theoretical knowledge acquired throughout the course.	U, A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**Food Preservation**		**12**
	1	Introduction to food preservation, Importance of food preservation. Aims, principles and methods of food preservation.	
	2	Preservation by high temperature: Principles, Pasteurisation, canning. Spoilage of canned foods, advantages and disadvantages.	
	3	Preservation by low temperature: Principles, chilling and freezing, Advantages and disadvantages.	
	4	Preservation by dehydration: Principles, sun drying, mechanical drying, freeze drying, osmotic drying and other methods, Advantages and disadvantages.	
	5	Preservation by osmotic pressure (salt and sugar): Principles, Methods, Advantages and disadvantages.	
	6	Preservation by irradiation: Principles, Application of irradiation, Effect of radiation on foods.	
2	**Food Additives, Food Adulteration, Food Laws and Food Fermentation**		**11**
	1	Food additives commonly used in food industries.	
	2	Adulterants in common foods – detection, prevention	
	3	FPO, ISI, AgMark, ISO, Food Safety and Standards Act, Mark for vegetarian and non-vegetarian food. HACCP, GMP etc	
	4	Food Fermentation - Principles, methods, advantages and disadvantages. Fermented dairy, vegetable and meat products. Probiotics, Antimicrobial compounds. Bacteriocins and their applications. Dietary and functional fibre and potential health benefits.	

3	**Introduction to Food Microbiology**		**10**
	1	Basic concepts - classification of microorganisms in brief.	
	2	Factors affecting growth of microorganisms – intrinsic and extrinsic factors.	
	3	Contamination of food through soil, water, air and during handling and processing.	
	4	Sterilization and disinfection.	

4	**Food Spoilage and Poisoning**		**12**
	1	Microbial spoilage of foods: meat, milk, fruits and vegetables.	
	2	Causes of food spoilage, Microorganisms in food spoilage, bacteria, yeast and moulds.	
	3	Food borne illness and infections: Types, causes and symptoms. Microorganisms causing food poisoning, symptoms and prevention,	
	4	Mycotoxins- toxic effect, prevention.	

5	**TEACHER SPECIFIC/PRACTICAL**	**30**
	1.Preservation by drying 2.Preparation of fruit beverages - RTS, Squash 3.Preparation of jam and jelly 4.Preparation of pickle 5.Preparation of fermented products – wine	

Essential Readings:

1. Srilakshmi B. 2001. *Food Science*. New Age International.
2. Manay N.S and Shadaksharaswamy M, Foods, Facts and Principles, New Age International, New Delhi.
3. Frazier WC & Westhoff DC. 1991. *Food Microbiology*. 3 rd Ed. Tata McGraw Hill.
4. Desrosier NW & Desrosier JN. 1977. *The Technology of Food Preservation*. AVI Publ.
5. Frank AP. 1987. *Modern Processing, Packaging and Distribution System for Foods*. AVI Van nonstand Reinhold Co.
6. McWilliams M. 1993. *Foods - Experimental Perspectives*. Macmillan.
7. Potty VH & Mulky MJ. 1993. *Food Processing*. Oxford & IBH.
8. Swaminathan MS. 1993. *Food Science and Experimental Foods*. Ganesh & Co.

Suggested Readings:

1. Bibek Ray.1996. *Fundamentals of Food Microbiology*. CRC Press.
2. George J Banwart. 1989. Basic Food Microbiology. AVI.
3. James M Jay. 1987. Modern Food Microbiology. CBS.

Assessment Rubrics:

Evaluation Type	**Marks**
End Semester Evaluation	**50**
Continuous Comprehensive Assessment	**25**

Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU4SECHSC201: PATISSERIE AND CONFECTIONERY

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
4	SEC	200-299	KU4SECHSC201	3	45

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
2	1	-	25	50	75	2

Course Description:

A culinary education programme that specializes in the art and methods of pastry preparation is called a patisserie course. Such a course syllabus usually covers a wide range of subjects linked to pastry making, cake baking, chocolate work, and dessert presentation. In a patisserie course, students acquire the skills necessary to operate in the pastry, bakery and dessert industry as well as the ability to master a variety of methods and foster their creativity.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Explain the different ingredients used in confectionery and bakery, Describe the equipment and tools used in baking process	R
2	Identify and select ingredients for use in a variety of baked product List down the steps in preparing breads.	R, U
3	Classify different pastries and derivatives Use the basic baking science principles, ratio and techniques used in preparing pastries and cakes.	U, A
4	Illustrate standards of professionalism to the baking industry.	C, An
5	Develop innovative recipes of different breads, pastries and biscuits.	C

****Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)***

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔					✔	✔

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	**UNIT**	**DESCRIPTION**	**HOURS**
1	**INTRODUCTION TO PATISSERIE AND BAKERY**		**7**
	1	Definition and importance of Patisserie	1
	2	Introduction to equipment and tools used in bakery and confectionery.	2

	3	Role of ingredients used in Patisserie and bakery	2
	4	Types of ovens and baking temperatures for bread and confectionery foods.	2
2	**BREAD MAKING**		**7**
	1	Different methods of preparing bread-straight dough method, sponge dough method	2
	2	Role of ingredients used in bread making	2
	3	Characteristics of good bread External characteristics-Volume, symmetry of shape Internal characteristics - colour, texture, aroma, and elasticity	2
	4	Faults in bread making, bread improver	1
3	**BASIC PASTRIES AND CAKES**		**7**
	1	Basic pastry and derivatives- short crust pastry, jam tart, Apple pie, Banana flan.	2
	2	Chocolate work-Fundamentals of the science of chocolate.	2
	3	Methods of cake making-sugar butter process, flour butter process, blending and rubbing method.	3
4	**RECENT ADVANCES IN PATISSERIE**		**4**
	1	Importance of AI in bakery and confectionary industry 3D printing in Patisserie	4
5	**TEACHER SPECIFIC / PRACTICAL**		**20**
	1. Product Development-Demonstration and Preparation of simple and fortified breads. 2. Demonstration and Preparation of simple and fortified cakes, pastries and biscuits		

Essential Readings:

1. Khatkar B. S. (2011) Baking Science and Technology, Arihant Publication.
2. Amendola J. & Rees N. (2003) Understanding Baking: The Art and Science of Baking, Wiley.
3. Dubey S. C. (2002) Basic Baking, The Society of Indian Bakers.
4. Manley D. (2000) Technology of Biscuits, Crackers & Cookies. 2nd Edition, CRC Press.
5. NPCS Board of Food Technologists (2014) Confectionery Products Handbook (Chocolate, Toffees, Chewing Gum & Sugar Free Confectionery), Asia Pacific Business Press Inc.

Suggested Readings:

1. Edwards W.P. (2007) The Science of bakery products, RSC Publications.

2. Mohos F. (2010) Confectionery & chocolate engineering, principles & applications, Wiley Blackwell Publishing Ltd

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**35**
Continuous Comprehensive Assessment		**15**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**2.5**
b)	**Test Paper-2**	**2.5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**5**
	Total = 15 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**5**
b)	**Record**	**3**
c)	**Lab performance**	**2**
	Total = 10 marks	
Grand Total		**75**

KU4VACHSC202: GENDER AND SOCIETY

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
4	VAC	200-299	KU4VACHSC202	3	45

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	0	-	25	50	75	2

Course Description:

The course "Gender and Society" explores the complex interplay between gender, social structures, and cultural practices. Through an interdisciplinary lens, students will

critically examine how gender shapes identities, roles, power dynamics, and social inequalities within various sociocultural contexts. Drawing on sociological, anthropological, feminist, and intersectional perspectives, the course will analyze key concepts, theories, and debates related to gender and its implications for individuals, communities, and societies.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
CO-1	Understand foundational concepts and theories related to gender studies.	U
CO-2	Analyze the social construction of gender and its intersection with other social categories.	U, Ap
CO-3	Critically assess representations of gender in media, literature, and popular culture.	U, Ap, An, C
CO-4	Investigate social movements, activism, and policy interventions aimed at advancing gender equality.	U, Ap,E,C
CO-5	Develop analytical skills to examine laws and policies on gender dynamics.	U,An, E
CO-6	Enhance communication and empathy skills to engage in respectful dialogue around gender-related issues.	Ap,An,E

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1						✓	
CO 2						✓	
CO 3						✓	
CO 4						✓	✓
CO 5						✓	✓
CO 6						✓	✓

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**FOUNDATIONS OF GENDER STUDIES**	**10**
		a) Concept of Gender and Sex, Multidisciplinary nature of Gender studies	5
		b) Understanding the social construction of gender, gender roles, gender division of labour, gender stereotyping and discrimination. c) Beyond Binaries- LGBTQIA+	5
2		**GENDER AND DEVELOPMENT**	**10**
		a) Understanding the interrelationship between Gender and Development. b) Approaches to gender participation in development. Role of gender on economic participation. c) Violence against different genders- a brief overview.	5 5
3		**GENDER MAIN STREAMING**	**15**
		a) Understanding Feminism- Waves of Feminism.	5
		b) Theoretical perspectives - portrayal and representation of gender in Media - Theory of Visual Pleasure - Male Gaze (Laura Mulvey); - Queer Theory (Judith Butler) - Masculine Hegemony (R.W. Connell). Body shaming- Meaning, Body image, Role of gender on body shaming. Body shaming and its effect on Mental wellbeing. c) Process of Gender Analysis, Tools for gender analysis, Gender mainstreaming- Steps and Techniques, Gender Budgeting, Glass Ceiling.	5 5
4		**GENDER AND LAW**	**5**
		a) Laws related to Women- The Protection of Women from Domestic Violence Act, 2005, The Dowry Prohibition Act, 1961, The Maternity Benefit Act, 1961, The Sexual Harassment of Women at Workplace (Prevention, Prohibition, and Redressal) Act, 2013, The Hindu Succession Act, 1956 (Amended in 2005), The Muslim Women (Protection of Rights on Divorce) Act, 1986, The Medical Termination of Pregnancy Act, 1971.	3

		b) Understanding of Policies related to Transgenders - The Transgender Persons (Protection of Rights) Act, 2019, The Supreme Court's NALSA judgment (2014), The Indian Penal Code (IPC) and Criminal Procedure Code (CrPC).	2
5	**TEACHER SPECIFIC /RELATED EXPERIENCES**		**5**
	1. Create awareness on gender stereotyping prevalent in the society. a) Preparing a gender album incorporating Inclusivity- case studies of women belonging/ representing to five different sectors of the society. *b)* Review and content analysis of various Media: print, films/documentaries on gender issues and their critical analysis		

Essential Readings:

1. Amit Bhowmick, Sourav Madhur Dey (2022)Gender Issues- Themes and Concerns; Mittal Publications.
2. Judith Harlan (1998)Feminism, Bloomsberry Academic Publishers
3. Josephine Donovan (2000) Feminist Theory The Intellectual Traditions, Third Edition, Bloomsberry Academic Publishers
4. Ragini Ranawat, Kesar Chayal, Sithara Balan., Lalita Vatta (2024) "Wellbeing of women – A holistic approach"Satish Serial Publishing House.
5. Holly Johnson , Natalia Ollus , Sami Nevala (2008) Violence against Women- An International Perspective, Springer New York, NY
6. Deborah Amory and Sean Massey (2020) LGBTQ+ Studies: An Open Textbook
7. Mandakranta Bose, (2000),Faces of the feminine in ancient, medieval and modern India,Oxford University Press.
8. Neeru Sharma, Muzamil Jan, Amit Bhowmick (2021); "Womens health across life span"; Mittal Publications, New Delhi.
9. Rathore NS, Vatta L, Ranawat R (2021) Women and Diversity, International Books and Periodical Supply Services.

Suggested Readings:

1. Lourdes Rita and Jebaselvi.(2015) Women empowerment, Neelkamal publications , Hyderabad.
2. Susie Tharu; A. Suneetha; Uma Maheswari BhrugubandaA world of equals: a textbook on gender (2022); Orient BlackSwan.

3. Brownmiller, S. (2013) Against Our Will: Men, Women, and Rape. New York: Random House.
4. Datar, Chhaya, ed. The Struggle against violence. Calcutta: Stree, 2013.
5. Moira Gatens, Alison MacKinnon (2013) Gender and Institutions Welfare Work and Citizenship ; Cambridge.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 25 marks	
Grand Total		**75**

KU4VACHSC203: ENTREPRENEURSHIP DEVELOPMENT

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
4	VAC	200-299	KU4VACHSC203	3	45

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	0	-	25	50	75	2

Course Description:

This course provides a comprehensive exploration of entrepreneurship within the field of Home Science. Students will gain valuable insights into identifying and developing entrepreneurial opportunities in areas such as food production, nutrition services, textile design, family counselling, development communication and community development. Emphasis is placed on integrating sustainability principles, mastering digital tools, and crafting effective business plans tailored for Home Science ventures. By the end of the

course, students will be equipped with the knowledge, skills, and mind set needed to embark on their entrepreneurial journey in Home Science with confidence.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand concepts, processes, and skills for entrepreneurship with a focus on how these apply to the unique context of Home Science ventures.	R, U, Ap
2	Apply design thinking principles to identify and address entrepreneurial opportunities effectively.	U, E
3	Acquire the skills to develop comprehensive business plans including market analysis, financial projections, marketing, customer relationship management and utilising digital platforms for outreach.	U, Ap, An
4	Learn to identify sustainable innovations and evaluate entrepreneurial skills in different areas of home science	E, C
5	Create an entrepreneurship venture project, showcasing their practical application of learned concepts and skills.	U, Ap

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1		✓					✓
CO 2		✓					✓
CO 3		✓					
CO 4		✓					
CO 5		✓					

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	**UNIT**	**DESCRIPTION**	**HOURS**
1	**Conceptual Understanding**		**12**
	1	a) Introduction to Entrepreneurship: Definition, Importance of	7

		entrepreneurship in driving innovation and economic development, Characteristics of successful entrepreneurs, Case Studies of successful entrepreneurs.	
		b) Entrepreneurship Processes: Steps in the entrepreneurial process: idea generation, opportunity recognition, business planning, implementation, and Evaluation	5
2	1	**Design Thinking**	**12**
		a) Introduction to Design Thinking: Definition and principles of design thinking, Human-centered approach to problem-solving and innovation Importance of empathy, creativity, and iteration in the design thinking process. b) Brief understanding on the Phases of Design Thinking: Empathize,Define,Ideate, Prototype, Test:	8 4
3	1	**Business Plan & Marketing**	**10**
		a) Writing the Business Plan: Key components of a business plan- executive summary, company description, market analysis, organization and management, products and services, marketing and sales, funding request, and financial projections.	
		b) Marketing and Utilizing Digital Platforms for Outreach: a brief understanding on the importance of marketing in a business.	5
4	1	**Innovation in Home Science**	**6**
		a) Identifying Entrepreneurial Innovations in the 5 specialisations of Home Science- Food & Nutrition, Child Development, Resource Management, Extension & Communication	
5	**TEACHER SPECIFIC/RELATED EXPERIENCES**		**5**
	a) Idea Generation Exercise - Brainstorming, Mapping b) Market Research & Idea Validation Exercise - Survey c) Business Plan Development, & Pitch Presentation d) Conduct Sale Exhibition to promote home science innovation		

Essential Readings:

1. Desai, V. (2001). Dynamics of entrepreneurial development and management: Entrepreneurship, project management, finances, programmes, and problems. Himalaya Publishing House, ISBN Number: 978-93-5097-028-7.
2. Khanka, S. S. (2009). Entrepreneurship in India: Perspective and practice. Akansha Publishing, ISBN 10: 8183701930 / ISBN 13: 9788183701938.

3. Chandra, R., & Bramhani. (2019). Ladies entrepreneurship in India: A gendered view on entrepreneurship. Restaurant Business, 118(9), 127–131. http://dx.doi.org/10.26643/rb.v118i9.8018
4. Bulsara, H. P., Chandwani, J., & Gandhi, S. (2014). Women entrepreneurship and innovations in India: An exploratory study. International Journal of Innovation, 2(1), 32–44. http://dx.doi.org/10.5585/iji.v2i1.2
5. Shaik, S. (2012). Emergence of women entrepreneurship in India. Global Journal For Research Analysis, 3(8), 1–2. http://dx.doi.org/10.15373/22778160/august2014/196
6. Bruin, L. (2016). Scanning the Environment: PESTEL Analysis. Retrieved on 18th July, 2022 from https://www.business-to-you.com/scanning-the- environment-pestel-analysis/
7. Chandra, P. (2011). Financial Management, Tata McGraw Hill Publication: New Delhi, 8th Edition, pp. 1-795

Suggested Readings:

1. Hisrich, R., Manimala, M., Peters, M., & Shepherd, D. (2017). Entrepreneurship, Tata McGraw Hill Publication: Tamil Nadu, 9th Edition, pp. 1-521.
2. Trivedi, J. (2017). New Paradigms of Business Plan for Selected Horticulture Crops-A Practical Textbook for Entrepreneurship, Bookwell Publication: New Delhi, 1st Edition, pp.1-114.
3. Wennekers, S., & van Stel, A. (2017). Types and roles of productive entrepreneurship: a conceptual study.The Wiley Handbook of Entrepreneurship, 37-69.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 25 marks	
Grand Total		**75**

FIFTH SEMESTER COURSES

KU5DSCHSC301: TEXTILE SCIENCE & APPAREL DESIGNING I

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
5	DSC Major	300-399	KU5DSCHSC301	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

This course explores textiles from fibre to fashion. Students learn about different fibers, how yarn is made, and how fabrics are constructed through weaving, knitting, and other methods. Students also gain practical skills using sewing machines and working with trims and decorations. Through theoretical learning and practical exercises, students develop a strong foundation in textile and apparel design.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the properties and uses of major textile fibers, and demonstrate the ability to convert fibers into yarns effectively.	U
2	Analyse and differentiate between various fabric structures, including basic weaves and other construction methods such as knitting and nonwovens.	An
3	Demonstrate proficiency in using sewing tools and machines, troubleshooting minor issues, and employing different sewing and marking techniques.	C
4	Apply the elements and principles of design to clothing, and develop personalized wardrobe plans considering individual needs and preferences.	A
5	Develop practical skills in handling yarns and fabrics, and mastering garment construction methods such as seams, darts, pleats, and gathers.	C

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1				√			
CO 2				√			
CO 3				√			
CO 4		√		√			
CO 5				√			

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**STUDY OF FIBRES**		**10**
	1	Production, Properties, and uses of major textile fibers – a) Natural fibers-cotton, linen, silk, wool	4
		b) Synthetic fibers- rayon, nylon, polyester, acrylic	4
		c) Eco friendly textiles- lyocell, organic cotton, jute.	2

2	**STUDY OF YARNS**		**10**
	1	Definition, the process of making fiber into yarn-hand, mechanical-conventional ring spinning, direct-open-end spinning, and chemical.	6
	2	Classification of yarns: Types- spun and filament. Number of parts-simple, complex. Twist- Amount and direction	2
	3	Yarn count – Indirect and indirect. Textured yarns, bi-component yarns, blends, and mixtures.	2

3	**STUDY OF FABRIC STRUCTURE**		**15**
	1	Weaving- Loom- parts and basic weaving motions, A brief introduction to shuttle less looms- projectile, rapier, and jet looms.	5
	2	Basic weaves- plain, twill, satin, and its variations. Fancy Weaves-, pile, jacquard, dobby, lappet, clip spot, leno, crepe, and double cloth. Brief on other methods of fabric construction-knitting, felting, nonwovens, lace making, netting, and bonding	8

	3	Brief on recent developments- Smart fabrics, technical textiles, Nano-textiles, spandex	2

4	**ELEMENTS AND PRINCIPLES OF DESIGN, SEWING TOOLS, AND WARDROBE PLANNING**		**10**
	1	Elements and Principles of design on clothing.	3
	2	Wardrobe Planning and Clothing: Clothing needs physical, social economic, and psychological needs, Selection of clothing for different age groups	3
	3	Parts of Sewing Machine and their functions, Minor troubles in the machine and their causes, Cutting Tools, Hand sewing and embroidery tools, measuring tools, marking tools, General tools, Pressing tools	4

5	**TEACHER-SPECIFIC / PRACTICAL**	**30**
	1. Collection of fabrics- Basic weaves, novelty weaves 2. Basic hand stitches-any four 3. Seams: Plain seam, Single Topstitch, Double top stitch, 4. Seam finishes: Double stitch finish, Pinked finish 5. Fullness: Darts – Single pointed dart, Double pointed dart 6. Tucks- Pin tucks, Crossed tucks 7. Pleats – Knife pleat, Box pleat, Inverted box pleat 8. Gathers- Gathering by hand, gathering by machine, and Gathering by elastic.	

Essential Readings:

1. L.Joseph M (1981) Introductory Textile Science,CBS College Publishing,New York.
2. Wingate, (1978), Textile Science and their Selection, Prentice Hall.
3. Dantyagi, S (2008), Fundamentals of Textiles and Their care, Orient Longman.
4. Mary Mathew's , Practical Clothing Construction, Part II, Bhattaram's Reprographics (P) Ltd, Chennai.
5. Gokarneshan , U., (2005), Fabric Sturcture and Design, New Age International Publishers

Suggested Readings:

1. Corbman, B.P, (2005), Fibre to Fabric, Singapore., Mc. Graw Hills book.co.
2. Kadolf. S.J (2008), Textiles, Anne Langford, Prentice Hall
3. Well's. K., (2002), Fabric Dyeing and Printing, Conran Octopus Smith J.L (2006) Textile Processing, Chandigarh, Abhishek Publications.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU5DSCHSC302: FUNDAMENTALS OF HUMAN DEVELOPMENT

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
5	DSC Major	300-399	KU5DSCHSC302	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	0	-	30	70	100	2

Course Description:

This course explores human development from conception through adolescence, focusing on the physical, cognitive, social, and emotional changes during these critical stages. Students

will gain a comprehensive understanding of the factors influencing development, including genetic inheritance, prenatal influences, environmental factors, and social interactions.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Analyze the influence of biological, environmental, and social factors on child development across various stages, from prenatal development to adolescence	An
2	Evaluate the importance of early identification and intervention strategies for addressing developmental delays in children	E
3	Develop strategies to promote healthy physical, cognitive, social, and emotional development in young children through appropriate care and educational approaches.	C
4	Explain the physical, psychological, and social changes that occur during adolescence, including their impact on self-perception, identity formation, and relationships.	U
5	Students will be able to design and implement effective teaching-learning materials for Early Childhood Education (ECE) , critically analyze disciplinary techniques used in home environments, and utilize modern presentation tools to communicate key concepts in ECE effectively.	C, A, E

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1			√				
CO 2			√				
CO 3			√				
CO 4			√				
CO 5			√				

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**PRENATAL DEVELOPMENT TO INFANCY**		**16**
	1	Stages of prenatal development, prenatal influences, stages of labour, types of birth, pregnancy complications, and Prenatal stimulation.	10
	2	Prenatal diagnostic techniques. Artificial insemination – IVF and GIFT, fraternal and identical twins, Neonate – Definition, characteristics, reflexes, abilities and adjustments, APGAR.	2
	3	a) Infancy – Developmental milestones in all domains, Immediate care of the newborn, types of feeding – natural and artificial, Immunization, infant stimulation b)At-risk babies, SIDS, LBW babies, Baby friendly hospitals	4
2	**DEVELOPMENTAL DELAYS AND INTERVENTION**		**12**
	1	Developmental delay – meaning, definition, need and importance of early identification, techniques used for assessment	4
	2	Early stimulation and early intervention – meaning, need and importance.	4
	3	Children with special needs- a brief introduction	4
3	**EARLY AND LATE CHILDHOOD YEARS**		**12**
	1	Early and late Childhood – Definition, milestones and domains of development, habit formation, discipline, importance and values of play, misdemeanours during late childhood	6
	2	Early Childhood Education – Definition, types, significance and objectives. Emergent literacy and school readiness, concept formation,	6
4	**ADOLESCENCE**		**10**
	1	Physiological changes, needs, and challenges – transition from childhood to adulthood – Puberty and its consequences, Gender differences, Sexuality, sexual needs, sex education, body image	5

		and its impact.	
	2	Psychological changes – identity formation, emotions, and behavior problems, sociological changes – peer and family relationships	5

5	**TEACHER SPECIFIC/RELATED EXPERIENCE (ANY TWO)**	**10**
	1. Preparation of teaching-learning materials for ECE 2. Prepare charts on any two of the following; Stages of development, Areas of development, Immunization Schedule, Changes in body size, Motor milestones. 3. Observation and reporting of any one development (physical, motor, intellectual, emotional, or social) of a preschool child. 4. Prepare indigenous low-cost toys. 5. Analyze the disciplinary technique used in one's home and its effect on one's behaviour. 6. OHP/PowerPoint presentation of any related topic. 7. Visit to a pre-school/ Anganwadi/ balwadies/ Montessori school/special schools	

Essential Readings:

1. Hurlock, E.B., (2015), Developmental Psychology, McGraw Hill Education India Pvt. Ltd., New Delhi
2. Devadas, R.P; Jaya, N(2002), A Textbook on Child Development, Macmillan India Limited, Madras
3. Jegannath Mohanty and BhagyadharMohanty (1994), Early Childhood Care and Education (ECCE), Deep and Deep pub,New Delhi.
4. Berk, L.E., (2007), Development through the Life Span, Pearson Education, New Delhi.
5. Suriakanthi, A., (2005), Child Development, Kavitha Publications, Gandhigram, Tamil Nadu.

Suggested Readings:

1. Papalia, D.E., and Olds, S.W., (2005), Human Development, Tata Mc.Graw HillCompany,New York.
2. Rice Philip. K (2001) Human development, Prentice Hall, New Jersy.
3. Santrock, J.W., (2006), Child Development, Tata Mc.Graw Hill Publishing Company, NewDelhi.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU5DSCHSC303: NUTRITION THROUGH LIFE CYCLE

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
5	DSC Major	300- 399	KU5DSCHSC303	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

This course provides an in-depth understanding of nutrition requirements and dietary considerations across various stages of life including infancy, childhood, adolescence, adulthood, and old age. Emphasis is placed on understanding the physiological changes that occur during each life stage and how nutrition can optimize health and prevent disease.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand nutrition basics for all life stages.	U
2	Assess specific nutritional needs for each stage.	An

3	Learn various assessment methods.	U
4	Create healthy meal plans for different ages.	C
5	Gain practical experience promoting good nutrition.	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**INTRODUCTION TO NUTRITION THROUGH THE LIFE CYCLE**		**8**
	1	Overview of nutrition science, Definition of nutrition, Balanced diet. Dietary guidelines for Indians.	
	2	Importance of nutrition at different life stages, Daily food guide, factors to be considered for formulation of balanced diet for different age groups and sex.	
	3	Nutritional assessment methods: ABCD	

2	**PRENATAL, MATERNAL AND INFANT NUTRITION**		**13**
	1	Nutritional needs during pregnancy - Importance of prenatal nutrition, Maternal weight gain and energy requirements, Micronutrient needs during pregnancy (e.g., iron, folate, calcium) Maternal and fetal health outcomes.	
	2	Lactation: Physiology of lactation, impact of nutrition on efficiency and	

		milk production, food and nutrient requirements during lactation. Breastfeeding, formula feeding, and complementary feeding Introduction of solid foods, Common feeding challenges and solutions	
	3	Nutrient requirement during infancy, feeding of infants – value of breast feeding, breast milk composition, breast feeding Vs artificial feeding, Nutritional disorders and common ailments in infancy.	

3	**NUTRITION IN EARLY CHILDHOOD, CHILDHOOD AND ADOLESCENCE**		**12**
	1	Growth and development during childhood and adolescence	
	2	Nutritional requirements for children and teenagers	
	3	Common nutritional concerns in these age groups	
	4	Nutrition-related issues in early childhood	

4	**NUTRITION IN ADULTHOOD AND OLDER ADULTS**		**12**
	1	Nutritional needs during adulthood - Diet and lifestyle factors affecting health - Nutrition-related diseases in adults.	
	2	Changes in nutritional needs with aging - Nutritional challenges in the elderly - Strategies for promoting healthy aging through nutrition	

5	**TEACHER SPECIFIC /PRACTICALS**	**30**
	1. Various methods of dietary assessment such as 24-hour dietary recall, food frequency questionnaire, and food diary. 2. Meal Planning and Menu Development. 3. Cooking demonstrations focusing on preparing nutritious meals suitable for different age groups. 4. Assessment of Nutritional Status-anthropometric measurements such as height and weight. 5. Community outreach activities related to nutrition education. 6. Visits to healthcare facilities, community centres etc.	

Essential Readings:

1. "Nutrition Through the Life Cycle" by Judith E. Brown and Janet Isaacs
2. "Krause's Food & the Nutrition Care Process" by L. Kathleen Mahan and Janice L. Raymond
3. "Life Cycle Nutrition: An Evidence-Based Approach" by Sari Edelstein
4. "Nutrition for the Older Adult" by Melissa Bernstein and Nancy Munoz
5. Srilakshmi, B. (2017) Nutrition Science, New Age International (P) Ltd., New Delhi.

6. Manay N.S and Shadaksharaswamy M, Foods, Facts and Principles, New Age
    i. International, New Delhi.

Suggested Readings:

1. Benion M (1995) Introductory Foods, 10th Ed, Prentice Hall, USA.
2. Swaminathan M (1998), Handbook of Food Science and Experimental Foods
3. Chandrasekhar U(2002), Food Science and its Applications in Indian Cookery, Phoenix Publishing House, New Delhi
4. Potter, N.M(1996), Food Science, 5th Ed, CBS Publishers, New Delhi.
5. Peckham, G.C(1994), Foundations of food Preparations, McMillan, London
6. Roday, S(2007), Food Science and Nutrition, Oxford University, New Delhi.
7. Gopalan C, Ramasastri, B.V and Balasubramanian S (2020) Nutritive Value of Indian Foods, NIN, Hyderabad

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU5DSEHSC304: EXTENSION & COMMUNITY MANAGEMENT

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
5	DSE	300-399	KU5DSEHSC304	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	0	-	30	70	100	2

Course Description:

The Extension and Community Management course provides students with a comprehensive understanding of Home Science Extension, and managing community development with the help of Non-Government Organizations, & Community participation. Through theoretical learning and practical experiences, students explore concepts such as community dynamics, social change, Non-Government Organizations and Community partnership initiatives. The course emphasizes the importance of promoting inclusivity, fostering collaboration, and ensuring the well-being of communities. By the end of the course, students are equipped with the knowledge, skills, and ethical framework needed to drive positive change and sustainable development within communities.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand Social Dynamics and structures and gain insights into the functioning of communities and societies, including administrative structures at rural, urban, and tribal levels, enhancing their understanding of social contexts and facilitating effective engagement.	U, R
2	Demonstrate proficiency in utilizing diverse communication methods and platforms, both traditional and digital, to effectively disseminate information and engage with diverse audiences.	A
3	Learn to use different audio, visual, and mixed aids effectively to make learning better, considering how relevant and easy they are.	U, A
4	Learn about leadership and techniques of working with communities.	R, U, An

5	Develop proficiency in the process of home science extension and its significance in community development.	Ap, An, E, C

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1					✔		
CO 2					✔		
CO 3					✔		
CO 4					✔		
CO 5					✔	✔	✔

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**UNDERSTANDING COMMUNITY DYNAMICS**		**15**
	1	Community: Concept, Meaning, and Importance. Types and features of community: Urban, Rural, and Tribal and their differences. Components of Community: Family structures, caste systems, social institutions, welfare organizations.	6
	2	Community development in India- Definitions, principles, and objectives of Community Development.	3
	3	Social change- Definition and significance of social change; Factors driving social change. Understanding social groups and social class, Rural basic institutions- Schools, Cooperatives and Panchayats.	6

2	**COMMUNICATION & METHODS OF APPROACHING COMMUNITIES**		**15**
	1	Definition, functions, elements, and barriers of communication. – Legan's model of communication, different levels of communication. Qualities of a good communicator.	5
	2	Classification of extension teaching methods individual (personal visits, letters) group (meetings, discussions, demonstrations, folksongs,	6

		drama, role play, seminar, field trip, exhibitions) and mass(print-newspaper, magazine, books) Advantages, and limitations of each method	
	3	Introduction to Digital and social media for communication - Use of e-posters, educational trolls, blogs, vlogs, Instagram, X, podcasts, teleconferencing, video conferencing, TED talks.	4

3	**AUDIO-VISUAL AIDS IN EXTENSION**		**10**
	1	Definition, importance, classification (audio, visual, and audio-visual), Edgar Dales cone of experience.	5
	2	Factors to be considered in the selection, preparation, and use of audio-visual aids.	5

4	**LEADERSHIP**		**10**
	1	Leadership -Concept and definitions of leader and leadership, types of community leaders- professional leaders, and lay leaders; autocratic, democratic, and laissez-faire leaders.	3
	2	Methods of identifying leaders in a community.	2
	3	Understanding PRA (Participatory Rural Appraisal) techniques for working with communities- Social mapping, transect walks, focus group discussions, interviews, and surveys.	5

5	**TEACHER SPECIFIC / RELATED EXPERIENCE**	**10**
	Directions: Related experiences to help the learners understand the extension and community approaches for working with the people.	
	1. Visit a community (rural/urban/tribal) and identify key issues, local leaders, concerns, and priorities within a chosen community. Prepare a report. 2. Role-playing exercises and case studies to explore sustainable partnership and effective participatory strategies in fostering social accountability in community management	

Essential Readings:

1. Dubey V.K. and Bishnoi Indira (2009): Extension education and communications, New age International Pvt. Ltd. Publishers, New Delhi.
2. Varma, S. (2009). Community Management in India: Challenges and Opportunities. New Delhi: Concept Publishing Company.
3. Patil RR (2020) Tribal Development in India, Sage Publications Pvt Ltd.

4. Waghmare,S.K[1980] Teaching Extension Education,Prasant Publication Vallabha,Vidhya Nagar.
5. Patnayak,Ram [1990] Rural Development in India,New Delhi,Vikas Publishing House
6. Chande S, Balan S (2019); "Extension Education and Communication- Concepts and New Directions; Modern Book House, Thiruvananthapuram.
7. 7. Shekhar. S and Ahlawat. S (2013),Textbook of Home Science Extension Education, Daya Publishing House, New Delhi
8. Participatory Rural Appraisal handbook by FAO

Suggested Readings:

1. Patel, S. (2017). NGO Management in India: Challenges and Solutions. New Delhi: Sage Publications India.
2. Rajaram, R. (2015). Handbook for NGOs: Indian Context. New Delhi: PHI Learning Private Limited.
3. Jain, R. K., & Khanna, S. (Eds.). (2018). Social Accountability in India: Concepts, Practices, and Challenges. New Delhi: Springer.
4. Ministry of Corporate Affairs, Government of India. (n.d.). Corporate Social Responsibility. Retrieved from https://www.mca.gov.in/MinistryV2/csr.html

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU5DSEHSC305: HUMAN PHYSIOLOGY

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
5	DSE	300-399	KU5DSEHSC305	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	-	-	30	70	100	2

Course Description:

Human Physiology is a comprehensive study of the mechanisms underlying the functions of the human body at the cellular, tissue, organ, and systemic levels. This course explores the intricate interactions and regulatory processes that maintain homeostasis, allowing the body to adapt to changing internal and external environments. Through a combination of lectures, and interactive discussions, students will gain a deep understanding of the physiological principles governing various organ systems, including the nervous, muscular, cardiovascular, respiratory, digestive, renal and reproductive systems.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the fundamental principles and concepts of human physiology, including the structure and function of major organ systems.	U
2	Understand the integrated functions of the various systems of the human body.	U
3	Analyse the role of various hormones in regulating reproductive functions in the human body.	An
4	Gain knowledge regarding immunity, immune mechanism and disorders	U
5	Apply scientific methods and principles to conduct simple experiments and observations related to human physiology.	A, An

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						✔

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**INTRODUCTION TO HUMAN PHYSIOLOGY AND IMMUNOLOGY**		**12**
	1	Definition of physiology, Structure and functions of a cell.	
	2	Immunity: types, Immunoglobulin's and production of antibodies. Disorders–Immune deficiency, Hypersensitivity	
	3	Blood & Plasma: Composition and functions of blood, Plasma proteins, Haemoglobin, Blood Cells and platelets or thrombocytes, Coagulation of blood, Blood Group, Erythroblastosis foetalis.	
2	**CIRCULATORY AND RESPIRATORY SYSTEM**		**15**
	1	Structure of heart:- Special conducting tissues of heart, Properties of cardiac muscles; Cardiac cycle, Heart Sounds, Blood pressure and heart rate, circulations, Systemic and pulmonary, coronary and portal system.	
	2	Structure of respiratory system: Mechanism of respiration, Gaseous exchange in lungs and tissues, Pulmonary volumes and capacities.	
3	**DIGESTIVE AND EXCRETORY SYSTEM**		**10**
	1	Structure of digestive tract:- Digestion and absorption of carbohydrates, fats and proteins.	
	2	Structure and function of kidney :- Structure of nephron,	

		Mechanism of urine formation- Micturition	

4	**REPRODUCTIVE SYSTEM AND HUMAN NERVOUS SYSTEM**		**13**
	1	Structure and functions of male reproductive organs and female reproductive organs: Menarche and menopause, Physiology of pregnancy and lactation.	
	2	Nervous system:- Structure and Functions of nervous system, Neuronal Communication, Central and Peripheral Nervous System.	

5	**TEACHER SPECIFIC/RELATED EXPERINCE**	**10**
	1. Create a simple model of the (any one) A) Digestive system B) Excretory system C) Respiratory system 2. Examine cheek cells under microscope. 3. Heart rate measurement by placing two fingers on neck or wrist.	

Essential Readings:

1. Ross and Wilson (2011), Anatomy and Physiology in Health and illness (11th ed.) Church Hill Livingstone.
2. Sembulingam, K. (2000) Essentials of Medical Physiology, Jaypee Brothers Medical Publishers (P) Ltd., New Delhi.
3. Hall, J. E. (2016). Guyton and Hall textbook of Medical Physiology (13th ed.). Saunders/Elsevier.
4. Stuart Fox, Human Physiology, 13th edition, McGraw-Hill Education publishers, 2012.
5. Chatterjee, C.C; Human Physiology, 11th Edition, CBS Publishers and Distributors Pvt Ltd.
6. VidyaRatan (2004) Handbook of Human Physiology. 7th ed. Jaypee Brothers PVT LTD, New Delhi.
7. Stanfield, C. L. (2013). Principles of Human Physiology (7th ed.). Pearson.
8. Sherwood, L., Kell, R., & Ward, C. Essentials of Human Physiology. Cengage Learning.
9. D, Venkatesh., Sudhakar, H.H.,(2018). Textbook of Medical Physiology (2nded.). Wolters Kluwer

Suggested Readings:

1. Sudha V Khanorkhar (2012) Insights in Physiology. 1st ed. Jaypee Brothers PVT Ltd. New Delhi.
2. The Journal of Laboratory and Clinical Medicine, C.V. Mosby Company.
3. The Indian Journal of Medical Research, ICMR. New Delhi

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU5DSEHSC306: TEXTILE HERITAGE & TRADITIONS OF INDIA

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
5	DSE	300-399	KU5DSEHSC306	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	0	-	30	70	100	2

Course Description:

This course provides a comprehensive exploration of the rich tapestry of Indian textiles, spanning diverse regions and traditions. From the intricate handloom silks of West Bengal to the vibrant Kanchipuram sarees of South India, students will delve into the historical evolution, cultural significance, and social impact of Indian textiles. The course examines contemporary adaptations of traditional textiles by modern designers and the global influence of Indian textiles on fashion trends. With a focus on sustainability and ethical practices,

students will explore initiatives promoting the preservation of traditional weaving techniques and responsible textile tourism.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Demonstrate a comprehensive understanding of the diverse textile traditions of India, including their historical evolution, cultural significance, and regional variations.	U
2	Analyze the cultural significance of textiles in Indian society, explaining their role in religious practices, social hierarchy, and everyday life.	An
3	Differentiate between the major textile styles of various regions, identifying characteristic features, motifs, and production methods.	U
4	Apply knowledge of Indian textiles to analyze and interpret their influence on global fashion trends and the role of Indian textiles in the broader cultural and economic landscape.	A
5	Evaluate the importance of preserving traditional weaving techniques and knowledge, and demonstrate an understanding of initiatives promoting sustainable and ethical textile production and conservation practices.	E

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1				✔			
CO 2				✔			
CO 3				✔			
CO 4				✔			
CO 5				✔			

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**INTRODUCTION TO INDIAN TEXTILES**	**13**
	1	Overview of Indian textile heritage	3
	2	Historical evolution of textile production in India	3
	3	Introduction to key textile regions and traditions	2
	4	Significance of textiles in Indian culture and society	2
	5	Regional variations in weaving styles across India	3

2		**TEXTILES OF NORTH INDIA AND SOUTH**	**13**
	1	Focus on textiles of Kashmir, Punjab, Rajasthan, and Gujarat.	3
	2	Exploring the use of Pashmina wool, Bandhani tie-dye, and Zari embroidery.	3
	3	Focus on textiles of Kerala, Tamil Nadu, Andhra Pradesh, and Karnataka.	4
	4	Exploring the vibrant Kanchipuram sarees, Kalamkari block prints, and Ilkat weaves.	3

3		**TEXTILES OF EAST INDIA AND WEST INDIA**	**13**
	1	Focus on textiles of West Bengal, Odisha, and Assam.	4
	2	Exploring the intricate handloom silks of Bengal, the Ikat weaving of Odisha, and the Muga silk of Assam.	4
	3	Focus on textiles of Maharashtra, Gujarat, and Madhya Pradesh.	3
	4	Exploring Patola double ikat sarees, Paithani silk sarees, and Maheshwari weaves.	2

4		**TEXTILES AND SOCIAL SIGNIFICANCE AND TEXTILE CONSERVATION**	**11**
	1	The role of textiles in Indian culture, religion, and social status.	3
	2	Significance of specific textiles for weddings, festivals, and everyday	2

		life.	
	3	Importance of preserving traditional weaving techniques and knowledge.	2
	4	Exploring initiatives promoting sustainable and ethical textile production.	3

5	**TEACHER SPECIC/ RELATED EXPERIENCE**	**10**
	Contemporary Indian Textiles and Textile Tourism. : 1. The influence of Indian textiles on global fashion trends 2. Exploring the work of contemporary Indian textile designers 3. Importance of ethical and responsible textile tourism practices 4. Analysis of challenges and opportunities in the Indian textile industry 5. Examination of the Role of technology and Innovation in textile production	

Essential Readings:

1. Shailaja D Naik, Traditional Indian Textiles.
2. Metha R.J., Master pieces of Indian Textiles.
3. Gillow, John, and Nicholas Barnard. Indian Textiles: Trade and Tradition. Thames & Hudson, 2017.
4. Prakash, Ritu. The Indian Textile Industry: Past, Present, and Future. SAGE Publications Pvt. Ltd, 2019.
5. Edwards, Eiluned. Traditional Textiles of India. Thames & Hudson, 2011.
6. Singh, Martand. Handcrafted Indian Textiles. Roli Books, 2011..

Suggested Readings:

1. Shailaja D Naik, Traditional Indian Textiles.
2. Metha R.J., Master pieces of Indian Textiles.
3. Dhamija, Jasleen. Indian Weaving: A Tradition Revisited. Mapin Publishing Pvt. Ltd., 2008.
4. Kumar, Meera. Masterpieces of Indian Textiles. Lustre Press, 2014.
5. Ahmed, Monisha. The Magic of Indian Textiles. Macmillan, 2011.
6. Singh, Martand. Indian Textiles: Handmade Traditions, Design and Craftsmanship. Roli Books, 2009.
7. Chung, Young Yang. Silken Threads: A History of Embroidery in China, Korea, Japan, and India. Harry N. Abrams, 2005.

8. Salomon, Julian Harris. The Book of Indian Crafts and Indian Lore. Dover Publications, 2001.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU5DSEHSC307: EVENT MANAGEMENT

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
5	DSE	300-399	KU5DSEHSC307	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

This course structure provides a holistic view of event management, incorporating theoretical knowledge, practical skills, and real-world examples. A basic understanding of events, strong communication and technology skills, critical thinking abilities, teamwork experience, marketing awareness, budgeting knowledge, environmental and social awareness, creative thinking, and an interest in analyzing case studies of successful events.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Define the historical context, evolution, and scope of the event management industry.	K

2	Differentiate between various types of events, analyzing their unique characteristics and requirements.	An
3	Explain the key responsibilities and skills required for effective event management, citing case studies of successful event managers.	A
4	Develop a comprehensive event plan that includes specific objectives, target audience definition, and a detailed budget.	C
5	Formulate effective marketing strategies for events, utilizing both traditional and digital marketing techniques.	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1		✔					
CO 2		✔					
CO 3		✔					
CO 4		✔					
CO 5		✔					

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**INTRODUCTION AND OVERVIEW OF EVENT MANAGEMENT**		**10**
	1	Definition, importance, and scope of event management.	
	2	Types of Events-Corporate events, social events, cultural events, sports events, etc.	
	3	Understanding the unique characteristics of each type. Emerging Trends in Event Management -Virtual and hybrid events.	
	4	Incorporating the latest technologies. Role and Skills of Event Manager-Key responsibilities and skills required.	

2	**ART OF EVENT MANAGEMENT: FROM CONCEPT TO EXECUTION**		**12**
	1	Planning - Defining Objectives, Identifying Target Audience, and Budgeting for the Event , Developing a Comprehensive Event Plan	
	2	Event Design and Theme Development, Venue Selection and Logistics	
	3	Sustainable Event Management-Incorporating Sustainable Practices	
	4	Marketing and Promotion -Utilizing Traditional and Digital Marketing Techniques ,Social Media, Email Campaigns, and Partnerships, Sponsorship and Fundraising	
	5	Execution Phase-Building and Leading a Successful Event Team. Delegating Tasks and Ensuring Effective On-Site Management	

3	**DIFFERENT ASPECTS OF EVENT MANAGEMENT**		**11**
	1	Responsibilities of Stage Manager Stage Manager Duties: Live Events	
	2	Brand Management- Determinants of Brand Management, Components of Brand Value, Designing Brand Strategy	
	3	Budgeting in Event Management, Budget Management, Criteria in Budget Development, Budget control	
	4	Leadership- Leadership skills, Qualities of Leaders	
	5	Success of the Event- Post-Event Evaluation Understanding Key Performance Areas Scope of KPIs, Event Feedback, Methods	

4	**EVENT MANAGEMENT ESSENTIALS AND QUALITIES REQUIRED**		**12**
	1	Keeping Up with Trends Activity: Exploration of emerging trends in event management, with a focus on virtual and hybrid events. Hands-on experience incorporating the latest technologies.	
	2	Mastering the Role Activity: In-depth study of the role and skills required of an event manager. Analysis of case studies featuring successful event managers, highlighting key responsibilities and skills.	
	3	Qualities required for an event management person - Knowledge of Standards and Regulations, Understanding Event Environment, Management Knowledge, Interpersonal Skills- Trustworthiness, Delegation, Communication, Striving for feedback Negotiation, Leadership, Motivation, Problem Solving, Team Management, Set Personal Example Risk Management, Personal Etiquettes, Personal Appearances, Meeting People, Time Management	

		Skills	

5	**TEACHER SPECIFIC /PRACTICAL**	**30**
	Activity: Introduction to event management, defining its importance and scope. Class discussion on various types of events, emphasizing their unique characteristics Planning of an event and execution evaluation and reporting	

Essential Readings:

1. G.Berridge, Events Design and Experience (Elsevier Ltd. Great Britain, 2007,5)
2. Getz, D., 2005. Event Management and Event Tourism. 2nd edition.Cognizant Commun Hall, C.M., 1992. Hallmark tourist events: Impacts,management and planning. Belhaven: London ications Corporation: NewYork
3. J.Tum , P.Norton , J. NevanWright, Management of Event Operations(Elsevier Ltd., Great Britain, 2005,11)
4. J. Goldblatt, Special Events (Third Edition, John Wiley & Sons, Inc., NewYork, 2002,6)
5. G.Bowdin, J. Allen, W. O"Toole, R. Harris, I. McDonnell, EventsManagement (Elsevier Ltd, Great Britain, 2006
6. Cooper, C., Fletcher, J., Fyall, A., Gilbert, D. &Wanhill, S. 2008. Tourism,Principles and practice. Essex: Pearson Prentice Hall.
7. Fenich, G. 2007. Meetings, Expositions, Events & Conventions. New Jersey:Pearson Prentice hall.

Suggested Readings:

1. Bagri, S.C. & Bhatt, A.K. 1997: Sustainable Tourism Planning andDevelopment, conference report, Aug. 8-10, Gwalior
2. Bagri, S.C. (Eds) 1994: Journal of Tourism, H.N.B. Garhwal University,Srinagar Garhwal.
3. Baud-Bovy, M. and Lawson, F. 1998: Tourism and Recreation: Handbook ofplanning and Design, Butterworth and Heinemann, Oxford
4. Balachandran, S. (2004).Knowing the Customer. In Customer- DrivenServices Management (pp. 66-67): Response Books

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU5SECHSC301: SURFACE ORNAMENTATION

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
5	SEC	300-399	KU5SECHSC301	3	45

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
2	1	0	25	50	75	2

Course Description:

This course deals with the principles of art and colour, as well as various methods of painting and dying, embroidery, and surface embellishment in fabrics. It also focuses on the knowledge and techniques required to improve the aesthetic appearance of the fabric through

creativity, imagination, and skills that will ultimately enhance the appearance of the interior. Further, it induces exploration of different combinations to produce creative surfaces on fabrics

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand and use basic design elements like colors, shapes, and patterns, and principles like balance and harmony to make cool textile designs.	U
2	Apply various printing and dyeing methods effectively, to create unique and aesthetically pleasing fabric designs.	A
3	Creatively applying and combining various embroidery stitches and techniques to produce unique textile designs.	C
4	Implement surface embellishment techniques creatively, to enhance the visual appeal of textile creations.	C
5	Develop practical skills, in printing and dyeing methods, embroidery stitches on pillow covers, adding surface embellishments to tablecloths, crafting wall hangings with fabric paint, and preparing samples for different printing and dyeing techniques.	C, A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1		√		√			
CO 2				√			
CO 3				√			
CO 4				√			
CO 5				√			

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**ELEMENTS AND PRINCIPLES OF DESIGN**	**5**
		a) Elements of design	3
		b) Principles of design	2
2		**PRINTING AND DYEING METHODS**	**5**
	1	Block printing, Stencil printing, Fabric painting	3
	2	Tie & Dye, Batik, Ikat	2
3		**EMBROIDERY TECHNIQUES**	**8**
	1	Equipment/ tools used Methods of transferring designs to fabric	2
	2	Classification of embroidery stitches Outline stitches- Running, Back, Stem Looped stitches: - Chain, Blanket, Lazy daisy Knot stitches: - French knot, Bullion, Flat stitches: - Satin, Long and short Catch stitches: - Herringbone, Couching and Cross stitch	6
4		**SURFACE EMBELLISHMENT**	**7**
	1	Applique, Cutwork, Quilting, Bead work, Sequin work, Mirror work Kundan / Stonework, Glitter art, Crocheting, Draw thread	7
5		**TEACHER SPECIFIC/ PRACTICAL**	**20**
		Prepare samples of fabric using various printing and dyeing techniques	
		Prepare samples of embroidery stitches on the pillow cover	
		Apply any two surface embellishment on a tablecloth	
		Prepare a wall hanging using fabric paint	
		Prepare samples for tie & dye, batik, block, and stencil printing	

Essential Readings:

1. Andal, A., & Parimalam, P. (2008). A Text book of Interior decoration. Satish Serial Publishing House.
2. L.Joseph M (1981) Introductory Textile Science,CBS College Publishing,New York
3. Corbman, B. P. (1983). Textiles-Fibre to fabric. McGraw-Hill Corporation.
4. Chaudhari, S. N. (2006). Interior design. Aavishkar Publishers.
5. Goldstein. (1976). Art in everyday life. Oxford and IBH Publishing House.
6. Jazmik, M. (2021). Textures from nature in textile art. London.
7. Mathews, M. (2005). Practical clothing construction, Part 1 & 2. Cosmic Press.

Suggested Readings:

1. Seetharaman, P., & Pannu, P. (2009). Interior design and decoration. CBS Publishers and Distributors Pvt Ltd.
2. Ryan. (1995). The complete encyclopedia of stitches. Adams Media Corporation Holbrook.
3. Naik, S. D. (1997). Folk embroidery and handloom weaving. A.P.H. Publishing.
4. Stein, S. (2010). The complete photo guide to textile art. Creative Publishing International Inc., Quayside Publishing Groups

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**35**
Continuous Comprehensive Assessment		**15**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**2.5**
b)	**Test Paper-2**	**2.5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**5**
	Total = 15 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**5**
b)	**Record**	**3**
c)	**Lab performance**	**2**
	Total = 10 marks	
Grand Total		**75**

SIXTH SEMESTER COURSES

KU6DSCHSC308: TEXTILE SCIENCE & APPAREL DESIGNING II

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
6	DSC Major	300-399	KU6DSCHSC308	4	75

Learning Approach (Hours/Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

This comprehensive course provides students with essential knowledge and practical skills in fabric finishes, dyeing and printing techniques, garment construction, pattern making, fashion theory, and fashion sketching. Through theoretical instruction and hands-on practical sessions, students will learn about various finishes and treatments applied to fabrics, different dyeing and printing methods, garment construction techniques, pattern-making principles, fashion concepts, and sketching styles. Practical sessions include designing and constructing garments for different occasions, as well as pattern drafting and alteration exercises.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Analyze the properties of fabrics and the effects of various finishes	An
2	Classify different dye types and printing methods used in textile production.	U
3	Construct basic garments using proper measuring, cutting, and stitching techniques.	C
4	Develop a fundamental understanding of fashion design principles and utilize them for creative expression through sketching.	U
5	Apply pattern-making skills (drafting or draping) to create well-fitting garments for various purposes	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1				√			
CO 2				√			
CO 3				√			
CO 4				√			
CO 5				√			

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**FABRIC FINISHES**		**10**
	1	Finishes-Definition, purpose, Classification - singeing, bleaching, mercerization, tentering, stiffening, napping, calendaring-simple, glazed. embossed, moiré, Schreiner, sanforising, beetling, sizing, weighting, shearing, fulling and crepe	6
	2	Special finishes-water proofing, flame proofing, antibacterial finish, stain-resistant finish, shrinkage control and crease-resistant	4
2	**DYES AND PRINTING**		**10**
	1	Classification of dyes: Natural and artificial- acid, basic, direct, disperse, vat, naphthol, pigment, sulphur, and mordant. Stages of dyeing-stock, top, yarn, piece - cross and union dyeing, product, solution dyeing	6
	2	Printing: -Direct- roller, block, screen and stencil. Resist- tie & dye, batik, and Discharge printing	4
3	**GARMENT CONSTRUCTION AND PATTERN MAKING**		**12**
	1	Body Measurements –Method of taking body measurements of ladies and children, Calculating the fabric requirement for basic children's	3

		and women's garments	
	2	Preparation of fabric for cutting: Straightening fabric ends, Straightening fabric grain and shrinking fabrics, Importance of grain in fabric cutting, Marking, Pattern layout, and Cutting.	3
	3	Pattern - definition. Methods of pattern Making- Drafting, Draping and Flat pattern methods. Advantages and disadvantages, Drafting- Principles of drafting, Commercial patterns- advantages and disadvantages. Pattern grading	4
	4	Pattern alteration- Standards for a good fit: Ease, Line, Grain, Set, Balance, Principles of pattern alteration.	2

4	**FASHION & FASHION SKETCHING**		**13**
	1	Definition, concept, fashion theory, fashion cycle, terminologies-style, classic, fad and fashion trend, Fashion forecasting and role of fashion designer.	3
	2	Types of fashion drawing- fashion illustration, 8-head theory, fashion sketch, stylization, and technical drawing. Basic body shapes - Hourglass, Triangle, Inverted Triangle, Slim rectangle, Wide rectangle	10

5	**TEACHER SPECIFIC/PRACTICAL**	**30**
	Design two styles of salwar each for casual and party wear.	
	Draft cut and stitch casual wear	
	Design two styles of Kameeze each for casual and party wear.	
	Draft cut and stitch casual wear	
	Drafting and construction of a frock for a six-month-old girl baby	
	Drafting and construction of six gore skirt.	

Essential Readings:

1. L.Joseph M (1981) Introductory Textile Science, CBS College Publishing, New York
2. Mary Mathew's, Practical Clothing Construction, Part II, Bhattaram's Reprographics (P) Ltd, Chennai
3. Sumathy,G.H (2005) Elements of Fashion and Apparel Design, New Age International, Pvt Ltd, New Delhi.

Suggested Readings:

1. Smith J. L (2006) Textile Processing, Abhishek Publications, Chandigarh
2. Armstrong Helen Joseph, Patternmaking for Fashion Design, Harper & Row, Publications.

3. E.Rolfo Kopp& Zelin , How To Draft Basic Pattern, Fair Child Publication Inc.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU6DSCHSC309: SOCIAL & BEHAVIOUR CHANGE COMMUNICATION

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
6	DSC	300-399	KU6DSCHSC309	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	0	-	30	70	100	2

Course Description:

Extension approaches focus on bringing desirable changes in the attitude, skills, understanding, emotions, behaviour, knowledge, and practice of the people. Strategic communication methods and tools are required to engage people and develop strategies leading to sustainable social and behaviour change. SBCC is an essential tool for promoting social change and development results in a wide range of contexts around the world. In this course, the learner will gain an in-depth understanding of SBCC theories, techniques, and how they can be applied in development initiatives. A combination of theoretical knowledge, case studies and hands-on exercises will equip them with the tools and knowledge that are required to create, implement, and assess successful SBCC interventions.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understanding on SBCC through principles, approach, and different strategies of SBCC.	U
2	Apply SBCC to bring about the desired social change among people, groups and societies.	Ap, An
3	Create good behavior science-based communication to change knowledge, attitude, and social norms that influence people, organizations and community.	Ap, An
4	Deploy a variety of communication methods to drive desirable change in individuals and society.	U, C, Ap
5	Analyse, monitor, evaluate, and interpret through interpersonal communication with people and society.	Ap, An, E

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1					✓		
CO 2					✓		
CO 3					✓		✓
CO 4					✓	✓	
CO 5					✓	✓	

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**CONCEPT OF BEHAVIOUR**	**12**
	1	Concept of Behaviour and its determinants, Types of behaviour- Observable & Unobservable	6
	2	Steps of Behavior Change: Awareness, Interest, Desire, Action, and Maintenance (AIDMA Model)	3
	3	Stages of Behaviour adoption- pre-contemplation, contemplation, preparation, action, and maintenance.	3
2		**SOCIAL & BEHAVIOUR CHANGE COMMUNICATION**	**12**
	1	BCC- Meaning, Principles and Approaches of BCC, Levels of action of BCC.	6
	2	History and Evolution of SBCC SBCC- Meaning, Relevance, Key Components, Elements of SBCC	6
3		**THEORIES/ MODELS RELATED TO SBCC**	**14**
	1	Theories of SBCC- Social learning theory, Health belief model, Theory of planned behaviour, Dominant Paradigm Theory, Maslow's hierarchy of Needs, Entertainment- Education Approach (E-E).	5
	2	Tools, Techniques, approaches and practices of SBCC, SBCC Behaviour change wheel.	4
	3	Integrating SBCC into various fields- Importance of SBCC in development context- Gender, Environment, Health and Disease Prevention, Social Change Initiatives	5
4		**DESIGNING SBCC INTERVENTIONS**	**12**
	1	Recalling of Communication Methods- Individual, Group, Mass methods. Advanced understanding of the Channels of Communication in general- Overview of Print, Electronic, Broadcasting and New Media.	4

	2	Designing of Messages- Why, When, and Whom should messages be designed- Message Analysis and Criteria for Evaluation of the developed Messages.	4
	3	Monitoring & Evaluation of SBCC Interventions- Meaning and differences between monitoring and evaluation. Monitoring and Evaluation tools and techniques used in community work.	4
5	**TEACHER SPECIFIC /RELATED EXPERIENCE**		**10**
	Directions- Practical hands-on experiences to understand the concepts of SBCC and its application at community levels for addressing developmental issues. A record of the activities can be reported and documented.		
	1. Preparation of SBCC content for social media- Instagram, YouTube, Blog, Podcast. 2. Preparation of interactive presentations using power points for creating awareness on any developmental issue and participating in community awareness programmes. 3. Screening and Analysis of Short films or documentaries related to gender/ health/disasters/ relationships/child issues/environment. 4. Preparation of folk songs on imparting nutrition education to a group of rural women- make draft lyrics, including the concepts and identify the rhythm for presenting the music. 5. Prepare educational trolls on any developmental issues. 6. Prepare case study reports on SBCC interventions- National/ International/ State levels.		

Essential Readings:

1. Designing a Social and Behavior Change Communication Strategy- https://sbccimplementationkits.org/
2. www.iec.unicef.org
3. Learning Package for social and behaviour change communication (2012) USAID Resource handbook.
4. SBCC Guidebook (2020) USAID
5. Martin S. Hagger, Linda D. Cameron ,Kyra Hamilton, Nelli Hankonen (2020) Handbook of Behaviour change; Cambridge University Press

Suggested Readings:

1. Karin Gwinn Wilkins, Thomas Tufte, Rafael Obregon (2014)The Handbook of Development Communication and Social Change; Wiley.
2. Zaman, F., & Underwood, C. (2003). The gender guide for health communication programs. *CCP Publication*, *102*.

3. Salem, R. M., Bernstein, J., & Sullivan, T. M. (2008). Tools for behavior change communication.
4. Glanz, K., & Bishop, D. B. (2010). The role of behavioral science theory in development and implementation of public health interventions. Annual review of public health, 31, 399-418.
5. Health Communication Capacity Collaborative (November 2013). The P Process. Five Steps to Strategic Communication. Baltimore: Johns Hopkins Bloomberg School of Public Health Center for Communication Programs.
6. Howard-Grabman, L., & Snetro, G. (2003). How to mobilize communities for health and social change.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU6DSCHSC310: CLINICAL NUTRITION AND DIETETICS

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
6	DSC Major	300-399	KU6DSCHSC310	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

Clinical Nutrition and Dietetics explores the relationship between health and nutrition. The course aims to inculcate an understanding of varied aspects of Nutrition including Medical

Nutrition Therapy in disease management. This course presents basic dietary principles in health and disease and includes applications of that information in real-world situations. Dietetics focuses on food management through proper planning, preparation, monitoring, implementation and supervision of a patient's modified diet and to develop basic counselling skills as dietician and gain an insight into prevailing public health nutrition problems.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand causative factors, metabolic changes and rationale of prevention in various disease/disorders	U
2	Integrate knowledge of principles and methods associated with nutrition and dietetics.	U, An
3	Analyse metabolic changes and devise prevention strategies in relation to diseases/disorders	An
4	Develop skill to plan and prepare therapeutic diets for prevention of disease conditions	A
5	To develop skills to evaluate diets	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	**UNIT**	**DESCRIPTION**	**HOURS**

1	**INTRODUCTION TO DIETETICS AND MEDICAL NUTRITION THERAPY IN FEVER**		10
	1	Dietitian- Classification and responsibilities, Nutrition Care Process (NCP). Modifications of Normal Diets, Classification of Therapeutic Diets, Routine Hospital Diets	
	2	Classification and Aetiology of acute and chronic fevers- Medical Nutrition Therapy in Typhoid and Tuberculosis	

2	**MEDICAL NUTRITION THERAPY IN LIFESTYLE DISEASES**		**18**
	1	Weight management- (Obesity and Underweight) Etiology, Pathophysiology, Clinical symptoms, metabolic alterations, Assessment/Indicators, Lifestyle & Dietary guidelines	
	2	Diabetes Mellitus -Prevalence, Classification and aetiology, Symptoms and Diagnosis, Acute and Chronic Complications of Diabetes, Diet Modifications, Use of Food Exchange Lists, Glycaemic Index, Glycaemic Load.	
	3	Coronary Artery Diseases (CAD)- a) Atherosclerosis- Phases, Aetiology, Symptoms, Complications and dietary management b) Hypertension- Classification, Aetiology, Complications, Dietary Management -DASH Diet.	
	4	Cancer-Aetiology, Risk Factors-Dietary and Non-Dietary Nutritional Requirements in cancer, Dietary management in cancer, Functional Foods.	

3	**MEDICAL NUTRITION THERAPY IN RENAL DISORDERS**		**6**
	1	Aetiology, Pathophysiology, Clinical Symptoms, Assessment/Indicators, Lifestyle & Dietary guidelines for the following conditions –Glomerulonephritis and Nephrotic Syndrome.	

4	**MEDICAL NUTRITION THERAPY IN GASTRO INTESTINAL DISORDERS**		**11**
	1	Aetiology, risk factors, clinical symptoms and dietary management in- Hepatitis and Cirrhosis.	
	2	Aetiology, risk factors, clinical symptoms and dietary management in- Diarrhoea, Constipation and Peptic Ulcer.	

5	**TEACHER SPECIFIC / PRACTICAL'S**	**30**

	1. Diets for Febrile Conditions – TB, Typhoid 2 .Modification of Diets in Obesity 3. Modification of Diets in Underweight 4. Modification of Diets in Diabetes Mellitus 5. Modification of Diets in Peptic Ulcer, Constipation and Diarrhoea 6. Modifications of Diets in Liver Diseases – Jaundice, Hepatitis and Cirrhosis 7. Diets for Nephritis, renal Failure 8. Diets for Cardiovascular diseases	

Essential Readings:

1. Srilakshmi, B. Dietetics, New Age International P. Ltd., New Delhi, 2018.
2. Dietary Guidelines of Indians – A Manual, National Institute of Nutrition, Hyderabad, 2015.
3. Krause, M.V. and Mahan, L.K. Food, Nutrition and Diet Therapy, 9th Ed., W.B. Saunders Company, Philadelphia, 2019.
4. Joshi SA.(2010). Nutrition & Dietetics. 3rd Edition.: Tata McGraw- Hill Education Pvt. Ltd. Maimun Nisha, Diet Planning for Diseases, Kalpaz Publishers, 2016.

Suggested Reading

1. Brown, J (2014). Nutrition now (7thed). Wadsworth, USA, ISBN- 13:978-1-133-93653-4, ISBN 10:1-133-93653-9
2. Nelms M, Sucher K (2015). Nutrition Therapy and Pathophysiology. (3rd edition) Cengage Learning, USA., New Delhi
3. Clinical Dietetics Manual (2018). Indian Dietetic Association, Elite Publishing House
4. Garg, M. Diet, Nutrition and Health, ABD Publishers, 2006.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**

Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU6DSEHSC311: FOOD SCIENCE

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
6	DSE	300-399	KU6DSEHSC311	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	0	-	30	70	100	2

Course Description

A course in Food Science and Food Safety will provide students with a comprehensive understanding the science of food production and the measures taken to ensure the safety and quality of the food supply. This course will prepare students for careers in food production, quality assurance and research in the food industry.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Summarize the fundamentals of Food Science.	U
2	Identify the scientific principles underlying food preparation.	An
3	Explain the structure, composition and nutritional quality of plant foods.	A
4	Explain the structure, composition and nutritional quality of animal foods.	A
5	Develop skills to test food items to learn the changes during cooking and find out scientific facts	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**INTRODUCTION TO FOOD SCIENCE**		**8**
	1	Definition, Classification of foods and Terms used in Food Science. Health, Food, Nutrition, Nutrients: Macronutrients (Carbohydrates, Proteins and lipids) and Micronutrients (Vitamins and Minerals).	
	2	Food groups: - Basic food group system – (ICMR), My Healthy Plate, Balanced diet.	
	3	Functions of foods – Physiological, Psychological and Social Functions.	
2	**METHODS OF COOKING**		**12**
	1	Moist heat methods: Boiling, Simmering, Poaching, Steaming, Pressure cooking.	
	2	Dry heat methods: Air as medium of cooking: Grilling, broiling, roasting, Baking.	
	3	Fat as medium of cooking: Sautéing, Shallow fat frying, Deep fat frying	
	4	Combined (Moist and dry) Methods: Braising, Stewing Other cooking methods:-Microwave cooking, Air frying and Solar cooking.	
3	**STUDY OF PLANT FOODS**		**15**
	1	Cereals- Basic structure of a cereal grain, Classification, Nutritive value, Cereal Products	

	2	Pulses– Composition and nutritive value, processing- Germination, Common pulses used in India.	
	3	Fruits and Vegetables - Classification, Nutritive value, Enzymatic Browning.	
	4	Nuts and oil seeds and spices- Nutritive value, types, rancidity in oils - types, factors leading to rancidity, prevention. Spices and condiments - Major spices and condiments of India, Health benefits.	

4	**STUDY OF ANIMAL FOODS**		**15**
	1	Milk and Milk Products: Nutritive value, processing, Fermented and non-Fermented milk products.	
	2	Eggs - Structure and nutritive value, Grading, evaluation of egg quality.	
	3	Meat - Structure, composition and nutritive value, post mortem changes - rigor mortis.	
	4	Fish - Classification, nutritive value, selection, fish spoilage.	

5	**TEACHER SPECIFIC/ RELATED EXPERIENCE**	**10**
	1. Grouping of foods 2.Stages of sugar cookery 3.Evaluation of gluten content in a flour 4. Components of an egg by weight 5.Stages of egg white foam formation 6. Changes of meat during cooking 7. Effect of cooking on vegetable pigments 8. Methods to prevent enzymatic browning in fruits	

Essential Readings:

1. Frazier,W.C. and Westhoff, D.C.,(2008), Food Microbiology, Fourth Edn., Tata McGraw-Hill Publishing Co. Ltd, New Delhi
2. Kalia M. (2002), Food Analysis and Quality Control, Kalyani Publishers, New Delhi.
3. Marwaha, K (2007), Food Hygiene, Gene-Tech Books, New Delhi.
4. Marwaha, K (2007), Food Hygiene, Gene-Tech Books, New Delhi.
5. Mudambi, S.R and Rajagopal, M.V. (2001), Fundamentals of Foods and Nutrition, New Age International Publishers, New Delhi
6. Potter,N.N and Hotchkiss, J.H,(1996), Food Science, Fifth Edn, CBS Publishers, New Delhi.

Suggested Readings:

1. Sari E., (2006), Nutrition in Public Health, a handbook for developing programs and services, Second edn, Jones and Bartlett publishers, Sudbury.
2. Srilakshmi B. (2008), Food Science, New Age International Publishers, New Delhi.
3. Journal of Food Science and Technology, Association of Food Scientists and Technologists CFTRI, Mysore.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU6DSEHSC312: NUTRITION TRENDS IN THE 21ST CENTURY

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
6	DSE	300 -399	KU6DSEHSC312	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	-	-	30	70	100	2

Course Description:

This course offers a comprehensive exploration of food and nutrition, delving into historical perspectives, dietary patterns, emerging technologies, and global challenges. Through lectures, discussions, and practical activities, students will develop a deep understanding of nutrition science, make evidence-based dietary choices, and advocate for informed nutrition policies and practices.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the history and current trends in nutrition, enabling them to make informed dietary choices and advocate for healthier food policies.	R
2	Learn to evaluate different diets, make evidence-based nutritional decisions, and personalize dietary recommendations.	U
3	Explore the impact of technology on nutrition, considering its benefits, limitations, and ethical implications.	U
4	Grasp the complexities of global food issues and develop insights into sustainable solutions for promoting healthy populations and food systems.	U
5	Apply course concepts to analyse and propose solutions for a specific food and nutrition topic	E

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	**UNIT**	**DESCRIPTION**	**HOURS**
1	**THE EVOLVING LANDSCAPE OF FOOD AND NUTRITION**		**8**
	1	Historical perspectives on nutrition science and dietary trends.	
	2	The rise of processed foods and the global obesity epidemic.	
	3	The shift towards mindful eating and personalized nutrition.	
	4	The role of public health policy and food systems in shaping individual and community health.	

2	**NAVIGATING THE MAZE OF DIETARY PATTERNS**		**12**
	1	Exploring popular dietary patterns - (Mediterranean, DASH, vegetarian, keto): benefits, limitations, and evidence-based recommendations.	
	2	Debunking fad diets and understanding the science behind sustainable weight management.	
	3	The role of macronutrients and micronutrients in optimal health and chronic disease prevention.	
	4	Personalizing the diet based on individual needs, preferences, and health goals.	

3	**TECHNOLOGY AND THE FUTURE OF FOOD**		**15**
	1	Food tracking apps, wearable devices, and personalized meal plans: benefits, limitations, and potential ethical concerns.	
	2	The rise of food genomics and precision nutrition: customizing diets based on individual genetic makeup.	
	3	The future of sustainable food systems: cultivated meat, alternative proteins, and the impact of technology on food production.	
	4	Exploring the role of artificial intelligence in nutrition research and personalized dietary guidance.	

4	**GLOBAL FOOD CHALLENGES AND SOLUTIONS**		**15**
	1	Food insecurity, malnutrition, and hunger: understanding the scope and contributing factors.	
	2	Addressing food waste and promoting sustainable food systems.	
	3	The impact of climate change on food production and nutrition.	
	4	The role of community nutrition programs and education in promoting healthy eating habits.	
	5	Exploring policy interventions and global initiatives to achieve food security and healthy populations.	

5	**TEACHER SPECIFIC / RELATED EXPERINCE**	**10**
	1. Modify a traditional recipe to make it healthier or align it with a specific dietary pattern (e.g., Mediterranean, vegetarian, low-carb). 2. Analyze the nutrition labels to identify key nutrients, serving sizes, and health claims. 3. Create educational materials or workshops on topics such as healthy eating on a budget, meal planning, or nutrition for specific populations (e.g., children, seniors).	

	4. Field trip or virtual tour to a local farm, food processing facility, or farmers' market. Students can learn about different aspects of the food system, from production and distribution to marketing and consumption, and discuss the environmental, social, and economic implications of various food choices.	

Essential Readings:

1. Sustainability: A Comprehensive Introduction: https://www.routledge.com/An-Introduction-to-Sustainable-Development/Rogers-Jalal-Boyd/p/book/9781844075201 by Michael P. Benson and Daniel Park (latest edition)
2. How to Live Well Without Owning Very Much: https://www.amazon.com/More-Less-Finding-Under-Everything/dp/1601427972 by Joshua Becker (focuses on mindful consumption within sustainability)

Suggested Readings:

1. The World Wildlife Fund (WWF) Sustainability Hub: https://www.worldwildlife.org/topics/sustainability
2. The United Nations Sustainable Development Goals: https://sdgs.un.org/goals
3. The Ellen MacArthur Foundation - A Circular Economy: https://www.ellenmacarthurfoundation.org/ (focuses on reducing waste and creating a circular economy)

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU6DSEHSC313: GENERAL PSYCHOLOGY

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
6	DSE	300-399	KU6DSEHSC313	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	-	-	30	70	100	2

Course Description:

General Psychology offers an exploration into the fascinating world of human behaviour and mental processes. This course provides an overview of the fundamental concepts, theories, and methods in psychology. Through engaging lectures, discussions and readings, students will gain insight into topics such as the history of psychology, biological bases of behaviour, sensation and perception, learning, memory, cognition, development and personality. Emphasis is placed on critical thinking, scientific inquiry, and the application of psychological principles to everyday life. By the end of the course, students will have a deeper understanding of themselves and others, as well as a solid foundation for further study in psychology or related fields.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the fundamental concepts, theories, and methodologies in psychology.	U
2	Recognize the interplay between biological, psychological, and social factors in shaping human behavior and mental processes.	An
3	Gain insight into their own behaviour, emotions, and cognitive processes, fostering self-awareness and personal growth.	E
4	Apply psychological principles to understand and address real-world issues and challenges, including those related to individual behavior, interpersonal relationships, and societal issues.	A
5	Explore the practical applications of psychology in various domains, such as education, healthcare, business, and social policy, and understand the role of psychologists in addressing societal issues.	U

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1			✔				
CO 2			✔				
CO 3			✔				
CO 4			✔				
CO 5			✔				

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**BIOLOGICAL BASIS OF HUMAN BEHAVIOUR**		**12**
	1	Introduction to Psychology; Definition, Nature and Scope, Brief history and evolution of psychology	
	2	Neurons: Building blocks of the nervous system- The nervous system: Basic structure and functions, The Brain and human behavior, Endocrine system and behavior, Heredity: Genes and behavior	
	3	Nature of consciousness: Biological rhythm; Circadian rhythm Sleep: Stages of sleep, Functions of sleep, Sleep disorders	

2	**COGNITIVE PROCESSES**		**16**
	1	Attention: Definitions, Types and factors influencing Attention: Selective, Sustained and Divided attention, Span of attention, Attention Deficit Hyperactivity Disorder (ADHD) Sensation: Visual Sensation, Auditory sensation, Other human senses: smell, taste, touch and other skin senses, the kinaesthetic system, the vestibular system	
	2	Perception: Definition, Difference between sensation and perception, Sensory threshold, absolute threshold, Principles of perceptual organization, Perceptual constancies, Illusions.	
	3	Learning: Definition, Classical conditioning and Operant conditioning, Key learning processes: reinforcement, extinction, generalisation,	

		discrimination and spontaneous recovery, Observational learning	
	4	Memory: Definition, Stages of memory: encoding, storage and retrieval, Memory Systems: Sensory, Short-term and Long-term memories, Enhancing memory, Forgetting: Definition, Nature and Causes	
	5	Intelligence: Definition, Types of intelligence tests, Assessment of intelligence: mental age and IQ, Theories of intelligences, Emotional intelligence and EQ	

3	**PERSONALITY**		**12**
	1	Definition, Major approaches of personality: Type approaches, Psychodynamic approach, behaviouristic, Humanistic approach, type and trait approach, cognitive approach, Assessment of Personality	

4	**MOTIVATION AND EMOTION**		**10**
	1	Motivation: meaning, concept, types, theories, Motives and behaviour	
	2	Emotion: definition, components and changes in emotion, Theories of emotion –James Lange theory, Cannon Bard theory, opponents process theory, cognitive appraisal	

5	**TEACHER SPECIFIC / RELATED EXPERIENCE**	**10**
	Communication skills 1. Self-Introduction 2. Group Discussions 3. Presentation skills 4. Writing skills (Formal and Informal) 5. Role play of life situations	

Essential Readings:

1. Baron.A. Robert (2001). Psychology. New Delhi, Prentice Hall of India Man (1951), Psychology, Houghton Mifflin Company, Boston.
2. Mangal, S.K (2006). General Psychology, Sterling publishers pvt. Ltd., New Delhi
3. Hilgard, E.R. (1999). Introduction to Psychology (6thEdition), New Delhi; Oxford and IBH Publishing Co, Pvt Ltd
4. Henry E Garret, General Psychology, Eurasia Publishing House Pvt.Ltd., New Delhi.
5. Srivastava D. N., General Psychology, Vinod Pustak Mandir, Agra.
6. Morgan, C.T. King, R.A., Weisy, J.R. Scooper, J. (1993). Introduction to Psychology, New Delhi, Tata Mc-Graw Hill Publishing Company.

7. Kuppuswamy B. and Prabhu H., A text book of General Psychology, Media promoters and Publishers Pvt. Ltd., Bombay, 1986.
8. Naima Khatoon (Ed): General Psychology, The Pearson – ICFAI University, Delhi.
9. Smith, J. K. (2019). Introduction to Psychology: Exploring Human Behavior. Pearson.

Suggested Readings:

1. American Psychological Association (APA): www.apa.org.
2. National Institute of Mental Health (NIMH): www.nimh.nih.gov

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU6DSEHSC314: APPLIED HEALTH PSYCHOLOGY

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
6	DSE	300-399	KU6DSEHSC314	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	0	-	30	70	100	2

Course Description:

This course explores the fascinating intersection of psychology and health. The course will delve into how psychological factors influence health behaviours, illness experiences, and

overall well-being. By acquiring a deeper understanding of these connections, students be well-equipped to apply psychological knowledge and skills to promote health, prevent illness, and improve the well-being of individuals and communities.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Comprehend the influence of biological, psychological, and social factors on health through applied health psychology and the bio psychosocial model.	U
2	Critically evaluate the impact of stress and the effectiveness of interventions for substance abuse, addiction, and chronic illnesses.	E
3	Develop effective communication skills for healthcare interactions.	C
4	Analyse the application of health psychology principles in public health initiatives.	An
5	Apply ethical principles in health psychology practice.	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1			✔				
CO 2			✔				
CO 3			✔				
CO 4			✔				
CO 5			✔				

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**INTRODUCTION TO APPLIED HEALTH PSYCHOLOGY**	**12**
	1	Definition and Scope of Applied Health Psychology	4
	2	Theoretical models in health psychology (e.g., Health Belief Model, Social Cognitive Theory)	4
	3	Understanding the bio psychosocial model of health and illness	4
2		**STRESS- HEALTH BEHAVIOURS AND LIFESTYLE CHANGE**	**14**
	1	Physiological and psychological effects of stress	4
	2	Stress management techniques (e.g., relaxation, cognitive restructuring)	4
	3	Promoting physical activity, healthy eating, and smoking cessation	4
	4	Strategies for managing substance abuse and addiction	2
3		**CHRONIC ILLNESS AND ADJUSTMENT**	**12**
	1	Psychological impact of chronic diseases (e.g., diabetes, cancer)	4
	2	Coping mechanisms and enhancing patient well-being	4
	3	Enhancing quality of life in chronic illness through psychological interventions	4
4		**DESIGNING HEALTH PROMOTION INTERVENTIONS**	**12**
	1	Principles of effective health promotion programs	4
	2	Behavior changes techniques and interventions	4
	3	Cultural competence and diversity considerations in health promotion	4
5		**TEACHER SPECIFIC / RELATIVE EXPERIENCE**	**10**
		Communication and Ethical Issues in Health Psychology	

	Effective communication with patients and healthcare professionals	
	Cultural considerations in health communication	
	The role of health psychology in public health initiatives	
	Informed consent, confidentiality, and ethical decision-making	

Essential Readings:

1. Kenrick, D. T., & Gutierres, S. E. (Eds.). (2018). Applied health psychology (7th ed.). Guilford Publications. (Chapters 1 & 2)
2. American Psychological Association. (2020). Stress in America. https://www.apa.org/news/press/releases/stress
3. Affleck, G., & Tennen, H. (2018). Chronic illness*. Guilford Publications. (Chapters 1 & 2)
4. Glanz, K., Rimer, R. K., & Viswanath, K. (2020). Health behavior and promotion (6th ed.). Jossey-Bass and Wiley. (Chapters 1 & 2)

Suggested Readings:

1. Engel, G. L. (1977). The need for a new medical model: A challenge to reductionism. Science, 196(4286), 129-136.
2. Taylor, S. E. (2012). Health psychology (8th ed.). McGraw-Hill Education. (Chapter 7 on Stress & Coping)
3. Lutgendorf, K. M., & Costanzo, P. R. (2003). Health psychology: Biopsychosocial interactions (4th ed.). Wadsworth/Cengage Learning. (Chapter 14 on Chronic Illness)
4. Centers for Disease Control and Prevention. (2021). Social determinants of health. Centers for Disease Control and Prevention. https://www.cdc.gov/about/sdoh/index.html

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU6SECHSC302: PROCESSING AND PRESERVATION OF FRUITS AND VEGETABLES

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
6	SEC	300-399	KU6SECHSC302	3	45

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
2	1	-	25	50	75	2

Course Description:

This course provides a comprehensive overview of the principles and practices involved in the processing and preservation of fruits and vegetables. With a focus on both theoretical knowledge and practical applications, students will explore various techniques and technologies employed in the food industry to extend the shelf life, enhance the quality, and ensure the safety of perishable produce.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understanding the characteristics and composition of different types of fruits and vegetables	U
2	Explain the processing and preservation of fruit juices	U
3	Apply the industrial method of making jam, jellies and marmalades	U, A, An, E
4	Analyse the making of pickles, chutneys, sauces with processing of tomatoes and their various products	R, U
5	Explain the drying and dehydration methods of fruits and vegetables	U

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**INTRODUCTION TO FRUITS AND VEGETABLES**		**5**
	1	Importance of fruits and vegetable	
	2	History and need of preservation; Demand, need of preservation	
	3	Method of preservation; Canning and bottling of fruits and vegetables; process of canning; factors affecting the process -time and temperature	
	4	Spoilage in canned foods, containers of packing.	
2	**FRUIT BEVERAGES AND PRODUCTS**		**5**
	1	Processing of fruit juices, spoilages	
	2	Preservation of fruit juices (pasteurization, chemically preserved with sugars, freezing, drying, tetra packing, carbonation)	
	3	Processing of squashes.	
3	**JAMS, JELLIES AND MARMALADES**		**8**
	1	Jam: Constituents, selection of fruits, processing & Technology, spoilages	
	2	Jelly: Essential constituents (Role of pectin, ratio); Theory of jelly formation, Processing; defects in jelly	
	3	Marmalade: Types, processing & technology, defects.	
	4	Dehydration of foods and vegetables: Sun drying & mechanical dehydration	
	5	Process variation for fruits and vegetables, spoilage	
	6	Effects of dehydration on fruits and vegetables (Merits/Demerits); packing and storage.	
4	**PICKLES AND SAUCES**		**7**
	1	Processing and types of pickles; causes of spoilage.	
	2	Tomato products: Selection of tomatoes, pulping	
	3	Processing of tomato juice; tomato puree; paste, ketchup; sauce and soup	

5	**TEACHER SPECIFIC/ PRACTICAL**	**20**
	Method of preservation; Canning and bottling of fruits and vegetables	
	Processing of fruit juices Processing of squashes. Jam: Constituents, selection of fruits, processing.	
	Processing of tomato juice; tomato puree; paste, ketchup; sauce and soup, Processing and types of pickles.	
	Method of preservation; Canning and bottling of fruits and vegetables	

Essential Readings:

1. Girdharilal, Siddappaa, G.S and Tandon, G.L., Preservation of Fruits & Vegetables, ICAR, New Delhi,1998
2. Manay, S. & Shadaksharaswami, M., Foods: Facts and Principles, New Age Publishers, 2004

Suggested Readings:

1. The Complete Guide to Home Canning" by USDA
2. "Food Preservation Techniques" by Julie Garden-Robinson
3. "The Art of Fermentation" by Sandor Ellix Katz
4. "Preservation and Processing of Fruits and Vegetables" by N. Thangamalar
5. "Food Processing: Principles and Applications" by Stephanie Clark and Stephanie Jung

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**35**
Continuous Comprehensive Assessment		**15**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**2.5**
b)	**Test Paper-2**	**2.5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**5**
	Total = 15 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**5**
b)	**Record**	**3**
c)	**Lab performance**	**2**
	Total = 10 marks	
Grand Total		**75**

SEVENTH SEMESTER COURSES

KU7DSCHSC401: RESEARCH METHODOLOGY AND STATISTICS

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
7	DSC	400-499	KU7DSCHSC401	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	-	-	30	70	100	2

Course Description:

This course provides an in-depth exploration of research methodology and statistical analysis. Students will learn the fundamental principles of designing research studies, collecting and analysing data, and interpreting using appropriate statistical tests. The course aims to equip students with the necessary skills to conduct empirical research and make informed decisions based on data analysis.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Define and differentiate between various research methods and designs.	U
2	Identify relevant research problems and apply appropriate methodologies	U, A
3	Create a research design and formulate research reports	C
4	Evaluate the research findings using suitable statistical tests	E
5	Apply the ethics in Home Science Research	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1							✔
CO 2							✔
CO 3							✔
CO 4							✔
CO 5							✔

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**RESEARCH METHODOLOGY, RESEARCH DESIGN, HYPOTHESIS**	**10**
	1	Research Methods- meaning, objectives, significance, characteristics	
	2	Types of research, Formulating Research questions/problems, Review of Literature Use of bibliographic databases, free reference management software- Mendeley, Zotero	
	3	Research design and sampling techniques, sample, population, Sampling techniques- Probability and non-probability	
	4	Hypothesis and variables	
2		**TOOLS/ METHODS IN DATA COLLECTION**	**15**
	1	Surveys, Questionnaire, and schedule	
	2	Interview, case study, scaling methods, reliability, and validity in research	
	3	Descriptive studies, Observational studies, experimental studies	
	4	Reliability and validity in research, data coding and editing.	
3		**ORGANISATION AND REPRESENTATION OF DATA, ACADEMIC WRITING AND ETHICS IN RESEARCH**	**15**

	1	Visualisation of data with graphs and charts	
	2	Presentation of data- Oral/Poster	
	3	Scientific writing-research articles, review articles, monographs, dissertations, reports, research proposals, Plagiarism tools	
	4	Information sheet, Informed consent	
	5	Ethics in research studies and Academic writing	

4	**STATISTICAL TESTS**		**10**
	1	Data Management, Measures of central tendency and dispersion, quartiles and percentiles, Normal Distribution and its applications	
	2	Correlation, Regression and Association of Attributes	
	3	Testing of Hypotheses- test of a statistical hypothesis, critical region, Type I error, Type II error, significance level, power of the test	
	4	Parametric and non-parametric tests	
	5	Testing of hypothesis, testing the equality of means of two populations, testing the hypothesis that proportion has a specified value, testing the equality of proportions of two populations, chi-square test, F test, ANOVA concepts, ANOVA-single factor Non-parametric chi-square test- testing goodness of fit, independence of attributes, homogeneity of proportions.	

5	**TEACHER-SPECIFIC / RELATED EXPERIENCE**	**10**
	To identify a relevant research problem and create a research proposal for carrying out the research. Identifying aims/objectives, research design, tools, methodology for the conduct of this research study.	

Essential Readings:

1. Kothari, C. R. Research Methodology – methods and techniques, 3rd edition New age International Publishers, New Delhi, 2014
2. Kulbir Singh, Sidhu. Methodology of Research in Education, Sterling Publishers Pvt.Ltd. New Delhi,
3. Sharma, B.A. V, Prasad, R.D. and Satyanarayana, P. Research methods in Social Science, Sterling Publishers Pvt. Ltd.,
4. Wilkinson, T.S and Bhandarkar, P.L. Methodology and Techniques of Social Research, Himalaya Publishing House, Bombay.
5. Gupta, S. P. (2021). Statistical Methods, Sultan Chand & Sons. New Delhi.

Suggested Readings:

1. Creswell, J.W. & Creswell, J.D. (2018). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. Sage Publications.
2. Bhattacherjee, A. (2012). Social Science Research: Principles, Methods, and Practices. University of South Florida Scholar Commons.
3. Silverman, D. (2020). Qualitative Research. Sage Publications.
4. Bryman, A. (2016). Social Research Methods. Oxford University Press.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU7DSCHSC402: HUMAN PHYSIOLOGY AND NUTRITIONAL BIOCHEMISTRY

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
7	DSC	400 - 499	KU7DSCHSC402	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	30	70	100	2

Course Description:

Human physiology and Nutritional biochemistry are two interrelated fields that explore the fundamental aspects of how nutrients interact with the human body to maintain health and promote optimal functioning. This course provides a comprehensive overview of the biochemical processes involved in nutrient metabolism, their impact on physiological functions, and their role in human health and disease.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the fundamental principles of nutritional biochemistry, including the classification and functions of macronutrients (carbohydrates, proteins, fats)	U
2	Demonstrate a comprehensive understanding of the structure and function of major organ systems in the human body, including the cardiovascular, respiratory, digestive, endocrine, and immune systems.	R,U
3	Demonstrate knowledge of the major pathways for metabolism of nutrients and key mechanisms regulating these pathways	R,U
4	Apply the knowledge of common metabolic pathways in finding metabolic alterations	U, Ap
5	Demonstrate proficiency in conducting laboratory experiments, analysis, and interpretation of biochemical data	Ap, An

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	**UNIT**	**DESCRIPTION**	**HOURS**
1	**INTRODUCTION AND REVIEW**		**8**
	1	Introduction to Nutritional Biochemistry	
	2	Review of digestion and absorption of carbohydrates, proteins and	

		lipids	
	3	Immunology and Xenobiotics - Natural immune system, cell mediated humoral immunity, immunoglobulins and antibodies. Mode of action of antioxidants, role of free radicals in the pathophysiology of diseases	

2	**MACRONUTRIENT METABOLISM**		**13**
	1	Carbohydrates- Chemistry, classification, properties	
	2	Carbohydrate metabolism(Steps, energetics, regulation)- Glycolysis, TCA cycle, Gluconeogenesis, Glycogenesis, Glycogenolysis, Cori's cycle, HMP pathway. Electron Transport Chain, Biosynthesis of Vitamin C	
	3	Lipids- Chemistry and classification, fatty acids, phospholipids, steroids, eicosanoids	
	4	Lipid metabolism- Lipogenesis, βoxidation of fattyacids(palmitic acid), biosynthesis of cholesterol	
	5	Protein – Chemistry, classification, properties	
	6	Metabolism- transamination, deamination, decarboxylation Amino acid metabolism- essential and non-essential Urea cycle	

3	**BLOOD AND MAJOR ORGAN SYSTEMS**		**13**
	1	Composition and functions of blood	
	2	Circulatory system- Structure of heart, physiology and properties of cardiac muscle, cardiac cycle, heart sounds, ECG	
	3	Digestive System- Structure, functions, secretions, movements of gastrointestinal tract Liver – functions, secretion,	
	4	Respiratory System- Mechanism of respiration, exchange and transport of gases, respiratory volume	
	5	Excretory System – Physiology of kidney, urine formation, micturition, artificial kidney	
	6	Endocrine System – hormones of pituitary, thyroid, parathyroid, adrenal, sex hormones, pancreas- functions and deficiencies	

4	**BIOPHYSICAL TECHNIQUES**		**11**
	1	Separation of sugars and amino-acids by chromatography, Electrophoretic separation of protein	

	2	Colorimetry, spectrophotometry & radioimmunoassay (Principle & Procedure) Atomic absorption spectroscopy and flame photometry (Principle & Procedure), PCR (Principle & Procedure)	
	3	Radio isotopes in clinical diagnosis Biomarker enzymes: Heart, liver and kidney	

5	**TEACHER-SPECIFIC/ PRACTICAL**	**30**
	1. Qualitative analysis of carbohydrates- glucose, fructose, sucrose, Qualitative analysis of protein	
	2. Qualitative analysis of lactose in milk, vitamin c in chillies, calcium in ash solution	
	3. Analysis of blood for - a) Glucose b) Haemoglobin c) Cholesterol d) Serum A/ G ratio and total protein	
	4. Analysis of urine for a) Creatinine b) Urea c) VitaminC d) Glucose	

Essential Readings:

1. Chatterjea, M. N and Shinde, R. Textbook of Medical Biochemistry, 2012, 8 th edition. JayPee Brothers. Medical Publishing Pvt Ltd. New Delhi.
2. Lehninger, A.L, Nelson, D.L and Cox,M.M. Principles of Biochemistry.2017, 7th edition.CBS Publishers,Jain Bhavan, BhalaNatu Nagar.
3. Harold Varley, Practical Clinical Biochemistry. 6th edition, 2010, CBS Publishers& Distributors, New Delhi.
4. Murray, Bender, Botham, Kennelly, Rodwell, and Well . Harper's Illustrated Biochemistry. 2018, 31st Edition) McGraw Hill Publishers, ISBN-13:978-0-07-176576-3) http://accessmedicine.mhmedical.com/book.aspx?bookid=389)
5. Satyanarayana U and Chakrapani U, Biochemistry .2020. 5th revised edition, Books & Allied (P) Ltd
6. Vasudevan DM and Sreekumari S. Textbook of Biochemistry (for Medical students). 2013, 7th edition, Jaypee Brothers Medical Publishers (P) Ltd., New Delhi.
7. Gropper SS, Smith, JL, and Groff JL . Advanced Nutrition and Human Metabolism,2018. 7 th Edition, Wadsworth Publishing Co Inc;

Suggested Readings:

1. Conn,E,E., Stumpf PK, Bruening,G. andDoi,R.H.5th edition. Outlines of Biochemistry, John Wiley and Sons.
2. Devlin, T.M. 4th Ed.Text book of Biochemistry with Clinical Correlaions, Wiley Liss Inc.
3. Biochemistry" by Jeremy M. Berg, John L. Tymoczko, and Lubert Stryer

4. The Chemistry of Vitamin and Coenzyme Function" by Nelson and Cox.
5. Principles of Biochemistry" by Albert Lehninger, David L. Nelson, and Michael M. Cox
6. Clinical Biochemistry: Metabolic and Clinical Aspects" by William J. Marshall and Márta Lapsley
7. Biochemistry" by Jeremy M. Berg, John L. Tymoczko, and Lubert Stryer

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU7DSCHSC403: ADVANCED HUMAN NUTRITION

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
7	DSC	400-499	KU7DSCHSC403	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	

3	1	-	35	65	100	2

Course Description:

This course is designed to introduce students to the functional aspects of nutrients in the diet. A strong emphasis will be placed on the aspects of physiology and biochemistry including digestion, absorption, assimilation and excretion of carbohydrates, fats and proteins. An understanding of these principles will enhance the student's ability to predict, diagnose and treat conditions associated with various states of disturbed metabolism.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the multifaceted role of each nutrient in the human body	U
2	Understand the techniques of determining energy expenditure in individuals	U
3	Analyze and explain the requirements of each nutrient	An
4	Develop knowledge in the digestion and assimilation of nutrients and consequences of malnutrition	An
5	Relate human nutrition to the maintenance of health and the prevention of disease	An

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**ENERGY & CARBOHYDRATES**	**10**
	1	Energy content of food, energy measurement, direct and indirect calorimetry, basal metabolism, physical activity, specific dynamic actions of food, total energy requirements, energy balance.	
	2	Carbohydrates- Functions, digestion, absorption, transport, storage, homeostasis, deficiency, toxicity; Dietary fibre -nutritional importance, types, sources.	
2		**PROTEINS, AMINO ACIDS & LIPIDS**	**15**
	1	Protein- Functions, digestion, absorption, transport	
	2	Protein turnover, nitrogen balance, obligatory nitrogen losses, current methodology for determining protein and essential amino acid requirements, RDA	
	3	Evaluation of Protein Quality- BV, DC, PER, NPR, NPU, chemical score, NDP Cal%, PDCAAS,DIAAS	
	4	Supplementary value of Proteins, Novel Protein Foods, improvement of nutritional quality of vegetarian diet	
	5	Lipids- Functions, digestion, absorption, transport, Lipids transformation in the liver, lipotropic factors, lipoproteins, role of essential fatty acids, deposition of fats in the body. Effects of deficiency and excess of fats.	
3		**WATER, MACRO ELEMENTS AND MICRO ELEMENTS**	**10**
	1	Distribution of water, functions, requirements, sources, water balance and its regulation	
	2	Hazards of hypo and hyper hydration	
	3	Macro elements-Calcium, Phosphorous- Concentration in the body, Functions in human health, absorption, transport, storage, homeostasis, calcium-phosphorous ratio, deficiency, toxicity, RDA	
	4	Microelements- Fluorine, Iodine, Iron- Concentration in the body, Functions in human health, absorption, transport, storage, homeostasis, deficiency, toxicity, RDA	

4	**FAT SOLUBLE VITAMINS AND WATER SOLUBLE VITAMINS**		**10**
	1	Classification, physiological action, transport, absorption, storage, deficiency diseases and toxicity	

5	**TEACHER SPECIFIC/ PRACTICALS**	**30**
	1. Calculating BMR 2. Survey of high fibre products in the market 3. Planning suitable dishes for supplementary feeding programmes based on protein quality. 4. Nutrient Estimation of the following in various food samples: a. Calcium b. Iron c. Phosphorous d. Vitamin C	

Essential Readings:

1. Gibney, M.J., Lanham- New, S.A., Cassidey, A. and Vorster H.H. (2009). Introduction to Human Nutrition, Second Edition, The Nutrition Society Textbook Series, Blackwell Publishing.
2. Bajaj, J. S. Insulin and Metabolism, Elsevier North Holland Inc., 53, Vanderbilt Ave, New York.
3. Mahtab, S, Bamji, Kamala Krishnasamy, Brahmam, G.N.V. (2012)Text Book of Human Nutrition, Third Edition, Oxford and IBH Publishing Co. P. Ltd., New Delhi.
4. Raghuramulu N., Madhavan Nair K and Kalyanasundaram S (2003)A manual of laboratory techniques,NIN,Hyderabad.
5. Satyanarayana, U. and Chakrapani, U.(2018)Biochemistry.7th edition. Elsivier/ Books and Allied.
6. Davidson, S. passmore, R. Brook, J. F. and Truswell. Human Nutrition and Dietetics, The English language book society and Churchill, Livingston, 1975.

Suggested Readings:

1. Sunetra Roday (2017). Food Science and Nutrition, Oxford University Press, New Delhi.
2. Srilakshmi, B. (2017) Nutrition Science, New Age International (P) Ltd., New Delhi.
3. Gray and Hill, S. The complete Handbook of Nutrition, Robert Spell and Sons Publishers Inc. New York, USA, 1972.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU7DSCHSC404: ARTIFICIAL INTELLIGENCE (AI) IN NUTRITIONAL HEALTH

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
7	DSC	400-499	KU7DSCHSC404	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	0	-	30	70	100	2

Course Description:

This course helps to understand the intersection of AI and nutrition and fosters collaboration between professionals in diverse fields, such as computer science, nutrition, and healthcare, promoting interdisciplinary approaches to addressing complex health

challenges. As AI continues to play an increasingly prominent role in healthcare and nutrition, students equipped with knowledge in this area are better prepared to adapt to and capitalize on future trends, ensuring their relevance and success in the field.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the impact of nutrition on physical and mental well-being	U
2	Analyze the applications of Artificial Intelligence (AI) in Nutrition	An
3	Apply popular Diet Apps and Free AI Tools for Nutritional Assessment	A
4	Critically evaluate emerging trends in AI and nutrition research	E
4	Apply knowledge in practical assignment	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**IMPORTANCE OF NUTRITIONAL HEALTH**		**15**
	1	Role of nutrition in human health-optimal growth & development,	2

		disease prevention	
	2	Impact of nutrition in physical & mental health- Importance of macronutrients (Carb, protein & fats) for physical activity & metabolic process, impact of specific nutrients (omega 3 FA, B vitamins) that support brain health & emotional wellbeing	8
	3	Strategies for healthy eating-Balanced plate, Mindful eating habit	3
	4	Role of stakeholders and community organizations in promoting nutritional health at the population level.	2

2	**APPLICATION OF ARTIFICIAL INTELLIGENCE IN NUTRITION & HEALTH**		**15**
	1	Introduction to AI in nutrition & health	2
	2	Application of AI in nutrition- analyzing dietary intake, biomarkers, creating personalized meal plans, offering food analysis and labelling	6
	3	Application of AI in healthcare: Clinical decision, Remote monitoring and telehealth, Healthcare operations and administration, Healthcare robotics	7

3	**POPULAR DIET APPS/ FREE AI TOOLS IN NUTRITIONAL ASSESSMENT**		**15**
	1	Popular Diet Apps/ free AI Tools in nutritional assessment- Open Food Facts, Cronometer, MyfitnessPal, Lifesum	5
	2	Concepts of personalized nutrition and its significance in healthcare	5
	3	Role of AI in developing personalized nutrition plans based on individual characteristics and preferences	5

4	**FUTURE DIRECTIONS & CHALLENGES**		**5**
	1	Emerging trends in AI and nutrition research	2
	2	Challenges and opportunities in integrating AI tools into routine nutritional assessment and counselling practices	3

5	**TEACHER SPECIFIC/ RELATED EXPERIENCE**	**10**
	Explore AI tools like Open Food Facts, Cronometer, MyFitnessPal, and Lifesum.	
	Develop personalized nutrition plans using AI tools based on individual characteristics and preferences.	
	Discuss challenges and opportunities in integrating AI tools into routine nutritional assessment and counseling practices.	
	Group Discussion-Impact of macronutrients (Carb, protein & fats) and	

	specific nutrients (omega 3 FA, B vitamins) on physical and mental health.	

Essential Readings:

1. Bohr, A., García Moros, J., & Ahuja, A. (2020). Artificial Intelligence in Healthcare. Academic Press Publisher.
2. Nolan, K. J., & Heslin, J.-A. (2011). Nutrition Data: Facts and Figures for Foods and Recipes. Pocket Books Publisher.
3. Warshaw, H. S., & Kulkarni, K. (2005). The Complete Guide to Carb Counting. American Diabetes Association Publisher
4. Topol, E. (2011). Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again. Book House Publisher.

Suggested Readings:

1. https://aiinhealthcare.com/
2. https://healthcareai.news/
3. https://www.healthcareitnews.com/

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU7DSEHSC405: PUBLIC HEALTH NUTRITION

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
7	DSE	400-499	KU7DSEHSC405	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	-	-	30	70	100	2

Course Description:

This course aims to provide a comprehensive overview of Public Health Nutrition, emphasizing the concept, importance, and challenges in the context of India. It covers various units to equip students with knowledge about prevalent public health problems, assessment techniques, and strategies for intervention and prevention.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Explain food and nutrition security in India and apply the ABCD technique and conduct different types of dietary assessments in community settings.	E
2	Identify the epidemiology of nutritional disorders.	A
3	Evaluate the strategies of nutrition intervention programs.	E
4	Describe national and international organizations for combating malnutrition.	U
5	Examine the nutritional status of a community to combat nutritional disorders.	An

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔					✔	✔
CO 5	✔				✔	✔	✔

COURSE CONTENTS

Contents for Classroom Transaction:

Module	Units	Course Description	Hours
1	**COMPREHENSIVE OVERVIEW OF HEALTH AND NUTRITION IN INDIA: SYSTEMS, ASSESSMENTS**		**12**
	1	Definition – Health, Community health. Health care delivery system at central, state and district level	1
	2	Hunger in India, Global Hunger Index. India State hungerIndex (based on current statistics).	1
	3	Food and nutrition security in India – production, availability and consumption of food in India. (based on current statistics)	1
	4	Nutritional Assessment – importance, objectives Direct assessment- Anthropometry: height, length, weight,MUAC, waist circumference, WHR, skin fold measurements	3
	5	Biochemical assessment for nutritional deficiencies Clinical assessment of nutritional disorders	2
	6	Dietary assessment: family diet survey, individual diet survey, quantitative diet surveys, institutionalized surveys, food balance sheet	2
	7	Indirect assessment – mortality and morbidity rates	2
	EPIDEMIOLOGY AND NUTRITIONAL DEFICIENCIES: PREVALENCE, PREVENTION, AND MANAGEMENT		**13**
	1	Epidemiology – definition, aims, uses, types, epidemiologicalstudy methods.	2
	2	PEM – prevalence, types, aetiology, clinical symptoms, consequences, prevention and management.	2

2	3	Vitamin A deficiency – epidemiology, aetiology, clinical symptoms, consequences, intervention strategies for preventing vitamin A deficiency disorders (VADD).	2
	4	Iron Deficiency Anaemia– prevalence, epidemiology, aetiology, approaches for prevention and control of anaemia: National Nutritional Anaemia Control Programme.	1
	5	Iodine deficiency disorders – epidemiology, aetiology, consequences, Iodine deficiency Disorders Control Programme of India. Zinc deficiency – epidemiology, aetiology, clinical manifestations of zinc deficiency, zinc supplementation in pregnancy.	3
	6	Non-communicable chronic disorders - epidemiology, prevalence, control measures of – Diabetes, Hypertension, CHD, Obesity, Cancer.	3
3	**NUTRITION POLICIES AND PROGRAMS**		**12**
	1	National Nutrition Policy Preschool feeding programme, Integrated Child Development Services (ICDS), Mid-Day Meal Programme (MDM) Special Nutrition Programme (SNP), Wheat-Based Supplementary Nutrition Programme (WNP), Applied Nutrition Programme (ANP), National Nutritional Anaemia Prophylaxis Programme (NNAPP), Balwadi Nutrition Programme (BNP), Food & Nutrition Board (FNB), National Iodine Deficiency Disorder Control Programme (NIDDCP	4
	2	National Program for Prevention of Blindness due to Vitamin A Deficiency	2
	3	International organizations concerned with food and nutrition: FAO, WHO, UNICEF, CARE, AFPRO, CWS, CRS World Bank and others.	2
	4	National organizations concerned with Food and Nutrition: ICMR, ICAR, CHEB, CSWB, SSWB	2
	5	Economics of Nutrition: Malnutrition and its economic consequences; Economics in Nutrition – Food security, food production and food pricing.	2
4	**PRACTICAL APPROACHES TO CHILDHOOD NUTRITION**		**8**
	1	Assessment of nutritional status of pre-schoolers	2

	2	Use and interpretation of Growth Charts	2
	3	Preparation of low cost recipes-low cost recipes, cyclic menu and one-dish meal	2
	4	Planning and implementation of a nutrition and health education programme in the community.	2
5	**TEACHER SPECIFIC / PRACTICAL**		**30**
	This content will be evaluated internally) Practical sessions, Classroom Teaching, Field visits etc.		
	Develop and prepare low-cost, nutritious recipes.		
	Design cyclic menus and one-dish meals suitable for preschoolers and low-income families		
	Practice plotting and interpreting growth charts for pre-school children.		
	Plan and implement a nutrition and health education program for a community.		
	Conduct field visits to local ICDS centers, mid-day meal schemes, or other nutrition programs to observe their implementation and impact.		

Essential readings:

1. Maurice B Shils ,MosheShike. A, Catherine Ross, Benjamin Cabellero, Robert J Cousins, Lippincott Williamsal Wilkins (2006). Modern Nutrition in Health and Disease, Lippincott Williams and Wilkins Publishers.
2. Sheila Chander Vir (2011). Public Health Nutrition in Developing Countries, Part I & II, Woodhead Publishing India.
3. Gulani, K.K. 2005. Community Health Nursing. 1st Edition. Kumar Publishing House. New Delhi. Pp – 662 to 664.
4. Gupta M.C., Mahajan B.K. 2003. Textbook of Preventive and Social Medicine. Third Edition. Jaypee Brothers Medical Publishers. New Delhi. India. Pp- 355-357.
5. IGNOU (2017), https://egyankosh.ac.in.

Suggested Reading

1. Kishore J. 2007. National Health Programmes of India. 7th Edition Century Publication. New Delhi.Pp- 340-361.
2. Oxford textbook of Public Health Ed. Roger Detels, James Mcewen, Robert Beaglehole, and Heizo Tanaka Oxford University Press (OUP) 4th Edition: 2002.

3. Public Health at the Crossroads – Achievements and Prospects. Robert Beaglehole and Ruth Bonita 2nd Edition Cambridge University Press

4. Maxcy-Rosenau-Last Public Health & Preventive Medicine, Fourteenth Edition Ed Robert Wallace, MD, et al.

5. Epidemiology and Management for Health Care: Sathe , P.V. Sathe, A.P., Popular Prakashan, Mumbai, 1991

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU7DSEHSC406: ADVANCED FOOD SCIENCE

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
7	DSE	400-499	KU7DSEHSC406	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

This course covers advanced principles of food science, characteristics and properties of food and provides an in-depth exploration of the physico-chemical properties of key food components, including water, starch, sugars, proteins, fats, oils, pectic substances, plant pigments, and spices. Students will gain an understanding of how these components interact

and affect food systems, focusing on both theoretical concepts and practical applications in food science and technology. The course also includes hands-on laboratory exercises to reinforce and apply the concepts learned in lectures.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the physico-chemical changes that occur in food.	U
2	Understand the chemistry and explain properties of carbohydrate, protein and lipids in relation to cookery.	U
3	Understand the chemistry of pectic substance, plant pigments, spices and condiments	U
4	Acquire practical skills to understand the properties of food components.	A
5	Develop nutritious products with better properties.	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	**UNIT**	**DESCRIPTION**	**HOURS**
1	**PHYSICO- CHEMICAL PROPERTIES OF FOOD**		**10**
	1	Physical properties of water – role of water in food systems, bound	

		water in food products, water activity in foods.	
	2	Determination of moisture content in foods	
	3	Colloidal systems in food- True solutions and colloids, types and properties of colloids.	

2	**CHEMISTRY OF STARCH AND SUGAR**		**11**
	1	Starch: components and characteristics of food starches. Native and modified starches and their applications, effect of dry and moist heat on starch. Gel formation, factors affecting gelatinization, retrogradation, syneresis.	
	2	Food Polysaccharides: algal polysaccharides; seed gums, exudates gums, microbial polysaccharides.	
	3	Sugar and sugar products- Types of sugar used in cookery, stages of sugar cookery. Types of sweeteners. Crystallization of sugar and factors affecting. Types of candies.	
	4	Chemistry of milk sugar, non-enzymatic browning.	

3	**CHEMISTRY OF PROTEINS AND FATS**		**13**
	1	**Protein-** Structure and composition, structure of proteins and forces involved in protein conformation.	
	2	Functional properties of proteins in foods.	
	3	Components of wheat protein and structure.	
	4	Gluten formation and factors affecting. Denaturation of protein and factors affecting. Egg white foam formation, stages and factors affecting.	
	5	Role of proteins in food products; Texturized vegetable protein, protein concentrates.	
	6	**Fats and oil-** Structure, composition and classification. Properties of lipids.	
	7	Hydrogenation, winterization, flavour reversion, smoking point, Rancidity-Types, Mechanism and prevention	
	8	Role of fat/oil in food products; Factors affecting fat absorption of foods. Fat substitutes.	

4	**CHEMISTRY OF PECTIC SUBSTANCE, PLANT PIGMENTS, SPICES AND CONDIMENTS**		**11**
	1	Pectins, phenolic compounds, enzymatic browning in fruits and vegetables.	
	2	Types of plant pigments, effect of acid and alkali,	

	3	Types and active principles of spices and condiments.	

5	**TEACHER SPECIFIC/PRACTICAL**	**30**
	1. Egg white foam formation and factors affecting.	
	2. Gelatinisation of starch, microscopic examination of starch.	
	3. Stages of sugar cookery.	
	4. Preparation of fondant, fudge, caramel, toffee	
	5. Gluten formation	
	6. Changes observed in cooking meat, testing the tenderness of meat.	
	7. Smoking point temperature of different oils, factors affecting absorption of fats.	
	8. Effect of acid and alkali on vegetable pigments	
	9. Enzymatic browning and prevention methods.	

Essential Readings:

1. Bowers, J (1992): Food Theory and Applications, 2nd MacMillan Publishing Co., New York. Charley, H (1982): Food Science, 2nd Edition, John Wiley & Sons, New York.
2. Khader V.(2001) Text book of Food Science and Technology, Published by Directorate of Knowledge Management in Agriculture Indian Council of Agricultural Research Krishi Anusandhan Bhavan-I, Pusa New Delhi.
3. Peckham, G and Freeland-Graves, G.H (1979): Foundations of Food Preparation
4. Pomeranz, Y (1991): Functional Properties of Food Components, 2nd Edition, Academic Press, New York.
5. Potter, N. and Hotchkiss, J.H (1996): Food Science, 5th Edition, CBS Publishers and Distributors, New Delhi.
6. Srilakshmi B., (2003), 'Food Science", New Age International.

Suggested Readings:

1. Journal of Food Science
2. Advances in Food Research
3. Journal of Food Science and Technology
4. Cereal Science
5. Journal of Dairy Science

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU7DSEHSC407: EARLY DEVELOPMENTAL STIMULATION

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
7	DSE	400-499	KU7DSEHSC407	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	-	-	30	70	100	2

Course Description:

This course aims to familiarize learners with developmental milestones from multiple perspectives, enabling them to identify potential developmental delays in children.

Additionally, it will equip participants with the skills to design developmentally appropriate learning experiences tailored to each child's needs. By understanding the stages of physical, cognitive, emotional, and social development, learners will be better prepared to support children's growth holistically. The course will also emphasize the importance of early intervention and provide strategies for creating inclusive educational environments that cater to diverse developmental profiles.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Explain the developmental milestones in all domains, and understand these milestones from various developmental perspectives.	U
2	Appraise the importance of developmental stimulation in early years.	An
3	Examine the effectiveness of various newborn stimulation techniques and choose safe toys and objects for effective developmental play.	E, A
4	Understand and apply various therapies for children with developmental delays, recognize the importance of early stimulation programs,	U, A
5	Identify developmental delays in children and create suitable learning activities by understanding developmental milestones	C

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1			√				
CO 2			√				
CO 3			√				
CO 4			√				
CO 5			√				√

COURSE CONTENTS

Contents for Classroom Transaction:

Module	Units	Course Description	Hours
1	**DEVELOPMENTAL MILESTONES AND THEIR SIGNIFICANCE**		**15**
	1	Definition. Physical and Motor, Intellectual, Social & Emotional, Language milestones	8
	2	Developmental milestones in developmental perspectives	4
	3	Significance of milestones on the overall development	3
2	**EARLY DEVELOPMENTAL STIMULATION**		**10**
	1	Definition, Importance, and benefits of stimulation for infants	4
	2	Role of parents- Mother the key stimulator, Safety Measures to be taken while giving stimulation	3
	3	Identifying developmental delays in infants and toddlers	3
3	**NEW-BORN STIMULATION**		**11**
	1	New-born stimulation at home, baby massage	3
	2	Touch therapy and its effects on infants, Mothers clinical touch, Importance of touch for development in infancy	4
	3	Toys, objects, and play as sources of stimulation, safety measures while selecting toys	4
4	**EARLY STIMULATION PROGRAMMES**		**14**
	1	Visual, auditory, tactile and kinaesthetic stimulation for infants and toddlers.	3
	2	Sensory integration therapy, occupational therapy, speech therapy for children with developmental delays	4
	3	Importance of early stimulation programmes for the development of children	3
	4	Planning and implementation of a nutrition and health education programme in the community.	4
5	**TEACHER SPECIFIC / RELATED EXPERIENCE**		10
	1	Visit, observe and report activities of any 2 early intervention centres	
	2	Conduct an awareness programme for rural/ urban mothers on importance of early developmental stimulation	
	3	Prepare aids (one each) suitable for visual, auditory, tactile and kinaesthetic stimulation in children.	

	4	Observe and study the early intervention approaches adopted to children with developmental delays (Occupational therapy, sensory integration, speech therapy	

Essential reading:

1. Marshall, J and Stuart S (2001) Child Development, Heinemann Educational Pub.
2. Minett, P. (2005). Child Care & Development, 5th Ed. John Murray Pub. Ltd.
3. Nair, M.K.C (2004). Module on Early Stimulation, CDC, Medical College, Tvm.
4. Berk, L.E (2014), Child Development (7th edition) PHI learning Ltd, New Delhi.
5. Patterson, C.J (2009) Infancy and Childhood (McGraw Hill), New York.
6. Bee, H., & Boyd, D. (2004). The Developing Child (10th ed.). Singapore: Pearson Education Pvt. Ltd.
7. Hurlock, E.B. (2012). Child Development (6th ed.). New Delhi: Tata McGraw Hill Pvt. Ltd.

Suggested Reading

1. Illingworth, R.S. (2021). The Development of the Infant and Young Child: Normal and Abnormal (7th edition). Churchill Livingstone. Edinburgh, London and New York.
2. Grey, M. (2009). Sensible Stimulation: The Key to Your Child's Development During the First Three Years of Life. Metz Press.
3. Santrock, J.W. (2011). Child Development (13th ed.). New Delhi: McGraw Hill Education India Pvt. Ltd

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU7DSEHSC408: URBAN AND RURAL DEVELOPMENT

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
7	DSE	400-499	KU7DSEHSC408	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	-	-	30	70	100	2

Course Description:

The course enlightens students on the challenges faced by the ever-increasing population in both rural and urban areas that present severe problems of scarcity of resources such as water, housing, power, transport etc. drawing immediate attention for bringing in appropriate solutions for the resultant environmental pollution degradation and decay. The course deliberates an overall picture of the current scenario of rural, urban and tribal development and the governmental initiatives, programmes and policies towards rural, urban and tribal upliftment.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand in detail and analyse on the history as well as the timeline initiatives on Rural Development. Comprehend on Poverty Alleviation Programmes and associated women-centred initiatives. An overall understanding of the concept of rural women empowerment as a strong base for rural upliftment and poverty alleviation	U, An
2	Gain understanding of rural communication-Concept, characteristics, functions, barriers and challenges and a closer understanding of how community radio and community TV weaves into the lives of rural folks in bringing them together for upliftment. Impact of PRI	U, An, A
3	Get an impression of the concept, nature and scope of urban development, theories associated with urban development, urban inequalities and its consequences. Address urban poverty	U, An
4	Attain knowledge on the concept, definition and objectives of Tribal Studies and the different approaches to tribal development.	U, An

	An insight into the challenges, opportunities on their development and sustainability	
5	Develop competencies in translating the knowledge gained to practice strategies aimed at effecting development in urban, rural and tribal areas.	U, A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1					✔		
CO 2					✔		
CO 3					✔		
CO 4					✔		
CO 5					✔		

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**RURAL DEVELOPMENT AND RURAL POVERTY ALLEVIATION PROGRAMMES**		**15**
	1	History of Rural Development in India, Timeline initiatives and efforts on rural upliftment. Rural Development Programmes in India-an overview	
	2	Current Poverty Alleviation Programmes for rural areas, Women-centred initiatives for Poverty Alleviation- Self-help Groups, Micro Finance, Women's' Cooperatives, Health and Nutrition Programmes, Technology Adoption- women's access to ICT	
	3	Rural Women Empowerment-Policies and Programmes	

2	**RURAL COMMUNICATION**		**10**
	1	Rural Communication-Concept, Characteristics and Scope. Functions of rural communication and Challenges. Community Radio and TV	
	2	Impact of PRI in Rural Development and Governance	

3	**URBAN DEVELOPMENT**		**15**
	1	Urban Development-Definition, Nature and Scope, Theories of Urban Development- Classical, Modern	
	2	Challenges and consequences of Urban inequalities	
	3	Addressing Urban Poverty- Current initiatives and programmes for poverty mitigation, Social Security Programmes for Urban areas - Deendayal Antyodaya Yojana-National Urban Livelihoods Mission (DAY-NULM) Pradhan Mantri Awas Yojana (Urban) Atal Mission for Rejuvenation and Urban Transformation (AMRUT)	

4	**TRIBAL DEVELOPMENT**		**10**
	1	Tribal Studies- Concept, Definition. Approaches to Tribal Development, Challenges and Opportunities for Economic Development of Indigenous Societies and their Sustainability	
	2	Pradhan Mantri Van Dhan Yojana, Tribal Research Institutes, Eklavya Model Residential Schools, Tribal Repository, Tribal Digital Document Repository. Adverse impact of Tribal Developmental Efforts- Discontent, Resistance, Marginalisation, Exclusion, Others	

5	**TEACHER SPECIFIC/RELATED EXPERIENCES**	**10**
	1. Collect factual data and conduct classroom presentation on various parameters of rural and urban development	
	2. Conduct an awareness drive through skits/stage plays on the recent trends and programmes for rural urban and tribal upliftment	
	3. Organise Quiz programmes/ Talks/ Discussions on various aspects of Rural, Urban and Tribal upliftment	

Essential Readings:

1. Rural Development: Principles, Policies and Management, Katar Singh and Anil Shishodia, Sage Publications, 2009
2. Urban and Rural Developments: Perspectives, Strategies and Challenges, Vivian Fletcher (Editor)2016, ISBN: 978-1-63485-083-4
3. Panda N K 'Policies Programmes and Strategies for Tribal Development', 2006, Gyan Publishing, Delhi.
4. Tribal Studies in India: Perspectives of History, Archeology and Culture, 2019, Behre, M. C, Springer Nature, Singapore
5. Frontiers of urban and rural planning, E-ISSN – 2371- 6661

Suggested Readings:

1. Sustainable Urban and Rural Development, ISSN 2071-1050, https://www.mdpi.com/journal/sustainability/sections/urban_and_rural_development
2. Journal of rural development, ISSN: 0970-3357, National Institute of Rural Development and Panchayati Raj, Hyderabad
3. Tribal Studies Journal, Council of Tribal Analytical Studies, Odisha, ISSN :2321 – 3396
4. Journal of Adivasi and Indigenous Studies (JAIS) Peer Reviewed Journal, Published by Asoka Kumar Sen, Jharkhand.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU7DSEHSC409: LANDSCAPE GARDENING

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
7	DSE	400-499	KU7DSEHSC409	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	0	-	30	70	100	2

Course Description:

The three important values that can be learnt from taking care of plants are patience, planning and ownership. Each of these forms the cornerstones of a strong and successful personality. Landscape gardening is a stress buster that can help to lower stress. It can help to recuperate and bounce back after a stressful event. The Landscape gardening course introduces students to the elements and principles to be followed while setting a garden. It also gives insights into the various components of landscape gardening as well as the types of garden. The course inculcates knowledge on the care of gardens which is an indispensable component for maintaining a healthy garden**.**

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Define landscape gardening and articulate its key concepts and principles, including its importance and foundational elements.	U
2	Understand and apply the elements and principles of landscaping while designing a garden.	U
3	Understand the components and care of the garden.	U
4	Analyse the principles used in a landscaped area.	A
5	Create different types of garden	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1					✔		
CO 2					✔		
CO 3					✔		
CO 4					✔		
CO 5					✔		

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**INTRODUCTION TO LANDSCAPE GARDENING**	**10**
	1	Landscape gardening - definition and concept.	
	2	Importance of landscape gardening	
	3	Elements of landscape gardening	
	4	Principles of landscape gardening	
2		**COMPONENTS OF LANDSCAPE GARDENING**	**12**
	1	Hardscaping– definition Elements of hardscaping - walkways, driveways, patios, decks, pergolas, swimming pools, fountains, stone benches, sheds, gazebos, pergolas, arbors , trellises and gates.	
	2	Softscaping – definition. Components of softscaping - soil, trees, hedges, ground covers, flower beds, vines and shrubs and topiary	
3		**TYPES OF GARDEN**	**13**
	1	Water garden	
	2	Rock garden	
	3	Water garden	
	4	Butterfly garden	
	5	Vertical garden	
	6	Woodland garden	
	7	Kitchen garden	
4		**CARE OF THE GARDEN**	**15**
	1	Irrigation	
	2	Application of fertiliser	

	3	Removal of weeds	
	4	Mulching	
	5	Staking	
	6	Pruning	
	7	Protection from pests and diseases	

	TEACHER-SPECIFIC / RELATED EXPERIENCES	**10**
	Collection of pictures/photographs of different types of garden	
	Visit to a residence to observe the landscaping and evaluate it on the basis of the principles of design.	
5	Preparation of a small/medium/large garden layout using CAD	
	Collection of pictures/photographs of different types of garden	
	Visit to a residence to observe the landscaping and evaluate it on the basis of the principles of design.	
	Preparation of a small/medium/large garden layout using CAD	

Essential Readings:

1. Richard . N. Arteca .(2015), Introduction to Horticultural Science, Cengage learning.
2. Nina Greene.(2014) Garden Styles: Introduction to 25 Garden Styles, Speedy publishing LLC.
3. V.L. Sheela(2011), Horticulture, MJP Publishers,Chennai.

Suggested Readings

1. Deena Beverley(2004) Practical Gardening, Paragonbook,UK
2. K.Manibhushan Rao, 2005, Textbook of Horticulture, Mac Millan India Ltd, NewDelhi.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU7DSEHSC410: FOOD SAFETY AND QUALITY CONTROL

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
7	DSE	400-499	KU7DSEHSC410	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	-	-	30	70	100	2

Course Description:

A wide spectrum of food safety and quality management issues has to be addressed following the farm to fork approach. This course provides a comprehensive understanding of the principles and practices of food safety and quality control in the food industry. Students will explore key concepts related to microbiological hazards, chemical contaminants, foodborne illnesses, and regulatory requirements governing food safety. Students will learn how to implement effective quality management systems and control measures to ensure the safety, integrity, and compliance of food products throughout the supply chain.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	A comprehensive understanding of the principles, regulations, and practices related to food safety and quality control, encompassing microbiological, chemical, and physical aspects of food safety.	U
2	Identify and assess common microbiological hazards, chemical contaminants, and physical hazards present in food products and production environments, understanding their sources, risks, and control measures.	U,E
3	Learn to implement and evaluate food safety management systems, including Hazard Analysis and Critical Control Points (HACCP) and Good Manufacturing Practices (GMP), to ensure compliance with regulatory requirements and industry standards.	A,E
4	Understand the regulatory framework governing food safety and quality control at national and international levels, including the roles of regulatory agencies, legislation, and certification programs in ensuring food safety and consumer protection.	U

5	Develop critical thinking and problem-solving skills through case studies, simulations, and practical exercises, enabling them to analyze complex food safety and quality issues, propose effective solutions, and make informed decisions.	An,A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**FUNDAMENTALS OF FOOD SAFETY**		**15**
	1	Introduction to food safety - Hazards to safe food – contamination, spoilage, hygiene. Food Quality Indices for different foods - quality control of raw materials food safety principles – Good Manufacturing Practices (GMP), Good Hygienic Practices (GHP), Good Agricultural Practices (GAP), Good Veterinary Practices (GVP), Good retail practices, Good transport practices. Storage and distribution of food, sanitation and safety in food services – Nutrition labeling. HACCP – History, background, structure, prerequisites, principle and implementation - case studies	

2	**FOOD SAFETY MANAGEMENT SYSTEMS**		**15**
	1	Food safety management systems – Codex Alimentarius Commission – CAC, TQM - TQC– Risk analysis – Introduction – Risk management, risk assessment and risk communication. International Organization of Standardization (ISO) –PRP- Pre Requisite Programs for ISO, ISO 9000, ISO 9001:2000, ISO 22000:2005 – over view, structure,	

		interpretation, case studies. Laboratory management systems – ISO 17025 – overview and requirements - International standards for laboratory. – Retailer standards – BRC/IOP standards –Overview- International food standards	

3	**FOOD LAWS AND STANDARDS**		**10**
	1	Indian food regulations – PFA, BIS, AGMARK, FSSAI 2006 – export and import laws and regulations – International food laws- CAC – WTO implications - national and international agencies for implementation – Export and import law regulations- FTDR Act, 1992 – foreign trade policy- EU regulations. food labelling	

4	**QUALITY AUDITING AND ACCREDITATION**		**10**
	1	Auditing – concept, principles, managing of an audit programme, evaluation. Standards and accreditation – technical requirements, laboratory accreditation, NABL, APLAC, ILAC.	

5	**TEACHER SPECIFIC / RELATED EXPERIENCE**		**10**
	1. HACCP – Evaluation of food establishment and submission of report. 2. Quality auditing – Audit plan preparation and conduct of audit in food processing establishments and submission of report. 3. Evaluation of other food safety management systems in any one of the food manufacturing/ packaging/Supply chain/ retail/other areas and submission of report		

Essential Readings:

1. Batt, C.A. 2016. Chemical and Physical Hazards in Food. Ref. module in Food Sci. 1-2.
2. Desmarchelier, P. 2014. Safe handling of food in homes and food services. Food Safety Management. pp. 844.
3. Dolan, L.C., Matulka, R.A. and Burdock, G.A. 2010. Naturally occurring food toxins. Toxins. 2:2289-2332.
4. FSSAI [Food Safety and Standards Authority of India]. 2017. Training manual food safety supervisor course advance (Level 2) manufacturing.129p
5. Halde, P. and Sharma, S. 2015. Objective Food Science and Safety standards. Jain Brothers; 2nd Edition

Suggested Readings:

1. http://www.fda.gov/food/default.htm
2. https://www.fssai.gov.in

3. Wallace, C.A., Sperber, W. H. and Mortimore, S. E. 2018. Food safety for the 21st century: managing HACCP and food safety throughout the global supply chain. Wiley Publishers, USA. pp.496.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU7DSEHSC411: FOOD PROCESSING TECHNOLOGY

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
7	DSE	400-499	KU7DSEHSC411	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	-	-	30	70	100	2

Course Description:

This advanced course in food processing technology delves into the cutting-edge methods and technologies used in the production, preservation, and packaging of food products. Students will explore advanced concepts in food processing, and packaging, with a focus on improving food quality, safety, and sustainability. Through theoretical lectures, hands-on laboratory sessions, and industry case studies, students will gain a comprehensive understanding of the latest advancements shaping the food processing industry.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	A thorough understanding of advanced principles and theories in	U

	food processing technology,	
2	Able to critically evaluate and apply emerging food processing technologies such as high-pressure processing, nanotechnology, and enzyme engineering to enhance food quality, safety, and sustainability.	E,A
3	Can explore innovative packaging solutions, including active and intelligent packaging technologies, and assess their role in maintaining food quality, enhancing shelf-life, and improving consumer experience	E, A
4	Develop skills in quality assurance and food safety management, including hazard analysis and critical control points (HACCP), good manufacturing practices (GMP), and regulatory compliance, to ensure the production of safe and high-quality food products.	U, C
5	Develop professional skills and competencies necessary for successful careers in food science and food processing	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**NOVEL PROCESSING TECHNOLOGIES**		**15**
	1	Thermal and nonthermal methods	4
	2	Hurdle technology, canning technology	3
	3	Principles underlying pressure modified processing, MAP and CAP	3

	4	Effect of processing on physiochemical characteristics of foods. Losses during storage, handling and processing of different processed products	5
2	**PROCESSING TECHNOLOGIES FOR PLANT FOODS**		10
	1	Processing technology for preservation and production of variety food products during storage, handling and processing of cereals/millets and legumes, oilseeds, fruits and vegetables	10
3	**PROCESSING TECHNOLOGIES FOR ANIMAL FOODS**		**10**
	1	Processing technology for milk and milk products, egg, meat, poultry and fish	10
4	**NOVEL INGREDIENTS, PRODUCTS AND ITS PACKAGING**		**15**
	1	Convenience foods Mutual supplementation, Enrichment and Fortification- technologies	**4**
	2	Food additives commonly used in food industries and novel ingredient	**2**
	3	Establishing fruit and vegetable preservation units- Requirements - Quality control in food industry- HACCP. Waste management and sanitation in food industries	**4**
	4	Packaging of processed foods- basic packaging materials- Packaging of dairy products, dehydrated foods, frozen foods, thermally processed foods, fruit products. Storage and marketing of processed foods	**5**

5	**TEACHER SPECIFIC/ RELATED EXPERIENCE**	**10**
	1. Effect of blanching on enzymatic activity and volume occupation 2. Effect of refrigeration and freezing on quality of fruits and vegetables 3. Dehydration of fruits and vegetables 4. Preparation of fruit candy, squash, nectar, malt beverages and quality evaluation with respect to FSSAI 5. Clarification of juice using various methods (chemical, enzyme and fining agents) 6. Malting of green gram, moth bean- enzymatic activity determination 7. Preparation of Paneer and curd and its quality evaluation 8. Quality evaluation of egg and fish 9. Effect of chemical preservation on storage quality of food (bread, cake). 10. Storage of nuts and oil seeds under vacuum packaging 11. Packaging of fruits and vegetables for transportation distance market using corrugated fibre boxes 12. Industrial case studies 13. Visit to food processing unit	

Essential Readings:

1. Brennan J G. 2006. Food Processing Handbook. Wiley-VCH
2. Clark S, Jung S and Lamsal B. 2014. Food Processing - Principles and Applications. 2nd Edition, Wiley-Blackwell Publishing Company, Boston.
3. Fellows P J. 2000. Food Processing Technology. Woodhead Publishing Ltd.
4. Fellows P J. 2017. Food Processing Technology, Principles and Practice. 4th Edition, Woodhead Publishing Ltd. Cambridge.
5. Hartel R W and Heldman D. 2012. Principles of Food Processing. Aspen Publishers Inc. New York.
6. Vaclavik V. 2018. Dimensions of Food. CRC Press.
7. https://www.ift.org
8. https://www.foodsciencematters
9. https://www.ifst.org

Suggested Readings:

1. Owens G. 2001. Cereals Processing Technology. Woodhead Publishing Ltd.
2. Sivshankar B. 2002. Food Processing and Preservation. Prentice-Hall of India Pvt. Ltd. Delhi.
3. Subbalakshmi. 2001. Food Processing and Preservation. New Age International Publishers, New Delhi.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

EIGHTH SEMESTER COURSES

KU8DSCHSC412: MEDICAL NUTRITION THERAPY

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
8	DSC	400-499	KU8DSCHSC412	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

Medical Nutrition Therapy (MNT) is an advanced course designed to equip students with the knowledge and skills necessary to use nutrition as a therapeutic tool to manage and prevent various medical conditions. This course focuses on the application of nutritional science in clinical settings, integrating evidence-based practices to improve patient outcomes.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the role of nutrition in the prevention and management of chronic diseases.	U
2	Develop skills in assessing nutritional status and identifying nutritional needs of individuals.	An, E
3	Learn to create and implement nutrition care plans for patients with specific medical conditions.	A, An, E
4	Gain proficiency in using dietary modifications to manage diseases such as diabetes, cardiovascular disease, renal disease, and gastrointestinal disorders.	An, E
5	Develop communication skills to effectively counsel patients on dietary and lifestyle changes	A, An

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**INTRODUCTION TO DIET THERAPY**		**10**
	1	Meaning and scope of dietetics Role of dietician in hospital and community, Registered Dietitian, Indian Dietitians Association, Nutrition Society of India	
	2	**Hospital Diet**- The Hospital Diet- Clear fluids. Liquid diet, Soft diet, Balanced normal diet, feeding methods, Enteral and Parenteral nutrition. Commercial supplement available in the market, Nutrition Care Process	
	3	Common biochemical tests affecting nutritional needs–lipid profile, AC/PC, (fasting & post-prandial sugars), Liver Function tests, Kidney function tests	

2	**DIET IN FEVERS AND GI TRACT DISEASES**		**15**
	1	Causes, Symptoms, metabolic changes, dietary modifications in Fevers of short duration and in chronic fevers – influenza, TB, Severe Acute Respiratory Syndrome (SARS), HIV/AIDS	
	2	Disorders of the gastro intestinal Tract- Peptic ulcer, Diarrhoea, Constipation, Crohn's Disease, Ulcerative colitis, Irritable Bowel Syndrome, Diseases of the liver-Hepatitis, Cirrhosis, ESLD	

3	**DIET FOR NON COMMUNICABLE DISEASES (NCDs)**		**10**
	1	Causes, types, symptoms, dietary modifications- Diabetes, Obesity, Cancers, Cardiovascular diseases (Atherosclerosis, Myocardial Infarction, Hypertension).	
	2	Food exchange list, my plate planner, insulin carb counting, Glycemic Index, Glycemic Load, Special Diets for Obesity- Keto, Low Carb diets, Low Calorie diets, Intermittent Fasting, Post Bariatric surgery diets; Anti-carcinogenic nutritional agents	

4	**DIET FOR KIDNEY DISEASES**		**10**
	1	Kidney Diseases- causes, symptoms and dietary modifications in Glomerulonephritis, Nephrosclerosis, Kidney stones, End stage renal disease; Dialysis-types and dietary Modifications	

5	**TEACHER SPECIFIC/ PRACTICAL**	**30**
	1. Nutrition in fever and infections- tuberculosis, AIDS 2. MNT for gastrointestinal tract diseases- peptic ulcer, gastric surgery, Crohn's disease, Irritable bowel syndrome 3. MNT for diseases of hepato- biliary tract- Hepatitis, Cirrhosis, Hepatic coma. 4. MNT for Kidney diseases –Nephritis, Nephrosclerosis, Diet for dialysis 5. MNT for life style diseases – Diabetes- IDDM, NIDDM, Atherosclerosis, Cancer, PCOD 6. Special diets for Obesity- Low carb diet, Keto Diet, Intermittent Diet	

Essential Readings:

1. Antia F.P. Clinical Dietetics and Nutrition, Oxford University Press, Mumbai, 1989
2. Corinee et.al. "Nutrition and Diet Therapy Principle and Practice" 2nd Edition, West Publishing Company, St. Paul 1989
3. Clare M Lewis, Nutrition and Nutritional therapy in Nursing, Appleton-Century Crofts, Connecticut, 1986
4. Davidson, S. Passmore, R. Brook, J.F. and Trustwell, Human Nutrition and Dietetics, 9th edition, F. and S Livingstone Ltd., Edinburgh and London 1993
5. B. Srilakshmi, Dietetics, New Age International Private Ltd, New Delhi, 1995
6. Krause M.V. Hunscher, M.A. Food, Nutrition and Diet Therapy, W.S. Saunders Co. Philadelphia, London, 1980

Suggested Readings:

1. Maurice E Shills, James A Oslen, Moshe Shike, Modern Nutrition on Health and Disease" Vol I & II, VIII edition, Lea and Pebiger, Philadelphia 1984
2. World Cancer Research Fund and American Institute for Cancer Research; "Food, Nutrition and Prevention of Cancer. A Global Perspective, "American Institute for Cancer Research, Washington, 1997.
3. Current Topics in Nutrition- Joseph et.al. 2021 Romanson Publishing House Tvpm. ISBN 978-81-9466901-2
4. Nihal Thomas, K.J. (2012). A Practical Guide to Diabetes Mellitus (New Delhi: Jaypee).
5. Robinson C.H. , Lawler, M.R., Chenoweth, W.L., Garwich, A.E. Normal and Therapeutic Nutrition 7th Edition, Macmillan Publishing Co. New York 1994.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU8DSCHSC413: FUNCTIONAL FOODS AND NUTRACEUTICALS

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
8	DSE	400-499	KU8DSCHSC413	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

The course aims to discuss several classes of functional foods and nutraceuticals and to explore the concept of bioactive compounds and their impact on health. It also provides students with a comprehensive understanding of functional ingredients encompassing scientific principles, health benefits, regulatory aspects, and practical applications.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Explain the functions of nutraceuticals and functional foods for the treatment of various disorders.	U
2	Examine the importance of probiotics and prebiotics in human health, Justify the principle of nutraeuticals in controlling life style diseases.	An, E
3	Relate the various concepts, classification of nutraceuticals and the active components of various nutraceutical ingredients.	An
4	Recognize the marketing and regulatory aspects of nutraceuticals and functional foods	U
5	Gain skills in developing functional food products, their sensory attributes and potential health benefits.	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔						

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**INTRODUCTION TO NUTRACEUTICALS AND FUNCTIONAL FOODS - PROBIOTICS AND PREBIOTICS**		**10**
	1	Definitions and Scope, Overview of functional foods and nutraceuticals Historical perspective and evolution. Definition of functional and traditional foods, designer foods, pharma foods and FOSHU foods. An overview of Nutraceuticals and Nutrigenomics.	
	2	History of functional foods, components of functional foods, stages involved in development of functional foods. Types of Functional Foods. Market trends and consumer demand,	
	3	Prebiotics - Definition, role of prebiotic as functional ingredient, examples	
	4	Probiotics - Definition, role of prebiotic as functional ingredient, examples.	
	5	Symbiotic - Definition, role of prebiotic as functional ingredient, examples.	
	6	Role of :Polyphenols: Flavonoids, catechins, isoflavones, tannins Phytoestrogens and Phytosterols, Pigments: Lycopene, Curcumin , Organo sulphur compounds.	

2	**FUNCTIONAL FOODS AND HEALTH BENEFITS**		**10**
	1	Concept of free radical and antioxidant. Increasing role of Nutraceuticals in management of health and diseases.	

	2	Antioxidant mechanisms Anti-inflammatory processes	
	3	Cardiovascular health benefits Role in cancer prevention Effects on cognitive function and mental health	
	4	Human gastrointestinal tract and its microbiota	

3	**NUTRACEUTICALS**		**15**
	1	Classification and Sources of Nutraceuticals Relation of Nutraceutical Science with other Sciences: Medicine, Human physiology, genetics, food technology, chemistry and nutrition	
	2	Plant Based Nutraceuticals: Glucosamine, Octacosanol, Carnitine, Melatonin and Ornithine alpha ketoglutarate, Chlorophyll, Caffeine, Green tea, Lecithin, soybean	
	3	Fruit based nutraceuticals: grape products, Lycopene, carotene, proanthocyanidins.	
	4	Animal and Algae based nutraceuticals	
	5	Novel nutraceutical ingredients.	

4	**FOOD AS REMEDIES & REGULATORY ASPECTS**		**10**
	1	Nutrigenomic links to chronic diseases. Nutraceuticals bridging the gap between food and drug.	
	2	Nutraceuticals for Mental Health, Arthritis and Osteoporosis	
	3	Nutraceuticals Remedies for cancer, heart disease, diabetes	
	4	Nutraceutical Remedies for Digestive Disorders (Ulcer, Liver disorders, Lactose Intolerance, Celiac Disease) and Circulatory System	
	5	International and national regulatory aspects of functional foods in India, ICMR guidelines for Probiotics.	
	6	Development of biomarkers to indicate the efficacy of functional ingredients. Research frontiers in functional foods.	

5	**TEACHER SPECIFIC /PRACTICAL**	**30**
	Market survey of existing healthy probiotic foods	
	Development of protein enriched foods as a functional food	
	Production of functional food for diabetic and CVD patients	
	Production of functional food for cancer patient	
	Fortify common food items with probiotics	
	Assess the antioxidant level of different fruits or vegetables using DPPH	

	radical scavenging activity.	
	Demonstrate the preparation of different types of yogurt enriched with probiotics.	
	Market survey of existing healthy probiotic foods	
	Development of protein enriched foods as a functional food	

Essential Readings:

1. Mahtab, S, Bamji, Kamala Krishnasamy, G.N.V. Brahmam, Text Book of Human Nutrition, Third Edition, Oxford and IBH Publishing Co. P. Ltd., New Delhi, 2015.
2. Simopoulus, A.P. and Ordovas, K.J.M., 2004, Nutrigenetics and Nutrigenomics, Vol. 93, Karger, Switzerland.
3. Webb G.P (2006), Dietary Supplements and Functional Foods, Blackwell Publishing Ltd, New York.
4. Tamine. A (2005), Probiotic Dairy Products, Blackwell Publishing Ltd, United Kingdom.
5. USFDA regulations on functional foods

Suggested Readings:

1. Robert E.C. Wildman, Robert,Wildman, Taylor C, Handbook of Nutraceuticals and Functional Foods, Third Edition,Wallace,2002
2. Pathak Y. Handbook of Nutraceuticals; Ingredient, Formulations, and Applications. CRC Press, Taylor & Francis Group, London.
3. Richard Neeser& J. Bruce German Bioprocesses and Biotechnology for Functional Foods and Nutraceuticals, Jean, Marcel Dekker, Inc.2004
4. Aluko, Rotimi,Functional Foods and Nutraceuticals,Springer-Verlag New York Inc.,2012.
5. Satinder Kaur Brar, Surinder Kaur and Gurpreet Singh Dhillon,Nutraceuticals Functional Foods,2014.
6. Giuseppe Mazza; Functional Foods: Biochemical and Processing Aspects, Volume 1; CRC Press
7. Robert E.C. Wildman; Handbook of Nutraceuticals and Functional Foods, Second Edition; CRC

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU8DSCHSC414: SPORTS AND FITNESS NUTRITION

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
8	DSC	400-499	KU8DSCHSC414	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	-	-	30	70	100	2

Course Description:

The course covers essential aspects of sports nutrition and health/fitness nutrition. The course provides a comprehensive view of the role of various nutrients in optimising athletic performance and maintaining overall health. Special mention is given to nutritional needs of diverse populations and athletes participating in various sports. The course equips learners with valuable insights and evidence-based strategies for achieving optimal nutrition and performance outcomes.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the role of nutrition in optimizing sports performance and fitness.	U
2	Apply principles of sports nutrition and performance to enhance athletic performance.	Ap
3	Critically evaluate scientific literature and evidence-based recommendations in sports nutrition and fitness	E
4	Evaluate the nutritional needs of athletes and individuals engaged in physical activity.	E
5	Develop evidence-based recommendations for athletes, fitness enthusiasts, or individuals seeking to improve their health through nutrition.	C

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔						
CO 2	✔						
CO 3	✔						
CO 4	✔						
CO 5	✔					✔	✔

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**THE SCIENCE OF SPORTS NUTRITION**		**20**
	1	Macronutrients- Overview of important macronutrients (carbohydrates, proteins, fats) and micronutrients (vitamins, minerals) in sports nutrition Energy metabolism during exercise.	5
	2	Micronutrients and their impact on performance and health. Dietary supplements and ergogenic aids : efficacy, safety, and ethical considerations	5
	3	Nutrition for pre-competition, during competition, and post-exercise nutrition. Special considerations for endurance athletes, strength athletes, and team sport athletes	5
	4	Carbohydrate loading and glycogen replenishment, Protein requirements for muscle repair and growth, Role of fats in energy metabolism and health, Importance of hydration in performance and health	5
2	**NUTRITION FOR HEALTH**		**10**
	1	Principles of weight management and body composition.	3
	2	Nutritional considerations for general fitness and health promotion.	2
	3	Dietary guidelines for promoting overall well-being.	2
	4	Energy balance and body composition considerations for athletes and fitness enthusiasts	3
3	**NUTRITION FOR SPECIFIC SPORTS**		**10**
	1	Tailoring nutrition plans for different sports, activities, and training phases	4
	2	Special considerations for athletes with dietary restrictions or medical conditions	3
	3	Integrating nutrition with exercise prescription for optimal performance and health outcomes	3
4	**EVALUATING SCIENTIFIC LITERATURE IN SPORTS NUTRITION**		**10**

	1	Critical appraisal of research studies in sports nutrition. Understanding research methodologies and study designs.	3
	2	Application of evidence-based recommendations in practice. Ethical considerations and controversies in sports nutrition research	3
	3	Developing individualized nutrition plans for athletes and fitness clients	2
	4	Strategies for behavior change and adherence to nutrition and fitness goals	2
5	**TEACHER SPECIFIC MODULE/RELATED EXPERIENCE**		**10**
	1	Pre-Competition Meal Planning	
	2	Present case studies of athletes from different sports	
	3	Supplements vs. Food- Debate	
	4	Research Design Workshop	

Essential Readings:

1. Sports Nutrition: A Practice Manual for Professionals" Marie Dunford, 4th ed.(2006), Academy of Nutrition and Dietetics.
2. Clinical Sports Nutrition", Burke, L., & Deakin, V. 5th ed. (2015), McGraw-Hill Education.
3. Sport Nutrition, Jeukendrup, A., & Gleeson, M. 3rd ed. (2019), Human Kinetics.
4. Exercise Physiology: Nutrition, Energy, and Human Performance" McArdle, W. D., Katch, F. I., & Katch, V. L. 9th ed. (2022). Lippincott Williams & Wilkins
5. Sport Nutrition for Health and Performance" Manore, M. M., Meyer, N. L., & Thompson, J. L. 2nd ed. (2017), Human Kinetics.
6. Sports Nutrition: A Handbook for Professionals" Christine Rosenbloom and Christine Karpinski 6th ed. (2017)
7. Nancy Clark's Sports Nutrition Guidebook" Nancy Clark 5th ed. (2013), Human Kinetics Publishers
8. Essentials of Sports Nutrition and Supplements" Jose Antonio, Douglas Kalman, Jeffrey R. Stout , Mike Greenwood, Darryn Willoughby, and G. Gregory Haff (2008), Springer.
9. Nutrition for Health, Fitness & Sport" by Melvin Williams, Eric Rawson and, David Branch 11th ed. (2016), McGraw-Hill Education.
10. Advanced Sports Nutrition" Dan Benardot, 2nd ed. (2011), Human Kinetics Publishers.

11. Exercise Physiology: Nutrition, Energy, and Human Performance by William D. McArdle, Frank I. Katch, and Victor L. Katch 8th ed. (2014), Lippincott Williams & Wilkins

Suggested Readings:

1. Sports Dietitians Australia (https://www.sportsdietitians.com.au/)
2. Academy of Nutrition and Dietetics - Sports, Cardiovascular, and Wellness Nutrition (https://www.eatright.org/sports)
3. International Society of Sports Nutrition (https://www.sportsnutritionsociety.org/)
4. American College of Sports Medicine (https://www.acsm.org/)
5. The British Dietetic Association - Sports Nutrition (https://www.bda.uk.com/

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU8DSEHSC415: PRODUCT DEVELOPMENT AND MARKETING

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
8	DSE	400-499	KU8DSEHSC415	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

This course provides a comprehensive exploration of food processing and product development, focusing on key areas essential for professionals in the food industry. It covers

a wide range of topics including food consumption patterns, introduction to food processing, recipe development, testing and evaluation of products, financial management, marketing strategies, sensory evaluation, and market analysis.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Analyse trends in food consumption patterns, considering economic, psychological, and sociological dimensions.	An
2	Demonstrate an understanding of the principles and objectives guiding new product development.	U
3	Classify various types of food products, and understand the role of plant proteins as alternatives to meat proteins in the food industry.	U
4	Proficient in conducting sensory and microbial testing of processed foods, ensuring compliance with quality and safety standards in the food industry.	A
5	Able to understand and utilize institutional support and financial resources for entrepreneurship development	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	√						
CO 2	√						
CO 3	√						
CO 4	√						
CO 5	√						

COURSE CONTENTS

Contents for Classroom Transaction:

Module	Units	Course Description	Hours
1	**FOOD CONSUMPTION TRENDS AND PRODUCT DEVELOPMENT**		**13**
	1	Trends in food consumption pattern. Economical, psychological and sociological dimensions of food. Trends	6

		in lifestyle changes as a base for new product development	
	2	Food components, Types of food processing. Status of food processing industry in India. Scope of growth in the future. Principles and purpose of new product development. Product design and specifications.	7
2	**TRADITIONAL, CONVENIENCE, AND SPECIALIZED FOODS, AND PLANT PROTEIN**		**10**
	1	Traditional foods, Weaning foods, Convenience foods, RTE, RTC, Extruded foods, IMF foods, Speciality products, Health foods, Functional foods, nutraceuticals and Designer foods, Plant protein -An alternative to meat proteins.	
3	**QUALITY CONTROL AND ANALYSIS IN FOOD PROCESSING**		**10**
	1	Standardization, portion size, portion control, Quantity cooking, shelf life evaluation. Sensory and microbial testing of processed foods, Nutrient analysis, Packaging materials for foods, SWOT analysis.	
4	**ENTREPRENEURSHIP SUPPORT AND FINANCIAL MANAGEMENT IN THE FOOD BUSINESS**		**12**
	1	Institutional support (Training and finance) for Entrepreneurship Development, Financial Institutions (Central and State Govt.), Banks, Funding agencies, financial accounting procedures, Bookkeeping, Market research, Marketing strategies, Cost calculation, advertising methods, Product sales, Product license, Legal specifications, Consumer Behaviour, Food Acceptance.	
5	**TEACHER SPECIFIC /PRACTICAL**		30
	1	Prepare sensory evaluation proforma.	
	2	Preparation and sensory evaluation of Various types of innovative food products	
	3	Market study for identifying new food products, studying food labels, and analyzing marketability	

Essential Readings:

1. Fuller,Gordon ,W(2015)New Food Product Development.2nd edition.CRC Press.Boca Raton,Florida.
2. Schaffner.D.J,Schroder, W.R(2010)Food Marketing and international perspectives,Mc Graw Hill Publications

Suggested Reading

1. Suja R Nair(2014)Consumer Behaviour and Marketting Research,1st edition,Himalaya Publishers.
2. Hmacfie(2017)Consumer led food product development,Weedhead Publishing Limited,U.K

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU8DSEHSC416: FOOD SERVICE MANAGEMENT

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
8	DSE	400-499	KU8DSEHSC416	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
4	-	-	30	70	100	2

Course Description:

This course will help to have a comprehensive overview of different types of food service establishments. It encompasses various aspects of food service management including menu planning, types of equipment, physical facility, different food service systems, food cost analysis and personnel management within the food service establishments.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand and describe the different types, scope and trends of food service establishments. Apply principles, functions and tools of management in a food service establishment	R, U ,Ap
2	Understand and plan a physical facility layout, selection of equipment and purchase of food	U, Ap
3	Understand food service systems, design menus that meet the consumer preferences, dietary requirements and operational constraints	U, Ap
4	Manage financial resources and analyse financial performance.	An, E
5	Develop skills in personnel management, communication and to integrate the use of technology in food service establishments	Ap, An

****Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)***

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔	✔					
CO 2	✔	✔					
CO 3	✔						
CO 4	✔	✔					
CO 5	✔						✔

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**FOOD SERVICE ESTABLISHMENT AND MANAGEMENT**		**13**
	1	Food Service Establishment: Definition, Scope and Recent Trends in food service Industry	
	2	Types of Food Service Establishment – Commercial - Hotels, Restaurants, fast food outlets, cafeterias, kiosks Non-commercial - Hospital, School lunch, Industrial canteens Miscellaneous – outdoor, contract and function catering.	
	3	Management – Principles of management Functions of management – Planning, organizing, staffing, directing, coordinating, reporting and budgeting	
	4	Tools of management – Organisation Chart, Job Description, Job Specification, Job Analysis, Work Simplification methods	
2	**PHYSICAL PLANT, EQUIPMENT AND FOOD PURCHASE**		**12**
	1	Physical plant – Planning space requirements in Receiving area, storage area, Preparation area and service area	
	2	Equipment: Classification – (i)Weight or size (ii) Order of use (iii) Mode of operation	
	3	Food Purchase - mode and methods; Storage – dry and low temperature storage	

3	**FOOD SERVICE SYSTEMS, MENU PLANNING AND FOOD COST ANALYSIS**		**13**
	1	Food Service Systems – Conventional, Commissary, Ready prepare, Assembly Serve Systems	
	2	Menu planning – definition, functions and types Standardisation of Recipes and portion control	
	3	Food cost analysis	

4	**PERSONNEL MANAGEMENT**		**12**
	1	Personnel management – Man power planning, recruitment, selection, induction, training, performance appraisal, Training Methods	
	2	Communication in Food Service Operations	
	3	Computer application in the management of hotel and hospital dietary department.	

5	**TEACHER SPECIFIC / RELATED EXPERIENCE**	**10**
	Visit to a commercial/non-commercial food service institution	
	Plan a layout for Commercial/non-commercial physical facility	
	Create costing sheet for recipes and menus.	
	Plan and organise a food sale - Design the menu, resources and implement production and sale and evaluate profit or loss	

Essential Readings:

1. Drummond, Karen E. and Lisa M. Brefere. 2013. Nutrition for Foodservice and Culinary Professionals. New Jersey: Wiley.
2. June Payne-Palacio, and Monica Theis (2016). Food service Management: Principles and Practices, 13th Edition Pub. Harlow: Pearson. Mohini Sethi and Surjeet Malhan (2018). Catering Management – an integrated approach, New Age International (P) Limited, third edition.
3. Palacio, June Payne and Monica Theis. 2001. West and Wood's Introduction to Foodservice. New Jersey: Prentice Hall.
4. Puckett, Ruby Parker. 2012. Foodservice Manual for Health Care Institutions. San Francisco: Jossey Bass Publishers.

Suggested Readings:

1. Saxena R.P. (2010). Food Service and Catering Management. Delhi: Anmol Publications Pvt Ltd

2. Sethi, M. (2016). Institutional Food Management, New Age International (P) Limited, second edition

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**6**
b)	**Test Paper-2**	**6**
c)	**Assignment/ Seminar**	**8**
d)	**Viva-Voce/field visit/ discussion**	**10**
	Total = 30 marks	
Grand Total		**100**

KU8DSEHSC417: INCLUSIVE EDUCATION

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
8	DSE	400-499	KU8DSEHSC417	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

This course will also delve into the legal and ethical considerations in special education, ensuring that learners are aware of the rights and protections afforded to children with disabilities. Additionally, it will explore the role of family and community support in the development and implementation of effective educational and rehabilitation plans. Through a combination of theoretical knowledge and practical application, students will be equipped to create inclusive learning environments that cater to the diverse needs of children with disabilities.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the different types and characteristics of children with special needs in India	U
2	Implement effective intervention and rehabilitation strategies for children with these conditions.	A
3	Implement effective intervention strategies for individuals with defined conditions, promoting improved outcomes and well-being.	A
4	capability to apply successful intervention strategies, aiding individuals with specific conditions and nurturing their overall well-being and growth..	A
5	Develop practical skills relevant to handling children with special needs.	C

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1			✔				
CO 2			✔				
CO 3			✔				
CO 4			✔				
CO 5			✔			✔	✔

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	**UNIT**	**DESCRIPTION**	**HOURS**
1	**UNDERSTANDING CHILDREN WITH SPECIAL NEEDS**		**10**
	1	Definition, types, demographic profile of children with special needs in India.	3

	2	Special education –recent trends; National Institutes for children with special needs. RCI.	3
	3	Rights and Provisions for disabled in Government Agencies- Policies, Government provisions, Concessions, Facilities and Legislations for challenged children.	4
2	**UNDERSTANDING AND ADDRESSING ORTHOPAEDIC AND SENSORY DISABILITIES IN CHILDREN**		**10**
	1	Understanding Orthopaedic Impairments, types, Common Traits and Symptoms, Etiological Factors, prevention, Approaches and Techniques in Special Education, Intervention and Rehabilitation	5
	2	Understanding Sensory Disabilities, types, Recognizing Symptoms and Traits, Etiology, Prevention, Approaches and Techniques in Special Education, Medical and Therapeutic Interventions, Effective Strategies for Supporting Children with Sensory Disabilities	5
3	**CHILDREN WITH MENTAL AND NEUROLOGICAL CHALLENGES**		**10**
	1	Definition, Types	4
	2	Causes and contributing factors, Identification, and Common Traits and Behaviors, Special Education, Medical and Therapeutic Interventions, and intervention strategies.	6
4	**UNDERSTANDING CHILDREN WITH EMOTIONAL AND SOCIAL CHALLENGES**		**10**
	1	Definition, categories	3
	2	Causes and contributing factors, Signs and Common Characteristics, Special Education, Treatment and Rehabilitation Measures, intervention strategies	7
5	**TEACHER SPECIFIC MODULE/PRACTICAL**		**30**
	1	Prepare aids (one each) suitable for visual, auditory, tactile, and kinesthetic stimulation in children.	
	2	Prepare study materials/teaching aids for children with differently abled and test the efficiency of it	
	3	Two-week training program in rehabilitation centres	
	4	Conduct an awareness program based on any topic related to children with special needs	
	5	Visit and observe the services offered by rehabilitation centres for children with special needs.	

Essential Readings:

1. Heward, W (2009) Exceptional Children: An Introduction to Special Education (Book Alone): International Edition. Pearson Education, Limited
2. Panda, K.C. (1997) Education of Exceptional children. Vikas Publishing

3. Mangal, S.K. (2009) Educating Exceptional Children: An Introduction to Special Education, Phi Learning.
4. Kaplan, P, (1996). Pathways for Exceptional Children, Minneapolis M. N: West Publishing Co.
5. Moores, D. F (1996). Educating the Deaf: Psychology Principles and Practices (4thed), Boston: Houghton Mifflin.
6. Singh, B (2005), Modern Teaching of Exceptional Children, Animal Publishers.

Suggested Readings:

1. What Every Special Educatiors Must know: Ethics, Standards, and Guidelines for Special Educators, (2009) Council for Exceptional children
2. Singh, B (2005) Modern Teaching of Exceptional Children, Anmol Publishers
3. Stowe Cynthia M. (2005), Understanding Special Education: A Helpful Handbook for Classroom Teachers [Paperback] Scholastic Inc
4. Schwartz Diane (2005) Including Children with Special Needs: A Handbook For Educators And Parents, Greenwood pub, United states

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU8DSEHSC418: ENVIRONMENT AND HUMAN RESOURCE MANAGEMENT

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
8	DSE	400-499	KU8DSEHSC418	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

This course is designed to provide students with a comprehensive understanding of the intersection between environmental sustainability and human resource management. It explores the dynamic relationship between organizations, their employees, and the natural environment, emphasizing the role of HRM in fostering sustainable business practices.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	To understand management theory and principles	U
2	Analyze the role of communication, leadership and motivation	An
3	Understand the significance of renewable energy resources	U
4	To Evaluate the environmental problems and to develop civic consciousness towards environmental concerns	U
5	To develop and appreciation towards environment and management concepts	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1		✔					
CO 2		✔			✔		
CO 3		✔					
CO 4						✔	
CO 5		✔				✔	

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**SIGNIFICANCE OF RESOURCE MANAGEMENT AND MANAGERIAL DECISION MAKING**	**12**
	1	Management process: Planning - Types and Dimensions; Planning in a systems perspective, Factors affecting planning; Implementation-Controlling, Checking and Adjusting; Evaluation.	
	2	Systems Approach to Management. Henri Fayol's Principles of management.	
	3	Levels of management. Management by Objectives (MBO): meaning, features, scopes, Total Quality Management (TQM): Objectives, components and significance	
	4	Concept, Steps, types, Stages and Techniques of decision making; Creativity; Rationality and Risk and Certainty. Methods of resolving conflicts-Dominance, submission, compromise, conversion, integration	
2		**ESSENTIALS IN MANAGEMENT**	**13**
	1	Communication- Meaning, Significance, Recent trends in communication ICT tools-print and electronic media, email, internet, uses of multimedia, mobile phone, video and teleconferencing, web technology, tech talks and information kiosks. Barriers of communication.	
	2	Leadership-Importance, Characteristics and styles , quality of a leaders Trait theory of leadership , Behavioural theory of leadership	
	3	Motivation - Importance, theories-Maslow's theory, Herzberg's Motivation Hygiene Model, Key elements of motivation.	
3		**ENERGY CONSERVATION**	**8**
	1	Energy resources: types-renewable and non- renewable, need and importance of renewable energy resources; Sources and Devices: Photovoltaic cell, solar water heaters, Solar cooker, dryer	
	2	Rainwater harvesting; Wind mill, bio-mass plants — working principles, application, advantages and limitations. Energy	

		conservation techniques.	

4	**ENVIRONMENT MANAGEMENT**		**12**
	1	Environmental education and awareness, environment problem-ozone depletion, global warming, climate change, current environmental issues in India.	
	2	Waste management-Definition, classification, segregation, Pollution: types-Land, water and air- causes and effects, control measures- global warming, acid rain and ozone layer depletion, Sound Pollution-Hazards and control measures. Waste management- 6Rs, methods of disposal- dumping, composting, vermi- compost, bio gas plants, incineration; Grey water Treatment; e-waste management.	
	3	Soak pit- its construction and functioning; Role of organic pesticides and fertilizers in environmental sustainability; Green Protocol; Carbon Foot Print.	

5	**TEACHER SPECIFIC/ PRACTICAL- APPLICATION OF MANAGEMENT PRINCIPLES AND ECO-FRIENDLY PRACTICES**		**30**
	1. Plan an event incorporating management process 2. Study on recent trend in Communication 3. Visit to renewable energy centre /rain water harvesting unit. 4. Study on waste segregation and management practices in rural/urban areas. 5. Prepare organic pesticide/insecticide/fertilizer 6. Prepare a decorative or functional product from waste material		

Essential Readings:

1. Paneerselvam & Mohana Ramakrishnan (2007), Environmental Science Education.
2. Dr. Chhabra T.N, Principles and Practice of Management,Dhanpat Rai & co.(P) Ltd,1710,Nai Sarak, Delhi.
3. Abbasi, S.A and Abbasi, N (2001) Renewable Energy Resources and their
4. Environmental Impact, Prentice HallofIndia Pvt. Ltd., New Delhi.
5. Ahluwalia.V.K.and SunitaMalhotra (2006), Environmental Science. Ane BooksPvt. Ltd New Delhi.
6. Chauhan D.S& Srivastava. S.K (2010) Non-conventional Energy Resources, New Age International (P)Ltd, New Delhi.
7. D.K.Asthana&MeeraAsthana(2006)EnvironmentProblemsandSolutions,S.Chand&Company Ltd., New Delhi.
8. Dr.N.Arumugam 2005.Environment and Pollution. Saras Publication Nagercoil.

9. G.N. Tiwari,(2010)Solar Energy Fundamentals Design, Narosa Publishing House, New Delhi.

Suggested Readings:

1. Harold Koontz, Heinz Weihrich (2014) Principles of Management, Mcgraw hill Education PvtLtd NewDelhi.
2. JeffersonW.Testeret.al. (2009) Sustainable Energy, PHIlearningPvt.Ltd.,New Delhi.
3. N.Manivasakam(2010)EnvironmentalPollution,NationalBookTrustIndia,New Delhi.
4. Nambiar, R.K (2007),Textbook of Environmental Studies, SCITECH Publication (India)Pvt.Ltd, Chennai.
5. P.C.Varghese (2013)Buildingconstruction, PHIlearning Delhi
6. P.S Ramakrishnan, (2009) Ecology and Sustainable Development, National Book TrustIndia, NewDelhi.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**

KU8DSEHSC419: APPAREL MANUFACTURING TECHNOLOGY

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
8	DSE	400-499	KU8DSEHSC419	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CCA	ESE	Total	
3	1	-	35	65	100	2

Course Description:

This comprehensive course equips the students with the in-demand skills to navigate the exciting world of apparel creation. Students will embark on a hands-on journey that explores the apparel industry landscape, dives deep into production fundamentals, and empowers them to master practical construction techniques.

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Analyze the structure and key departments within the apparel manufacturing industry.	An
2	Describe the typical sequence for garment assembly and identify the essential components.	A
3	Develop a basic production plan for a garment, considering material selection, costing, and scheduling.	C
4	Apply marker planning principles to create a layout that maximizes fabric utilization for a specific garment design.	A
5	Create a collection of samples showcasing various seam constructions and explore practical applications of trims in garment assembly.	A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1				✔			
CO 2				✔			
CO 3				✔			
CO 4				✔			
CO 5				✔			

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**INTRODUCTION TO APPAREL INDUSTRY**	**10**
	1	History and significance of the apparel industry, organization structure of apparel manufacturing industry.	
	2	Different departments in Garment industry – design, marketing, finance, purchase, production and operations	
2		**APPAREL PRODUCTION TECHNOLOGY**	**10**
	1	Clothing construction basics: terminology, components, assembly sequence Apparel production planning: material selection, costing, scheduling Cutting techniques: manual and computerized methods Apparel finishing processes: pressing, laundering, dyeing.	
3		**CUTTING ROOM OPERATIONS AND SEWING MACHINE MASTERY**	**15**
	1	Introduction to markers: definition, purpose, and benefits, Marker planning principles- maximizing fabric utilization, minimizing waste. digitizer, plotters, duplicating, and markers. Fabric laying techniques- manual, semi, fully automatic, Quality requirements for spreading, types of spread-nested spreading, single ply, and multiple ply spreading techniques.	
	2	Introduction to cutting- role, and type of cut, Mechanism, and	

		technical features of traditional cutting machines - Straight knife, round knife, band knife cutting machines, Advanced cutting technologies- die cutting, laser cutting, plasma cutting, water jet cutting, and ultrasonic cutting. Principles of notches, drills, and thread markers, Computerized cutting- Computerized controlled cloth spreaders and cutting heads, Bundling and ticketing	
	3	Sewing machine – classification – Single needle, double needle. Types of bed – Flat bed, raised bed, post bed, cylinder bed, side bed. Special sewing machines -Overlock, buttonhole, bartack, feed of arm, blind stitch, button sewing machine	

	FABRIC TO FASHION		**10**
4	1	Seams -classification – Class-1to 6 Stitches - classification - Class 100to 600	
	2	Fusing equipment, methods; Pressing - purpose, types of pressing equipment	
	3	Packing - types of packing and packing materials, types of carton packing, quality specification for packing materials, requirements for packing	
	4	Trims: Closures - zippers, buttons, hook and eye, hook and loop, Velcro, elastic; lining and interlinings, shoulder pads, waddings, rivets, eyelets Accessories - labels, hangtags, stickers, polybag, carton box, cardboard, tapes	

	TEACHER SPECIFIC /PRACTICAL	**30**
5	Develop a collection of samples for different types of seams	
	Develop a collection of samples for different types of stitches	
	Application of trims: zippers, buttons, hook and eye, hook and loop, Velcro, elastic	
	Record the use of Accessories - labels, hangtags, stickers, polybag, carton box, cardboard, tapes	

Essential Readings:

1. Rathinamoorthy, R., Surjit, R. (2015). Apparel Machinery and Equipments. India: CRC Press.
2. Advances in Apparel Production. (2008). United Kingdom: Elsevier Science.
3. Ruth E. Glock, Grace I. Kunz, 2012, reprint, Apparel Manufacturing: Sewn Product Analysis, Pearson, UK
4. Rajkishore Nayak, Rajiv Padhye, Garment Manufacturing Technology, 2015, 1st edition, Woodhead Publishing, USA

5. Karthik, T., Ganesan, P., Gopalakrishnan, D. (2016). Apparel Manufacturing Technology. United States: CRC Press.
6. Carr, H., Latham, B. (1994). The Technology of Clothing Manufacture. United Kingdom: Wiley.
7. Garment Manufacturing: Processes,Practices and Technology. (n.d.). (n.p.): Online Clothing Study.
8. Textiles and Fashion: Materials, Design and Technology. (2014). Netherlands: Elsevier Science.

Suggested Readings:

1. Jelka Gersak, Design of Clothing Manufacturing Processes: A Systematic Approach to Planning, Scheduling and Control, 2013, 1st edition, Woodhead Publishing, USA
2. Janace E. Bubonia, Apparel Production Terms and Processes, 2011, 2nd edition, Fairchild Books, UK
3. Prasanta Sarkar, Garment Manufacturing: Processes, Practices and Technology, 2015, 1st edition, Online Clothing Study, India
4. Carr and Latham's Technology of Clothing Manufacture. (2009). Germany: Wiley.
5. Cooklin, G., Hayes, S. G., McLoughlin, J. (2006). Introduction to Clothing Manufacture. United Kingdom: Wiley.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**50**
Continuous Comprehensive Assessment		**25**
Continuous Evaluation: Method of Assessment		
a)	**Test Paper- 1**	**5**
b)	**Test Paper-2**	**5**
c)	**Assignment/ Seminar**	**5**
d)	**Viva-Voce/Discussion/ field visit**	**10**
	Total = 25 marks	
Practical End semester exam		**15**
Continuous Comprehensive Assessment		**10**
Continuous Evaluation: Method of Assessment		
a)	**Practical test**	**3**
b)	**Record**	**5**
c)	**Lab performance**	**2**
	Total = 25 marks	
Grand Total		**100**