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VEER NARMAD SOUTH GUJARAT UNIVERSITY
University Campus, Udhna-Magdalla Road, SURAT - 395 007, Gujarat, India
વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી
યુનિવર્સિટી કેમ્પસ, ઉધના-મગદલ્લા રોડ, સુરત - ૩૯૫ ૦૦૭, ગુજરાત, ભારત.
Tel. : +91 - 261 - 2227141 to 2227146, Toll Free : 1800 2333 011, Fax : +91 - 261 -
E-mail : info@vnsgu.ac.in, Website : www.vnsgu.ac.in

ક્રમાંકઃએકે/પરિપત્ર/૫૮૨૫/૨૦૨૦
તા.૧૬/૦૭/૨૦૨૦

પ્રતિ,
આચાર્યશ્રી,
શેઠ પી.ટી.મહિલા કોલેજ ઓફ
આર્ટસ એન્ડ હોમસાયન્સ,
વનિતા વિશ્રામ,
અઠવાગેટ, સુરત.

વિષયઃ– ટી.વાય.બી.એસસી. સેમેસ્ટર–૫ અને ૬ હોમસાયન્સનો અભ્યાસક્રમ અંગે.

સુજ્ઞશ્રી,

સવિનય જણાવવાનું કે, શૈક્ષણિક વર્ષ ૨૦૨૦–૨૧ થી અમલમાં આવનાર ટી.વાય.બી.એસસી. સેમેસ્ટર–૫ અને ૬ હોમસાયન્સનો અભ્યાસક્રમ અંગે ચર્ચા કરતા હોમસાયન્સ વિષયની અભ્યાસસમિતિની તા.૨૧/૦૩/૨૦૨૦ની સભાનાં ઠરાવ ક્રમાંકઃ ૩ અન્વયે નીચે મુજબ કરેલ ભલામણ વિજ્ઞાન/વિનયન વિદ્યાશાખાનાં અધ્યક્ષશ્રીએ વિજ્ઞાન/વિનયન વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિજ્ઞાન/વિનયન વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલનેકરેલ ભલામણ એકેડેમિક કાઉન્સિલે તેની તા.૩૦/૦૬/૨૦૨૦ ની સભાનાં ઠરાવ ક્રમાંકઃ ૧૦૪ અન્વયે સ્વીકારી મંજૂર કરેલ છે. તેની જાણ સંબંધકર્તા શિક્ષકો અને વિદ્યાર્થીઓને કરવી, તદ્ઉપરાંત તેનો અમલ કરવો.

<u>હોમસાયન્સ વિષયની અભ્યાસસમિતિની તા.૨૧/૦૩/૨૦૨૦ની સભાનાં ઠરાવ ક્રમાંકઃ ૩</u>

:: આથી ઠરાવવામાં આવે છે કે શૈક્ષણિક વર્ષ ૨૦૨૦–૨૧ થી અમલમાં આવનાર General+Food Science & Nutrition વિષયનાં અભ્યાસક્રમ સર્વાનુમતે સ્વીકારી તે મંજૂર કરવા વિજ્ઞાન/વિનયન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

એકેડેમિક કાઉન્સિલની તા.૩૦/૦૬/૨૦૨૦ ની સભાનાં ઠરાવ ક્રમાંકઃ ૧૦૪

:: આથી ઠરાવવામાં આવે છે કે, હોમસાયન્સ વિષયની અભ્યાસસમિતિએ તેની તા.૨૧/૦૩/૨૦૨૦ ની સભાના ઠરાવ ક્રમાંક : ૩ અન્વયે ભલામણ કરેલ અને વિનયન/વિજ્ઞાન વિદ્યાશાખાના અધ્યક્ષશ્રીએ વિનયન/વિજ્ઞાન વિદ્યાશાખા વતી સ્વીકારેલ શૈક્ષણિક વર્ષ ૨૦૨૦–૨૧ થી અમલમાં આવનાર General+ Food Science & Nutrition વિષયનાં અભ્યાસક્રમ મંજૂર કરવામાં આવે છે.

બિડાણઃ ઉપર મુજબ

ઈ.ચા. કુલસચિવ

પ્રતિ,
૧) અધ્યક્ષશ્રી, વિજ્ઞાન વિદ્યાશાખા.
૨) પરીક્ષા નિયામકશ્રી, પરીક્ષા વિભાગ, વીર નર્મદ દ. ગુ. યુનિવર્સિટી, સુરત.

.....તરફ જાણ તેમજ અમલ સારૂ.

B.SC
GENERAL HOME SCIENCE
3RD YEAR
REVISED SYLLABUS 2020

VEER NARMAD SOUTH GUJARAT UNIVERSITY

FACULTY OF SCIENCE (B.Sc. Home Science)
UG B.Sc. Programme
Structure under CBCS for B.Sc. Home Science Subjects
SHETH P.T.MAHILA COLLEGE OF ARTS AND HOME SCIENCE
General Home Science, Food Science & Nutrition, Human Development (GFH)
GENERAL HOME SCIENCE- SEMESTER V- 2020-21 (New)

Semester	Course	Paper No		Hours/Week	Credit	Exam Hours	Marks		Total
							Internal	External	
V	Core-I	G11 (Th)	Diet Therapy I	2	2	2	20	50	70
		(Pr)	Diet Therapy I	2	1	2	10	20	30
		G12 (Th)	Front Office Management	2	2	2	20	50	70
		(Pr)	Front Office Management	2	1	2	10	20	30
		G13 (Th)	Management of NGO	2	2	2	20	50	70
		(Pr)	Management of NGO	2	1	2	10	20	30
		G14 (Pr)	Fashion Illustration	6	3	3	30	70	100
		G15 (Th)	Training and Development	2	2	2	20	50	70
		(Pr)	Training and Development	2	1	2	10	20	30
		G16	Seminar	6	3	-	100	-	100
	F.C. (English)	-	English- As per VNSGU	2	2	2	20	50	70
	E.C (ID)	-	Food Service Management (Pr)	4	2	2	20	50	70
			NSS/NCC/Sports/Saptadhara		2				
			Total		24				740

VthSEMESTER

T.Y. B.SC. (HOME SCIENCE)
V SEMESTER
2020-21
G11- DIET THERAPY I (Th)

Objectives:

1. Understand the basic principles of diet therapy.
2. Be aware of the physiological changes associated with specific diseases.
3. Understand the relationship between dietary modifications and physiological changes observed in specific disease conditions.
4. Acquire the ability to modify the normal diet to suit individuals suffering from specific diseases.

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
Diet Therapy I	1	2	2	2	20	50	70

Block No	Topic and Details	No. of lectures assigned
1	**Unit 1: Basic concept of Diet Therapy** **Terms:** Therapeutic, Acute, Chronic Symptoms Modifications of normal diet for consistency and Nutrients – Energy, Protein, Minerals, Vitamins, Fiber and Water Nutritional care in the hospital	**7**
2	**Unit 1: Fevers and Infection** Classification of fevers, Metabolism in the body, Causes, Types, General consideration and dietary modification in Acute Fevers and Chronic Fevers like typhoid and tuberculosis **Unit 2: Pre and post-operative diets** General dietary guidelines for pre and post-operative diets	**8**
3	**Unit 1: Weight Management** Underweight and Over weight **Modification of diet during obesity –** Assessment, causes and dietary modifications. Importance of Behavior modification and exercise **Modification of diet for underweight –** Assessment, causes and high energy diet for weight gain	**7**
4	**Unit 1: Gastro Intestinal Tract disorders**	**8**

	Terms: Achlorhydria, dumping syndrome, Endoscopy Gastritis, peptic Ulcer, Diarrhoea, Constipation and Ulcerative Colitis: Etiology, Symptoms & principles of Diet in specific conditions, management of Diarrhoea through ORT **Unit 2: Liver disorders** Physiology and functions of the liver Dietary modifications for Infective Hepatitis and Cirrhosis of liver - causes, symptoms and dietary modification	

Evaluation-

1. One Internal test (20 marks)
2. External –final exam(50 marks)

References:

1. Srilakshmi, B. (2008) Dietetics, 5th Edition, New Age International (P) Limited Publishers, New Delhi, India.
2. Krause, M. M., Mahan, L.K. and Escott, S.S. (2003) Krause's – Food, Nutrition and Diet Therapy, 11th Edition, W.B. Saunders, Philadelphia, U.S.A.
3. Williams, S.R. (1995) Diet Therapy. 1st Edition Mosby Year Book Inc, St. Louis, Missouri, U.S.A.
4. Whitney, E.N., Cataldo, B.C., De Bruyne, L.K., and Rolfes, S.R. (1996) Nutrition for Health Care, 1st Edition, West publishing Company, St. Paul, U.S.A.
5. Smolin, L. A. and Grosvenor, M.B. (2007) Nutrition – Science and Applications, 4th Edition, Wiley
6. Antia, F.P. (1989) Clinical nutrition and Dietetics, 3rd Edition, Oxford University Press, New Delhi, India.

T.Y. B.Sc. (HOME SCIENCE)
V SEMESTER
2020-21
G11- DIET THERAPY I (Pr)

Objectives:

1. Acquire the ability to modify the normal diet to suit individuals suffering from specific diseases.
2. Develop skills in planning and preparation of foods, for specific disease conditions

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
Diet Therapy-I (Pr)	1	2	1	2	10	20	30

Block No	Topic and Details	No. of Practical classes assigned
1	**Planning and preparation of,** • Normal Diet &Transitional Hospital Diets • High Protein High Energy Diet • Pre and post-operative Diet	7
2	**Planning and preparation of,** • Underweight, overweight and obesity • Diet in ulcers, diarrhoea and constipation • Diet in liver disorders	8

Evaluation

1. Internal Evaluation-10 Marks
2. External Evaluation- 20 Marks (10 Planning + 10 Cooking)

References:

1. Srilakshmi, B. (2008) Dietetics, 5th Edition, New Age International (P) Limited Publishers, New Delhi, India.
2. Krause, M. M., Mahan, L.K. and Escott, S.S. (2003) Krause's – Food, Nutrition and Diet Therapy, 11th Edition, W.B. Saunders, Philadelphia, U.S.A.
3. Williams, S.R. (1995) Diet Therapy. 1st Edition Mosby Year Book Inc, St. Louis, Missouri, U.S.A.
4. Whitney, E.N., Cataldo, B.C., De Bruyne, L.K., and Rolfes, S.R. (1996) Nutrition for Health Care, 1st Edition, West publishing Company, St. Paul, U.S.A.
5. Smolin, L. A. and Grosvenor, M.B. (2007) Nutrition – Science and Applications, 4th Edition, Wiley
6. Antia, F.P. (1989) Clinical nutrition and Dietetics, 3rd Edition, Oxford University Press, New Delhi, India.

T.Y. B.Sc. (HOME SCIENCE)
V SEMESTER
2020-21
G12- FRONT OFFICE MANAGEMENT (Th)

Objectives:

- To acquaint the students with the basic knowledge about the hospitality industry..
- The students will learn and understand various front office operations.
- To help them acquire knowledge about account keeping, report writing, foreign currency management and digital banking etc.

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
Front Office Management (Th)	1	2	2	2	20	50	70

Block No	Topic and Details	No. of Lectures assigned
1.	**Introduction To the Hospitality Industry** • Tourism and Hospitality • Role of Travel Agents and Tour Operators • Classification Of Hotels on various basis & star Rating • Organizational structure of large,medium and small hotels. • Functions and qualities of Front Office staff. • Coordination of front office Department with other departments • Emergency services	08
2	**Front Office Operations:** • Introduction of Lobby and Staff • Lay-out and Planning of Lobby • Importance of communication • Understanding guest services • Components of a good service	07

	• Understanding customer needs and wants • Sources & modes and types of reservation and cancellation. • Types of Rooms, types of Plans, tariffs & basis of charges. • Maintenance of Records	
3	**Reception:** • Arrival & Departure Procedures • C' forms and Guest registration • VIP Procedures, Guest Luggage Handling, left out luggage, Room shifting, status occupancy, mails and couriers & key racks, wake up calls, message slips, Guest Registers, night shift reception procedure. • Handling Travel desk • Group Arrival & Registrations • Safety Vault	08
4	**Account keeping:** • Responsibilities of cahier &Night Auditor and Night Audit Reports • Guest Folio &Preparation & presentation of bills • Foreign Currencies rules & regulations • Handling Various modes of payment • Feedback for assessing guest satisfaction • Public Relations	07

EVALUATION:-

1. One Internal test (20 marks)
2. External –Final exam (50 marks)

T.Y. B.SC. (HOME SCIENCE)
V SEMESTER
2020-21
G12- FRONT OFFICE MANAGEMENT (Pr)

Objectives:

- To make them learn different office procedures like bookings, room plans, and tariff, maintenance, records and reservations systems.
- To enable them to learn to prepare different kinds of registers
- To help them learn the various front office dealing procedures and different modes of payments
- To make them understand and observe various front offices in industry and learn different operations performed by front office desk

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
Front Office Management (Pr)	1	2	1	2	10	20	30

Block No	Topic and Details	No. of practical classes assigned
1.	**Terminology of Reservations.** **To study different front office Procedures:** Modes of Reservations and Cancellations (Telephone, E-mail, Posts, Telex, fax) Room Plans(Tariff and Menu Plans accordingly) Maintenance of Records Reservation Chart	07

2	**To study & prepare specimen reports and make a presentation of the following:** Registration Cards Reservation Racks Registration Book Arrival and Departure Forms Arrival and Departure Errand Card Occupancy Rate (Single, double , domestic and Foreign) House count Average room rate **To make specimens of:** Arrival and Departure VIP and Group Procedures Scanty Baggage Wakeup call Mail register and message slips Complaint registers. Hotel Information and Services	08

Evaluation:-

1. Internal Evaluation-10 Marks
2. External Evaluation- 20 Marks (10 Viva + 10 external exam)

References

1. S.K. Bhatnagar, Front Office Management, Frank Bros & CO.
2. Colin & Charls, Front office Operations, Pearson Education
3. Sue Baker Pan Bradley &JernyHyyton, Principles of Hotel Front Office Operations, Thomson Printing
4. Ranjit Taneja, Fundamentals of Hospitality, Alpha Pub Delhi
5. Sudhir Andrews, Hotel Front office Training Manual, Tata McGraw Hill Publishing Co. Ltd

T.Y. B.Sc. (HOME SCIENCE)
V SEMESTER
2020-21
G13- MANAGEMENT OF NGO (Th)

Objectives:

1. Students will be introduced about NGO.
2. Students will gain knowledge about the management of NGO.
3. Students will come to know the legal aspects related to NGO.
4. Students will develop understanding about the role of government and NGO in societal development.

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
Management of NGO (Th)	1	2	2	2	20	50	70

Block No	Topic and Details	No. of Lectures assigned
1	**An Introduction of NGO** • Concept of NGO • Historical views of NGO • Functions of NGO • Types of NGO (Local, National & International level) • Working areas of NGO (like health, education, women and child welfare, human rights, employment generation etc.	7
2	**Role of Management in NGO** • Meaning of management • Need and importance of Management in NGO • Resources for NGO • Planning, execution and evaluation of NGO	8
3	**Legal aspects for NGO** • Registration procedures and laws • Acts related to NGO • Income tax exemption for NGO	8

4	**Corporate social responsibilities** • Concepts of CSR • Funding for CSR • Role of an individual, government and NGO in CSR	**7**

EVALUATION:-

1. One Internal test (20 marks)
2. External –final exam(50 marks)

T.Y. B.Sc. (HOME SCIENCE)
V SEMESTER
2020-21
G13- MANAGEMENT OF NGO (Pr)

Objectives:

1. Students will understand the working of NGOs.
2. Students will learn to plan different activities for various working areas of NGO.
3. Students will sensitize their role in community development.

Course	Paper no	Hours/week	Credit	Exam hours	Marks-Internal	Marks-External	Total
Management of NGO (Pr)	1	2	1	2	10	20	30

Content-

Block No.	Topic and Details	No. of Lectures assigned
1	• To observe the ongoing activities of any one NGO. • To write a report of observed activities of NGO.	**7**
2	• To plan any one activity for selected target group of NGO in the areas of work like health, women and child welfare, human rights, employment generation, adult education etc.	**8**

Evaluation:-

1. Internal Evaluation-10 Marks
2. External Evaluation- 20 Marks (10 Viva + 10 external exam)

References:

1. Advances in Extension Education
   D.K.Dangi, K.S.Kadian, Agrotech Publishing Academy, Udaipur
2. Education and Communication for Development
   O.P.Dahama, O.P.Bhatanagar, Oxford and IBH Publishing co. Pvt. Ltd., New Delhi
3. Extension Education and Communication
   L.L.Somani, Agrotech Publishing Academy, Udaipur

4. Extension Education and Communication
   V.K.Dube, Indira Bishnoi, New Age International Publications, New Delhi
5. NGO and Development Communication
   Anjali Pahad, MeghaSidhpura, Vacha Shah, Mangalam Publications, New Delhi
6. Understanding Development Communication
   Uma Joshi, Dominant Publishers and Distributors, New Delhi

T.Y. B.Sc. (HOME SCIENCE)
V SEMESTER
2020-21
G14- FASHION ILLUSTRATION (Pr)

Objectives:

1. Students develop skills in drawing basic Croquie.

2. Students learn to develop skills in designing garments through illustration.

3. Students learn to draw various textures and use them effectively in illustration and rendering.

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
Fashion Illustration (Pr)	1	6	3	3	30	70	100

Block. No	Topic and Details	No. of practical classes assigned
1	• Basic Croquie: (Female-8 or 10 heads) • Fleshing out Croquie (Front view)	**15**
2	• Female face drawing • Drawing different hairstyles • Drawing of various fashion accessories	**10**
3	Draping garment – • Indian garments (any-2) • Western garments(any-2) • Indo-western garment (any-2) • Evening gown	**10**
4	Drawing of various textures (at least 8 different textures). Demonstration of various medias for rendering.	**10**

EVALUATION:-

1. Internal Evaluation-30 Marks
2. External Evaluation- 70 Marks (30 class work + 10 basic croquie + 10 garment design + 10 rendering + 10 Overall).

References:

1.Anne Allen and Julian Seaman:The Basic Principles, B.T Bats Ford Ltd. London, 1996, IstEdition

2..BiliaAbling:Fashion Rendering With Colour, Prentice Hall INC. 2001, New Jersy

3.MaiteLafuente&AitanaLleonart:Fashion Illustration Figure Drawing,Parragon books Limited , UK, 2007 1st Edition.

4.MaiteLafuente& Daniela Santos quartino:Fashion Illustration Flat Drawing, Parragon books Limited , UK, 2007 1st Edition.

5.Patrick John Ireland:Fashion Design Illustration Women, B. T. Bats Ford , London 2005, 1st Edition

6.RituBhargava:Fashion Illustration & Rendering, B. Jain Publishers (P) Ltd. 2005, 1st Edition

T.Y. B.Sc. (HOME SCIENCE)
V SEMESTER
2020-21
G15- TRAINING AND DEVELOPMENT (Th)

Objectives:

1. Students will understand the concept and need of training for the development.
2. Students will be able to comprehend the different types of training.
3. Students will develop the understanding of different methods of training.
4. Students will learn to plan a training programme.

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
Training and Development (Th)	1	2	2	2	20	50	70

Block No.	Topic and Details	No. of Lectures assigned
1	**Concept of Training** • Meaning of training • Need and importance of training for development of individual, group, organization, society • Areas of training • Approaches of training	**7**
2	**Types of training** • Induction training • Job instruction training • Vestibule training • Refresher training • Apprenticeship training	**8**
3	**Techniques or methods of training** • On-the-job training methods • Off-the-job training methods Different methods with its use and importance	**7**

4	**Planning the training programme** • Need assessment / identify the area of training • Resource allocation and assessment • Leadership and organization in training programme • Defining the objectives of training • Selection and use of training methods • Monitoring the training programme • Evaluation and redesigning the training programme	**8**

EVALUATION-

1. One Internal test (20 marks)

2. External –final exam (50 marks)

T.Y. B.Sc. (HOME SCIENCE)
V SEMESTER
2020-21
G15- TRAINING AND DEVELOPMENT (Pr)

Objectives:

1.Students will be able to analyze different types of training programmes.
2.Students will learn to comprehend different type of training with suitable methods.
3.Students will develop skills in planning the training programme for specific target group.

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
Training and Development (Pr)	1	2	1	2	10	20	30

Block. No	Topic and Details	No. of practical classes assigned
1	• To observe the ongoing programme. • To write the report with reference to the purpose, trainer, trainee, types etc. of the training	**7**
2	To design the training programme for any one selected target group.	**8**

EVALUATION

1. Internal Evaluation-10 Marks

2. External Evaluation- 20 Marks (10 Viva + 10 external exam)

References:

1. Designing Messages for Developmental Communications
   BelaModi, Sage Publications, New Delhi
2. Extension Education and Communication
   V.K.Dube, Indira Bishnoi, New age International Publications, New Delhi
3. Effective Training and Development of Management
   Y.P.Singh, Anmol Publications Pvt. Ltd., New Delhi
4. Fundamental of Extension Education
   P.M.Khan,L.L.Somani, Agrotech Publishing Academy, Udaipur
5. Integrated Extension Education
   S.V.Supe, Agrotech Publishing Academy, Udaipur
6. Media and Communication Management
   C.S.Raydu,Himalaya Publishing House
7. The Complete Guide to Training Delivery
   Stefen B. King, Marsha King, William J. Ruthwell, AMACOM, New York.
8. Training Methodology in Extension Education
   M.Kanwat, M. Chargotra, P. Suresh kumar, Agrotech Publishing, Udaipur
9. Training Manual on Human Resources Management and Organisational Learning
   SrivastavaV.N.GirdharJ.Gyani

T.Y. B.Sc. (HOME SCIENCE)
V SEMESTER
2020-21
G16- SEMINAR (Pr)

Objectives:

1. Students learn to find reference material.
2. Students learn to analyze, condense and evaluate & present articles/reports.
3. Students get experience in group discussion.
4. Students develop ability to make effective presentations.

Course	Paper no	Hours/week	Credit	Exam hours	Marks-Internal	Marks-External	Total
Seminar	1	3	3	-	100	-	100

Block No	Topic and Details	No. of Practical classes assigned
1	• **Book Review** To review any book pertaining to any area of General Home Science with its presentation	15
2	• **Report & Presentation of any Article** To select a current topic related to the subject or to review any article from literature, industry, library and other sources, compile and present it in class.	15
3	• **Survey** To Select any problems related to current issues on environment and Consumers& collect information through observation / interview &questionnaire. To prepare a report and discuss in the class in group with audio visual aids.	15

Evaluation:
The evaluation of subject should be fully internal as students need to prepare power point presentations for research paper/review paper/ projects throughout the semester and hence, continuous evaluation is recommended.

- **Internal class work evaluation based on:**

	Internal (100)			
Attendance (10)	Presentation on Current Trends in different areas of Home Science (30)	Report (10)	Research Paper (30)	Research Paper-Presentation (20)

T.Y. B.Sc. (HOME SCIENCE)
V SEMESTER
2020-21
E.C (ID) FOOD SERVICE MANAGEMENT (Pr)

Objectives:

1. Students learn & understand various types of menu preparation & presentations.
2. Students learn& understand various types of table etiquettes& manners.
3. Students become aware of various styles of table setting & serving.
4. Students learn table decoration for various events.
5. Students are trained in taking orders, presenting bills & taking feedback.

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
Food Service Management (Pr)	1	4	2	2	20	50	70

Block No	Topic and Details	No. of Practical classes assigned
1	• Importance of food beverage services • Menu planning & presentation • Table Etiquettes& manners, art of conversation • Service sequence (Welcoming guests, Presenting of menu, Order taking, Cover layout, Service of appetizer, Main course, Clearance, Service of dessert ,Service of coffee / tea & Presentation of bills)	7
2	• Table Settings and Serving: Indian and Western Styles. • Salad decorations • Demonstration on Napkin folding • Table decoration	7
3	• Care, maintenance & storage of cutlery &other equipment. • Clearing services.	6
4	• Food service management for special occasion: planning, report writing & presentation. Birthday party / Anniversary party/ Marriage party / New year party/ Any other	10

Evaluation:

- Internal Evaluation-20 Marks
- External Evaluation- 50 Marks (20 Class work + 10 Viva + 20 External exam)

References:

1. Ranald Kin Ten, Theory of Catering
2. J.N.Diwan ,Catering& Food Service Management
3. Anita kumar, The art of food service, Sanskar publication, Pune.
4.Sudhir Andrews, Food & Beverage Service Beverage Manual, TATA McGrawHill Company
5.R.K.Arora, Food Service and Catering Mgt, APH Publishing Co.

VEER NARMAD SOUTH GUJARAT UNIVERSITY
FACULTY OF SCIENCE (B.Sc. Home Science)
UG B.Sc. Programme
Structure under CBCS for B.Sc. Home Science subjects
SHETH P.T.MAHILA COLLEGE OF ARTS AND HOME SCIENCE
General Home Science, Food Science & Nutrition, Human Development (GFH)
GENERAL HOME SCIENCE
SEMESTER VI 2020-21 (New)

Semester	Course	Paper No		Hours/ Week	Credit	Exam Hours	Marks		Total
							Internal	External	
VI	Course	G17 (Pr)	Management of Centres for Children and Youth	6	3	3	30	70	100
		G18 (Th)	Event Management	2	2	2	20	50	70
		(Pr)	Event Management	2	1	2	10	20	30
		G19 (Pr)	Field work in Extension	6	3	3	30	70	100
		G20 (Pr)	Clothing Construction Techniques	6	3	3	30	70	100
		G21 (Th)	Dyeing and Printing	2	2	2	20	50	70
		(Pr)	Dyeing and Printing	2	1	2	10	20	30
		G22	Internship	6	3	-	30	70	100
	F.C. (English)	-	English- As per VNSGU	2	2	2	20	50	70
	E.C (ID)	-	Innovative Product Development (Pr)	4	2	2	20	50	70
	NSS/NCC/Sports/Saptadhara				2				
	Total				24				740

VIthSEMESTER

T.Y. B.Sc. (HOME SCIENCE)
VI SEMESTER
2020-21
G17 - MANAGEMENT OF CENTERS FOR CHILDREN AND YOUTH (Pr)

Objective:-

- To make students aware of the need of skill development in the area of age based centers for children.
- To make them aware of the objectives of special centers like Toy Library, Children Library, Recreational and Educational etc.

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
G6-Management of Centers for Children and Youth (Pr)	1	6	3	3	100	-	100

Content:-

Block No	Topic and Details	No. of Practical Classes assigned
1	**Introduction** • Introduction to different centers and its objectives. • Need for such centers. **Centers catering to children's needs** 1. Hobby Centers/ Hobby club 2. Recreational center/ Club 3. Bal Bhavan 4. Children's library cum Reading Room 5. Toy center/Toy Library **6.** Holiday Camps	**8**
2	**Developing a center –** • Space requirement • Equipment and material • personnel • Balancing income and expenditure	**7**
3	**Establishment of a center** • Inviting personnel from NGO, director of any center to orient students on starting a center.	**8**

	• Aspects such as finances, loan facilities, grants, registration and other necessary requirements to be covered.	
4	Planning an event and preparing a file	**7**

Evaluation:-

Continuous internal evaluation- The evaluation of subject should be fully internal as students need to participate in the welfare centres for child, youth, women and old age institutions throughout the semester and hence, continuous evaluation is recommended.

Internal assessment based on:

	Internal (100)		
Attendance (10)	Project (30)	Event (50)	Report (10)

Reference:

1. Essa, E.L.(1999). Introduction to early childhood education. #rd Edition, Delmer Publishers, New York.
2. Leeper, S.H, Witherspoon, R.C and Day, B. (1984): Good Schools for young children. macmillan.
3. Muralidharan R (1967): A Guide for Nursery School Teacher, @nd edition NCERT, New Delhi.

T.Y. B.Sc. (HOME SCIENCE)
VI SEMESTER
2020-21
G18- EVENT MANAGEMENT (Th)

Objectives:

- Students will acquire the knowledge about the event industry
- Students will learn and understand the process of planning and controlling
- Students will understand the importance of marketing and promotion in events
- Students will know about the various protocol codes and staging techniques
- Students will understand the financial aspects and safety measures in event

Course	Paper no	Hours/week	Credit	Exam hours	Marks-Internal	Marks-External	Total
Event Management (Th)	1	2	2	2	20	50	70

EVALUATION:-

Block No	Topic and Details	No. of Lectures assigned
1	**Introduction to Event Management** • Events defined, Size and types • The event team, Qualities of event manager • Code of ethics, Feasibility factors (SWOT analysis, Keys to success) **Concept and Design** • Planning and designing the event • Developing and analysing the concept • Logistics of the concept	**10**
2	**Marketing and Promotion** • Nature and Process of event marketing • Sponsorship • Image/Branding, Advertising, Publicity • Developing Public Relations	**07**
3	**Protocol and staging** • Titles, Protocol for dress, speakers, • Protocol for various events • Preparing for dignitaries	**05**
4	**Financial aspect, Safety and security** • Event Budgeting, estimating the cost of events • Making balance sheet • Break even analysis/profit-loss • Tips to make event profitable • Legal aspects • Occupational safety and health • Incident reporting, relevant legislations	**08**

1. One Internal test (20 marks)
2. External –final exam(50 marks)

T.Y. B.Sc. (HOME SCIENCE)
VI SEMESTER
2020-21
G18 EVENT MANAGEMENT (Pr)

Objectives:

- To equip the students with the knowledge of the various marketing and promotional tools
- To emphasize the importance of financial considerations in event management

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
Event Management (Pr)	1	2	1	2	10	20	30

Block. No	Topic and Details	No. of practical classes assigned
1	**Planning and Designing of Event** • Theme, Selection of site and staging • Birthday/ anniversary/ meeting/ seminars/ exhibition/ fashion show etc.	**10**
2	**Marketing and Promotion** • Surveying various promotion medias • Writing report for promotion	**5**

EVALUATION-

1. Internal Evaluation-10 Marks
2. External Evaluation- 20 Marks (20- planning an event on the given topic)

REFERENCES -

1. Event Management for Tourism, Cultural, Business and Sporting Events- Lynn Van Der Wagen and Brenda R. Carlos, Pearson Education Inc, ISBN 978-81-7758-065-5
2. Event Planning and Management – SandeepSharma,Aadi Publications,ISBN: 9789380902289, 9380902289,Edition: 2011
3. Event Management- Purnima Kumari, Anmol Publications Pvt. Ltd., ISBN: 9788126149759, 8126149752, Edition: 2013
4. Event Management and Public Relations- Savita Mohan, Enkay Publishing House, ISBN: 9789380995205, 9380995205, Edition: 1stEdition, 2012

T.Y. B.Sc. (HOME SCIENCE)
VI SEMESTER
2020-21
G19- FIELD WORK IN EXTENSION (Pr)

Objectives:

1. Students are expected to identify the needs and problems of the community.
2. Students will learn to plan, implement and evaluate the programme for the community.
3. Students are expected to integrate adult education, population education, community health and nutrition etc. while planning and executing the programmes.
4. Students will develop the skills in working with the different target groups of the society.

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
Field Work in Extension (Pr)	1	6	3	3	30	70	100

Block No	Topic and Details	No. of practical classes assigned
1	Visit urban and / or rural communities to collect their baseline information, for identifying the needs and interests of specific target group.	**11**
2	Plan a need based programme for the specific target groups of the community.	**7**
3	Conduct an extension programme or activities in the selected community	**16**
4	Monitor and evaluate an extension programme or activity to collect feedback from the target group on the specific aspects. Write a report for the same	**11**

Evaluation

1. Internal Evaluation-30 Marks
2. External Evaluation- 70 Marks (30 class work + 20 planning + 10 Viva + 10 preparation of questionnaire)

T.Y. B.Sc. (HOME SCIENCE)

VI SEMESTER

2020-21

G20- CLOTHING CONSTRUCTION TECHNIQUES (Pr)

Objectives:

1. Students will learn various techniques of clothing construction.
2. Students will acquire basic knowledge of finishing different necklines and plackets used for garments.
3. Students develop skills in darning and mending garments.

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
Clothing Construction Techniques (Pr)	1	6	3	3	30	70	100

Block. No	Topic and Details	No. of practical classes assigned
1	A) SEAMS: 1) Flat-fell 2) Top-stitched 3) Lapped B) DARTS: 1) Half-dart 2) Full-dart C) BIAS: Cutting and joining bias.	**09**
2	NECKLINES: Preparing samples of the necklines by application of the following- 1) Bias Facing 2) Bias Binding 3) Shaped Facing	**18**
3	PLACKETS: Preparing samples of the plackets by application of the following- 1) Continuous Placket 2) Kurta Placket 3) Zipper	**12**
4	DARNING AND MENDING : 1) Darning of cuts or tears. 2) Patching	**06**

EVALUATION:-

1. Internal Evaluation-30 Marks
2. External Evaluation- 70 Marks

References:

1. Anna Jacob Thomas**:** The Art of Sewing
2. Aldrich Winfred: Fabric form and flat pattern cutting
3. Armstrong Helen Joseph: Pattern Making for Fashion Design. Harper&Row Publishers, N.Y
4. Bray Natalie: Dress Pattern Designing _ Blackwell Sci. Fifth Edition
5. Jindal Ritu: Hand Book for Fashion designing- Mittal Publication, Delhi.
6. Readers Digest: Guide to Sewing
7. Zarapkar: System of cutting- Navneet Pub.Ltd.

T.Y. B.Sc. (HOME SCIENCE)
VI SEMESTER
2020-21
G21 - DYEING AND PRINTING (Th)

Objectives:

1. Students acquire knowledge of different dyes and their application on various fabrics.
2. Students understand the different stages of dyeing.
3. Students get acquainted with various printing methods.

Course	Paper no	Hours/week	Credit	Exam hours	Marks-Internal	Marks-external	Total
Dyeing & Printing (Th)	1	2	2	2	20	50	70

Block No	Topic and Details	No. of Lectures assigned
1	**Introduction to Dyeing** • Classification of Dyes. • Method of dyeing and properties of the following dyes (in brief):- Acid dyes; Basic dyes; Direct dyes; Reactive dyes; Vat dyes , Azoic dyes, Disperse dyes.	8
2	**Selection of Dyeing Method** • Fiber stage -Stock dyeing • Yarn dyeing – Skein (hank) dyeing, Package dyeing • Piece dyeing –Union dyeing, Cross dyeing, Winch, Jigger and Padding Mangle. • Garment dyeing(in brief)	7
3	**Introduction to Printing** • Introduction to methods of printing – Direct, Discharge and Resist **1) Direct Printing** The following methods of printing to be covered in detail- • Block printing • Duplex printing • Stencil printing • Screen printing (Flat bed) • Transfer printing	8
4	**2) Resist Printing** • Batik printing- History, methods of batik and equipments used • Tie and dye – History, methods of Tie & dye and equipments used.	7

	• Ikat dyeing (in brief) 3) **Discharge Printing** (in brief)	

EVALUATION-

1. One Internal test (20 marks)
2. External –final exam(50 marks)

REFERENCES –

1. E P Gohil&Vilinskey - Textile Science
2. Marjory Joseph: Essentials of Textile Science
3. Corbman: Textiles- Fiber to Fabric
4. V A Shenai – Technology of Dyeing
5. V A Shenai – Technology of Printing
6. Bihari Barbhaiya - Batik
7. Shanta Deshpande – Batik for the beginners.

T.Y. B.Sc. (HOME SCIENCE)
VI SEMESTER
2020-21
G21- DYEING AND PRINTING (Pr)

Objectives:

1. Students will learn the procedure of dyeing.
2. Students will acquire basic knowledge of various methods of tie and dye.
3. Students develop skills in styles of resist printing.

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
Dyeing And Printing (Pr)	1	2	1	2	10	20	30

Block. No	Topic and Details	No. of practical classes assigned
1	TIE & DYE : Preparing samples by the following techniques of tie and dye - • Knotting • Pleating • Twisting • Circle • Marbling • Rutching • Laheriya • Bandhani • Tritik • Pegging • Chevran	**12**
2	BATIK: Demonstration of various styles of Batik • Crack • Splash • Scratch • Batik painting • Combination	**2**

Evaluation-

1. Internal –Continuous evaluation (10 marks)
2. External –Final exam (20 marks)

References –

1. E P Gohil & Vilinskey -Textile Science
2. Marjory Joseph: Essentials of Textile Science
3. Corbman: Textiles- Fiber to Fabric
4. V A Shenai – Technology of Dyeing
5. V A Shenai – Technology of Printing
6. Bihari Barbhaiya - Batik
7. Shanta Deshpande – Batik for the beginners.

T.Y. B.Sc. (HOME SCIENCE)
VI SEMESTER
2020-21
G22- INTERNSHIP (Pr)

Objectives:

1. To give students practical experience in the organization /Industry.
2. To help students to develop insight for a profession in Industry.
3. To help students to explore possible career options to make them self-reliant.

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-external	Total
Internship	1	6	3	-	30	70	100

The students will be placed to an organization /Industry for four weeks. The students should complete training in any thrust areas of Home Science.

Areas:

- Food Industry
- NGO
- Pre-school unit /Special school
- Hotel Industry
- Event companies
- Front desk
- Apparel Industry
- Corporate sector
- Any other area of interest

The evaluation will be done jointly by the college and placement organization.

1. Internal evaluation:

- Submission of report and oral presentation by the student.
- Final report should be written by the student with

(1) Title of Internship, location of Internship & Name
(2) About the organization
(3) Internship details
(4) Outcomes & suggestions – what student has gained?

Individual file	-	20 marks
Presentation	-	10 marks
Total	-	30 marks

2. Evaluation by Industry / organization:

- Evaluation criteria to be provided by the college to the Organization /Industry to be filled in & submitted by the supervisor.

(1) Application of knowledge	-	20 marks
(2) Working relationship (interaction/ cooperation /coordination)	–	20 marks
(3) Creativity / skills	–	15 marks
(4) Overall behaviour (punctuality / sincerity)	–	15 marks
Total		70 marks
GRAND TOTAL	**-**	**100 MARKS**

Students are assessed by the authorities of the Organization/centre where students are placed for Practical experience and Participation. Assessment is done on regular basis on their performance and hence continuous evaluation is recommended.

T.Y. B.Sc. (HOME SCIENCE)
VI SEMESTER
2020-21
E.C (ID) INNOVATIVE PRODUCT DEVELOPMENT (Pr)

Objectives:

1. Students develop skills pertaining to new product trends and innovation.
2. Students get knowledge of developing products by use of various art forms.
3. Students utilize the acquired skills as a means of self expression as well as self-employment.

Course	Paper no	Hours/week	Credit	Exam Hours	Marks-Internal	Marks-External	Total
Innovative Product Development (Pr)	1	4	2	2	20	50	70

Block No	Topic and Details	No. of Practical classes assigned
1	• **Traditional Indian Paintings** (Warli/ Madhubani/ Pithora/ Kalamkari/ Gond Art etc.)- To develop one product with the use of any one of the above.	**7**
2	• **Home Decor Product**- To design and develop a product for thematic modern home decor.	**8**
3	• **Paper craft** - Card making/ Paper boxes & bags/ Gift wrapping etc.or any such product by any method of paper craft or combination methods.	**8**
4	• **Herbal and Vedic Health Products-** Development of household Herbal medicines and beauty products.	7

Note:

- Workshop to be conducted to teach new articles & ideas.
- To visit any centre of exhibition related to art and craft.

Evaluation:

- Internal Evaluation-20 Marks
- External Evaluation- 50 Marks (20 class work + 30 External exam)

References:

1. Joanna Lorenz, “creative crafts “, Acropolis books publisher.
2. Cheryl Owen, “Paper crafts”, published by salamander book ltd.
3. Sunil Banerjee, “ Applied Art & Craft”, Arise Publishers & Distributors, New Delhi
4. Joanna Lorenz, “Crafty Ideas for Home, edited by Lucy Painter.
5. Laurence Llewellyn, “Decorative stenciling “, Bowen chancellor press.
6. Parekh JyotiN ,“Wonderful Wrapping”, Navneet prakashna.
7. The Alexander Brothers,” Step by step water color painting.
8. Annette Claxton, “Greeting cards”.
9. The Art and Architecture of India: Buddhist, Hindu, Jain published by Penguin Books, London, 1953.
10. Stuart C. Welch. The Art of Mughal India.
11. V.K. Subramanian. Art Shrines of Ancient India. 2003.
12. Hart Jane. A Passage to India: From Traditional Miniature Paintings to Contemporary Multi Media. 2002.

B.SC HOME SCIENCE

FOOD SCIENCE AND NUTRITION

3RD YEAR

REVISED SYLLABUS 2020

VEER NARMAD SOUTH GUJARAT UNIVERSITY
FACULTY OF SCIENCE (B.Sc.-Home Science)

UG B.Sc. Programme
Structure under CBCS for B.Sc Home Science subjects
SHETH P.T.MAHILA COLLEGE OF ARTS AND HOME SCIENCE
FOOD SCIENCE AND NUTRITION

SEMESTER V

Course	Paper No.		Hours/ Week	Credit	Exam Hours	Marks		Total
						Internal	External	
Core –I	F11(Th)	Diet Therapy I	2	2	2	20	50	70
	F11 (Pr)	Diet Therapy I	2	1	2	10	20	30
	F12 (Pr)	Food Analysis	6	3	3	30	70	100
	F13 (Th)	Human Nutrition I	2	2	2	20	50	70
	F13 (Pr)	Human Nutrition I	2	1	2	10	20	30
	F14 (Th)	Food Microbiology	2	2	2	20	50	70
	F14 (Pr)	Food Microbiology	2	1	2	10	20	30
	F15 (Th)	Nutrition Biochemistry I	2	2	2	20	50	70
	F15 (Pr)	Nutritional Biochemistry I	2	1	2	10	20	30
	F16	Recent Advances in Food Science and Nutrition	6	3	-	100	-	100
F.C.	-	English	2	2	2	20	50	70
E.C.	-	Personality Development (Pr) **OR**	4	2	2	20	50	70
		Food service Management(Pr) **OR**	4	2	2	20	50	70
		Nutrition Assessment & Surveillance (Pr)	4	2	2	20	50	70
NSS/NCC/Sports/Saptadhara				2				
Total				24				740

VthSEMESTER

T.Y.B.Sc. (Home Science)
V semester
F 11 –DIET THERAPY I

Objectives:

1. Understand the basic principles of diet therapy
2. Be aware of the physiological changes associated with specific diseases.
3. Understand the relationship between dietary modifications and physiological changes observed in specific disease conditions.
4. Acquire the ability to modify the normal diet to suit individuals suffering from specific diseases.

Course	Hours/week	credit	Exam hours	Marks-Internal	Marks-external	Total
Diet Therapy I	2	2	2	20	50	70

Block. No	Topic and Details	No. of lectures assigned
1	**Unit 1: Basic concept of Diet Therapy** **Terms:** Therapeutic, Acute, Chronic, SymptomsModifications of normal diet for consistency and Nutrients – Energy, Protein, Minerals, Vitamins, Fiber and Water Nutritional care in the hospital	7
2	**Unit 1: Fevers and Infection** Classification of fevers, Metabolism in the body, Causes, Types, General consideration and dietary modification in Acute Fevers and Chronic Fevers like typhoid and tuberculosis **Unit 2: Pre and post-operative diets** General dietary guidelines for Pre and post-operative diets	8
3	**Unit 1: Weight Management** Underweight and Over-weight **Modification of diet during obesity –** Assessment, causes and dietary modifications. Importance of Behavior modification and exercise **Modification of diet for underweight –** Assessment, causes and high energy diet for weight gain	7
4	**Unit 1: Gastro-Intestinal Tract disorders** Gastritis, peptic Ulcer, Diarrhoea, Constipation and Ulcerative Colitis: Etiology, Symptoms & principles of Diet in specific conditions, management of Diarrhoea through ORT **Unit 2: Liver disorders** Physiology and functions of the liver Dietary modifications for Infective Hepatitis and Cirrhosis of liver - causes, symptoms and dietary modification	8

EVALUATION-

1. One Internal test (20 marks)

2. External –final exam (50 marks)

References:

1. Srilakshmi, B. (2008) Dietetics, 5th Edition, New Age International (P) Limited Publishers, New Delhi, India.
2. Krause, M. M., Mahan, L.K. and Escott, S.S. (2003) Krause's – Food, Nutrition and Diet Therapy, 11th Edition, W.B. Saunders, Philadelphia, U.S.A.
3. Williams, S.R. (1995) Diet Therapy. 1st Edition Mosby Year Book Inc, St. Louis, Missouri, U.S.A.
4. Whitney, E.N., Cataldo, B.C., De Bruyne, L.K., and Rolfes, S.R. (1996) Nutrition for Health Care, 1st Edition, West publishing Company, St. Paul, U.S.A.
5. Smolin, L. A. and Grosvenor, M.B. (2007) Nutrition – Science and Applications, 4th Edition, Wiley
6. Antia, F.P. (1989) Clinical nutrition and Dietetics, 3rd Edition, Oxford University Press, New Delhi, India.

T.Y. B.Sc. (Home Science)
V semester
F 11 –DIET THERAPY (Pr)- I

Objectives:

1. Acquire the ability to modify the normal diet to suit individuals suffering from specific diseases.
2. Develop skills in planning and preparation of foods, for specific disease conditions

Course	Hours/week	Credit	Exam hours	Marks-Internal	Marks-external	Total
Diet Therapy I **(Pr)**	2	1	2	10	20	30

Block. No	Topic and Details	No. of lectures assigned
1	**Planning and preparation of,** • Normal Diet &Transitional Hospital Diets • High Protein High Energy Diet • Pre and post-operative Diet	**7**
2	**Planning and preparation of,-** • Underweight, overweight and obesity • Diet in ulcers, diarrhea and constipation • Diet in liver disorders	**8**

EVALUATION-

1. **Internal Evaluation-10 Marks**
2. **External Evaluation- 20 Marks (10 Planning + 10 Practical)**

References:

1. Srilakshmi, B. (2008) Dietetics, 5th Edition, New Age International (P) Limited Publishers, New Delhi, India.
2. Krause, M. M., Mahan, L.K. and Escott, S.S. (2003) Krause's – Food, Nutrition and Diet Therapy, 11th Edition, W.B. Saunders, Philadelphia, U.S.A.
3. Williams, S.R. (1995) Diet Therapy. 1st Edition Mosby Year Book Inc, St. Louis, Missouri, U.S.A.
4. Whitney, E.N., Cataldo, B.C., De Bruyne, L.K., and Rolfes, S.R. (1996) Nutrition for Health Care, 1st Edition, West publishing Company, St. Paul, U.S.A.
5. Smolin, L. A. and Grosvenor, M.B. (2007) Nutrition – Science and Applications, 4th Edition, Wiley
6. Antia, F.P. (1989) Clinical nutrition and Dietetics, 3rd Edition, Oxford University Press, New Delhi, India.

T.Y.B.Sc. (Home Science)
V Semester
F12– Food Analysis (Pr)

Objectives:
This course will enable the students:

1. To impart basic skills to do laboratory work.
2. To teach general principles involved in instrumental methods.
3. To make the students understand the principles involved in the estimations.

Course Name	Hours/week	Credit	Exam hours	Marks- Internal	Marks- external	Total
Food Analysis(Pr)	6	3	3	30	70	100

Contents:

Block No.	**Topic and detailed content**	**No. of Periods**
01	Introduction to Food Analysis and its importance.	**01**
02	Sampling methods/ techniques ➢ Definition of Sampling ➢ Sampling techniques in food analysis ➢ General classification of sampling techniques ➢ Advantages and disadvantages of sampling techniques and best sampling method**.**	**02**
03	General Instrumental methods ➢ Identification, working principle and use of various instruments i.e. ➢ Colorimeter, Spectrophotometer, centrifuge machine, Kjeldahl'S apparatus, Soxhlet apparatus, Muffle furnace, Water bath and Electric oven etc.	**02**
04	Estimation of moisture by AOAC method of dehydration.	**02**
05	Estimation of fat/oil by solvent extraction method. (Demonstration only**)**	**02**
06	Determination of Acid value by NIN method	**02**
07	Determination of Saponification value by NIN method	**02**
08	Estimation of sodium chloride (Nacl) salt from butter by Mohr's titrimeric method.	**02**
09	Determination of Acidity of milk by titrimeric method	**02**
10	Estimation of Ascorbic acid (Vit.C) from food sources by 2,6 dichlorophenol indophenols method.	**02**

11	Estimation of Total Ash from given food stuff by AOAC method of ashing.	**02**
12	Estimation of Iron from given food sample by α-α dipyridyl reagent method.	**02**

EVALUATION-

1. **Internal Evaluation-30 Marks**
2. **External Evaluation- 70 Marks (10 class work + 10 assignment+20 written quiz+25 Practical exam+ 05 viva)**

References :

1. Harold Egan, Ronald S. Kirk, Ronald Sawyer, David Pearson "Pearson's Chemical Analysis of Foods. 8th Edition, 1981. Churchill Livingstone.
2. C Gopalan; B V Rama Sastri; S C Balasubramanian "Nutritive Value of Indian Foods." 6th Edition, 1996, Reprinted 2011. National Institute of Nutrition.
3. "Official Methods of Analysis, of AOAC INTERNATIONAL", 18th Edition, 2005, AOAC INTERNATIONAL.
4. N.Raghuramulu, K.Madhavan, S.Kalyanasundaram. "A Manual of Laboratory Techniques", 2nd Edition, 2003, National Institute of Nutrition.
5. A.Y.Sathe, "A first course in Food Analysis" 1st Edition, 1999. New Age International (P) Limited.
6. Manual of Methods of Analysis of Foods. Directorate General of Health Services, Ministry of Health and Family WelfareGovernment of India, 2005.
7. Morris Boris Jacobs "The Chemical Analysis of Foods and Food Products". 2nd Edition, 1951. D. Van Nostrad Company , 1951

T.Y.B.Sc. (Home Science)
V Semester
F 13 – HUMAN NUTRITION-I

OBJECTIVES:

It will help student:

1) To understand the fundamentals of the science of nutrition.
2) To understand the underlying biological, chemical, & regulatory mechanism.
3) To understand contemporary issue in the context of current scientific knowledge.
4) To understand interrelationship between Nutrients.
5) To understand latest developments in Human Nutrition.

Course	Hours/Week	Credit	Exam Hours	Marks Internal	Marks External	Total
Human Nutrition-I	2	2	2	20	50	70

Block	Topics and details	No. Of lectures
1.	CARBOHYDRATES : Unit 1 Types, review of digestion and absorption, functions - detail. Unit 2 Types of sugars - sugar alcohol, fibre - types, properties, function, role in various diseases.	7
2.	PROTEIN: Unit 1 ➢ Review of digestion, absorption, absorption, types, functions Unit 2 ➢ Methods of protein evaluation Amino acid imbalance, nitrogen balance, antagonism and toxicity. Unit 3 ➢ Factors affecting protein utilization RDA. Unit 4 ➢ Vegetarianism .	7

3.	LIPIDS : Unit 1 ➢ Review of digestion, absorption and metabolism. Unit 2 ➢ Types of lipids, fatty acids, lipo proteins. Unit 3 ➢ RDA and Functions, role of fat in cardio-vascular diseases.	8
4	A) WATER : Unit 1 ➢ Sources, functions, distribution of body water. Unit 2 ➢ Mechanism of loss, regulation of water balance, disturbances in water balance, dehydration, water intoxication. B) INTERRELATIONSHIP Unit 1 ➢ Inter relation between carbohydrate, fat and protein in energy metabolism. Unit 2 Starvation	8
	Total	30

EVALUATION-

1. One Internal test (20 marks)

2. External –final exam (50 marks)

Reference:

1. R. Passmore M.A. eastwood, Human Nutrition & Dietary -. ELBS English language book society.

2. Helen Guthrie: Introductory Nutrition, Times Mirror Publishing

3. M. Swaminathan: Advanced Text book on Food and Nutrition Vol.-I & Vol. – II

4. Mantab S. Bamji, N. Prahlad Rao, Vinodini Reddy Textbook of Human Nutrition,

T.Y.B.Sc. (Home Science)
V Semester

F13 HUMAN NUTRITION-I (Pr)

OBJECTIVES:

It will help student:

1. To get in field experience about deficiency diseases with respect to signs and symptoms.
2. To understand case history of in-door patients of hospitals.
3. To understand contemporary issue in the context of current scientific knowledge.
4. To understand interrelationship between Nutrients.
5. To understand latest developments in Human Nutrition.
6. To understand major deficiency among preschool children.

course	Hours/ week	credit	Exam hours	Marks- Internal	Marks- external	Total
Human Nutrition I (Pr)	2	1	2	10	20	30

Bl.No	Topic / Content Analysis	Periods
1.	Introduction to energy requirement and expenditure and factors which influence energy expenditure. ● Calculating BMR using the Kymograph. OR ● Calculating the Energy Expenditure using theSatyanarayan Method. ● Calculating the Energy Balance.	**6**
2.	Carbohydrates ● Calculation of the per cent energy supplied by Carbohydrates in the Diets. ● Survey of High fiber products available in the market	**4**
3.	Introduction to the concept of Protein quality. ● Calculate the chemical score using the SAAP, PAAP Reference protein. • Calculating the chemical score and NDPCal% of dishes. ● Evaluation of the protein quality of dishes.	**6**
	TOTAL	**16**

EVALUATION-

1. **Internal Evaluation-10 Marks**
2. **External Evaluation- 20 Marks (10 Quiz + 10 Practical exam)**

T.Y.B.Sc. (Home Science)
V Semester
F14 Food Microbiology (Th)

Objectives

The course enables the students to-

1. To understand the nature and the role of microorganisms in food.
2. To have a knowledge of the basic principles of food sanitation and safety.
3. To acquire a perspective of the importance of microorganisms in environmental microbiology.

Course	Hours/Week	Credit	Exam Hours	Marks Internal	Marks External	Total
Food Microbiology	2	2	2	20	50	70

Block	Content	No. of lectures
1	**Unit 1 Food Microbiology –Basic concepts - in brief** **General characteristics of** 1. Molds, 2. Yeasts 3. Bacteria **Brief introduction to the following:** 4. Viruses 5. Algae 6. Parasites **Types of Microorganisms important in Food Microbiology**	6 2

II	**Micro Organisms And Food** **Beneficial effects of micro organisms.** (1) Examples of micro-organisms responsible for commercial production of acid, vitamins, amino acid etc. (2) Microbial fermentation and Role of micro organisms in Food fermentations • Beer • Wine • Bread • Indian pickles • Fermented dairy products Curd, yoghurt & cheese • Vinegar **(3) Contamination and spoilage of** - Cereal and cereal products - Sucrose ,maple syrup and honey - Vegetable and vegetable products - Meat and Milk and eggs - Canned foods **Food infections and intoxications**	8 10 4

EVALUATION-

1. One Internal test (20 marks)

2. External –final exam (50 marks)

References

1. Frazier ,W.C,&Westhoff,D.1988 Food Microbiology .Tata McGraw-Hill
2. Guthrie ,R.K.[ed].1972.Food sanitation Inc.EaglewoodCliff,N.J
3. Jay,1978.Modern food microbiology.VanNostrand Reinhold Company ,New York
4. Marriot .N.G.[,1995]Principles of Food Sanitation .4th edition Edward Arnold
5. Pelczar ,M.L .,and R.D Reid -1972 Microbiology.McGraw&Hill ,New York
6. Reid,G.[ed]1982.Prescott and Dunn's industrial microbiology AVI Publishing Co.,Inc ., Westport ,Conn

T.Y.B.Sc. (Home Science)
V Semester
F14 Food Microbiology (Pr)

Objectives

This course will enable students to:

1. To understand the principle, working and use of various equipments.
2. To have a knowledge of the underlying principles in practical food microbiology.
3. To develop awareness about the different techniques in isolation and primary identification of microorganisms.

Course	Hours/Week	Credit	Exam Hours	Marks Internal	Marks External	Total
Food Microbiology	2	1	2	10	20	30

Block	**Contents**	**No. of Practicals**
I	Study of laboratory equipments principle ,working and use of Microscope, Autoclave, Incubator, Refrigerator, colony counter. 1. Study of motility : Hanging drop preparation. 2. Staining techniques : Simple staining Gram staining Acid fast staining Negative staining Capsule staining **Preparation of culture media composition and uses.**	7
II	1. Isolation of bacteria: using serial dilution, streak plate and pour plate techniques: • From food contact surfaces • From soil 2. Bacteriological Analysis of Water. Bacteriological analysis of milk. 4. Permanent slides of pathogenic micro organisms	2 3 2 1

EVALUATION-

1. **Internal Evaluation-10 Marks**
2. **External Evaluation– 20 marks (10 Planning + 10 practical)**

References :

1. Frazier ,W.C and Westhoff,D.1988 Food Microbiology .Tata McGraw-Hill
2. Guthrie ,R.K.[ed].1972.Food sanitation Inc.EaglewoodCliff,N.J
3. Jay,1978.Modern food microbiology.VanNostrand Reinhold Company ,New York
4. Marriot .N.G.[,1995]Principles of Food Sanitation .4th edition Edward Arnold
5. Pelczar ,M.L .,and R.D Reid -1972 Microbiology.McGraw&Hill ,New York
6. Reid,G.[ed]1982.Prescott and Dunn's industrial microbiology AVI Publishing Co.,Inc ., Westport ,Conn
7. Stanier,R.Y.,E.A.Adelberg,and Ingraham .1976 .The microbial world .4thed.Prentice Hall.

T.Y.B.Sc. (Home Science)
V Semester
F15 Nutritional Biochemistry -I (Th)

Objectives

The course enables the students:

1. To lay the foundation of biological chemistry.
2. To give insights about the chemical reactions that occurs in biological systems.
3. To impart knowledge about the structures of the principle components present in living beings.

Course	Hours/Week	Credit	Exam Hours	Marks Internal	Marks External	Total
Nutritional Biochemistry I (Th)	2	2	2	20	50	70

Block	Content	No. of Lectures
1	**1) Review of Basic chemistry:** • Important definitions • Biologically important functional groups of organic compounds • Oxidation and reduction reactions • pH and buffers	**3**
2	**2. Carbohydrates:** • General formula, Classification, • Introduction to monosaccharide, disaccharides, oligosaccharides, polysaccharides and Proteoglycans (Occurrencestructure, properties and functions of important carbohydrate compounds) • Optical and stereo isomers. (D and L isomers, Epimers Enantiomers ,Diastereomers Anomers.) • Important reactions of monosaccharide **3.Proteins:** • Introduction , Classification based on solubility, shape composition and functions • Structure of standard Amino acids, • Classification of amino acids. Physical and chemical properties of amino acids • Structure of proteins. • Denaturation and coagulation of proteins	**8**

3	**4. Enzymes:** • Definition, general properties, Nomenclature and classifications. • Mechanism of enzyme action. • Factors affecting enzyme activity. • Enzyme inhibition • Coenzymes and isoenzymes • Enzymes of diagnostic importance **5. Lipids:** • Introduction, Definition and Classification, • Fatty acids : Introduction ,Classification ,Nomenclature of Saturated and unsaturated fatty acids • Structure and properties of Triacyl glycerol • Characterization of fats • Properties and functions of biologically significant fats **6. Hormones**: Mechanism of Hormone Action. Sources ,Biochemical functions ,Regulation , and Effects of deficiency of Hormones of various endocrine glands	**6** **3** **4** **6**

EVALUATION-

1. One Internal test (20 marks)

2. External –final exam (50 marks)

References:

1. Finar I.L. "Organic Chemistry Vol. I" 6th Edition, (2009), Pearson Education India.
2. Finar I.L "Organic Chemistry, Volume 2": Stereochemistry and the Chemistry of Natural Products, 5th Edition, 2009.
3. Rastogi S.C. "Biochemistry", 2nd Edition, (2003) Tata MacGraw Hill Publishing Co. Ltd.
4. Jain, J, L., S. Jain and N. Jain. "Fundamentals of Biochemistry". 6th Edition, (2005). S.Chand Company Ltd.
5. Plummer, D.T., "An Introduction to Practical Biochemistry". 2nd Edition, (1971) McGraw-Hill Publishing Co. Ltd.
6. Apps D.K. and Cohen B.B. and Steel C.M. "Biochemistry: A Concise Text for Medical Students" (1992), Bailliere Tindall,
7. Debajyoti D, "Biochemistry" 2nd Edition, (1980) Academic Publishers,.
8. Satyanarayana U and Chakrapani U "Biochemistry", 3rd Edition, (2008), Books & Allied Publishers.

9. Chatterjee M.N., Shinde R. "Textbook of Medical Biochemistry" 8th Edition (2012) Jaypee Brothers, Medical Publishers.
10. Vasudevan D.M. and Sreekumari S – (2007) "Textbook of Biochemistry for Medical Students". 5th Edition, Jaypee Brothers, Medical Publishers.
11. "Murray Harper's Illustrated Biochemistry" 29th Edition, (2012) Prentice Hall Int.
12. Voet D, and Voet J.G "Biochemistry" 4th Edition. (2011), *John Wiley & Sons.*
13. Nelson DL & Cox MM. 5th Edition, 2009. "Lehninger's Principles of Biochemistry". Freeman and Co.
14. Berg J.M. Tymoczko J.L., and Stryer. L. "Biochemistry", 5th edition, (2002). W.H. Freeman.

T.Y.B.Sc. (Home Science)
V Semester
F15 Nutritional Biochemistry I (Practical)

Objectives

1. **To enable students learn the principles and procedures of biochemical analysis**

Course	Hours/Week	Credit	Exam Hours	Marks Internal	Marks External	Total
Nutritional Biochemistry I (Pr)	2	1	2	10	20	30

Block	Content	Assessment
	1. Calibration of glassware's	1
	2. Determination of pH using pH meter	
	3. Preparation of standard solutions	
	0.1 N HCl	**1**
	0.1N NaOH	
	0.1N KMnO4	**4**
	0.1N Iodine	
	4. Estimation of hemoglobin by colorimetric method	1
	5. Qualitative tests for proteins	
	6. Qualitative tests for fats	
	7. Qualitative analysis of carbohydrates (selected compounds)	2
	8. Estimation of Glucose and Sucrose by Benedicts Quantitative method	2
		2
		2

EVALUATION-

1. **Internal Evaluation-10 Marks**
2. **External Evaluation- 20 Marks (05 Quiz + 15 Practical exam)**

3rd Year B.Sc. (Home Science)
V Semester
F16– Recent Advances in Food & Nutrition

Objectives:

1. To train students to find reference material.
2. To train student to analyze, condense and evaluate articles/reports.
3. To provide experience in group discussion in the subject.
4. To help students develop an ability to make effective presentation.
5. To help students develop ability to prepare and present report.

course	Hours/week	credit	Exam hours	Marks-Internal	Marks-external	Total
Seminar	6	3	-	100	-	100

Content----

Block. No	Topic and Details	No. of Practical assigned
1	• **How to write research proposal** ➢ Introduction ➢ Literature review ➢ Research design ➢ Method and Material ➢ Result: Different methods for evaluation of data ➢ Conclusion ➢ Reference list	5
2	• **Review Article** To select a research article on current topicrelated to the subject or to review any articlefrom news paper, Journals, WHO data,NIN data and other sources, compile and present it in class. • **Preparation of oral presentation** Points to be consider for efficient oral presentation • **poster presentation** Points to be consider for efficient poster presentation	10

EVALUATION-

. External –final exam (30 marks)

Internal assessment based on:

Internal (70)			
Attendance (10)	Viva (10)	Research Proposal (30)	Review article (20)

T.Y.B.Sc. (Home Science)
V Semester
Nutritional Assessment and Surveillance (ELECTIVE)
(Pr)

Objectives

1. . To sensitize students to the principles, and methods for assessment of nutritional status
2. To equip students to use and interpret various methods for assessing nutrition status\
3. To enable understanding of purpose and types of nutrition surveillance

course	Hours/ week	credit	Exam hours	Marks- Internal	Marks- external	Total
Nutritional Assessment and Surveillance	4	2	2	20	50	70

Block No.	**Content**	**No. of hours**
Unit I	Development of Tools for Data Collection	
	1. Development of tools for collection of direct, indirect and ecological parameters for assessment of nutritional status from 2 different field settings (structured questionnaire and semi structured questionnaire), data collection, analysis and interpretation using MS excel 2. Development of tools for collection of dietary data using 24hDRM and FFQ, data collection, analysis, comparisons with RDA, calculation of consumption units and interpretation using the RDA (NIN, 2010)	
Unit II	Anthropometric Measurements and its Analysis	
	1. Data collection for various anthropometric measurements for children and adults for Weight, height, BMI, waist/hip, MUAC, Head circumference, SFT 2. Analysis and interpretation using software	
Unit III	Understanding the Clinical Signs and Various Conditions	
	1. Understanding the Clinical signs and symptoms for various nutritional deficiencies through field visits, power point presentations, videos: a. SAM / kwashiorkor b. Anemia c. VAD, Xerophthalmia d. IDD e. Water soluble vitamin B-Complex and ascorbic acid f. Zinc and other micronutrients 2. Preparing a critique of Nutrition surveillance data available in latest reports	

EVALUATION-

1. **Internal Evaluation-20 Marks**
2. **External Evaluation- 50 Marks (20 Class work + 30 project report presentation)**

REFERENCES	
1.	Jelliffe DB, Jelliffe EP (1989). Community nutritional assessment. Oxford University Press, New Delhi.
2.	Gopaldas T and Seshadri S (1987). Nutrition monitoring and assessment. Oxford University Press. Delhi.
3.	Sachdev HPS, Choudhury P (Eds), (1994). Nutrition in children. Developing country concerns. Dept of Pediatrics. Maulana Azad College. New Delhi.
4.	http://www.slideshare.net/soharashed/assessment-of-nutritional-status
5.	Regional workshop on national nutrition surveillance (2009) http://www.searo.who.int/LinkFiles/Publications_SEA-NUT-177.pdf
6.	WHO website

VIthSEMESTER

SEMESTER VI

Course	Paper No.		Hours/ Week	Credit	Exam Hours	Marks		Total
						Internal	External	
Core – I	F17 (Th)	Diet Therapy II	2	2	2	20	50	70
	F17 (Pr)	Diet Therapy II	2	1	2	10	20	30
	F18 (Th)	Food processing	2	2	2	20	50	70
	F18 (Pr)	Food processing	2	1	2	10	20	30
	F19 (Th)	Human Nutrition II	2	2	2	20	50	70
	F19 (Pr)	Human Nutrition II	2	1	2	10	20	30
	F20(Pr)	Food Product Development	6	3	3	30	70	100
	F21(Th)	Nutritional Biochemistry II	2	2	2	20	50	70
	F21 (Pr)	Nutritional Biochemistry II	2	1	2	10	20	30
	F22	Internship	6	3	-	30	70	100
F.C.	-	English	2	2	2	20	50	70
E.C.	-	Creative Craft (Pr) **OR**	4	2	2	20	50	70
		Child rights and Policies (Th) **OR**	2	2	2	20	50	70
		Diet Counseling Techniques (Pr)	4	2	2	20	50	70
NSS/NCC/Sports/Saptadhara				2				
Total				24				740

T.Y.B.Sc. (Home Science)
VI Semester
F 17 –DIET THERAPY II

Objectives:

1. Understand the basic principles of diet therapy
2. Be aware of the physiological changes associated with specific diseases.
3. Understand the relationship between dietary modifications and physiological changes observed in specific disease conditions.
4. Acquire the ability to modify the normal diet to suit individuals suffering from specific diseases.

course	Hours/week	credit	Exam hours	Marks-Internal	Marks-external	Total
Diet Therapy	2	2	2	20	50	70

Block. No	Topic and Details	No. of lectures assigned
1	**Unit 1: Cardio-Vascular Disorders** **Terms:** Ischemia, hyperlipidemia, Coronary Artery Disease, P/S ratio, Rheumatic Heart Disease **Risk factors for CVD** **Concept of atherosclerosis and general dietary guidelines for CVD** (Types of Fats – LDL, VLDL, HDL, TGs, MUFA, PUFA, SFA, MCT) **Unit 2: Hypertension –** classification, mild, moderate and severe	**7**
2	**Unit 1: Diabetes** **Terms:** Hyperglycemia, Hypoglycemia, OHA, Type 1 DM, Type 2 DM, gestational Diabetes, Glycemic Index, Glycemic Load Types of Diabetes, Classification, etiology, pathophysiology, Diagnosis and management of type 2 D.M.	**8**
3	**Unit 1: Renal Disorders** **Terms –** pyelonephritis, Renal Calculi and dialysis Physiology of kidney, causes of renal disorders, principles of diet therapy in acute and chronic nephritis – etiology, symptoms and dietary modifications	**8**
4	Unit 1: Respiratory Disorder Terms – COPD, Respiratory quotient, Fibrosis, Pneumonia, Tuberculosis, Asthma, Aspiration Upper respiratory tract infections Type 1 and Type 2 COPD, etiology, symptoms and Dietary modification	**7**

EVALUATION-

1. One Internal test (20 marks)

2. External –final exam (50 marks)

References:

1. Srilakshmi, B. (2008) Dietetics, 5th Edition, New Age International (P) Limited Publishers, New Delhi, India.
2. Krause, M. M., Mahan, L.K. and Escott, S.S. (2003) Krause's – Food, Nutrition and Diet Therapy, 11th Edition, W.B. Saunders, Philadelphia, U.S.A.
3. Williams, S.R. (1995) Diet Therapy. 1st Edition Mosby year book Inc, St. Louis, Missouri, U.S.A.
4. Whitney, E.N., Cataldo, B.C., De Bruyne, L.K., and Rolfes, S.R. (1996) Nutrition for Health Care, 1st Edition, West publishing Company, St. Paul, U.S.A.
5. Smolin, L. A. and Grosvenor, M.B. (2007) Nutrition – Science and Applications, 4th Edition, Wiley
6. Antia, F.P. (1989) Clinical nutrition and Dietetics, 3rd Edition, Oxford University Press, New Delhi, India.

T.Y.B.Sc. (Home Science)
VI Semester
F 17–DIET THERAPY (Pr)

Objectives:

1. Acquire the ability to modify the normal diet to suit individuals suffering from specific diseases.
2. Develop skills in planning and preparation of foods, for specific disease conditions

course	Hours/week	Practical	Exam hours	Marks-Internal	Marks-external	Total
Diet Therapy	2	1	2	10	20	30

Block. No	**Topic and Details**	**No. of lectures assigned**
1	Planning and preparation of diet for CVD and HTN patients, DASH Dietary approaches, Na content of different foods Meal planning and preparation for patients with type 2 diabetes	7
2	Introduction to Acid ash diet and Alkaline ash diet, Meal planning for patients with acute and chronic nephritis Meal planning for patients with COPD	8

EVALUATION-

1. **Internal Evaluation-10 Marks**
2. **External Evaluation- 20 Marks (10 Planning + 10 Practical)**

References:

1. Srilakshmi, B. (2008) Dietetics, 5th Edition, New Age International (P) Limited Publishers, New Delhi, India.
2. Krause, M. M., Mahan, L.K. and Escott, S.S. (2003) Krause's – Food, Nutrition and Diet Therapy, 11th Edition, W.B. Saunders, Philadelphia, U.S.A.
3. Williams, S.R. (1995) Diet Therapy. 1st Edition Mosby Year Book Inc, St. Louis, Missouri, U.S.A.
4. Whitney, E.N., Cataldo, B.C., De Bruyne, L.K., and Rolfes, S.R. (1996) Nutrition for Health Care, 1st Edition, West publishing Company, St. Paul, U.S.A.
5. Smolin, L. A. and Grosvenor, M.B. (2007) Nutrition – Science and Applications, 4th Edition, Wiley

T.Y.B.Sc. (Home Science)
VI Semester
F18 – Food Processing (Th)

Objectives: This course will enable the students:

1. Tounderstand the nature and composition of food.
2. To learn methods and principles involved in food processing.
3. To understand the changes occurring in foods during processing.

course	Paper no	Hours/week	credit	Exam hours	Marks-Internal	Marks-external	Total
Food Processing	F_7	2	2	2	20	50	70

Contents:

Block No.	Topic and detailed content	No. of Periods
01	**Introduction to food processing, objectives of studying food processing and its importance**	**02**
02	**Processing of Cereals:** ➢ Structure and composition of cereal grains. ➢ Milling of wheat, milled products of wheat (types of flour) and flour treatments. ➢ Milling of rice and rice products in brief. ➢ Rice bran oil	**04**
03	**Processing of Legumes/Pulses:** ➢ Milling/decortications ➢ Soaking ➢ Germination ➢ Fermentation ➢ Parching/puffing ➢ Fermented Soya products(in brief)	**03**
04	**Processing of Fats and oils:** ➢ Rendering ➢ Pressing ➢ Solvent extraction ➢ Refining and blending of oils ➢ Hydrogenation of fats/oils	**03**

05	**Processing of Milk and milk products:** ➢ Clarification ➢ Pasteurization ➢ Homogenization ➢ Sterilization ➢ Types of processed milk ➢ Processing of Cheese (cheddar) in brief.	**04**
06	**Processing of Meat and fish:** **Meat:** ➢ Animal slaughtering ➢ Ageing and curing of meat ➢ Tenderization of meat ➢ Processed meat products in brief **Fish:** ➢ Dried salted Fish ➢ Smoked fish ➢ Fish Protein Concentrate(FPC)	**05**
07	**Beverages:** ➢ Introduction and classification. ➢ Tea: Types and processing of black tea. ➢ Coffee: Types and processing of coffee. ➢ Carbonated beverages (Non-alcoholic): Meaning and steps involved in processing.	**05**
08	**Convenience foods :** ➢ Definition, reasons for increased use ➢ Advantages and Disadvantages ➢ Food fortification: its importance in food processing with suitable examples.	**02**

References:

1. Srilakshmi, B: (2010) Food Science, 5th Edition, New Age International Pvt Ltd Publishers

2. Shadaksharaswamy, M, Manay, S, (2010): Food facts and Principles, 3rd Edition, New Age International Publishers

3. Bennion, M. Scheule, B.: (2009): Introductory Foods,13th Edition, Prentice Hall Publications

4. Manay, S. (2009) Foods Facts ,New Age International Pvt Ltd Publishers

5. Subbulakshmi, G, Udipi, S. A (2006): Food processing and Preservation, New Age International Pvt Ltd Publishers

6. Potter, N. N., Hotchkiss J. H: (1999), Food Science , 5th Edition, Springer Publications

7. Freeland-Graves, J., Peckham, G. C, (1995): Foundations of Food Preparation (6th Edition), Prentice Hall Publishers

T.Y.B.Sc. (Home Science)
VI Semester
F18- Food Processing (PR)

Objective: This course will enable students:

1. To understand the processing Steps involve in manufacturing of different food products.
2. To understand the technique use to transmute raw ingredients in to food.
3. To understand the principle involved in food processing

Course	Paper no	Hours/week	Credit	Exam hours	Marks internal	Marks external	Total
Food Processing	F7	2	1	2	10	20	30

Contents:

Block No.	**Topic and detail content**	**No. of periods**
1	Market Survey ➢ Market survey of different processed food products available in the market	**01**
2	Milk and milk products ➢ Preparation of paneer, khoa, condensed milk and evaluation of physical-chemical parameters such as pH, Titrable acidity, Moisture	**02**
	➢ Preparation of flavored milk, and analysis of pH, Titrable acidity, moisture, total solids, lactose content	**01**
3	Cereals and cereal based products ➢ Preparation of bread ➢ Preparation of biscuits ➢ Preparation of cake	**06**
4	Amylase rich product ➢ Combining cereal and pulse to develop amylase rich flour	**01**
5	Malting process ➢ Development of nutrient dense flour using malting process	**01**

T.Y.B.Sc. (Home Science)
VI Semester
F19 HUMAN NUTRITION-II

OBJECTIVES: -

It will help student:

- To understand the fundamentals of the science of nutrition.
- To understand the underlying biological, chemical, & regulatory mechanism.
- To understand contemporary issue in the context of Current scientific knowledge.
- To understand interrelationship between nutrients.

Course	Hours/week	Credit	Exam hours	Marks Internal	Marks External	Total
Human Nutrition-II	**2**	**2**	**2**	**20**	**50**	**70**

S.R. no	Topic/Content Analysis	Periods
1.	VITAMINS – Review of sources, requirements In Detail functions, deficiency diseases observed in human beings: Unit 1: - Fat soluble vitamins Unit 1.1: -Vit A: Sources RDA forms of vit A.R.E.& carotenoids. Role of vitamin A in vision, protein synthesis & cell differentiation, reproduction and growth antioxidant function. - Vit A deficiency - skin changes, eye change, effect on bone growth, infectious diseases. - Vit A toxicity Unit 1.2: -Vitamin D Sources, R.D.A. - Role in bone growth, other functions. - Vit D deficiency: Rickets, osteomalacia – osteoporosis, Toxicity. Unit 1.3: -Vitamin E- antioxidant function, sources. Unit 1.4: -Vitamin K. - Clotting, sources r	7
2.	Unit 2: -Water Soluble Vitamins	8

	Unit 2.1: - Vitamin C.- Sources, R.D.A. syntheses & oxidation of vitamin of vitamin C, Role of Vitamin C in colleges formation, dentin synthesis, tyrosine, metabolism, neurotransmitters, utilization of iron, calcium and folacin, stress, antioxidant . - Deficiency : Scurvy - infantile & adult Unit 2.2 : Thiamin - sources, RDA Role in energy metabolism, beriberi - dry & wet, adult & infantile Unit 2.3: Riboflavin- sources RDA, Ariboflavinosis Unit 2.4: Niacin - Pellagra,, conversion of tryptophan to niacin, role of B6 in niacin formation, niacin equivalents, isoleucine/leucine ratio in pellagra. Maize and pellagra Unit 2.5: -Vitamin B6,Vitamin B12 1. VITAMIN B6 - forms of B6, biochemical function, nervous system, hematopoietic, lipid metabolism, effect on hormones, effects on other vitamins, reproduction. 2. VITAMIN B12 -intrinsic factor and extrinsic factor. Unit 2.6: Folic acid - role in DNA forms, role in blood, bone narrow stomach, mouth and nervous system (along with B12) Perniciousanemia& megaloblastic anemia B12 deficiency in vegans.	
3.	MAJOR MINERALS : Unit 1: - Sources, REA, functions & deficiency diseases of : 1. Calcium, 2. Iron, 3. Phosphorus, 1.Calcium - bone formation, tooth formation, growth, blood clotting, catalysts, muscle tone, nerve impulses, factors affecting calcium absorption- Deficiency - osteoporosis, osteomalacia, tetany, hypocalcaemia 2.Phosphorus - energy release, absorption and transport of nutrients, calcification of bones and teeth, acid base balance, deficiency. 3.Iron - functions - carrier of oxygen and carbon dioxide, blood formation, other functions, iron metabolism (Guthrie)forms, factors affecting iron status, hemoglobin, serum ferritin, nutritional anemia.	6

4.	TRACE MINERALS: 1. Iodine – -Absorption and metabolism - Function - thyroxin formation - Deficiency - Goiter, myxedema - Cretinism, hyperthyroidism, goitrogens sources. - Iodine status : TSH, T3 & T4 2. Zinc-Biochemical role, reproduction, skin, taste growth, sources. -Deficiency - acrodermatitis enteropathica 3.Selenium-Antioxidant, - interrelation of vit E 4. Copper-Men key's and Wilson, Biochemical role. 5.Chromium-Role in glucose metabolism 6. Sodium/potassium-sources, deficiency / excess.	9
	Total	

EVALUATION-

1. One Internal test (20 marks)

2. External –final exam (50 marks)

REFERENCE: -

1. Whitney E.N., Rolfes S.R. (1996) : Understanding nutrition – St. Paul, Minneapolis: West Publishing Co.
2. Wardlaw G. (2001): Perspectives in nutrition – St. Lous Mosby – Year Book
3. Sizer F.S., Whitey E.N.(2001) : Nutrition – concepts ad controversies – Belmont (CA): Wadsworth (Thomson learning).
4. Smolin L.A.(1994): Nutrition – science and applications, Saunders College Publishing.
5. Helen Guthrie, Introductory Nutrition, Times Mirror pub.

T.Y.B.Sc. (Home Science)
VI Semester
F19HUMAN NUTRITION-II (Pr)

OBJECTIVES:

It will help student:

a. To get in field experience about deficency diseases with respect to signs ans symptoms.
b. To understand case history of in door patients of hospitals.
c. To understand contemporary issue in the context of current scientific knowledge.
d. To understand interrelationship between Nutrients.
e. To understand lastest developments in Human Nutrition.
f. To understand major deficiency among preschool childrens.

Course	Hours/ Week	Credit	Exam Hours	Marks Internal	Marks External	Total
Human Nutrition-I(Pr)	2	1	2	10	20	30

Bl.No	Topic / Content Analysis	Periods
1.	**Introduction to balance studies** • Positive Balance • Negative Balance • Equilibrium • Limitation of Balance studies • Balance studies in Humans • Balance studies in Experimental animals	**4**
2.	**Calcium Balance** • To estimate the calcium content of faeces and urine and to assess the calcium balance of an individual. **Nitrogen Balance** • To estimate total nitrogen intake, based on protein intake and calculate nitrogen balance of an individual.	**8**
3.	**How to review a journal article.** ● Review, understand and critically evaluate a research article	**4**
	Total	16

EVALUATION-

1. **Internal Evaluation-10 Marks**
2. **External Evaluation- 20 Marks (10 Quiz + 10 Practical exam)**

T.Y.B.Sc. (Home Science)
VI Semester
F20-FOOD PRODUCT DEVELOPMENT (Pr)

OBJECTIVES:

It will help student:

- To understand nature and composition of food
- To understand the principles of food processing
- To comprehend the role of different ingredients used in food preparation
- To develop a discriminating appreciation of quality and standard of commodities available

COURSE	HOURS/ WEEK	CREDIT	EXAM HOURS	MARKS Internal	MARKS External	TOTAL
Food Product Development	**6**	**3**	**3**	**30**	**70**	**100**

BL.NO	Topic / Content Analysis	Periods
1.	**Introduction** a. To need for developing new product b. Steps to follow for developing new products c. Various aspect to be taken care while developing new product d. Selection of packaging materials e. Labeling f. Study of shelf life of the product g. Estimating cost of the product developed **h.** Marketing and sale.	**8**
2.	**Selection of recipe to be developed with justification.** a. Standardization of recipe **b.** Finalizing at least two reciepe.	**20**
3.	**Packaging of the product** a. Costing and labeling b. Packaging c. Marketing and sale. To study shelf life of the product developed	**12**
4.	Visit to food / Bakery industry To get feedback from the customers	**5**
	TOTAL	**45**

Evaluation:

1. **Internal Evaluation-30 Marks**
2. **External Evaluation- 70 Marks (30 project report + 10 Planning of recipe from given ingredients+ 10 Innovation + 15 Cooking + 05Labelling and costing)**

References:

1. Food fact and principal by N.Shakuntala Manay
2. www.foodadditivesworld.com
3. www.whfoods.com
4. Food packaging

T.Y.B.Sc. (Home Science)
VI Semester
F21 Nutritional Biochemistry II (Th)

Objectives:

This course will enable students to:

1. Understand the fundamentals of metabolic processes occurring in the body.
2. Develop awareness about the significance of various metabolic processes / pathways.
3. Understand the integration of these metabolic processes.
4. Develop the ability to apply the significance of these processes to different physiological / metabolic conditions.

Course	Hours/ week	Credit	Exam hours	Marks- Internal	Marks- external	Total
Nutritional Biochemistry II (Th)	2	2	2	20	50	70

Module No.		**Content**	**Weightage**
	This module will enable students to: 1. Understand the various ways of carbohydrate utilization in the body. 2. Create awareness of regulation of the pathways. 3. Realize the significance of the pathways. 4. Understand the process of energy yield from the organic substrates.	**Carbohydrate metabolism:** • Various Biological pathways -- site, significance, intermediates with chemical structures, enzymes, coenzymes involved, Regulation and energetics • Glycolysis ,TCA Pentose phosphate pathway Gluconeogenesis, Glycogenesis Glycogenolysis. • Alcohol metabolism and biochemical alterations in alcoholism • Biological oxidation and electron transport chain	**10**

	This module will enable students to: 1. To understand the various ways of utilization of lipids in the body. 2. Create awareness of regulation of the pathways. 3. Realize the significance of the pathways.	**Lipid Metabolism:** • Lipolysis, Oxidation of saturated and odd chain fatty acids, regulation and energetics • Biosynthesis of fatty acids, regulation of synthesis. • Ketosis and Ketogenesis • **Triglycerides** synthesis Liver. • Introduction of Cholesterol – Parent steroid sources, Cholesterol biosynthesis , mode of utilization, • Introduction to Plasma	**8**
	This module will enable the students to 1. Understand the various metabolic pathways 2. Significance, regulatory mechanisms and synthesis of various essential non nitrogenous compounds synthesized from amino acids.	**Protein Metabolism** • Transamination – with diagrammatic representation ,Role of PLP ,significance • Oxidative and non oxidative De-amination. • Metabolic fate of Ammonia-- Formation of glutamate,Glutamine • Urea cycle –pathway with structures. • Transmethylation and one carbon transfer • **Metabolism of nucleotides** Structures of purines, pyrimidines and uric acid Purine catabolism (without structures of the intermediates) ,Uric acid and gout.	8

EVALUATION-

1. One Internal test (20 marks)

2. External –final exam (50 marks)

References:

1. Rastogi S.C. "Biochemistry", 2nd Edition, (2003) Tata MacGraw Hill Publishing Co. Ltd.
2. Jain, J, L., S. Jain and N. Jain. "Fundamentals of Biochemistry". 6th Edition, (2005). S.Chand Company Ltd.
3. Plummer, D.T., "An Introduction to Practical Biochemistry". 2nd Edition, (1971) McGraw-Hill Publishing Co. Ltd.
4. Apps D.K. and Cohen B.B. and Steel C.M. "Biochemistry: A Concise Text for Medical Students" (1992), Bailliere Tindall,
5. Debajyoti D, "Biochemistry" 2nd Edition, (1980) Academic Publishers,.
6. Satyanarayana U and Chakrapani U "Biochemistry", 3rd Edition, (2008), Books & Allied Publishers.
7. Chatterjee M.N., Shinde R. "Textbook of Medical Biochemistry" 8th Edition (2012) Jaypee Brothers, Medical Publishers.
8. Nelson DL & Cox MM. 5th Edition, 2009. "Lehninger's Principles of Biochemistry". Freeman and Co.
9. Berg J.M. Tymoczko J.L., and Stryer. L. "Biochemistry", 5th edition, (2002). W.H. Freeman.
10. Vasudevan D.M. and Sreekumari S – (2007) "Textbook of Biochemistry for Medical Students". 5th Edition, Jaypee Brothers, Medical Publishers.
11. "Murray Harper's Illustrated Biochemistry" 29th Edition, (2012) Prentice Hall Int.
12. Voet D, and Voet J.G "Biochemistry" 4th Edition. (2011), *John Wiley & Sons.*

T.Y.B.Sc. (Home Science)
VI Semester
F21 Nutritional Biochemistry II (Pr)

Objectives

1. To enable students learn the principles and procedures of biochemical analysis of blood and urine.
2. To develop ability to interpret the results of the estimations of the common constituents of biological fluids.

Course	Hours/week	Credit	Exam hours	Marks-Internal	Marks-external	Total
Nutritional Biochemistry II (Pr)	2	1	2	10	20	30

Module	Objectives	Content	Assessment
	This module will enable students to: 1. To know the principles on which the estimations are based. 2. To know the procedures used for the estimations. 3. To draw inference from the results.	1. Qualitative Estimation of Normal Constituents of Urine. 2. Qualitative Estimation of Abnormal Constituents of Urine. **Quantitative Estimation of** **1** Urea (Blood and urine) 2. Uric acid (Blood and urine) 3 Glucose (Blood and urine) 4 Creatinine (Blood and Urine) 5 Total protein and Albumin ((Blood) 6 Cholesterol (Blood) 7 Enzyme assay -SGPT (Blood)	**5** **10**

EVALUATION-

1. **Internal Evaluation-10 Marks**
2. **External Evaluation- 20 Marks (10 Planning + 10 External exam)**

References

1. Oser, B. L. Ed "Hawk's Physiological Chemistry" (1979), 14th.Rep. edTata McGraw-Hill Publishing Company Ltd.
2. H. Varley, A. H. Gowenlock, and M. Bell, "Practical Biochemistry, Vol. 1", London, UK, 5th Edition, (1976), Edited by: I. W. Heinemann.
3. Godkar P.B. GodkarD.PTextbook of Medical Laboratory Technology (2006), 2nd Edition,Bhalani Publishing House.
4. Burtis C.A, Ashwood E.R, Bruns D.E. (2007), "Tietz Fundamentals of Clinical Chemistry", 6th Edition, Elsevier Health Sciences.
5. **Davidsohn, I (Editor) & Henry, J B (Editor) "**Todd-Sanford Clinical Diagnosis by Laboratory Methods" (1984), 17th Edition.W.B. Saunders.

T.Y.B.Sc. (Home Science)
VI Semester
F22 - Internship

Objectives:

4. To give students practical experience in the Hospital set up/organization /Industry.
5. To help students to develop insight for a profession.
6. To help students to explore possible career options to make them self reliant.

course	Hours/week	credit	Exam hours	Marks-Internal	Marks-external	Total
Internship	6	3	-	30	70	100

The students will be placed in a Hospital/ organization /Industry for four weeks. The students should complete training in any areas of Food Science and Nutrition.

Areas:

Hospital/Clinic
Food Industry
NGO
Nutraceutical Industry

The evaluation will be done jointly by the college and placement organization.

Internal evaluation: Submission of report and oral presentation by the student.

Final report should be written by the student with

(5) Title of Internship, location of Internship & Name
(6) About the organization
(7) Internship details
(8) Outcomes & suggestions – what student has gained?

Individual file	-	20 marks
Presentation	-	10 marks
Total		30 marks

External evaluation: Evaluation criteria to be provided by the college to the organization /Industry to be filled in & submitted by the supervisor.

Knowledge & application of knowledge	-	20 marks
Working relationship (interaction/ cooperation /coordination)	–	15 marks
Subject interest & involvement	–	15marks
Creativity / skills	–	10 marks
Overall behavior (punctuality / sincerity)	–	10 marks
Total		70 marks

GRAND TOTAL - 100 MARK

Students are assessed by the authorities of the Organization/centre where students are placed for Practical experience and Participation. Assessment is done on regular basis on their performance and hence continuous evaluation is recommended.

T.Y.B.Sc. (Home Science)
VI Semester
EC- DIETETIC TECHIQUES AND PATIENT COUNCELLING (Pr)

Objectives:

1. Understand the principles and procedures of nutrition counseling and the role of the counselor.
2. Develop an understanding how: (a) lifestyles influence health and well-being; (b) acute and chronic disease affects the emotional and psychological state and the behaviour of the individuals.
3. Be familiar with various techniques used in counseling.
4. Be able to use various types and techniques of counseling to motivate patients to achieve well-being.

Course	Hours/week	Credit Hours	Exam hours	Marks-Internal	Marks-external	Total
DTPC	4	2	2	20	50	70

Block. No	**Topic and Details**	**No. of lectures assigned**
1	Counseling – Definition, Expectations, goals, scope and limits. Counselor – Characteristics of an effective counselor The Client – Characteristics, expectations	
2	The Counseling Process: Techniques for obtaining relevant information Unit 1. Clinical Information Unit 2. Medical History and General Profile Unit 3. Dietary Diagnosis • Assessing food and nutrient intakes • Lifestyles, physical activity, stress Unit 4. Nutritional Status Unit 5. Correlating relevant information and identifying areas of need Stage I: Problem exploration and clarification Stage II: Developing new perspectives and setting goals Stage III: Implementation follow up and evaluation	
3	Counseling Theories and Approaches: Key Concepts and Techniques	
4	Counseling techniques, strategies and communication skills Rapport building and opening techniques Questioning, listening, reflecting, acceptance, silence, leading reassurance, non-verbal behavior, terminating skills.	
5	Group Counseling	
6	Developing resources and aids for education and counseling	

7	Working with: 1. Hospitalized patients (adults, pediatric, elderly, handicapped), adjusting and adopting to individual needs 2. Outpatients (adults, pediatric, elderly, handicapped), patients education, techniques and modes	
8	Follow up Monitoring and Evaluation of outcome: Home visits.	

EVALUATION-

1. **Internal Evaluation-20 Marks**
2. **External Evaluation- 50 Marks (20 class work + 30 practical exam)**

References:

1. Gable, J. (1997): Counseling Skills for Dietitians, Blackwell Science.
2. Holli, B.B. and Calabrese, R.J. (1998): Communication and Education Skills for Dietetics Professionals. Lippin Cott Williams & Wilkins, New York.
3. Curry, R.K. and Jaffe, A. (1998): Nutrition Counseling and Communication Skills, W.B.Saunders Co. London.
4. Hosking, G. and Powell, R. (1985): Chronic Childhood Disorders; Wright, Bristol.
5. O'Deughterty, M.M. (1983): Counseling the chronically ill child; The Lewis Publishing Co. Verment, 1983.

Shillitee Psychology and Diabetes, Chapma