

  
**UNIVERSITY OF MYSORE**  
Estd. 1916

Vishwavidyanilaya Karyasoudha  
Crawford Hall, Mysuru- 570 005

No.AC2(S)/151/2020-21

Dated:10.10.2022

**Notification**

**Sub:-** Syllabus and Examination Pattern of Food Science and Nutrition (UG) (I, II, III & IV Semester) with effective from the Academic year 2022-23 as per NEP-2020.

- Ref:-**
1. Decision of Board of Studies in of Home Science (UG) Meeting held on 05-07-2022.
  2. Decision of the Faculty of Science & Technology Meeting held on 15-09-2022.
  3. Decision of the Academic Council meeting held on 23-09-2022.

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The Board of Studies in Home Science (UG) which met on 05-07-2022 has recommended & approved the syllabus and pattern of Examination of Food Science and Nutrition Course (I,II, III & IV Semester) with effective from the Academic year 2022-23 as per NEP -2020.

The Faculty of Science & Technology and Academic Council at their meetings held on 15-09-2022 and 23-09-2022 respectively has also approved the above said syllabus and hence it is hereby notified.

The syllabus and Examination pattern is annexed herewith and the contents may be downloaded from the University Website i.e., [www.uni-mysore.ac.in](http://www.uni-mysore.ac.in).

**Draft Approved by the Registrar**

  
**Deputy Registrar (Academic)**  
University of Mysore  
Mysore-570 005

**To:-**

1. All the Principal of affiliated Colleges of University of Mysore, Mysore.
2. The Registrar (Evaluation), University of Mysore, Mysuru.
3. The Chairman, BOS/DOS, in Food Science and Nutrition, Yuvaraja's College, Mysore.
4. The Dean, Faculty of Science & Technology, DoS in Earth Science, MGM.
5. The Director, Distance Education Programme, Moulya Bhavan, Manasagangotri, Mysuru.
6. The Director, PMEB, Manasagangothri, Mysore.
7. Director, College Development Council , Manasagangothri, Mysore.
8. The Deputy Registrar/Assistant Registrar/Superintendent, Administrative Branch and Examination Branch, University of Mysore, Mysuru.
9. The PA to Vice-Chancellor/ Registrar/ Registrar (Evaluation), University of Mysore, Mysuru.

## Annexure- I

**University of Mysore, Mysuru**  
**Syllabus for 3<sup>rd</sup> and 4<sup>th</sup> Semester**

**Contents of Courses for B.Sc. (Hons.) in Food Science and Nutrition as Major Subject**  
**Model II A**

Semester	Course No.	Course category	Theory/ Practical	Credits	Paper Title	Marks	
						S.A.	I.A.
I	FSNT1.1	DSC	Theory	4	Human Physiology	60	40
	FSNP1.1	DSC	Practical	2	Human Physiology	25	25
	FSNT1.2	OE	Theory	3	A) Basics of Food Science B) Basics of Nutrition	60	40
II	FSNT2.1	DSC	Theory	4	Fundamentals of Human Nutrition	60	40
	FSNP2.1	DSC	Practical	2	Fundamentals of Human Nutrition	25	25
	FSNT2.2	OE	Theory	3	A) Healthy Lifestyle B) Culinary Science	60	40
<b>Exit Option with Certificate in Food Science and Nutrition (52 Credits)</b>							
III	FSNT3.1	DSC	Theory	4	Principles of Food Science	60	40
	FSNP3.1	DSC	Practical	2	Principles of Food Science	25	25
	FSNT3.2	OE	Theory	3	A) Food Adulteration B) Common nutritional problems	60	40
IV	FSNT4.1	DSC	Theory	4	Life cycle Nutrition	60	40
	FSNP4.1	DSC	Practical	2	Life cycle Nutrition	25	25
	FSNT4.2	OE	Theory	3	A) Food Safety & Hygiene B) Indian traditional foods	60	40
<b>Exit Option with Diploma (100 Credits)</b>							
V	FSNT5.1	DSC	Theory	3	Principles of Food processing	60	30
	FSNP5.1	DSC	Practical	2	Principles of Food processing	25	15
	FSNT5.2	DSC	Theory	3	Principles of diet therapy	60	30
	FSNP5.2	DSC	Practical	2	Principles of diet therapy	25	25
	FSNT5.3	DSE/VOC	Theory	3	A) Food Additives B) Food and Nutrition Security	60	40
VI	FSNT6.1	DSC	Theory	3	Food Microbiology	60	40
	FSNP6.1	DSC	Practical	2	Food Microbiology	25	25
	FSNT6.2	DSC	Theory	3	Therapeutic Nutrition	60	40
	FSNP6.2	DSC	Practical	2	Therapeutic Nutrition	25	25

	FSNT6.3	DSE/VOC	Theory	3	A) Food Quality Control B) Assessment of Nutritional status	60	40
<b>Exit Option with Bachelor of Science, B.Sc. Degree (144 Credits)</b>							
VII	FSNT7.1	DSC	Theory	3	Food product Development and Sensory Science	60	40
	FSNP7.1	DSC	Practical	2	Food product Development and Sensory Science	25	25
	FSNT7.2	DSC	Theory	3	Nutritional Biochemistry	60	40
	FSN7.2	DSC	Practical	2	Nutritional Biochemistry	25	25
	FSNT7.3	DSC	Theory	4	Micronutrient Metabolism	60	40
	FSNT7.4	DSE/VO C	Theory	3	A. Food Fortification B. Public Health Nutrition	60	40
	FSNT7.5	DSE	Theory	3	Research Methodology	60	40
VIII	FSNT8.1	DSC	Theory	4	Food Laws and Food Safety	60	40
	FSNT8.2	DSC	Theory	4	Advanced Dietetics	60	40
	FSNT8.3	DSC	Theory	3	Sports Nutrition	60	40
	FSNT8.4	DSE	Theory	3	A) Entrepreneurship and Restaurant Startup B) Nutrition during Emergencies	60	40
	FSNT8.5			6 (3+3)	Research Project / Internship OR Any two of the electives A) Functional Properties of Food B) Storage and Handling of Food C) Application of Enzymes in Food Industry D) Nutrition Extension Education	140 60 60	60 40 40
<b>Award of Bachelor of Science Honors, B.Sc. (Hons.) Degree in Food Science and Nutrition</b>							

\*In lieu of the research Project, two additional elective papers/ Internship may be offered

Abbreviation for FSNDSC1.1 /FSNDSCP1.1

FSN – Food Science and Nutrition; DSC – Discipline Core; T – Theory/ P – Practical; 1 – First Semester; .1 – Course 1

**Syllabus for 3<sup>rd</sup> and 4<sup>th</sup> Semester  
B Sc Food Science & Nutrition  
Semester III**

<b>Course Title: FOOD SCIENCE AND NUTRITION / Principles of Food Science</b>	
Total Contact Hours: 56+56	Course Credits:4+2
Formative Assessment Marks: 40	Test1+Test2=2Hrs
Summative Assessment Marks: 60	Duration of ESA/Exam: 03Hrs

**Course Pre-requisite(s):** Students who have passed Pre-University Board of Examination or Equivalent board with science subjects are eligible for the undergraduate degree B.Sc in Food Science and Nutrition.

**Objectives:**

- To obtain knowledge on different food groups and their contribution to nutrition.
- To provide understanding about composition and nutritive value of food and knowledge relevant to processing, shelf life extension and reduction of toxins
- To gain knowledge on food safety, hazards and designing of new food products

**Course Outcomes (COs):**

At the end of the course the student gains the knowledge on:

- Basic concepts of Food Science
- Food groups, food commodities and their structure

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs 1-12)**

<b>Course Outcomes (COs) / Program Outcomes (POs)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
1 .Gain the basic knowledge of Food Science	X											
2. Define the structure of common food commodities	X											
3.Explains structure and functions of food commodities in Indian cookery	X											
4. Provides excellent preparation for careers in the area of Food Science		X										

Course Articulation Matrix relates course outcomes of course with the corresponding program outcomes whose attainment is attempted in this course. Mark 'X' in the intersection cell if a course outcome addresses a particular program outcome.

## B. Sc Semester 3

### Title of the Course: Food Science & Nutrition

<b>Course : DSC 3.1 Principles of Food Science</b>		<b>Course 2 OE: A) Food Adulteration B) Common Nutritional Problems</b>	
Number of Theory Credits	Number of lecture hours/semester	Number of Theory Credits	Number of lecture hours/semester
<b>04</b>	<b>56</b>	<b>03</b>	<b>42</b>

<b>Content of Course :3.1 DSC Principles of Food Science Credits 4 /week Total 56 hrs</b>	<b>Hrs</b>
<b>Unit – 1 Introduction to Food Science and Cereals, Millets and their Products</b>	14 hrs
<p><b>A. Introduction to Food Science :</b> Introduction, Properties and functions of foods</p> <p><b>B. Cereals, Millets and their products</b></p> <ul style="list-style-type: none"> <li>• Structure and nutrient composition rice and wheat</li> <li>• Processed products of wheat and rice.</li> <li>• Millets and its food uses.</li> <li>• Germination and Malting of Grains – process, characteristics, Nutritional benefits and uses</li> </ul> <p><b>Fermented foods (brief)</b></p> <ul style="list-style-type: none"> <li>• Mechanism of fermentation and changes occurring during fermentation.</li> <li>• Indian fermented foods (idly, dosa, dhokla, and bread).</li> <li>• Beverages – Types (Alcoholic &amp; Non-alcoholic)</li> </ul>	
<b>Unit – 2 Legumes, Nuts and oilseeds</b>	14 hrs
<p><b>Legumes</b></p> <ul style="list-style-type: none"> <li>• Structure and nutrient compositions of legumes.</li> <li>• Factors affecting the cooking quality of legumes (soaking, fermentation, extrusion, germination and puffing)</li> <li>• Anti-nutritional factors</li> </ul> <p><b>Nuts and oilseeds</b></p> <ul style="list-style-type: none"> <li>• Oilseeds – Composition, Processing and Food uses</li> </ul>	
<b>Unit – 3 Vegetables, Fruits, Sweetening Agents</b>	14 hrs
<p><b>Vegetables and fruits</b></p> <ul style="list-style-type: none"> <li>• Classification and nutrient composition of fruits and vegetables.</li> <li>• Pigments – Types, Effects of cooking media on color, texture and acceptability.</li> <li>• Browning reaction and its prevention.</li> </ul> <p><b>Sweetening Agents (Brief)</b></p> <ul style="list-style-type: none"> <li>• Sugar, Jaggary, Honey etc.</li> <li>• Crystallization of sugar and its application in food preparations.</li> <li>• Fortifying Sugars and Candies</li> <li>• Artificial Sweetening agents – Composition and Uses</li> </ul>	
<b>Unit-4. Animal Sources</b>	14 hrs
<p><b>Milk and milk products</b></p> <ul style="list-style-type: none"> <li>• Composition of milk.</li> <li>• Factors affecting the quality.</li> <li>• Different types of milk and products.</li> </ul>	



**Eggs**

- Structure, composition
- Grading, Factors affecting the quality.
- Effect of cooking on eggs and role of egg in different preparations

**Meat, poultry and fish**

- Structure of muscles and meat quality
- Post-mortem changes
- Factors to be considered in selection and preparation of meat, poultry and fish

**References Books**

1. Food Processing Technology by P.J. Fellows, Woodhead publishing ltd.
2. Food Science by N.N. Potter, CBS publishing.
3. Physical principles of Food Preservation. Vol. II by M. Karel, O.R. Fenema and D.B. Lurd, Maroel, Dekker Inc. New York.
4. Alzamora, S.M., Tapia, M.S. and Lopez Malo, A. Minimally Processed Fruits and
5. Vegetables: Fundamental Aspects and Applications, Springer, 2005.
6. Chakrabarty MM. 2003. Chemistry and Technology of Oils and Fats. Prentice Hall.
7. Chakraverty. A1995. Post Harves Technology of Cereals, Pulses and Oilseeds, Oxford & IBH Publishing Co.Pvt.Ltd.
8. Dendy DAV & Dobraszczyk BJ. 2001. Cereal and Cereal Products. Aspen.
9. Hamilton RJ & Bhatia. 1980. Fats and Oils - Chemistry and Technology. App. Sci. Publ.
10. Hoseney RS. 1994. Principles of Cereal Science and Technology. 2nd Ed. AACC.
11. Kay DE. 1979. Food Legumes. Tropical Products Institute.
12. Kent NL. 1983. Technology of Cereals. 4th Ed. Pergamon Press
13. Salunkhe, D.K. and Kadam, S.S. Handbook of Fruit Science and Technology: Production, Composition, Storage, and Processing, Marcel Dekker, 2005.
14. Agro Food Processing: Technology Vision 2020 Fruits & Vegetables Current Status Vision TIFAC, 1996.
15. Introductory Foods by Hughes O and Bennion, M. 5<sup>th</sup> ed. The macmillan Co., New York. 1970.
16. Experimental Study of Foods by Griswold, R.M. 1962., Houghton mifflin company, Boston.
17. Ghose, R.L.M., Ghate, M.B. and Subramaniam, V. 1960. Rice in India. ICMR, New Delhi.
18. Eckles, G.H., Combs, W.S. and Macy, H. 1951. Milk and Milk Products, RMB Publishing Co., Ltd., New Delhi
19. Fisher, P. and Bender, A. 1971. The Value of Foods. Oxford University Press, London.
20. Birch, G.C. and Cameron, A.G, and Spencer, M. Food Science, 3rd ed., Perganon Press, Oxford.
21. Sweetrnah, M.D. and Mackellar, I, 1954. Food Science and Preparation. 4th ed., John wiley & Sons Inc., New York.
22. Fitch, J.J. and Francis, C.A. 1953. Foods and Principles of Cookery, 1st ed., PrenticeHall Inc., New York.
23. Pechkham, G.C. 1969. Foundations of Food Preparation, The Macmillan Company, London.

**Pedagogy**

Regular lectures, demonstrations, Exercises on observation and follow up with group Discussions, case studies, ICT enabled teaching and learning experiences in terms of video Lessons and documentary film shows.

<b>Formative Assessment</b>	
<b>Assessment Occasion/ type</b>	<b>Weightage in Marks</b>
Class test/ Assignments/ Quiz-Assessment-1	20
Class test/ Assignments/ Quiz -Assessment-2	20
<b>Total</b>	<b>40</b>

<b>Content of Course 3.1 DSC PRACTICALS–Principles of Food Science (Credits 2 / 4 hrs week) Total 56 hrs</b>	<b>Total 56 Hrs</b>
<ol style="list-style-type: none"> <li>1. Cereals               <ol style="list-style-type: none"> <li>a) Microscopic examination of starch molecules.</li> <li>b) Gelation of cereal flours (compare the time taken for gel formation and consistency).</li> <li>c) Observation of cooking time &amp; quality of steamed, aged &amp; par boiled rice.</li> </ol> </li> <li>2. Pulses – Effect of soaking, sprouting, addition of acid, alkali on cooking quality (any one or two pulses like green gram, Bengal gram, cowpea etc).</li> <li>3. Vegetables &amp; Fruits               <ol style="list-style-type: none"> <li>a) Effect of adding acid &amp; alkali on green, red, yellow &amp; white vegetables</li> <li>b) Methods of preventing browning</li> </ol> </li> <li>4. Milk &amp; milk products               <ol style="list-style-type: none"> <li>a) Factors affecting curdling of milk (demonstration)</li> <li>b) Preparation of khoa (demonstration)</li> </ol> </li> <li>5. Eggs               <ol style="list-style-type: none"> <li>a) Demonstration of grading eggs for quality</li> <li>b) Ferrous sulphide formation &amp; prevention</li> <li>c) Effects of beating egg white on stiffness of foam &amp; its uses (Custard &amp; Omelet)</li> </ol> </li> <li>6. Sugar cookery – Determination of stages of crystallization &amp; its uses</li> <li>7. Preprocessing techniques – Malting, germination, fermentation.</li> <li>8. Visit to Food Processing &amp; Packaging industry, research laboratory.</li> <li>9. Market survey of processed food products (any one food category for batch of 2 students)</li> <li>10. Submission of class record and project report.</li> </ol>	

<b>Formative Assessment</b>	
<b>Assessment Occasion/ type</b>	<b>Weightage in Marks</b>
Class test / Assignments / - Assessment-1	10
Class test / Assignments / - Assessment-2	10
Project/ visit report	05
<b>Total</b>	<b>25</b>

## Course 3.2 OE A) Food Adulteration

### Food Adulteration

#### Objectives

- Its scope is to help and gain knowledge on food adulterants in food commodities
- To understand certain skills of detecting adulteration of common foods

#### Learning Outcomes

- It helps to extend the knowledge to other kinds of adulteration, detection and remedies
- To learn basic laws and procedures regarding food adulteration and consumer protection

#### Course Articulation Matrix: Mapping of Course Outcomes (Cos) with Program Outcomes (Pos 1-12)

Course Outcomes (Cos) / Program Outcomes (Pos)	1	2	3	4	5	6	7	8	9	10	11	12
1. Gain knowledge kinds of adulteration, detection and remedies		X										
2. Learn basic laws and procedures regarding food adulteration and consumer protection			X									

Content of Course 3.2 OE A-Food Adulteration (Credits 3 / week, Total 42 hrs)	Hrs
<b>Unit – I</b> Common Foods and Adulteration A. Definition – Types; Poisonous substances, Foreign matter, Cheap substitutes, Spoiled parts. B. Adulteration through Food Additives – Intentional and incidental. General Impact on Human Health.	04 hrs
<b>Unit – 2</b> Adulteration of Common Foods and Methods of Detection A. Means of Adulteration B. Methods of Detection of Adulterants in the following Foods; Milk, Oil, Grain, Sugar, Spices and condiments, processed food, Fruits and vegetables. Additives and Sweetening agents (at least three methods of detection for each food item).	12 hrs
<b>Unit -3</b> Present Laws and Procedures on Adulteration: A. Highlights of Food Safety and Standards Act 2006 (FSSA) –Food Safety and Standards Authority of India–Rules and Procedures of Local Authorities. B. Role of voluntary agencies suchas, Agmark, I.S.I., Quality-control laboratories of companies, Private testing laboratories,Quality controllaboratoriesofconsumerco-operatives. C. Consumer education,Consumer’s problemsrightsandresponsibilities, COPRA 2019 - Offenses and Penalties – Procedures to Complain – Compensation to Victims.	12 hrs 14 hrs

#### Suggested Reading

- A firstcourseinFoodAnalysis–A.Y.Sathe,NewAgeInternational(P)Ltd.1999.
- FoodSafety,casestudies–Ramesh.V.Bhat,NIN, 1992.
- [https://old.fssai.gov.in/Portals/0/Pdf/Draft\\_Manuals/Beverages and confectionary. pdf](https://old.fssai.gov.in/Portals/0/Pdf/Draft_Manuals/Beverages and confectionary. pdf).
- <https://cbseportal.com/project/Download-CBSE-XII-Chemistry-Project>
- FoodAdulteration#gsc.tab=0 (Downloadable e material on food adulteration).
- <https://www.fssai.gov.in/>.
- <https://indianlegalsolution.com/laws-on-food-adulteration/>
- <https://fssai.gov.in/dart/>



### Course 3.2 OE B) Common Nutritional Problems

#### Objectives

- Its scope is to help and gain knowledge of Nutrients

#### Learning Outcomes

- It helps to know about the use of different nutrients and their deficiencies.
- It helps to study about the Nutritional Programs

#### Course Articulation Matrix: Mapping of Course Outcomes (Cos) with Program Outcomes (Pos 1-12)

Course Outcomes (Cos) / Program Outcomes (Pos)	1	2	3	4	5	6	7	8	9	10	11	12
1. Gain knowledge on aims and objectives of nutrition education		X										
2. Understand the concept of Nutrition problems and intervention in India								X				

Content of Course 3.2 OE B-Common Nutritional Problems (Credits 3 / week, Total 42 hrs)	Hrs
<b>Unit -1</b> Definition, importance of balanced diet, RDA for various nutrients - age, gender, physiological state, food group system, factors affecting meal planning,	6 hrs
<b>Unit – 2</b> Nutrients – macro and micronutrients –deficiency disorders. Nutritional deficiency diseases –Causes, symptoms, treatment, Protein Energy Malnutrition (PEM), Vitamin A Deficiency (VAD), Iron Deficiency Anemia (IDA), Iodine Deficiency Disorders (IDD), Zinc Deficiency, Fluorosis	20 hrs
<b>Unit – 3</b> National Nutrition Policy and Program – Integrated Child Development Services (ICDS) Scheme, Mid-day Meal Program (MDMP), National programs for prevention of Anemia, Vitamin A deficiency, Iodine Deficiency Disorders. National and International agencies in uplifting the nutritional status –WHO, UNICEF, CARE, ICMR, ICAR, CSIR, CFTRI. Various nutrition related welfare program, ICDS, SLP, MOM, and others (in brief).	16 hrs

#### Suggested Reading

1. Srilakshmi. B. Food Science. New age international Pvt. Ltd. New Delhi, 2001.
2. Shakuntala Manay and Shadakshara Swamy M. foods – facts and principles, 1998.

#### Pedagogy

Regular lectures, demonstrations, Exercises on observation and follow up with group Discussions, ICT enabled teaching and learning experiences in terms of video Lessons and documentary film shows

Course Title: <b>FOOD SCIENCE AND NUTRITION- Course 2.OE-A) Food Adulteration and B) Common Nutritional Problems</b>	
Total Contact Hours: 42	Course Credits:3
Formative Assessment Marks: 40	Test1+ Test 2=2Hrs
Summative Assessment Marks: 60	Duration of ESA/Exam: 03Hrs

## B Sc Food Science & Nutrition

### Semester 4

#### Course 4.1: DSC- Life Cycle Nutrition (Credits 4+2)

##### Course Outcomes (Cos):

1. Gain knowledge in basic terminology, aspects of nutrition & functions of food throughout the life cycle
2. Understand methods of assessing nutrition status

#### Course Articulation Matrix: Mapping of Course Outcomes (Cos) with Program Outcomes (Pos 1-12)

Course Outcomes (Cos) / Program Outcomes (Pos)	1	2	3	4	5	6	7	8	9	10	11	12
1. Gain knowledge of nutritional requirements throughout life cycle	X											
2. Understand physiological changes during Pregnancy and Lactation	X											
3. Understand the nutrition requirements for Geriatric population in tune with their physiology					X							
4. Understand the methods of assessing nutritional status									X			

##### Title of the Course: Food Science & Nutrition

Course 4.1: DSC- Life Cycle Nutrition		Course 4.2 OE A) Food Safety and Hygiene B) Indian Traditional foods	
Number of Theory Credits	Number of lecture hours/semester	Number of Theory Credits	Number of lecture hours/semester
<b>04</b>	<b>56</b>	<b>03</b>	<b>42</b>

Content of Course 4.1 Life cycle nutrition (Credits 4/ Week, Total-56hrs)	Hrs
<b>Unit – 1 Nutritional Requirements of Mother and Infants</b>	14 hrs
<b>A. Physiological changes, nutritional requirements and complications.</b>	6
<ul style="list-style-type: none"> <li>• Pregnancy</li> <li>• Lactation</li> </ul>	
<b>B. Nutrition during infancy &amp; early childhood</b>	8
<ul style="list-style-type: none"> <li>• Infancy - Growth &amp; development, nutritional requirements, breast feeding, infant formula, supplementary foods, feeding pattern.</li> <li>• Early childhood (Toddler / preschool) growth &amp; nutrient requirements, feeding patterns</li> <li>• Brain development during early life                             <ul style="list-style-type: none"> <li>○ Nutrition and cognitive development</li> <li>○ Influence of other factors on cognitive development</li> </ul> </li> </ul>	
<b>Unit – 2 Nutritional Requirements of Children's and Adults</b>	12 hrs

<p><b>A. Nutrition during school years &amp; adolescents.</b></p> <ul style="list-style-type: none"> <li>• School children: - Nutritional requirements, importance of snacks, school lunch, nutritional problems in school age child.</li> <li>• Adolescents: - Growth &amp; nutrient needs, food choices, eating habits and disorders, factors influencing.</li> </ul> <p><b>B. Nutrition of adults &amp; elderly</b></p> <ul style="list-style-type: none"> <li>• Adult hood: - Food &amp; nutrient requirements. Nutrition related problems.</li> <li>• Elderly: - Factors affecting nutritional status, nutrient requirement and nutrition related problems.</li> </ul>	<p><b>6 h</b></p>
<p><b>Unit – 3 Prevalence of nutrition problems &amp; intervention</b></p>	<p><b>6 h</b></p>
<p><b>Unit – 3 Prevalence of nutrition problems &amp; intervention</b></p> <ul style="list-style-type: none"> <li>• Prevalence of nutritional problems in India with special reference to preschool children &amp; women- energy protein malnutrition, nutritional anemia, deficiency of vitamin A, iodine, fluorine &amp; other vitamin &amp; mineral deficiencies.</li> <li>• Nutrition intervention programs:- Supplementary feeding, School lunch, Anemia &amp; Vitamin A prophylaxis, Goiter control programs, ICDS, Nutrition &amp; health education, food supplementation, fortification &amp; enrichment.</li> <li>• Food and Nutrition Security with national and international bodies uplifting nutritional status</li> </ul>	<p>10 hrs</p>
<p><b>Unit – 4 Assessment of Nutritional Status</b></p>	<p>10Hrs</p>
<ul style="list-style-type: none"> <li>• <b>Nutritional Assessment :-</b> Introduction, Definition, objectives, sampling technique• methods of assessment <b>Sampling Technique:-</b> Introduction, Definition, objectives, identification of risk group, sampling technique</li> <li>• <b>Methods of Nutritional Assessment</b> Introduction, Definition, objectives, Direct assessment, Indirect assessment</li> <li>• <b>Direct assessment – introduction• ABCD method</b> <b>Anthropometric Method:-</b> Introduction Definition , objectives• methods, advantages, disadvantages <b>Biochemical Method:-</b> Introduction, Definition •objectives, methods, advantages, disadvantages <b>Clinical Method:-</b> Introduction, Definition •objectives• methods, advantages, disadvantages <b>Dietary Method:-</b> Introduction, Definition, objectives• methods, advantages, disadvantages</li> <li>• <b>Indirect assessment–</b> <b>Food balance sheet:-</b> Introduction, Definition, objectives, methods, advantages, disadvantages <b>Ecological parameters:-</b> Introduction, Definition •objectives, methods, advantages, disadvantages <b>Vital statistics:-</b> Introduction, Definition, objectives , methods, advantages, disadvantages</li> </ul>	<p>12 hrs</p>

**Course 4.1: FOOD SCIENCE AND NUTRITION / Life Cycle Nutrition**

Total Contact Hours: 56+56

Course Credits:4+2

Formative Assessment Marks: 40

Test1+Test2=2Hrs

Summative Assessment Marks: 60	Duration of ESA/Exam: 03Hrs
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Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Class test /Seminar /Assignments-Assessment 1	20
Class test /Seminar /Assignments-Assessment 2	20
<b>Total</b>	<b>40</b>

**PRACTICAL- Life cycle Nutrition (2 credits / 4hrs / week=56 hrs/semester)**

<b>Content of Course 4.1 DSC PRACTICALS– Life cycle Nutrition</b>	<b>(Credits 2 / 4 hrs week)</b>
1. Calculation of Nutrition requirements of both genders through life cycle 2. Calculation of Nutrition requirements for Pregnant and Lactating women 3. Assessment of Nutrition status of different population	<b>Total -56 Hrs</b>

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Class test /Seminar /Assignments-Assessment 1	10
Class test /Seminar /Assignments-Assessment 2	10
Project/ Vist report	05
<b>Total</b>	<b>25</b>

**Books for reference:**

**Pedagogy**

- Regular class teaching, seminars and assignments and Record works related to their Practical works, field visits.

**Course 4.2. Open Elective – A) Food Safety & Hygiene**

**Course Outcomes (COs):**

1. To study the types of hazards associated with food
2. To gain knowledge on food regulations (national as well as international)
3. To understand the design and implementation of food safety management systems such as ISO series, HACCP and its prerequisites such as GMP, GHP etc.

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs 1-12)**

Course Outcomes (COs) / Program Outcomes (POs)	1	2	3	4	5	6	7	8	9	10	11	12
1.Study the types of hazards associated with food		X										
2. Gain knowledge on food regulations (national as well as international)	X											
3.Understand the design and implementation of food safety management systems such as ISO series, HACCP and its prerequisites such as GMP, GHP etc.						X						



<b>Content of Course 4.2. OE- B) Indian Traditional Foods (credits 3 / 42 hrs)</b>	<b>Hrs</b>
<b>Unit – 1 Traditional Methods of Food Processing</b>	<b>14 hrs</b>
<p><b>A.</b> Traditional methods of milling grains – rice, wheat and corn – equipments and processes as compared to modern methods.</p> <p><b>B.</b> Equipments and processes for edible oil extraction, paneer, butter and ghee manufacture – comparison of traditional and modern methods.</p> <p><b>C.</b> Energy costs, efficiency, yield, shelf life and nutrient content comparisons.</p> <p><b>D.</b> Traditional methods of food preservation – sun-drying, osmotic drying, brining, pickling and smoking.</p>	
<b>Unit – 2 Traditional Food Patterns</b>	<b>14 hrs</b>
<p><b>A.</b> Typical breakfast, meal and snack foods of different regions of India.</p> <p><b>B.</b> Regional foods that have gone Pan Indian / Global.</p> <p><b>C.</b> Popular regional foods; Traditional fermented foods, pickles and preserves, beverages, snacks, desserts and sweets, street foods.</p> <p><b>D.</b> IPR issues in traditional foods.</p>	
<b>Unit – 3 Health Aspects of Traditional Foods</b>	<b>14 hrs</b>
<p><b>A.</b> Comparison of traditional foods with typical fast foods / junk foods – cost, food safety, nutrient composition and bioactive components.</p> <p><b>B.</b> Energy and environmental costs of traditional foods; traditional foods used for specific ailments /illnesses.</p>	

**REFERENCE BOOKS:-**

1. Sen, Colleen Taylor Food Culture in India Greenwood Press, 2005.
2. Davidar, Ruth N. Indian Food Science: A Health and Nutrition Guide to Traditional Recipes: East West Books, 2001.

**Pedagogy**

Regular lectures, demonstrations, Exercises on observation and follow up with group Discussions, ICT enabled teaching and learning experiences in terms of video Lessons and documentary film shows

<b>Course Title: FOOD SCIENCE AND NUTRITION- Course 4.2 OE-A)Food Safety &amp; Hygiene and B) Indian Traditional Foods</b>	
Total Contact Hours: 42	Course Credits:3
Formative Assessment Marks: 40	Test1+Test2=2Hrs
Summative Assessment Marks: 60	Duration of ESA/Exam: 03Hrs



## Annexure II

### BA/B Sc Family Resource Management Semester 3DSC-A3

<b>Course Title: Architectural Drafting</b>	
Total Contact Hours: 52Hrs.	Course Credits: 4+2=6
Formative Assessment Marks 40 marks Th + 25 marks Practical	Duration of ESA / Exam: Th- 3 hrs. Pra -3 hrs
Model Syllabus Authors:	Summative Assessment Marks: IA Th 60 marks + IA Practical 25 marks

**Course Pre-requisite(s): Certificate and its equivalence with minimum 45%**

#### Course Outcomes (COs):

- Understand the Basics of Drafting tools and Drawings.
- Understand the basics of constructional and structural Drawings.
- Identify the Parts of the Building.
- An Insight into the structural component of Doors and windows.
- Application of knowledge in construction of Buildings.

#### Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs 1-12)

Course Outcomes (COs) / Program Outcomes (POs)	1	2	3	4	5	6	7	8	9	10	11	12
1. Able to understand the Basics of Drafting tools and Drawings.	×		×		×	×						
2. Able to Understand the basics of construction and structural Drawings.								×	×	×	×	
3. Understand to identify the Parts of the Building.				×			×	×		×	×	
4. An Insight into the structural component of Doors and windows.							×	×		×		
5. Application of knowledge in construction of Buildings.				×			×	×				×

### BA/B Sc - Family Resource Management Semester 3

#### Paper Title: HSRMT3.1 Architectural Drafting

<b>Course: DSC A3</b>	
<b>Number of Theory Credits</b>	<b>Number of lecture hours</b>
<b>4</b>	<b>52</b>
<b>Content</b>	<b>52Hrs.</b>
<b>Unit – 1 Architectural Drafting</b>	<b>14hrs</b>
<b>Chapter No. 1: Drafting Tools:</b> Drafting board, T- Square, Set square, drawing paper, French Curves, Rulers, Compass, Protractor and mini drafters, <b>Chapter No. 2: Basics of Drawing:</b> Lines, Types of lines and line thickness.	<b>6hrs</b>

Lettering – single stroke letters, gothic letters. Dimensioning and Architectural symbols.	8 hrs
<b>Unit – 2 Introduction to Construction Drawing</b>	<b>14hrs</b>
<b>Chapter No. 3: Construction Drawing:</b> Meaning, Types – Block plan, Architectural drawings – Foundation plan, floor plan sectional drawings and elevation. Production drawings.	7hrs
<b>Chapter No. 4: Structural drawings:</b> General note, excavation drawing, column layouts, beam layouts, roof slab layout, Electrical drawing, Plumbing drawings and HVAC.	7hrs
<b>Unit – 3 Parts of the Building</b>	<b>14hrs</b>
<b>Chapter No. 5:Substructure:</b> Types of foundation – shallow – individual footing, combined footing, strip foundation and Raft foundation. Deep foundation – Pile, drilled shaft.	7hrs
<b>Chapter No. 6: Super Structure:</b> Floor – Types of floors, Walls – Types of Walls, Ceiling – Types of ceiling, Arches and Lintels.	7hrs
<b>Unit -4 Doors and Windows</b>	<b>10hrs</b>
<b>Chapter No. 7: Doors:</b> Parts and types of doors, Methods of construction.	5hrs
<b>Chapter No.8: Windows:</b> Parts and types of windows, Methods of construction.	5hrs

**Pedagogy :**

**Formative Assessment = Th100 marks + Practical 50 marks**

Assessment Occasion / type	Weightage in Marks
Test 1	10
Test 2	10
Assignment + Project	10 + 10
<b>Total</b>	<b>60 Marks + 40 marks = 100 marks</b>

**Practical's: 2 Credits**

**52 hours**

<b>List of Experiments to be conducted</b>	
<b>Unit 1:</b> Illustrate different types of lines and dimensioning, Scale drawing – enlarge and reduce Rendering techniques.	
<b>Unit 2:</b> Lettering- Straight and Inclined.	
<b>Unit 3:</b> Architectural, plumbing and electrical symbols.	
<b>Unit 4:</b> Drawing of 2D and 3D objects, Doors and Windows.	
<b>Unit 5:</b> Floor plans, sections and elevations for a room.	

**Formative Assessment =25 marks + Summative Assessment =25 Marks = 50 Marks**

Assessment Occasion / type	Weightage in Marks
Test 1	5
Test 2	5
Project	15
<b>Total</b>	<b>25 marks + 25 marks = 50 marks</b>

**REFERENCES:**

Alan Jefferis and David Madsen(2016), Architectural Drafting and Design, 7<sup>th</sup> Ed. Delmar Cengage Learning, ISBN: 978-1285165738.

Clois E Kicklighter and Scott W Thomas(2016), Architecture: Residential drafting and Design, 12<sup>th</sup> ED. ISBN: 978-1631263156.

Dana J Helper, Paul Ross Wallach and Donald Helper (2012), Drafting and Design for Architecture and Construction, 9<sup>th</sup>Ed.ISBN: 978-1111128135.

Leland Scott (2009), Basic Drafting, Trofford Publishers, USA and Canada ISBN:978-1-41209676-8.

Rourke O Michael (2015) Architectural Drafting Simplified, Create Space Independent Publishing Platform, ISBN: 978-1494876630.

Odermeyer T (2014), Architectural Drafting Residential and Commercial, McGraw Hill, ISBN: 978-9332902565.

**BA/B Sc - Family Resource Management  
Semester 3 OEC-3**

<b>Course Title: Consumer Economics</b>	
Total Contact Hours: 45Hrs	Course Credits: 3
Formative Assessment Marks: 40 marks	Duration of ESA / Exam: 3 Hrs
Model Syllabus Authors:	Summative Assessment Marks: 60 marks

**Course Pre-requisite(s): Certificate and its equivalence with minimum 45%**

**Course Outcomes (COs):**

- Understand the Concept of Consumers.
- Identify the needs and motivation of consumers.
- Impart Knowledge on Consumer behaviour and Decision making process.
- An insight into Consumer problems and Protection.
- Application of consumer information and education.

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs 1-12)**

<b>Course Outcomes (COs) / Program Outcomes (POs)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
1.Understand the Concept of Consumers		×		×	×						×	
2. Able to Identify the needs and motivation of consumers								×	×		×	
3.Understand to impart Knowledge on Consumer behaviour and Decision making process			×					×		×		×
4.An insight into Consumer problems and Protection							×	×		×		×
5.Application of consumer information and education				×			×	×				×

**BA/BSc - Family Resource Management  
Semester 3**

**Paper title: HSRMT 3.2 Consumer Economics**

<b>Course: OEC- 3</b>	
<b>Number of Theory Credits</b>	<b>Number of lecture hours</b>
<b>3</b>	<b>45</b>

<b>CONTENT</b>	<b>45 Hrs</b>
<b>Unit – 1 Concept of Consumers</b>	<b>12Hrs</b>
<b>Chapter No. 1: Consumer:</b> Definition, Concept, Characteristics of consumers, and Role of consumers in the economy.	5Hrs
<b>Chapter No. 2: Consumer needs and Motivation:</b> Wants v/s Needs, Types of needs, Hierarchy of needs. Motivation – Role of motives.	7Hrs
<b>Unit – 2 Consumer Behaviour</b>	<b>15 Hrs</b>
<b>Chapter No. 3: Consumer Behaviour:</b> Definition, Factors determining and influencing consumer behaviour	7Hrs
<b>Chapter No. 4: Consumer Decision making process:</b> Types of consumer decisions, Decision making process, Purchasing habits. Guidelines for wise purchasing practices.	8Hrs
<b>Unit – 3 Consumer Protection and Education</b>	<b>18 Hrs</b>
<b>Chapter No. 5: Consumer Protection:</b> Definition, Types of Consumer Problems, Consumer Protection - Government and Private. Consumer redressal and functioning of Consumer Court.	9Hrs
<b>Chapter No. 6: Consumer education:</b> Consumer Aids – label, brand, trademark and certification marks, Consumer rights and Responsibilities.	9Hrs

**Pedagogy**

<b>Formative Assessment = Th100 marks + Practical 50 marks</b>	
<b>Assessment Occasion / type</b>	<b>Weightage in Marks</b>
Test 1	10
Test 2	10
Assignment + Project	5 + 5
<b>Total</b>	<b>60 marks + 40 marks = 100 marks</b>

**REFERENCES:**

Adinarayana Gujjala (2015), Rights to Consumer Education in India, Scholar press, ISBN: 978-3639761757.

Avtar Singh (2016), Consumer Protection Law and Practice, ISBN: 978-9351452461.

DurgaSurekha (2010), Consumer Awareness about rights and Grievance redressal, Abhijeet Publication, ISBN: 978-9380031804.

Pathi S and Lalrintluanga(2018), Consumer Awareness and Consumer Protection, Dominant Publishers and Distributors, ISBN:978-8190849258.

Praveen Sajjanpu (2021), Business and Consumer Education, Vol.3, K S Omni Scriptum Publishing, ISBN: 978-3659157660.

Ross E Lowe(2003) Consumer Education and Economics, Glencoe/ McGraw-Hill school Publishing, ISBN: 978-0078251566.

**BA/B Sc - Family Resource Management  
Semester 4: DSC- A4**

<b>Course Title: Art of Entertainment and Etiquette</b>	
Total Contact Hours: 52Hrs.	Course Credits: 4+2
Formative Assessment Marks: 40marksTh + 25 marks Practical	Duration of ESA / Exam: Th- 2.5 hrs. Pra - 2hrs
Model Syllabus Authors:	Summative Assessment Marks: IA Th 60 marks + IA Practical 25 marks

**Course Pre-requisite(s): Certificate and its equivalence with minimum 45%**

**Course Outcomes (COs):**

- Understand the fundamentals of Art and Entertainment and Etiquette.
- An insight into the design concept.
- Impart Knowledge on Table setting and Menu planning.
- An insight into Table Etiquette and flower arrangement.
- Application of knowledge in Event planning and Management.

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs 1-12)**

<b>Course Outcomes (COs) / Program Outcomes (POs)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
1. Understand the fundamentals of Art and Entertainment and Etiquette.		×		×	×						×	
2. An insight into the design concept.								×	×		×	
3. Understand to Impart Knowledge on Table setting and Menu planning.								×		×		×
4. An insight into Table Etiquette and flower arrangement.							X	X		X		
5. Application of knowledge in Event planning and Management.				X			X	X				

**BA/B Sc - Family Resource Management  
Semester 4**

**Paper Title: HSRMT4.1 Art of Entertainment and Etiquette**

<b>Course: DSC A4</b>	
<b>Number of Theory Credits</b>	<b>Number of lecture hours</b>
<b>4</b>	<b>52</b>

<b>Content</b>	<b>52Hrs.</b>
<b>Unit – 1 Introduction to Art and Entertainment and Etiquette</b>	<b>10hrs</b>

<b>Chapter No. 1: Events:</b> Types of events- Social and Corporate. <b>Invitations</b> –Types of invitations – formal and informal invitations. Telephone Email etiquette and social media invites.	5hrs
<b>Chapter No. 2: Design Concept:</b> Designing of different types of invitation cards, greeting card, posters, coasters, table mat, flower carpet and rangoli	5 hrs
<b>Unit – 2 Table setting and Menu planning</b>	<b>14hrs</b>
<b>Chapter No. 3: Table setting</b> –Basic, Formal and informal table setting - breakfast, lunch and dinner, Tray setting, Buffet, South Indian banana leaf and North Indian thali.	7hrs
<b>Chapter No. 4: Table Linen</b> –Importance, Table covers and its accessories, Types of Napkins, Folding techniques, selection of table linen.	7hrs
<b>Unit – 3 Table Etiquette</b>	<b>14hrs</b>
<b>Chapter No. 5:</b> Menu planning: Origin of menu, importance of menu planning, types of menu, Menu card design, Factors affecting menu planning, Menus planning for different occasions.	8hrs
<b>Chapter No. 6:</b> Table Manners –Social graces, Responsibilities of the Host, guest, Common courtesies, Kind of table manners - Napkin etiquette, Handling cutlery, when to start eating, Resting cutlery, passing food etiquette, soup etiquette, Seating etiquette, Food service and meal end etiquette.	6hrs
<b>Unit -4 Flower arrangement</b>	<b>14hrs</b>
<b>Chapter No. 7:</b> Flower Arrangement- flowers and foliage used in an arrangement, styles – Traditional, Oriental, Geometric and Modern arrangements, Basic shapes in flower arrangements, mechanics and accessories. Care of cut flowers and foliages.	6hrs
<b>Chapter No. 8:Introduction to Event planning and Management</b> - Role of event planner and Qualities of good event planner, Importance of organizing events and its components, Techniques, Selections, Coordination, Creativity, Designing, Marketing, Sponsorships and Management of Special and Corporate events.	8hrs

### Pedagogy

<b>Formative Assessment = Th100 marks + Practical 50 marks</b>	
<b>Assessment Occasion / type</b>	<b>Weightage in Marks</b>
Test 1	10
Test 2	10
Assignment + Project	10 + 10
<b>Total</b>	<b>60 marks + 40 marks = 100 marks</b>

**Practical's: 2 Credits**

**52 hours**

**List of Experiments to be conducted**

**Unit 1:** Designing cards: formal and informal invitations, posters,



greeting cards for different occasions, table mats, coasters, flower carpet and rangoli.

**Unit 2:** Flower Arrangement: styles and shapes, Care of cut flowers and foliage

**Unit 3:** Table setting – formal and informal table setting, Buffet, menu planning, South Indian banana leaf and North Indian thali

**Unit 4:** Napkin folding techniques and Methods of resting cutlery

**Unit 5:** Organizing a small event

<b>Formative Assessment =25 marks + Summative Assessment =25 Marks = 50 Marks</b>	
<b>Assessment Occasion / type</b>	<b>Weightage in Marks</b>
Test 1	5
Test 2	5
Project/Record	15
<b>Total</b>	<b>25 marks + 25 marks = 50 marks</b>

**REFERENCES:**

Clayton Nicholas (2016), A Butler’s Guide to Table manners, Batsford B T LTD., ISBN: 978-1849943680.

JmilaMusayeva (2019), Etiquette: The Least you need to know, B R Bowker Publisher, ISBN: 978-0578447704.

Ledbetter Jared (2019) The Dying Art of Email Etiquette, Independently Published, ISBN:979-8588707480.

Lillian Eicher (2010), Book of Etiquette, CosimoInc, ISBN: 978-1605209760.

Noelle Stevenson (2016), Correct Etiquette and Manners, Young Leaner Publishers, ISBN: 978-8172450304.

Seema Gupta (2012), Correct manners and Etiquette, V & S Publishers, ISBN:978-9381384152.

**BA/BSc -Family Resource Management  
Semester 3 OEC-4**

<b>Course Title: Consumer Economics</b>	
Total Contact Hours: 45Hrs	Course Credits: 3
Formative Assessment Marks: 40 marks	Duration of ESA / Exam: 2.5 Hrs
Model Syllabus Authors:	Summative Assessment Marks: 60 marks

**Course Pre-requisite(s): Certificate and its equivalence with minimum 45%**

**Course Outcomes (COs):**

- Understand the Concept of Hotel industry and Front Office Management.
- An Insight on Front Office Itinerary.
- Impart Knowledge on Housekeeping in service sectors.
- An insight into Guest room management.
- Understand the management of Linenservice sectors.

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs 1-12)**

Course Outcomes (COs) / Program Outcomes (POs)	1	2	3	4	5	6	7	8	9	10	11	12
1. Able to understand the Concept of Hotel industry and Front Office Management.		×		×	×						×	
2. An Insight on Front Office Itinerary.		×						×	×		×	
3. Understand to Impart Knowledge on Housekeeping in service sectors.			×					×		×		×
4. An insight into Guest room management.	×						×	×		×		×
5. Understand the management of Linen in service sectors	×			×			×	×				×

**BA/B Sc -Family Resource Management  
Semester 4**

**Paper title: HSFRMT4.2 Front Office Management and Housekeeping**

<b>Course: OEC- 4</b>	
<b>Number of Theory Credits</b>	<b>Number of lecture hours</b>
<b>3</b>	<b>45</b>

CONTENT	45 Hrs
<b>Unit – 1 Introduction to Hotel Industry and Front Office Management</b>	<b>12Hrs</b>
<b>Chapter No. 1: Introduction to Hotel Industry:</b> Types of institution offering hospitality services, Classification of hotels.	7Hrs
<b>Chapter No. 2: Front Office Management:</b> Concept and importance, Functioning and layout. Front office staff organization - Qualities of front office staff, Sequence of receptionist task, Arrival Chronology and Interdepartmental coordination of front office.	5Hrs
<b>Unit – 2 Front Office Itinerary and House keeping</b>	<b>15 Hrs</b>
<b>Chapter No. 3: Itinerary:</b> Guest cycle and guest history, Accounting for guest billing and Folio, Night audit and Back office accounting system, Reception Management Techniques: Methods of reservation and cancellation.	9Hrs
<b>Chapter No. 4: Housekeeping:</b> Definition, concept and challenges, Qualities and attributes of a housekeeper. Layout of housekeeping department, organization structure and Interdepartmental coordination.	6Hrs
<b>Unit – 3 Guest room and Linen Management</b>	<b>18 Hrs</b>
<b>Chapter No. 5: Guest room Management:</b> Types of guest rooms, cleaning of guest rooms, rules on guest floor, maid chart, cleaning of public areas and guest supplies.	8Hrs
<b>Chapter No. 6: Linen Management:</b> Types of linen, location and responsibilities of linen room, linen hire, linen control and stock, inventory, Guest laundry.	10Hrs

## Pedagogy

<b>Formative Assessment = Th100 marks</b>	
<b>Assessment Occasion / type</b>	<b>Weightage in Marks</b>
Test 1	10
Test 2	10
Assignment + Project	10 + 10
<b>Total</b>	<b>60 marks + 40 marks = 100 marks</b>

### References:

Andrew Sudhir (2016), Front Office Management and Operations, McGraw Hill Education, India, ISBN: 978-0070655768.

Deepak Singh Negi and Shiv Mohan Verma (2020), Fundamentals of Hotel Housekeeping and Management, 1<sup>st</sup> Ed., Bharti Publications, ISBN: 978-9389657210.

NegiJagmohan(2018), Housekeeping, S. Chand &Co. Ltd, ISBN 978-8121997737.

Raghubalan G and Smritee Raghubalan (2015), Hotel Housekeeping – Operations and Management, 3<sup>rd</sup> Ed. Oxford University press, New Delhi.

Shirke Gajanan (2019), Front Office Management, Shroff Publishers and Distributers PVT. LTD., ISBN: 978-9351103028.

TewariJalashankar(2016), Hotel Front Office: Operation and Management, 2<sup>nd</sup> Ed., Oxford University Press, ISBN: 978-0199464692.

### Annexure III

#### Modified syllabus of B Sc Food Science and Nutrition course during 2<sup>nd</sup> Semester paper titled : Fundamentals of Human Nutrition.

##### Course 3: FUNDAMENTALS OF HUMAN NUTRITION (Credits 4+2)

<b>Content of Course 3 FUNDAMENTALS OF HUMAN NUTRITION (Credits 4/ Week, Total-56hrs)</b>	
<b>Unit – 1 Definition of food, nutrition, health</b>	12 hrs
A. Introduction : Food & its relation to health, Objectives in the study of nutrition	2
B. Energy –Definition, forms of energy, units of measurement, physiological fuel vales of energy, determination of energy value of foods	4
C. BMR – definition, Determination and factors affecting, Factors affecting energy requirements, diet induced thermogenesis (SDA)	4
D. Water: Functions, requirements, sources	2
<b>Unit – 2 Macro Nutrients</b>	14 hrs
A. :Protein –Classification, functions, Digestion& absorption (in brief), RDA, sources and deficiencies	4
B. Carbohydrate – Classification, functions, Digestion & absorption (in brief), RDA, sources and deficiencies	5
C. Fat-Classification, functions, Digestion & absorption (in brief), RDA, sources and deficiencies	3
D. Dietary fiber- types and functions	2
<b>Unit – 3 Micronutrient – Vitamins</b>	15 hrs
A. Fat-soluble Vitamins (A, D, E & K)- Function, RDA, sources and deficiency and excess.	8
B. Water soluble vitamins: Thiamin, Riboflavin, Niacin, B12, Folic acid, Biotin and Vitamin C: functions, RDA, food sources, deficiencies and excess.	7
<b>Unit – 4 Micronutrient –Minerals</b>	15 Hrs
A. Macro minerals- Calcium, Phosphorus and magnesium, Sodium, Potassium, Chlorine: Functions, absorption, RDA, sources and deficiencies.	6
B. Micro Minerals- Iron, Zinc, Fluorine and Iodine: function, absorption, RDA, sources and deficiency.	6
C. National and International agencies in uplifting the nutritional status – WHO, UNICEF, CARE, ICMR, ICAR, CSIR, CFTRI. Various nutrition related welfare program, ICDS, SLP, MOM, and others (in brief).	3