

**SARDAR PATEL UNIVERSITY, VALLABH VIDYANAGAR**

**B.Sc. Home Science**

**(Under Choice Based Credit Scheme)**

**Semester - FIFTH (FOODS AND NUTRITION) YEAR 2023-2024**

Course Type	Course Code (10 Digit)	Name of Course	Theory (T) Practical (P)	Credit	Contact hrs/ week	Exam Duration in hrs	Marks		
							Internal	External	Total
<b>Ability Enhancement Courses</b>	UH05AHSC51	Programme for Rural and Urban Development	T	2	2	3	15/5	35/14	50/20
<b>Core Courses</b>	UH05CFDN51	Maternal and Child Nutrition	T	4	4	3	30/10	70/28	100/40
	UH05CFDN52	Food Science	T	4	4	3	30/10	70/28	100/40
	UH05CFDN53	Food Science	P	2	4	3	15/5	35/14	50/20
	UH05CFDN54	Medical Nutrition Therapy-1	T	2	2	2	15/5	35/14	50/20
	UH05CFDN55	Medical Nutrition Therapy-1	P	2	4	3	15/5	35/14	50/20
	UH05CFDN56	Pathophysiology of Diseases	T	4	4	3	30/10	70/28	100/40
<b>Skill Enhancement Courses</b>	UH05SFDN51	Proximate Analysis of Food	P	2	4	3	15/5	35/14	50/20
<b>Elective Courses (Any One)</b>	UH05EHSC51	Consumerism	T	2	2	2	15/5	35/14	50/20
	UH05EHSC52	NGO Management	T	2	2	2	15/5	35/14	50/20
	UH05EHSC53	Accessories and Adornment	T	2	2	2	15/5	35/14	50/20
	UH05EHSC54	Food Adulteration	T	2	2	2	15/5	35/14	50/20
	UH05EHSC55	Basics of Research	T	2	2	2	15/5	35/14	50/20
		<b>Total</b>		<b>24</b>	<b>30</b>		<b>180</b>	<b>420</b>	<b>600</b>



**SARDAR PATEL UNIVERSITY**  
**Vallabh Vidyanagar, Gujarat**  
**(Reaccredited with 'A' Grade by NAAC (CGPA 3.25)**  
**Syllabus with effect from the Academic Year 2023-2024**

Bachelor of Science - Home Science  
(B.Sc. - H. Sc.) (Home Science) Semester (V)

Course Code	UH05AHSC51	Title of the Course	Programmes for Rural and Urban Development
Total Credits of the Course	02	Hours per Week	02

Course Objectives:	<ol style="list-style-type: none"><li>1. To develop understanding regarding the nation towards urban and rural development</li><li>2. To examine the cumulative impact of these developmental efforts in quantitative and qualitative dimensions</li></ol>
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Course Content		
Unit	Description	Weightage*(%)
1.	<ol style="list-style-type: none"><li>a. Introduction to Rural and Urban Development Programmes.</li><li>b. Role of Home Science in rural and urban development.</li><li>c. Five year plan and their focus, brief on Niti Ayog</li></ol>	20
2.	<ol style="list-style-type: none"><li>a. Thrust of agriculture</li><li>b. National food production programmes</li><li>c. National health mission ( NRHM, NUHM, NRLM)</li></ol>	20
3.	Poverty alleviation efforts: <ol style="list-style-type: none"><li>a. Rural and Urban communities, characteristics, nature, difference, village organization, rural and urban development(NGOs working), role of CAPART</li><li>b. Programmes for poverty alleviation for rural and urban areas, employment generation and social inputs.</li><li>c. Current programmes for rural and urban poor,</li></ol>	30
4.	Programmes for women and children: <ol style="list-style-type: none"><li>a. Women as target groups, Specific measures for women and children such as DWCRA, ICDS, IMY, ANARDE, SEWA, CHETNA, TF, SGSY, ARSP.</li><li>b. Current programmes for women as initiated and implemented by the different ministries and departments.</li></ol>	30

Teaching-Learning Methodology	Class Discussions/ Demonstrations, Power point presentations, Class activities/ assignments, group discussions, Field visits, chalk and board
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	The students can get the knowledge of different five years plan.
2.	They use the knowledge in self empowerment and indirectly help the society in poverty alleviation.

Suggested References:	
Sr. No.	References
1.	Upadhyay, H.C. (1991): Modernization and Rural Development New Delhi, Anmol publications
2.	National institute of Rural development, Hyderabad, 1991. Rural development statistics NIRD
3.	Narayan Manohar S (1989) Integrated Rural energy programmes, Delhi Shree Hari printers.
4.	Ghosh Bahanisikha (1990) The Indian population problem, Madras, Sage publications.
5.	Thingalaya N. K (1986) Rural India-Real India, Bombay, Himalaya Publishing House.
6.	Journal of Social welfare, Journal of Rural development ,Journal of Yojana, Journal of Family welfare, Journal of extension education

On-line resources to be used if available as reference material
On-line Resources
<a href="http://egyankosh.ac.in/">http://egyankosh.ac.in/</a>

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Bachelor of Science -Home Science  
(B.Sc. –H. Sc.) (Foods and Nutrition) Semester (V)

Course Code	UH05CFDN51	Title of the Course	Maternal and Child Nutrition
Total Credits of the Course	04	Hours per Week	04

Course Objectives:	<ol style="list-style-type: none"><li>1. Understand the nutritional needs during pregnancy, lactation, infancy and preschool years.</li><li>2. Understand the relationship between maternal health and birth outcome.</li><li>3. Aware of problems encountered during pregnancy and lactation and how to cope with these problems.</li><li>4. Understand the concept of policies and programmes related to maternal and child health.</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	Nutrition need during pregnancy: (a) Current scenario of maternal and child nutrition, Placental development and function, embryonic and fetal growth and Development. Physiological changes during pregnancy. (b) Factors affecting outcome of pregnancy(nutritional and non-nutritional) (c) Common disorders and complications of pregnancy and its management- Pregnancy induced hypertension, Gestational diabetes, eating disorders during pregnancy.	30
2.	Nutrition during Lactation: (a)Anatomy of breast, Nutrition during lactation, importance of lacto gouges, Physiology of lactation, Factors affecting lactation (b)Lactation problems –sore nipples, engorged breast, inverted nipples etc., importance of milk banks.	25
3.	Infant and young child feeding and care - Current infant feeding practices, guidelines, nutritional concerns and complementary feeding, Human milk composition, role of BPNI in promotion of breast feeding in India, Care and management of the preterm and LBW infants.	25
4.	Overview of Adolescent pregnancy.	10
5.	Nutrition during menopause-sign and symptoms, problems, management of dietary needs and health	10





Teaching-Learning Methodology	Chalk and board, Power point presentations, Class Discussions, small Group activities / assignments, case studies, video clips
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Understand current health problems and nutritional deficiency diseases affecting pregnant women, infants and adolescents.
2.	Aware of problems encountered in pregnancy during breast feeding and how to cope with these problems.
3.	Understand the concept of infant and young child feeding practices.
4.	Provide skills that allow students to objectively analyses new nutrition concepts and research, allowing them to consider which public health programs can be implemented to promote maternal and child health as well as adolescent health.

Suggested References:	
Sr. No.	References
1.	Mudambi, S. R. (2007). <i>Fundamentals of foods, nutrition and diet therapy</i> . New Delhi: New Age International.
2.	Requirement, I. N. (2010). <i>Recommended dietary allowances for Indians</i> . New Delhi: A report of the Expert Group of the Indian Council of Medical Research.
3.	Park, K. (2011). <i>Park's textbook of preventive and social medicine</i> . Jabalpur: BanarasidasBhanot, 463.
4.	Srilakshmi, B. (2014). <i>Dietetics</i> , New Delhi: New Age International (P)





	Ltd. Publishers.
5.	Williams, S. R. (2005). <i>Basic Nutrition and Diet Therapy</i> . (Ed. 12).
6.	Chadha, R., & Mathur, P. (2015). <i>A Textbook on Nutrition: A Lifecycle Approach</i> . Published by New Delhi: Orient Blackswan Private Limited.
7.	Robinson, C. H., & Lawler, M. R. (1982). <i>Normal and therapeutic nutrition</i> (No. Ed. 16). New York: Collier Macmillan Publishers.
8.	Joshi, S. A. (1995). <i>Nutrition and dietetics</i> . Ahmedabad: McGraw-Hill Education.
9.	Rani.A.(2017). <i>Nutrition of child,pregnant and lactating mother</i> . New Delhi : Sonali Publications

On-line resources to be used if available as reference material
On-line Resources
<a href="http://egyankosh.ac.in/">http://egyankosh.ac.in/</a>
<a href="http://Epgp.inflibnet.ac.in/Home">Epgp.inflibnet.ac.in/Home</a>

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Bachelor of Science -Home Science  
(B.Sc. – H. Sc.) (Foods and Nutrition) Semester (V)

Course Code	UH05CFDN52	Title of the Course	Food Science
Total Credits of the Course	04	Hours per Week	04

Course Objectives:	<ol style="list-style-type: none"><li>1. Get acquainted with the composition of different food stuffs.</li><li>2. Understand the chemistry of foods and food systems.</li><li>3. Apply the theoretical aspects in ensuring food quality.</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	Physical foundation of food science- Definition, solids and amorphous foods, liquids and role in food products, gases and role in products, true solutions, dispersions & suspensions, sols, gels,	10
2.	Carbohydrates: Classes and types, chemical reaction in food hydrolysis, thermal degradation, dehydration, caramalization, maillard reaction, applications in food industry & other sweetening agents	20
3.	Lipids: Physio-chemical properties of fat & application in food preparation, shortenings- shortening value and factors affecting it, fat substitutes determination of fats/oils rancidity reversion & polymerization	20
4.	Proteins: Physio-chemical properties of protein, hydration solubility viscosity gelation emulsification binding foams changes on cooking, denaturation, coagulation etc.	20
5.	(a) Pigments endogenous to food, structure, chemical and physical properties, effect of processing and storage (b) Flavours- Vegetables ,fruits and spices and condiments. (c )Enzymes: Nomenclature definite specificity, catalysis regulation enzyme modification of food by endogenous enzyme, enzyme inhibitor in food.	30

Teaching-Learning Methodology	Chalk and duster, Lecture Method, Questions-Answer method, Discussion method, Brainstorming method, Observational method, Use of ICT
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Learn about the properties of food.

Suggested References:	
Sr. No.	References
1.	Birch, G. G., Brennan, J. G., & Parker, K. J. (1977). <i>Sensory properties of food</i> . Ed. Applied Science Publishers, Ltd. ISBN, 85334, 7441.
2.	Charley Helen (1982) <i>Food Science</i> (2nd edition) Macmillan Publishing Co.
3.	Peterson, M. S., & Johnson, A. H. (1978). <i>Encyclopedia of food technology and food science series. Vol. 3. Encyclopedia of food science</i> . AVI Publishing Company Inc.
4.	Vieira, E. R. (1999). (3rd Edition) <i>Elementary food science</i> . Springer Science & Business Media.
5.	Swaminathan, M. S. (1987). <i>Food science, chemistry and experimental foods</i> . Bangalore: Print. & Publishing Company.

On-line resources to be used if available as reference material
On-line Resources: <a href="http://Epgp.inflibnet.ac.in/Home">Epgp.inflibnet.ac.in/Home</a>

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Bachelor of Science - Home Science  
(B.Sc. – H. Sc.) (Foods and Nutrition) Semester (V)

Course Code	UH05CFDN53	Title of the Course	Practical-Food Science
Total Credits of the Course	02	Hours per Week	04

Course Objectives:	<ol style="list-style-type: none"><li>1. Understand the basic concepts of food science and its applications in processing of food.</li><li>2. Summarize and critically discuss and understand both fundamental and applied aspects of Food Science.</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	Carbohydrate: (a) Preparation of starch from potatoes. (b) Microscopic examination of starch. (c)Effect of blending on distribution of starch granules in suspension- Effect of adding sugar and other factors in gelatinization (heat, agitation etc).	20
2.	Proteins: (a) To determine gluten from different flours. (b)Functional role of egg in cookery. (c)Factors contributing to the volume and stability of egg white foam	30
3.	Fat: (a)Functional role of fat. (b) Melting point of fats and oils, smoke and flash points.	20
4.	Factors affecting fat absorption and emulsion, frying (role of moisture and Surface area).	10
5.	Pigments: Factors affecting colour, pH, time and cooking of fruits and vegetables.	10
6.	Enzymes: Browning reactions- to study different types of browning reactions in foods	10

Teaching-Learning Methodology	Demonstration Method, Questions-Answer method, Discussion method
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Gain knowledge about scope, importance and applications of Food Science.
2.	Identifying apply the principles from the various factors of foods and related disciplines to solve practical problems.

Suggested References:	
Sr. No.	References
1.	Birch, G. G., Brennan, J. G., & Parker, K. J. (1977). <i>Sensory properties of food</i> . Ed. Applied Science Publishers, Ltd. ISBN, 85334, 7441.
2.	Charley Helen (1982) <i>Food Science</i> : (2nd edition) Macmillan Publishing Co.
3	Peterson, M. S., & Johnson, A. H. (1978). <i>Encyclopedia of food technology and food science series. Vol. 3. Encyclopedia of food science</i> . AVI Publishing Company Inc..
4.	Ronsivalli, L. J., & Viera, E. R. (1992). <i>Elementary food science</i> 3rd Edition.
5.	Swaminathan, M. S. (1987). <i>Food science, chemistry and experimental foods</i> . Bangalore: Print. & Publishing Company.

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Bachelor of Science -Home Science  
(B.Sc. – H. Sc.) (Foods and Nutrition) Semester (V)

Course Code	UH05CFDN54	Title of the Course	Medical Nutrition Therapy-1
Total Credits of the Course	02	Hours per Week	02

Course Objectives:	<ol style="list-style-type: none"><li>1. Orient students with role of dietician in maintaining good nutritional status and correct deficiencies or in disease condition.</li><li>2. Gain knowledge of principles of diet therapy and designing and formulating different therapeutic diets for various disease condition.</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	(a) Principles of Nutrition Care Process and types of dietitian and their role in hospital and community (b) Therapeutic adaptations of a normal diet	25
2.	Etiology, pathophysiology, metabolic changes, clinical features and nutritional management of Infection and Fevers (a) Typhoid (b) Tuberculosis (c) HIV (d) Malaria/Dengue/Chikungunia (overview of any one)	25
3.	Nutritional management of the following: (a) Weight imbalances – Overweight and obesity, underweight (b) Eating disorders – Anorexia nervosa, Bulimia nervosa, EDNOS	25
4.	Etiology, pathophysiology, clinical features, diagnosis and nutritional management of the following (a) Food allergy and food intolerance (b) Inborn errors of metabolism (c) Nutrition in Bone disorder (d) Nutrition for oral health.	25

Teaching-Learning	Classroom teaching for theory periods Lectures and Power-point presentations will be the main method of
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Methodology	transaction Special lectures/ visits/ interactions with professionals will be undertaken Classroom quiz sessions for revision Extension activities will be encouraged for application oriented learning Any other method may be added, as per university norms and discretion of the teaching faculty
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Integrate knowledge of research principles and methods associated with nutrition and dietetics practices
2.	Understand aetiology, pathophysiology and metabolic changes occurring in organs during disease condition
3.	Use effective and appropriate communication skills in providing information, advice and opinion to individuals, groups, and communities.

Suggested References:	
Sr. No.	References
1.	Mahan, L. K., Escott-Stump, S., Raymond, J. L., & Krause, M. V. (2012). <i>Krause's Food &amp; Nutrition Therapy</i> . US: Elsevier/Saunders.
2.	Dietary guidelines by India(2020)Hyderabad: National Institute of Nutrition,Indian Council of Medical Research.500007





3.	Bagchi, D., & Nair, S. (Eds.). (2018). <i>Nutritional and Therapeutic Interventions for Diabetes and Metabolic Syndrome</i> . Cambridge: Academic Press.
4.	Antia, F. P. (1973). <i>Clinical Dietetics and Nutrition</i> . London: Oxford University Press, Ely House, 37 Dover Street.
5.	Joshi, S. A. (1995). <i>Nutrition and Dietetics</i> . Ahmedabad: McGraw-Hill Education.
6.	Manual (2018). <i>Clinical Dietetics</i> , Ahmedabad: JB International
7.	Bajaj .M. <i>Diet Metrics</i> (2019)
8.	Yadav.A, Arora.M, Swayam.S. (2019) : <i>Practical Manual of Nutrition and Dietetics</i> New Delhi: Kalpaz Publications
9.	Seth,V.,Singh,K.,Mathur,P.(2020):Diet Planning through life cycle, Part II,A Practical Manual, New Delhi: Elite Publishing House

On-line resources to be used if available as reference material

On-line Resources

<http://www.nutrition.gov>.

<https://www.unicef.org/india/>

<https://www.nin.res.in/>

[Epgp.inflibnet.ac.in/Home](http://Epgp.inflibnet.ac.in/Home)

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Bachelor of Science -Home Science  
(B.Sc. – H. Sc.) (Foods and Nutrition) Semester (V)

Course Code	UH05CFDN55	Title of the Course	Practical-Medical Nutrition Therapy-1
Total Credits of the Course	02	Hours per Week	04

Course Objectives:	<ol style="list-style-type: none"><li>1. Enable students to plan meals according to disease.</li><li>2. Able to calculate according to ICMR guidelines.</li></ol>
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Course Content		
Unit	Planning,calculating nutrients of the following diet according to the specification given using exchanges and ICMR guidelines and preparation of recipes of selected recipes.	Weightage* (%)
1.	Modification in normal diet (a) Clear fluid (b) Full fluid (c) Soft diet	20
2.	Medical nutrition therapy in weight management (a) Over weight (b) Underweight	20
3.	Medical nutrition therapy in fevers and infections (a) Acute Fever- Typhoid, (b) Chronic Fever- Tuberculosis (c) HIV	25
4.	Diet in bone disorder (a) Osteoporosis (b) Arthritis	20
5.	Diet in Inborn errors of metabolism-Phenylketonuria	15

Teaching-Learning Methodology	For practical, laboratory work for planning of diets with case study. Extension activities will be encouraged for application oriented learning. Any other method may be added, as per university norms and discretion of the teaching faculty.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Integrate knowledge of principles of diet therapy and research learn about different diets other than routine diets.
2.	Help them to plan and calculate diets according to the disease condition
3.	Take an entrepreneurial approach to advocate for a healthy society.

Suggested References:	
Sr. No.	References
1.	Mahan, L. K., Escott-Stump, S., Raymond, J. L., & Krause, M. V. (2012). <i>Krause's food &amp; nutrition therapy</i> . US: Elsevier/Saunders.
2.	Dietary guidelines by India: ICMR
3.	Bagchi, D., & Nair, S. (Eds.). (2018). <i>Nutritional and therapeutic interventions for diabetes and metabolic syndrome</i> . Cambridge: Academic Press.
4.	Antia, F. P. (1973). <i>Clinical dietetics and nutrition</i> . London: Oxford University Press, Ely House, 37 Dover Street.
5.	Joshi, S. A. (1995). <i>Nutrition and dietetics</i> . Ahmedabad: McGraw-Hill Education.
6.	Manual (2018). <i>Clinical Dietetics</i> , Ahmedabad: JB International
7.	Bajaj .M. <i>Diet Metrics</i> (2019)





8.	Yadav.A, Arora.M, Swayam.S. (2019) : <i>Practical Manual of Nutrition and Dietetics</i> New Delhi: Kalpaz Publications
9.	Seth,V.,Singh,K.,Mathur,P.(2020):Diet Planning through life cycle, Part II,A Practical Manual, New Delhi: Elite Publishing House

On-line resources to be used if available as reference material

On-line Resources:

[Epgp.inflibnet.ac.in/Home](http://Epgp.inflibnet.ac.in/Home)

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Bachelor of Science- Home Science  
(B.Sc.-H. Sc.) (Foods and Nutrition) Semester (V)

Course Code	UH05CFDN56	Title of the Course	Pathophysiology of Diseases
Total Credits of the Course	04	Hours per Week	04

Course Objectives:	<ol style="list-style-type: none"><li>1. Provide the students with the knowledge of various biochemical changes occurring in the body under various pathological conditions.</li><li>2. Impart knowledge on the specific markers used to identify a disease.</li><li>3. Evaluate the various nutritional assessment tools used in clinical decision making</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	Introduction, principles of clinical nutrition (a) Effects of disorders on nutritional requirements. (b) Importance of nutritional screening. (c) Clinical assessment of nutritional status. (d) Nutritional assessment tools in clinical decision making. (MUST, SGA, NIA, AND MNA GMRI).	15
2.	Over nutrition and under nutrition (a) Introduction, clinical presentation, and pathophysiology, clinical assessment (b) Chronic Energy deficiency-Children, Adults and Elderly	15
3.	(a)Gastrointestinal tract-the pathophysiology, laboratory assessment- (i) Esophagitis, (ii) Peptic ulcers, (iii)Celiac disease-ulcerative colitis (iv)Irritable Bowel Syndrome  (b) Liver diseases-- the pathophysiology, laboratory assessment. (i) Acute Viral Hepatitis (ii)Chronic Viral Hepatitis (iii)Alcoholic Liver Diseases-Hepatic Steatosis (iv)Alcoholic Hepatitis (v)Alcoholic Cirrhosis (vi)Malnutrition in Liver Disease.  ( c ) Pancreatic disorder- the pathophysiology, laboratory assessment. (i)Diseases of Exocrine Pancreas (ii)Acute Pancreatitis	30





	(iii)Chronic Pancreatitis (iv)Diseases of Endocrine Pancreas (v)Diabetes mellitus-types, complications of Diabetes Mellitus- DKA, Macro Vascular Diseases, Micro Vascular Diseases	
4.	(a) Kidney Disorder- the pathophysiology, laboratory assessment (i)Nephritis-Acute and Chronic (ii) Nephrotic Syndrome (iii)Nephrolithiasis (iv)Renal Failure (v)ESRD (b) Heart and blood vessels- the pathophysiology, laboratory assessment (i) Lipoproteins- their role in CVD (ii)Atherosclerosis- (iii)Hyper tension (iv) Congestive Heart Failure	25
5.	(a) Nutrition in surgery and trauma i. Introduction, stress response to trauma and its effects on mechanism (b) Nutrition and Drug interaction (i) Drug food Interactions (ii) Drug nutrient Interactions	15

Teaching-Learning Methodology	Class Discussions/ Demonstrations, Power point presentations, Class activities/ assignments, group discussions, video clips, chalk and board
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%





Course Outcomes: Having completed this course, the learner will be able to

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|----|--|
| 1. | Define various terminologies used in the field of clinical nutrition |
| 2. | Describe the pathophysiology of various diseases                     |
| 3. | Identify various markers used in diagnosing the diseases             |
| 4. | Relate the normal and pathological functioning of various organs     |

Suggested References:

Sr. No.	References
1.	Antia, F.P. (2000). <i>Clinical Dietetics &amp; Nutrition 3rd</i> . New Delhi/Bombay: Oxford University Press.
2.	Mahan, K. L. & Escott-Stump., S. (2016) <i>Food and The Nutrition Care Process</i> . (13 <sup>th</sup> Ed) : Elsevier Publications
3.	Passmore, R., & Eastwood, M. A. (1986). <i>Human Nutrition and Dietetics</i> : 8th Edition. : Churchill Livingstone.
4.	Chatterjee, M. N., & Shinde, R. (2011). <i>Textbook of Medical Biochemistry</i> . New Delhi: Jaypee Publications (P)Ltd.
5.	Gibney, M.J., Marinos, E., (2005) <i>Clinical Nutrition India</i> : Replika Press Private Ltd.

On-line resources to be used if available as reference material

On-line Resources

[www.aaopr.org](http://www.aaopr.org)

[Eatright.org](http://Eatright.org) - Academy of Nutrition and Dietetics

[www.nhlbi.nih](http://www.nhlbi.nih)

<http://www.nwkidney.org/>

[www.renalnet.org](http://www.renalnet.org)

[IGNOU - Student Zone](#)

[Krause's Food & the Nutrition Care Process, Mea Edition E-Book](#)

LK Mahan, JL Raymond - 2016 - [books.google.com](https://books.google.com)

[Epgp.inflibnet.ac.in/Home](http://Epgp.inflibnet.ac.in/Home)

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Bachelor of Science -Home Science  
(B.Sc. – H. Sc.) (Foods and Nutrition) Semester (V)

Course Code	UH05SFDN51	Title of the Course	Practical – Proximate Analysis of Food
Total Credits of the Course	02	Hours per Week	04

Course Objectives:	<ol style="list-style-type: none"><li>1. Get familiarity with the analytical instruments through an understanding of the working principles and applications.</li><li>2. Acquire laboratory skills require for performing a range of nutrient analyses of food components.</li></ol>
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Course Content		
Estimation in Foods: Proximate principles, minerals, trace elements & Vitamins in the following:		
Unit	Description	Weightage * (%)
1.	Determination of moisture by hot air oven and sun drying method	10
2.	Determination of ash from foodstuff	05
3.	Proteins Determination of proteins by Micro Kjeldahl methods	15
4.	Lipids Estimation of fat by Soxhlet extraction method	10
5.	Fibre: Crude fibre	10
6.	Minerals Determination of: (a) Calcium (b) phosphorous (c) iron	30
7.	Vitamins Determination of vitamin C (titrimetric)	10
8.	Isolation and identification of $\beta$ carotene by column chromatography	10

Teaching-Learning Methodology	Chalk and board, Class Discussions, assignments, video clips(technology tool )
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Choose appropriate strategies and instrumentation for analysis of different sample types
2.	Get familiarity with the analytical instruments through an understanding of the working principles and applications and apply the knowledge food analysis employed in research and food industry.
3.	Choose appropriate analytical techniques for foods and when/how to use the min a food processing industries.

On-line resources to be used if available as reference material
On-line Resources:
<a href="http://egyankosh.ac.in/">http://egyankosh.ac.in/</a>
<a href="http://Epgp.inflibnet.ac.in/Home">Epgp.inflibnet.ac.in/Home</a>

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Bachelor of Science - Home Science  
(B.Sc.- H.Sc.) (Home Science) Semester (V)

Course Code	UH05EHSC51	Title of the Course	Consumerism
Total Credits of the Course	02	Hours per Week	02

Course Objectives:	<ol style="list-style-type: none"><li>1. To make them understand the role of consumer in the market.</li><li>2. To increase their awareness about consumer buying behaviour, their rights and responsibilities.</li><li>3. To familiarize them with various consumer problems.</li><li>4. To enhance their knowledge base about redressal agencies.</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	Consumer and consumer problems (a) Definition of a consumer. (b) Problems of consumer (including services as water, gas, electricity etc.) (c) Unfair consumer practices: adulteration and faulty weights and measures	25
2.	Consumer Buying Behaviour (a) Factors influencing buying behaviour (b) Consumer aids: classification – Labels, Trademarks, Brand Names, Patents, Warranty, Guarantee, Quality Control and After Sales Service (c) Advertisement features, importance, media, usefulness	25
3.	Consumer protection (a) Meaning, characteristics and objectives (b) Need and ways for providing consumer education (c) Consumer rights and responsibilities (d) Consumer Laws	25
4.	Consumer protection agencies (a) Consumer organizations – origin, functioning, role and types (b) Consumer cooperatives – role, history and growth in India (c) Consumer redress: role of consumer forums and consumer courts	25





	in safeguarding consumers	
Teaching-Learning Methodology	Lectures, active learning, reflective learning, written exercises, collaborative learning, problem solving, case studies, ICT enabled learning	

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Emerge as informed consumers
2.	Becoming familiarized to the changing trends in consumerism
3.	It also provides an understanding of the procedure of redress of consumer complaints, and the role of different agencies in establishing product and service standards

Suggested References:	
Sr. No.	References
1.	Misra S., Sree Kumaran G. N., and Chadah, S. (2015). <i>Consumer Handbook</i> . New Delhi: Department of Consumer Affairs.
2.	Singh, G. (1990). <i>Law of Consumer Protection</i> . Jaipur: Bharat law publishers.
3.	Agarwal, A. (1989). <i>A practical handbook for consumers</i> . Bombay: India book house.





4.	Sarkar, A.(1989). <i>Problems of Consumers in Modern India</i> . New Delhi: Discovery publishing House.
5.	<i>Recent issues of magazines: Insight</i> , Ahmedabad : CERC.
6.	<i>Consumer Voice</i> :New Delhi: VOICE Society.

On-line resources to be used if available as reference material

On-line Resources

Consumer handbook English [https://consumeraffairs.nic.in/sites/default/files/file-uploads/consumer\\_information/Consumer\\_Handbook\\_H.pdf](https://consumeraffairs.nic.in/sites/default/files/file-uploads/consumer_information/Consumer_Handbook_H.pdf)

Consumer handbook Hindi [https://consumeraffairs.nic.in/sites/default/files/file-uploads/consumer\\_information/Consumer\\_Handbook.pdf](https://consumeraffairs.nic.in/sites/default/files/file-uploads/consumer_information/Consumer_Handbook.pdf)

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Bachelor of Science - Home Science  
(B.Sc.- H.Sc) (Home Science) Semester (V)

Course Code	UH05EHSC52	Title of the Course	NGO Management
Total Credits of the Course	02	Hours per Week	02

Course Objectives:	<ol style="list-style-type: none"><li>1. Acquaint students regarding Non-Government Organizations (NGO).</li><li>2. Acquaint them about the steps of starting the NGO.</li><li>3. Enable the students to manage the NGO consequently, which enhance the employability.</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	<p>Concept of NGO</p> <ul style="list-style-type: none"><li>(a) Meaning of NGO and GO</li><li>(b) Difference between Government Organization and NGO</li><li>(c) Characteristics of good NGO</li><li>(d) Structure of NGO</li><li>(e) Functions of NGO</li><li>(f) Advantages of NGO</li><li>(g) Present status of NGO</li><li>(h) Contribution of NGO in the development</li></ul>	25
2.	<p>Legal Frame Work for Establishing NGO</p> <ul style="list-style-type: none"><li>(a) Steps for starting NGO</li><li>(b) Registration of NGO</li><li>(c) Identifying Funding agencies</li><li>(d) Resource Mobilization</li><li>(e) Methods and Techniques of fund raising</li><li>(f) Foreign contributions and Regulation Act (FCRA)</li><li>(g) Statutory obligations, Income Tax Exemption (80-G, 12-A and 35 NC)</li></ul>	25
3.	<p>NGO Management</p> <ul style="list-style-type: none"><li>(a) Managing people and teams in NGOs</li><li>(b) NGO Management competencies</li><li>(c) Applying NGO principles and values</li></ul> <p>Policies and Programmes</p> <ul style="list-style-type: none"><li>(a) New regulations for NGO and government control</li><li>(b) Government laws, partnership model, Governing Schemes through ministries /Department / Bodies, government grant-in-aid</li></ul>	25





4.	Problems of NGO (a) Training (b) Recruitment (c) Funding (d) Resource Mobilization (e) Documentation	25
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Teaching-Learning Methodology	Lecture method ,Active learning methodology , Group discussions Method, Power Point Presentation , Audio Visual methods, Seminar, Assignment, Quiz, Field visit, debates
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Know the concept of NGO and present status of NGO.
2.	Manage NGO & required resource mobilization.
3.	Enhance employability in NGO.

Suggested References:	
Sr. No.	References
1.	Abraham A. <i>Formation and Management of NGOs</i> (2003). New Delhi: Third Edition, Published by Univarsal Law publishing Co. Pvt Ltd.
2.	Clark J. (1991). <i>Voluntary Organizations: Their Contribution to Development</i> . London: Earth Scan





3.	Lewis D. <i>Management of Non Governmental Development Organization</i> (2001). Newyork: Second Edition, Published by Routledge.
4.	Dorothea H. (2003). <i>the real world of NGO's, Discourses, Diversity and Development</i> . New Delhi: Zed books Ltd.
5.	Jain R.B. (1995). <i>NGO's in Development Perspective</i> . New Delhi: Vivek Prakasan.
6.	Joel, S.G.R., and Bhose. (2003). <i>NGO's and Rural Development – Theory and Practice</i> . New Delhi: Concept Publishing Company.
7.	John M. R. (2002). <i>Stakeholders in Rural Development – Critical Collaboration in State – NGO Partnerships</i> . New Delhi: Sage Publications.
8.	Julie F. (2003). <i>Governments, NGO's and the Political Development of the Third World</i> . Jaipur: Rawat Publications.
9.	Julie F. (2003). <i>Non Governments – NGO's and the Political Development of the Third World</i> . New Delhi: Rawat Publications.
10.	Kalyan S. (2013). <i>An Easy Guide to NGO</i> . Kolkata: Book Corporation.
11.	Kumar, A. (2003). <i>Social Change through NGO's</i> . New Delhi: Anmol Publishers.
12.	Kavita K. et al (2010). <i>Status of Child and Welfare Originations</i> , Jaipur: Aaviskar Publishers.
13.	Singh R.S. (2003). <i>Role of NGO's in Developing Countries (Potentials, Constraints and Policies)</i> . New Delhi: Deep & Deep Publications (P) Ltd.
14.	Chandra S. (2003). <i>Guidelines for NGO Management in India</i> . New Delhi: Published by Kanishka Distributors.

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Bachelor of Science – Home Science  
(B.Sc. – H.Sc.) (Home Science) Semester (V)

Course Code	UH05EHSC53	Title of the Course	Accessories and Adornment
Total Credits of the Course	02	Hours per Week	02

Course Objectives:	<ol style="list-style-type: none"><li>1. Gain knowledge on importance of accessories &amp; adornments in dress design.</li><li>2. Enable students gather knowledge on accessories &amp; adornment used in garments.</li><li>3. Make students aware of the materials, styles and placement of accessories and adornments.</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	Importance of adornment and accessories	10
2.	Accessories & adornments during middle age	20
3.	Accessories in modern times: (a) Hats & headgear (b) Jewellery (c) Sash (d) Shoes & boots (e) Muffs & gloves (f) Handbags	30
4.	Adornments: (a) Buttons (b) Lapel pins (c) Laces & ruffles (d) Ribbons (e) Braids (f) Through surface ornamentation (g) Hand & machine embroidery	30
5.	Innovations in adornment & accessories	10

Teaching-Learning	Lectures, Power -point Presentations, blackboard and chalk, Field Visits, ICT enabled Teaching, market survey, discussions, assignments,
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Methodology	Presentations, Individual / group project.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Appreciate the role of accessories in fashion.
2.	Comprehend the techniques of adornment.
3.	Develop the skill to coordinate adornments & accessories in garments.

Suggested References:	
Sr. No.	References
1.	Dickerson K.G. (2003), <i>Inside the Fashion Business</i> . New Delhi: VII Edition, Person Education Pvt. Ltd., Indian Branch.
2.	Jarnow, Guerreiro, Judelle, (1987), <i>Inside the Fashion Business</i> , New York: IV Edition, Macmillan Publishing Company.
3.	Kumar. A. (2010), <i>Fashion Tourism</i> , New Delhi: Sonali Publication, India.
4.	Makelvey K. (2006), <i>Fashion Source Book</i> , U.S.A.: II Edition, Blackwell Publishing Ltd.
5.	Pundir N., (2007), <i>Fashion Technology- Today &amp; Tomorrow</i> , New Delhi: Mittal Publication, India.
6.	Neelima, (2009), <i>Fashion &amp; Textile Design</i> , New Delhi: Sonali Publications.

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Bachelor of Science -Home Science  
(B.Sc. – H. Sc.) (Home Science) Semester (V)

Course Code	UH05EHSC54	Title of the Course	Food Adulteration
Total Credits of the Course	02	Hours per Week	02

Course Objectives:	<ol style="list-style-type: none"><li>1. Familiarize students with food standards.</li><li>2. Enable testing of different foods for their quality.</li><li>3. Familiarize students with tests used for finding adulterations and quality assessments.</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	Food Adulteration – Definition, types, classification in details.	15
2.	Present laws and procedure of Adulteration-Highlights of food safety and standards. Food safety and Standards Authority of India rules and procedure of local authorities. Food Laws Voluntary /Mandatory. Role of National & International Voluntary Agencies. e.g AGMARK ,BIS etc	25
3.	Adulteration of common foods and methods of detection- Detection in milk, oil, grains, spices, condiments, Processed foods, fruits, vegetables, additives and sweetening agents( Any Two Methods of detection).	35
4.	Specifications according to Prevention of Food Adulteration Act of the following: (Any give products of the following Foods groups) (a) Milk & milk products (b) Oil and Fats (c) Spices & Condiments (d) Food grains. (e) Flours and Cereals (f) Canned Foods (g) Fruits and vegetable products (h) Sugar & preserves (i) Beverages- alcoholic & non-alcoholic	25

Teaching-Learning	Chalk and board, Power point presentations, Class Discussions, Class activities / assignments, quiz
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Methodology		
Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to

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|----|---|
| 1. | Conduct adulteration test on a small scale basis, enterprise, and household level will gain knowledge of agencies working for it. |
|----|---|

Suggested References:

Sr.No.	References
1.	ISI Publications on above topics
2.	Association of Official Agricultural Chemists, & Horwitz, W. (1975). <i>Official methods of analysis</i> (Vol. 222). Washington, DC: Association of Official Analytical Chemists.
3.	Raghuramulu, N., Nair, K. M., & Kalyanasundaram, S. (Eds.). (1983). <i>A manual of laboratory techniques</i> . New Delhi: National Institute of Nutrition, Indian Council of Medical Research.
4.	Ramesh V Bhatt , (1992)Food safety, case studies. NIN

On-line resources to be used if available as reference material

On-line Resources

[Epgp.inflibnet.ac.in/Home](http://Epgp.inflibnet.ac.in/Home)

[Http://Old.fssai.gov.in/portals/o/pdf/draft-Manuals/Beverages](http://Old.fssai.gov.in/portals/o/pdf/draft-Manuals/Beverages) and Confectionary pdf.

[Http://www.fssai.gov.in](http://www.fssai.gov.in)

[Http://indianlegislation.com/laws-on](http://indianlegislation.com/laws-on) food adulteration

[Http://fssai.gov.in/dart/](http://fssai.gov.in/dart/).





Vikaspedia

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Bachelor of Science - Home Science  
(B.Sc.- H.Sc.) (Home Science) Semester (V)

Course Code	UH05EHSC55	Title of the Course	Basics of Research
Total Credits of the Course	02	Hours per Week	02

Course Objectives:	<ol style="list-style-type: none"><li>1. To develop understanding of the basic framework of research process.</li><li>2. To develop an understanding of various research designs and techniques.</li><li>3. To identify various sources of information for literature review and data collection.</li><li>4. To develop an understanding of the ethical dimensions of conducting research</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	Introduction to Research (a) Meaning ,purpose, approaches and types of research (b) Identification of problem (c) Collecting review and keywords (d) Research ethics and plagiarism	25
2.	Methods of data collection (a) Primary and Secondary data collection methods (b) Qualitative methods of data collection, (c) Survey methods of data collection (d) Sampling and types of sampling	25
3.	Processing and analysis of data (a) Measures of central Tendency (Mean, medium, Mode), (b) Measures of dispersion (range, mean deviation, standard deviation) (c) Graphical representation of Data.	25
4.	Preparing a small project and report writing ( Title page, Abstract, Introduction, Methodology, Results, Discussion, References, and Appendices)	25





Teaching-Learning Methodology	Lectures, active learning, reflective learning, written exercises, collaborative learning, problem solving, case studies, ICT enabled learning
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Evaluation Pattern		
Sr.No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Understand research terminology
2.	Identify the components of a literature review process
3.	Understand the research methodology
4.	Prepare a scientific report of the given project

Suggested References:	
Sr.No.	References
1.	Bernard, H.R. (2013). <i>Social Research Methods: Qualitative and Quantitative Approaches</i> . New Delhi: Sage publications.
2.	Best and Kahn. (2009). <i>Research Methodology</i> . New Delhi: PHI Learning Private Limited.
3.	Kothari, C.R. (2004). <i>Research Methodology (Methods and Techniques)</i> . New Delhi: New Age Publisher.
4.	Bandarkar, P.L., and Wilkinson, T.S. (2000). <i>Methodology and Techniques of Social Research</i> . Mumbai: Himalaya Publishing House.
5.	Dooley, D. (1995). <i>Strategies for Interpreting Qualitative Data</i> . California: Sage Publications.
6.	Gay, L.R. (1981). <i>Educational Research: Competencies for Analysis and Applications</i> . (2 <sup>nd</sup> ed.) Columbus: Charles E. Merrill Publishing Company and A. Bell and Howell Company.
7.	Ahuja, R.(2010). <i>Research Method</i> . New Delhi: Rawat Publication

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